Appendix B:

Previous Environmental Documentation

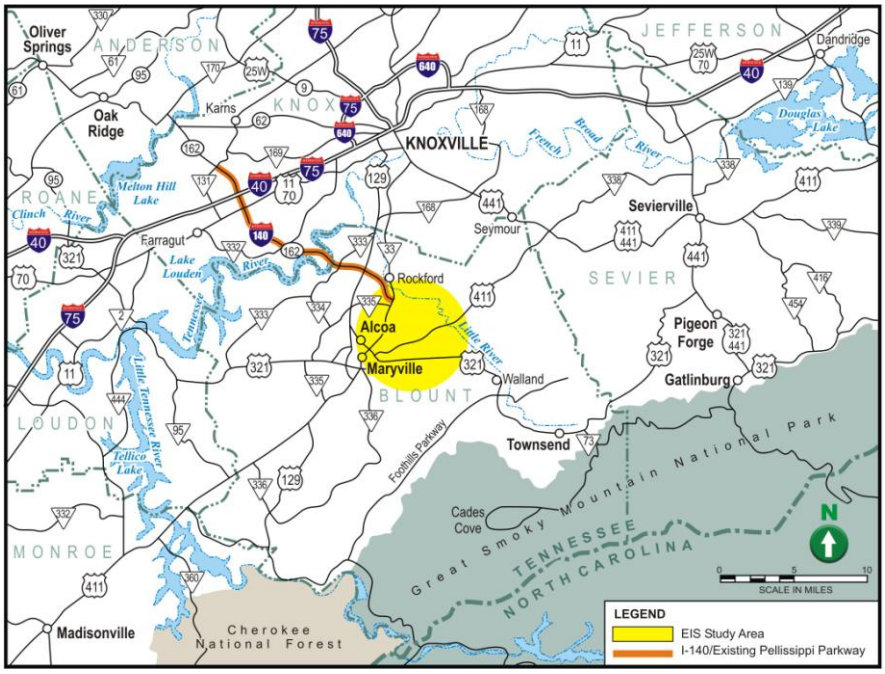
Draft Environmental Impact Statement (2010)
Reevaluation of Draft Environmental Impact Statement (2014)
Final Environmental Impact Statement (2015)
Record of Decision (2017)

DRAFT ENVIRONMENTAL IMPACT STATEMENT

PELLISSIPPI PARKWAY EXTENSION (SR 162)

From SR 33 (Old Knoxville Highway) to US 321/SR 73/Lamar Alexander Parkway

BLOUNT COUNTY, TENNESSEE



Submitted Pursuant To 42 U.S.C. 4332 (2) (c)

U.S. Department of Transportation, Federal Highway Administration
Tennessee Department of Transportation

Cooperating Agencies:
US Army Corps of Engineers
Tennessee Valley Authority

DRAFT ENVIRONMENTAL IMPACT STATEMENT

Pellissippi Parkway Extension (SR 162)

From SR 33 (Old Knoxville Highway) to
US 321/SR 73/Lamar Alexander Parkway
Blount County, Tennessee

Submitted Pursuant to the National Environmental Policy Act of 1969
42 USC 4332 (2) (c)

U.S. Department of Transportation, Federal Highway Administration,
Tennessee Department of Transportation

Cooperating Agencies
U.S. Army Corps of Engineers
Tennessee Valley Authority

14 APRIL 10
Date

Federal Highway Administration

04/16/10
Date

Tennessee Department of Transportation

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Tennessee Department of Transportation proposes to extend Pellissippi Parkway (SR 162) on new location from SR 33 to US 321/SR 73 in Blount County, Tennessee, a distance of approximately 4.5 miles.

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Acronyms

AADT	Average Annual Daily Traffic
ACHP	Advisory Council on Historic Preservation
ADA	Americans with Disabilities Act
APE	Area of Potential Effect
ARAP	Aquatic Resources Alteration Permit
BMPs	Best Management Practices
BRT	Bus Rapid Transit
CAPPE	Citizens Against Pellissippi Parkway
CEQ	Council on Environmental Quality
CERCLIS	Comprehensive Environmental Response, Compensation, and Liability Information System
CFR	Code of Federal Regulations
CIA	Community Impact Assessment
CO	Carbon Monoxide
CO_2	Carbon Dioxide
CPMVM	Crashes per Million Vehicle Miles
CSS	Context Sensitive Solutions
dB	Decibel
dBA	A-Weighted Decibel
DEIS	Draft Environmental Impact Statement
DOA	United States Department of the Army
DOD	United States Department of Defense
DOI	United States Department of Interior
EA	Environmental Assessment
EDR	Environmental Data Resources
EIS	Environmental Impact Statement

EJ	Environmental Justice
EPA	(United States) Environmental Protection Agency
ESA	Endangered Species Act
ETHRA	East Tennessee Human Resources Agency
FAA	Federal Aviation Administration
FCIR	Farmland Conversion Impact Rating
FEIS	Final Environmental Impact Statement
FEMA	Federal Emergency Management Agency
FERC	Federal Energy Regulatory Commission
FHWA	Federal Highway Administration
FONSI	Finding of No Significant Impact
FPPA	Farmland Protection Policy Act
GIS	Geographic Information Systems
GSMNP	Great Smoky Mountains National Park
HCM	Highway Capacity Model
HCS	Highway Capacity Software
HUD	United States Housing and Urban Development
IAC	Interagency Consultation (for PM2.5)
ICI	Indirect and Cumulative Impacts
ITE	Institute of Transportation Engineers
L&WCF	Land and Water Conservation Fund
Leq	Equivalent Continuous Noise Level
LOS	Level of Service
LRT	Light Rail Transit
LRTP	Long Range Transportation Plan
MOA	Memorandum of Agreement
MSAT	Mobile Source Air Toxics

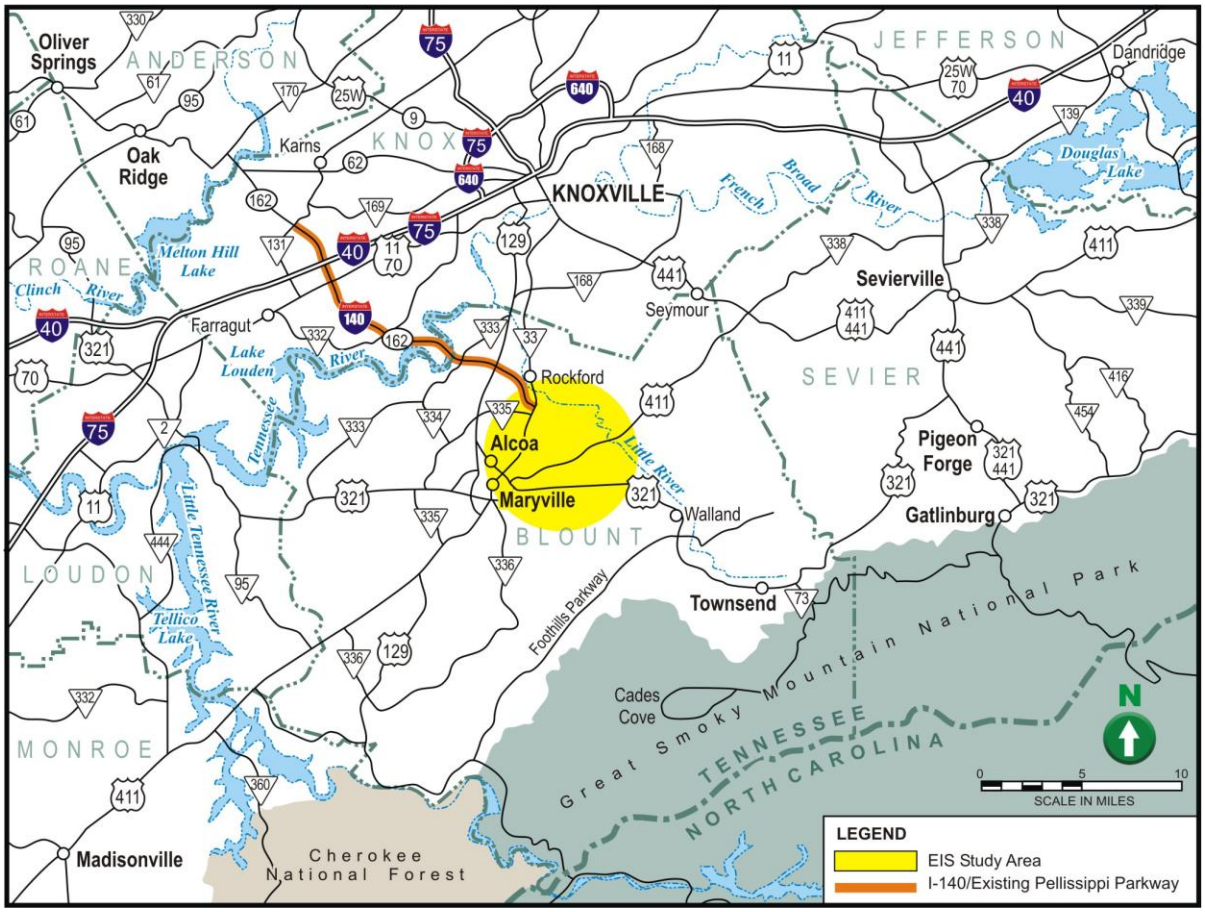
NAAQS	National Ambient Air Quality Standards
NAC	Noise Ambient Criteria
NAGPRA	Native American Grave Protection and Repatriation Act
NEPA	National Environmental Policy Act of 1969
NHPA	National Historic Preservation Act of 1966
NOI	Notice of Intent
NOx	Nitrogen Oxides
NPDES	National Pollutant Discharge Elimination System
NPS	National Park Service
NRCS	Natural Resources Conservation Service
NRHP	National Register of Historic Places
OHWM	Ordinary High Water Mark
PA	Programmatic Agreement
PM	Particulate Matter
PPE	Pellissippi Parkway Extension (proposed project)
ROD	Record of Decision
ROW	Right-of-Way
RTAP	Regional Transportation Alternatives Plan
SAFETEA-LU	Safe, Accountable, Flexible, Efficient Transportation Equity Act-A Legacy for Users of 2005
SHPO	State Historic Preservation Office
SSURGO	Soil Survey Geographic
SWPPP	Storm Water Pollution Prevention Plan
TCA	Tennessee Code Annotated
TDEC	Tennessee Department of Conservation
TDOA	Tennessee Division of Archaeology
TDOT	Tennessee Department of Transportation
TEA-21	Transportation Equity Act for the 21st Century

TESA	Tennessee Environmental Streamlining Agreement
THC	Tennessee Historical Commission
TIP	Transportation Improvement Program
TMP	Traffic Management Plan
TNCGP	Tennessee General NPDES Permit
TNM	Traffic Noise Model
TNM	Traffic Noise Model Version 2.5
TPO	(Knoxville Region) Transportation Planning Organization
TSM	Transportation System Management
TVA	Tennessee Valley Authority
TWRA	Tennessee Wildlife Resources Agency
UGB	Urban Growth Boundary
UIC	Underground Injection Control Program (TDEC)
US	United States
USACE	United States Army Corps of Engineers
USC	United States Code
USDA	United States Department of Agriculture
USDOI	United States Department of Interior
USDOT	United States Department of Transportation
USFWS	United States Fish & Wildlife Service
USGS	United States Geological Survey
UST	Underground Storage Tanks
VMT	Vehicle Miles Traveled
VOC	Volatile Organic Compounds

SUMMARY

The Tennessee Department of Transportation (TDOT), in cooperation with the Federal Highway Administration (FHWA), is proposing to extend and construct Pellissippi Parkway (State Route (SR) 162) from the current terminus of Pellissippi Parkway/Interstate 140 at SR 33 (Old Knoxville Highway) to US 321/SR 73 (Lamar Alexander Parkway) in Blount County. Figure S-1 illustrates the regional location of the proposed action.

Figure S-1. Regional Location



TDOT and FHWA are preparing an Environmental Impact Statement (EIS) in accordance with the National Environmental Policy Act (NEPA) to identify and evaluate the environmental effects of the proposed project and to identify measures to minimize harm.

Project Background

The concept of extending Pellissippi Parkway as a four-lane divided highway to US 321/SR 73 has been a part of the Knoxville regional transportation planning vision since 1977. At that time, Pellissippi Parkway was a four-lane divided, limited access highway extending from Oak Ridge Highway (SR 162) in Solway to I-40/I-75. In March 1977, local officials of Blount County, Maryville and Alcoa made the first of three requests to the Tennessee

General Assembly for funding to extend the parkway southeast to New Walland Highway (now US 321/SR 73/Lamar Alexander Parkway). In 1986, the Pellissippi Parkway extension was one of six Bicentennial Parkways included in the 1986 Urgent Highway Needs Plan enacted by the General Assembly. Pellissippi Parkway (designated as I-140) between I-40/I-75 and SR 33 was designed and built in four sections between 1987 and 2005. The completion of the parkway from SR 33 to US 321/SR 73 was included in the 1995 *Knoxville Region Long Range Transportation Plan Update* and has been included in the plan's subsequent updates, including the *Knoxville Regional Mobility Plan - 2009-2034*.

Purpose of the Proposed Action and Transportation Needs

The purpose of the proposed action is to develop and implement a transportation solution in the northern portion of Blount County, east of Alcoa and Maryville, that would:

- Enhance regional transportation system linkages;
- Improve circumferential mobility by providing travel options to the existing radial roadway network in Blount County, Maryville, and Alcoa;
- Enhance roadway safety on the roadway network, including the Maryville core; and
- Assist in achieving acceptable traffic flows (LOS) on the transportation network or not adversely affect traffic flows on existing transportation network.

In addition, the proposed transportation solution should support community goals and plans and minimize adverse impacts to neighborhoods and businesses, to farmlands, and to the natural and cultural environment.

The proposed action is intended to address identified transportation needs in the study area. These needs have been identified during the public and agency coordination activities conducted for the project between April 2006 and February 2008, as well as through prior planning efforts and review of current transportation and community plans. The transportation needs are:

- Limited mobility options in Blount County and Maryville due to the primarily radial roadway network that now exists;
- Poor local road network with substandard cross sections;
- Lack of a northwest/east connection east of Alcoa and Maryville to help serve:
  - Expanding residential development occurring in eastern Alcoa and Maryville and northern Blount County; and
  - Demand for trips between Maryville and Alcoa and the Knoxville area to the north as shown by high traffic volumes between the areas on US 129 (approximately 50,000 vehicles-per-day) and SR 33 (approximately 6,000 vehicles-per-day).
- Safety issues on roadways in the area, including roads in the Maryville core that through travelers between north and western portions of the county and the eastern portions of the county must pass. Numerous rear-end crashes and angle crashes have been reported due to high volumes of traffic and lack of access management along the roadways; and

- Traffic congestion and poor levels of service on the major arterial roads in the study area (US 129/Alcoa Highway, SR 33, US 411/SR 35 and US 321/SR 73).

Alternatives Considered

This DEIS evaluates the following alternatives:

- The **No-Build Alternative** would not extend Pellissippi Parkway east beyond its existing terminus at SR 33. Traffic would continue to enter and exit Pellissippi Parkway at the existing interchange with SR 33.
- **Build Alternatives A and C** would extend Pellissippi Parkway as a new four-lane divided roadway, with interchanges at SR-33, SR-35/US 411/SR 35, and SR-73/US 321 (Figure S-2). Alternatives A and C would share a common alignment from SR 33 to the vicinity of Brown School Road south of Wildwood Road. At that point Alternative C would diverge to the east of Alternative A. Alternative A would be approximately 4.38 miles in length, while Alternative C would be about 4.68 miles in length. The proposed right-of-way (ROW) for either alignment alternative would be a minimum of 300 feet and would be designed for traffic traveling 60 miles-per-hour.
- **Build Alternative D** would use portions of existing Sam Houston School Road, Peppermint Road, Hitch Road, and Helton Road (see Figure S-2). Under Alternative D, an improved two-lane roadway would be constructed using the existing roadway alignment where possible, while straightening curves and realigning intersections and using new locations to provide a continuous route with a 50 mile-per-hour design speed. The length of this corridor would be approximately 5.77 miles. The proposed typical section for the upgraded two-lane network would consist of one travel lane in each direction with wide outside shoulders, and a center turn lane at major intersections.

Transportation and Environmental Consequences

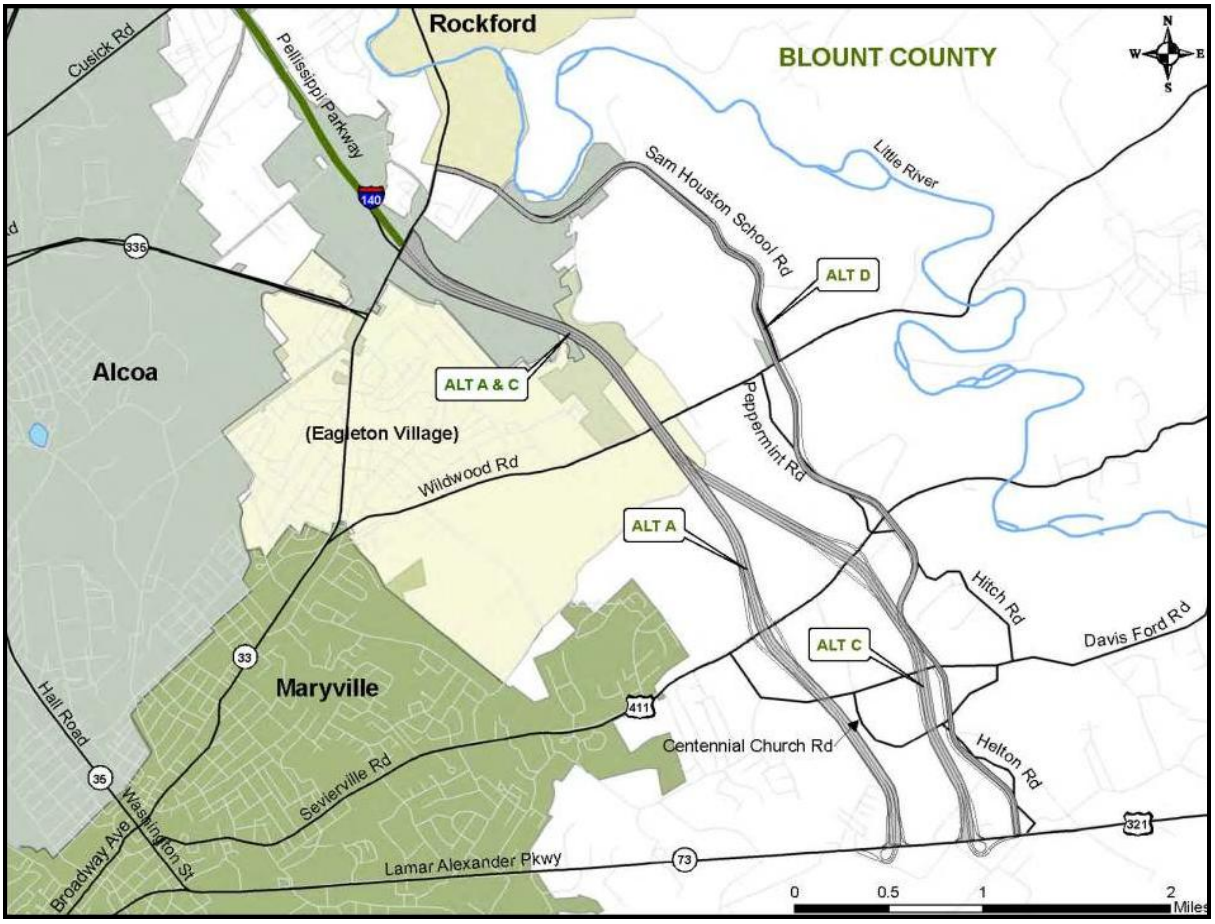
The No Build Alternative would have minimal environmental impacts, but it would not:

- Enhance the regional transportation system;
- Provide travel options to the existing radial roadway network in Blount County or address the need for circumferential mobility;
- Provide improved transportation services in the northeastern section of the county to serve the needs of existing land use trends;
- Address roadway safety within the existing roadway network, including the Maryville core;
- Be consistent with local and regional plans; and
- Address traffic congestion within the existing local transportation network by providing other travel options;

The primary benefits of the Build Alternatives would include:

- Completion of Pellissippi Parkway (SR 162) as a part of the regional network;
- Adding a non-radial route on the east side of Alcoa and Maryville, thus contributing to circumferential mobility;

Figure S-2. Build Alternatives



- Reducing the potential for crashes in the Maryville core by allowing through traffic to bypass the city core;
- Contributing to the implementation of local and regional community and transportation plans; and
- Creation of jobs related to the construction of the proposed project.

The primary adverse impacts of the Build Alternatives would be:

- Potential residential and business relocations;
- Acquisition of active farmland;
- Potential impacts to archaeological sites;
- Potential noise impacts to nearby residences;
- Impacts to streams, wetlands, and floodplains; and
- Temporary construction impacts.

Unresolved Issues

The project currently has two unresolved issues: archaeological sites and hazardous materials sites.

Build Alternatives A and C would each affect five archaeological sites that are potentially eligible for the National Register of Historic Places, while Alternative D would affect one potentially eligible archaeological site. Once a Preferred Alternative is selected, more detailed archaeological and engineering studies will be conducted to resolve these issues prior to approval of the Final Environmental Impact Statement (FEIS).

Build Alternatives A and D would each affect one potentially contaminated site, while Alternative C would affect two potentially contaminated sites. Once a Preferred Alternative is selected, a Phase II Contamination Assessment will be conducted on the site(s) within that alternative to verify or refute potential contamination concerns. The results will be reported in the FEIS.

Major Actions in the Project Vicinity

The cities of Alcoa and Maryville, and Blount and Knox counties are working together to facilitate the development of a major new mixed-use development, Pellissippi Place, at the northwest terminus of the proposed project. The new development is on a 450-acre tract of land where I-140 (Pellissippi Parkway) intersects with SR 33. The first phase of Pellissippi Place broke ground November 2008, with business and research elements projected to open in 2010 or 2011. Pellissippi Place is expected to create more than 7,300 new jobs by 2030, and is estimated to house 1.2 million square feet for research and development activities.

Permits

The following permits would be required from the US Army Corps of Engineers (USACE), the Tennessee Valley Authority (TVA), and the Tennessee Department of Environment and Conservation (TDEC) to implement any of the Build Alternatives:

- Individual or general Aquatic Resource Alteration Permits (ARAP) from the State of Tennessee;
- Individual or Nationwide Permit for impacts to waters of the United States (US), including wetlands and aquatic resources, from the USACE pursuant to Section 404 of the Clean Water Act. Other agencies such as the US Fish and Wildlife Service (USFWS) and the US Environmental Protection Agency (EPA) may be involved in the permitting process;
- TVA 26a permit; and
- National Pollutant Discharge Elimination System (NPDES) Stormwater General Permit for Construction Activities for construction projects disturbing one or more acres of land.

Agency Coordination and Public Involvement

The public, regulatory and resource agencies, and other stakeholders have been offered opportunities to provide input on the development of the purpose and need statement and the alternatives considered in the DEIS. A Notice of Intent to prepare an EIS was published on April 25, 2006. Early coordination packages were sent to approximately 58 agencies, officials, and organizations on May 1, 2006. The coordination package was distributed to other agencies, officials and/or organizations as they were identified beyond that date. Public scoping meetings were held on June 13, 2009, and public information meetings were held on October 25, 2007, and February 19, 2008 to explain the project and the NEPA process, and to invite public input on the purpose and need and alternatives to be considered.

TDOT developed the Tennessee Environmental Streamlining Agreement (TESA) for the environmental and regulatory coordination of major transportation projects, which applies to this project. Eight agencies concurred with TESA's Concurrent Point 1 (Purpose and Need of the Project and Study Area), and Concurrent Point 2 (Alternatives to be Evaluated in the DEIS). An agency field review was conducted to review preliminary alternatives prior to Concurrence Point 2. Eight agencies concurred with Concurrence Point 3 (Preliminary DEIS), and their comments were incorporated into the final DEIS prior to its release for public review and comment.

Input from the agency coordination and public meetings has been considered and used to refine the Build Alternatives and to provide additional information for use in the evaluation of environmental impacts.

A public hearing will be scheduled and advertised following the circulation of the DEIS for public comments. The public is encouraged to review the document, attend the hearing, and provide comments and input.

Following the conclusion of the public comment period for the DEIS, TDOT and FHWA will consider the comments received and will determine the Preferred Alternative. An FEIS will then be prepared to evaluate the Preferred Alternative and identify necessary mitigation measures.

SAFETEA-LU Statute of Limitations

The FHWA may publish a notice in the Federal Register, pursuant to 23 USC §139(l), indicating that one or more federal agencies have taken final action on permits, licenses, or approvals for the subject transportation project. If such notice is published, claims seeking judicial review of those federal agency actions will be barred unless such claims are filed within 180 days after the date of publication of the notice, or within such shorter time as is specified in the federal laws pursuant to which judicial review of the federal agency action is allowed. If no notice is published, then the time that is otherwise provided by the Federal laws governing such claims will apply.

Environmental Commitments

In addition to following the standard requirements of the TDOT *Standard Specifications for Road and Bridge Construction,* the following commitments are proposed:

- **Historic Resources.** If the project involves relocating the Anne Elizabeth Thompson Pershing historic marker (identified by the Tennessee Historical Commission as Blount (BT).2361) along Buchanan Road, it should be re-erected in a pull-off (instead of just by the road), which is safer and makes the marker more accessible to the public.
- **Archaeological Resources.** Pursuant to TCA 11-6-107(d), if human remains are identified, construction work must be halted, and the state archaeologist, the county coroner and local law enforcement must be contacted immediately. In addition, a representative of Native American tribes will be notified in the event they wish to be present.
- **Threatened and Endangered Species.** Removal of trees with loose bark and greater than six inches in diameter at breast height will occur only between October 15 and March 31 to avoid the summer roosting time for the Indiana bat.

  Erosion and siltation control best management practices will be stringently adhered to since several of the threatened or endangered species noted in this DEIS have been found downstream of the project.

  The contractor will be required to prepare and implement a revegetation plan that has been approved by TDOT. If an area of mixed forest must be permanently removed for temporary use (i.e., construction staging), it will be replaced with plantings of native tree species within the affected area. The contractor will adhere to project conditions identified in the Biological Assessment and agency concurrence letters.
- **Construction Impacts.** Construction activities will be confined within the permitted limits to prevent unnecessary disturbance of adjacent wetland areas.
- **Airport Coordination.** Since the northern half of the project area is within six miles of the McGhee Tyson Airport, once the selected alternative is under design, TDOT will inform the FAA Memphis Airports District Office of the nature of construction. TDOT will provide to the FAA detailed layout drawings and elevations along with the completed FAA Form 7460-1.
- **Design Features.** TDOT will follow a Context Sensitive Solutions (CSS) design process to develop the appropriate design features such as speed, median type and width, and right-of-way width. TDOT also will investigate the provision of bicycle and pedestrian facilities within the project right-of-way, as part of the CSS design process.
- **Karst Topography.** Special care should be taken to minimize unnecessary impacts to the habitats of the numerous karst features in the project study area, since many areas of the state rich with karst have not been surveyed for rare species.

1.0 INTRODUCTION

The Tennessee Department of Transportation (TDOT), in cooperation with the Federal Highway Administration (FHWA), proposes to extend Pellissippi Parkway (SR 162) from its current terminus at SR 33 (Old Knoxville Highway) to US 321/SR 73/Lamar Alexander Parkway in Blount County. Figure 1-1 illustrates the regional context of the project, and Figure 1-2 shows the study area. Since this project is proposed to be funded in part with federal transportation funds, the FHWA and TDOT are preparing an Environmental Impact Statement (EIS) in accordance with the National Environmental Policy Act of 1969 (NEPA) to identify and evaluate the environmental effects of the proposed project and to identify measures to minimize harm. The contents of the EIS conform to the guidelines of the Council on Environmental Quality (CEQ) and the FHWA.

Figure 1-1: Regional Location Map

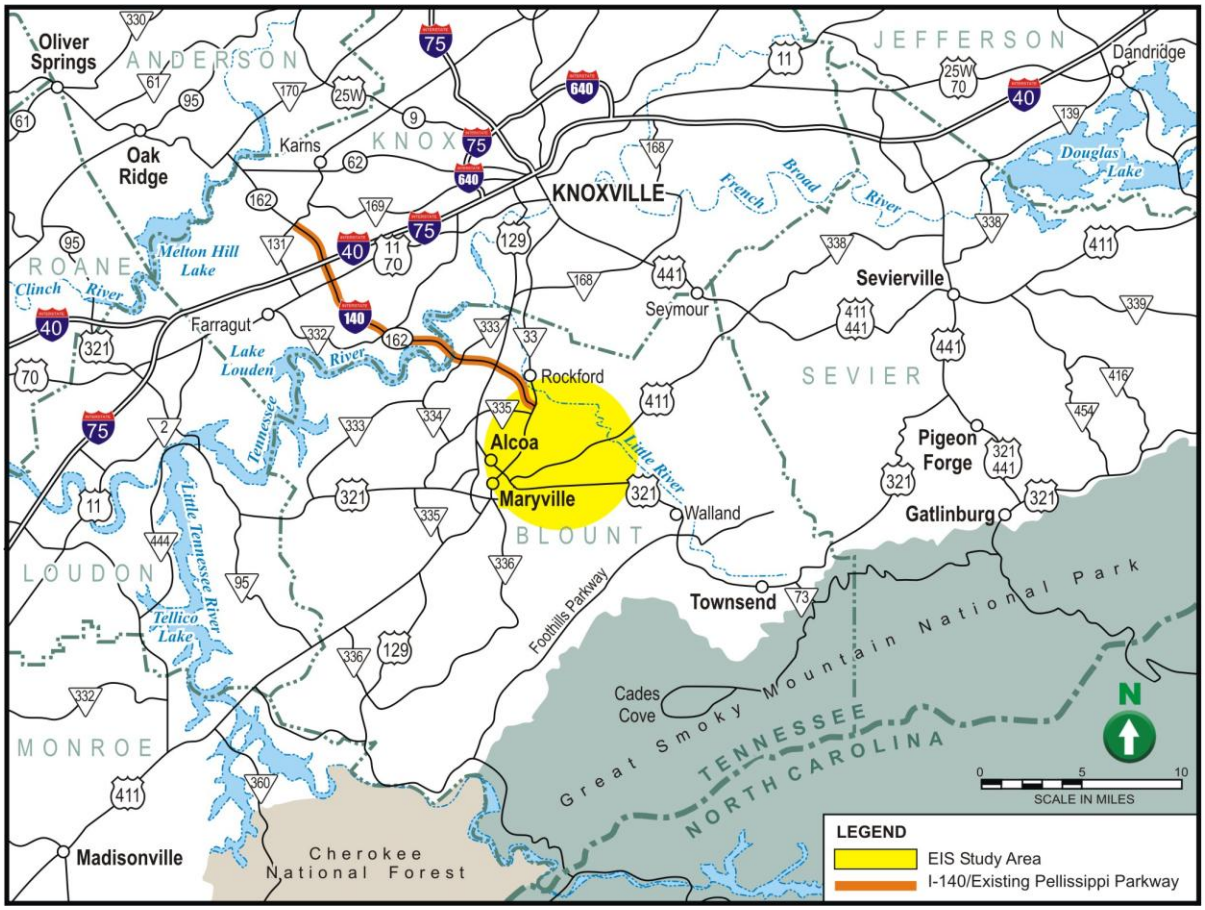
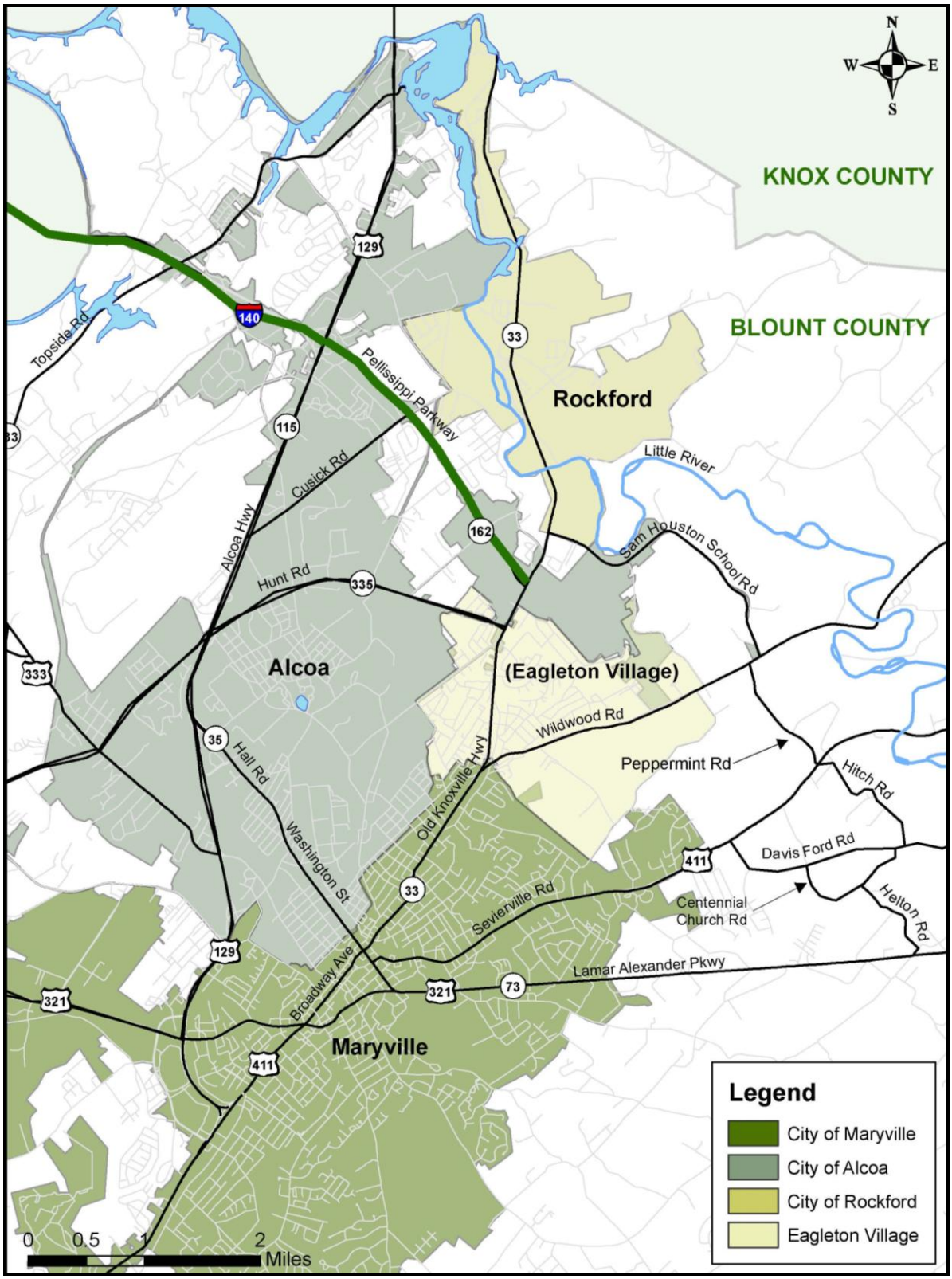


Figure 1-2: Study Area



Source: Blount County GIS, 2008.

Environmental Impact Statement (EIS)

NEPA requires that projects receiving federal funding that have the potential for significant adverse environmental effects be reviewed in an EIS. An EIS:

- Identifies alternative solutions that meet the project's purpose and need;
- Provides an assessment of the effects of the alternatives on the natural and built environment; and
- Identifies measures to avoid, minimize or mitigate negative effects.

1.1 Context of the Project

The study area (Figure 1-2) is in northern Blount County, encompassing portions of the cities of Maryville (the county seat), Alcoa and Rockford, and the unincorporated Eagleton Village.

Blount County is bordered on the north by Knox County, home to the majority of employment in the East Tennessee region. Interstate 40 (I-40) runs through Knox County, and SR 115/US 129 (Alcoa Highway) and SR 33 are major roadways connecting Alcoa and Maryville with Knox County. Blount County's neighbor to the east is Sevier County, the fastest growing county in East Tennessee, while Blount County is the region's second fastest growing county.

Blount County is bounded on the west by a chain of lakes created by the Tennessee Valley Authority (TVA). The Little River, flowing out of the Great Smoky Mountains, winds its way across the county and through the study area before flowing into Fort Loudon Lake on the west edge of Blount County. The southeastern portion of Blount County contains part of the Great Smoky Mountains National Park (GSMNP), the most visited park in the National Park System, with about 10 million visitors annually. Cades Cove, the single-most visited destination in the GSMNP, lies within Blount County. The city of Townsend on US 321/SR 73 in eastern Blount County is the gateway to this portion of the GSMNP.

The study area is generally bounded on the west by US 129 (SR 115/Alcoa Highway), on the south by US 321/SR 73, and on the east and northeast by the Little River. The western third of the study area is urbanized and includes portions of the cities of Maryville, Alcoa, and Rockford. This portion of the study area is almost completely built out with commercial uses (downtown commercial, large shopping or retail developments, and highway commercial); industrial facilities (such as the Alcoa aluminum manufacturing facility); transportation uses (highways, rail lines, and McGhee Tyson Airport); institutional uses (such as Maryville College, city and county governmental offices, and Blount Memorial Hospital); and scattered individual homes and residential subdivisions.

The middle third of the study area (generally centered on SR 33) is mostly residential (with primarily low- and medium-density subdivisions); highway commercial activities are concentrated along the major roadways. The eastern third of the study area consists of lower density, newer residential developments, scattered older residential on larger lots, open land, fields, and active farmland. Numerous small streams that flow into the Little River dissect the entire study area.

Blount County has experienced substantial population growth in recent years, and that growth is expected to continue, resulting in substantial increases in housing units. Since the 1950s, residential development has spread beyond the core cities into the countryside. Substantial growth has been moving east from US 129 past SR 33, and moving south from Wildwood Road toward the southern city limits of Maryville.

The study area is of sufficient size to include consideration for a reasonable range of alternatives, including No-Build, Transportation System Management (TSM), Transit, and Build Alternatives.

1.2 Project History

1.2.1 Initial Planning for Pellissippi Parkway

In 1977, Pellissippi Parkway was a four-lane divided, limited access highway extending from Oak Ridge Highway (SR 162) in Solway to I-40/I-75, connecting the cities of Farragut and Knoxville. In March 1977, local officials of Blount County, Maryville and Alcoa made the first of three requests to the Tennessee General Assembly for funding to extend the parkway southeast to New Walland Highway (now US 321/SR 73). In 1986, the Pellissippi Parkway extension was one of six Bicentennial Parkways included in the 1986 Urgent Highway Needs Plan enacted by the General Assembly. The plan described this project as a 19.5-mile extension of Pellissippi Parkway from I-40 in western Knox County to US 321/SR 73 in eastern Blount County; the plan identified the extension as I-140.

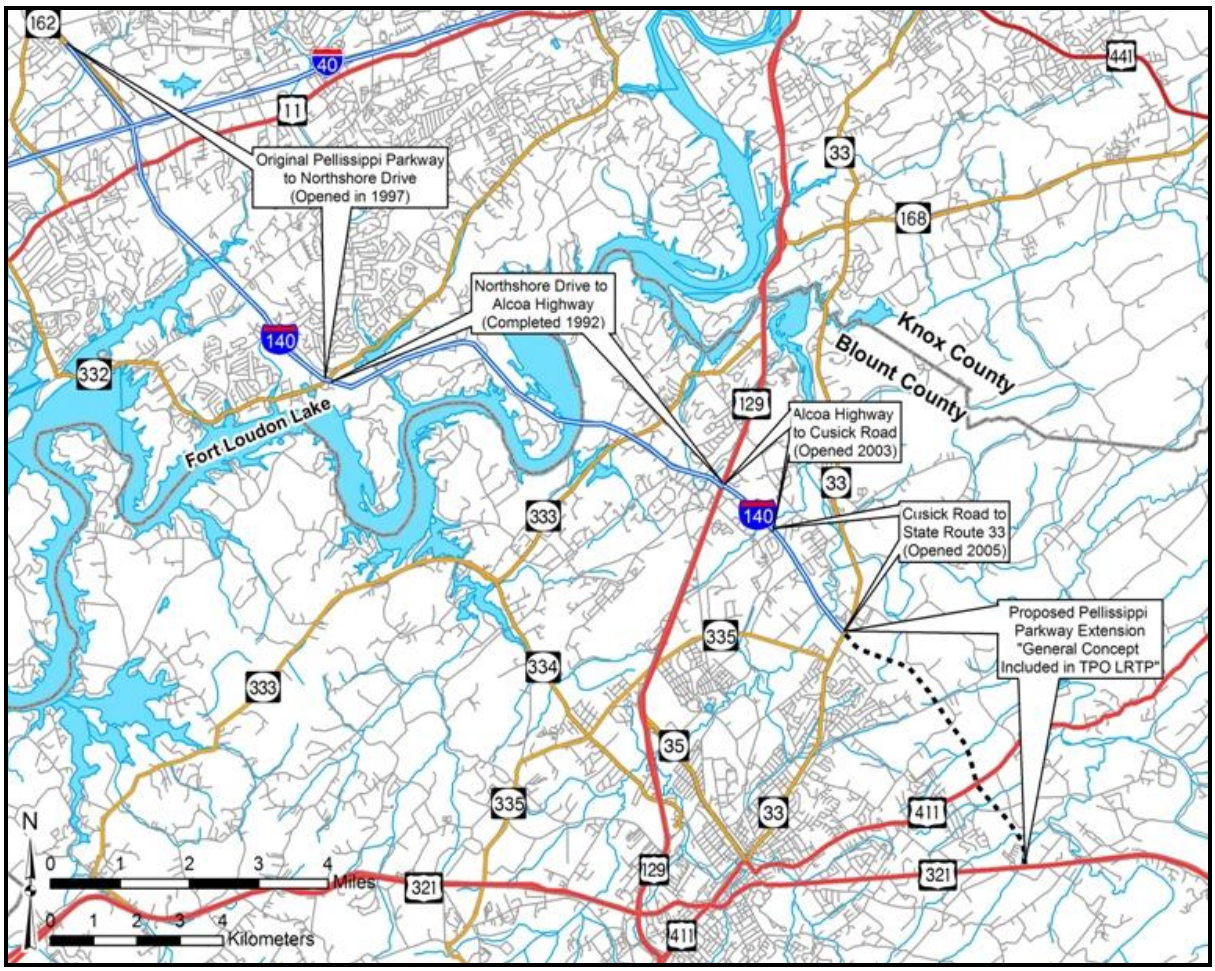
Pellissippi Parkway (designated as I-140) between I-40/I-75 and SR 33 was designed and built in four sections between 1987 and 2005. The section between Northshore Drive in Knox County and US 129 (Alcoa Highway) in Blount County was completed in 1992. The next section, extending the original Pellissippi Parkway to Northshore Drive with a new interchange at I-40/I-75, opened in 1997. The section between US 129 (Alcoa Highway) and Cusick Road opened in 2003, and the section between Cusick Road and SR 33 opened in late 2005. The section of Pellissippi Parkway between SR 33 and US 321/SR 73 is the remaining undeveloped portion of the parkway that was identified in the state's 1986 Urgent Highway Needs Plan.

Figure 1-3 illustrates the sections of Pellissippi Parkway that have been completed, as well as the remaining section envisioned in the 1986 Plan.

The proposed extension of Pellissippi Parkway from SR 33 to US 321/SR 73 was included in the Knoxville Urban Area Transportation Planning Organization's (TPO) 1995 update of the Long Range Transportation Plan (LRTP). The project has been included in the subsequent updates of the region's long-range transportation plan and is listed as Project Number 232 in the current *2009 to 2034 Knoxville Regional Mobility Plan*.

The six-year federal transportation legislation (Transportation Equity Act for the 21st Century, or TEA-21), passed in 1998, included the extension of Pellissippi Parkway between SR 33 and US 321/SR 73 in the High Priority Projects Program (Section 106, Subtitle F). TEA-21 authorized $8.85 million for Fiscal Years 1998 through 2003 to implement the project.

Figure 1-3: Sections of Pellissippi Parkway Completed



Source: Blount County GIS, 2009.

1.2.2 Prior NEPA Evaluation

In January 1999, TDOT initiated a NEPA-level Environmental Assessment (EA) to evaluate the effects of alternatives for the project. The FHWA approved the EA in October 2001, and TDOT held a public hearing in November 2001. In April 2002, the FHWA issued a Finding of No Significant Impact (FONSI), and property acquisition was to have begun in June 2002.

In June 2002, the Citizens Against the Pellissippi Parkway Extension (CAPPE) filed suit against the USDOT, FHWA, and TDOT in the US District Court for the Middle District of Tennessee. The lawsuit alleged that the FHWA should have prepared an EIS in compliance with NEPA, and that the FHWA failed to document properly the decision not to prepare an EIS. In July 2002, the District Court imposed a preliminary injunction on planning, financing, contracting, land acquisition, and construction of the project. The FHWA then withdrew the FONSI and sought a voluntary remand to allow the agency to reconsider its decision, but the District Court denied that motion.

Following an appeal by the FHWA, in August 2004, the District Court issued an order modifying its previous injunction. That order allowed the FHWA and TDOT to reconsider and reissue the relevant environmental documents. In September 2004, TDOT announced that the next phase of development for the proposed Pellissippi Parkway Extension project would be the preparation of an EIS.

1.2.3 Current NEPA Evaluation

On April 17, 2006, in conformance with the requirements of Section 6002 of the Safe, Accountable, Flexible, Efficient Transportation Equity Act – A Legacy for Users of 2005 (SAFETEA-LU), TDOT formally notified the FHWA of its intent to initiate the NEPA EIS process for this project.

A Notice of Intent (NOI) to prepare an EIS for the project was published in the *Federal Register* on April 25, 2006.

On June 13, 2006, TDOT held a local government briefing and two public scoping meetings in the study area. At those meetings, TDOT updated the public on the status of the project since the last public hearing on the EA. The public was asked to provide input on the transportation needs for the project, the range of alternatives that should be considered, and issues of concern to be addressed in the new EIS.

On October 25, 2007, TDOT held a public information workshop in the study area. The purpose of this meeting was to provide an update of the EIS study; present the revised Purpose and Need Statement for public comment; and seek public input on the alternatives to be studied in the Draft EIS (DEIS). TDOT held another public meeting on the project on February 19, 2008, to encourage additional comments on alternatives to be evaluated in the DEIS.

1.3 Purpose of the Project

The proposed project is intended to address the following transportation needs in the study area, which were identified during the public and agency coordination activities conducted between April 2006 and November 2007, as well as through prior planning efforts and review of current transportation and community plans:

- Limited mobility options in Blount County and Maryville because of the county's primarily radial roadway network;
- Poor local road network with substandard cross sections (with narrow lanes, sharp curves and insufficient shoulders) in the eastern portion of the county;
- Lack of a northwest/east connection east of Alcoa and Maryville to help serve:
  - Expanding residential development occurring in eastern Alcoa and Maryville and northeastern Blount County; and
  - Demand for trips between Maryville and Alcoa and the Knoxville area to the north as shown by high traffic volumes between the areas on US 129 (approximately 50,000 vehicles-per-day) and SR 33 (approximately 6,000 vehicles-per-day).

- Safety issues on roadways in the area, including roads in the Maryville core. People traveling between the north and western portions of the county and the eastern portions of the county must pass through the Maryville core. Numerous rear-end crashes and angle crashes have been reported, due to high volumes of traffic and lack of access management along the roadways; and
- Traffic congestion and poor levels of service (LOS) on major arterial roads in the study area (in particular US 129, SR 33, and US 411).

Based on input received from local officials and the public, and reviews of previous planning studies and current plans, the following objectives were also developed for this study:

- Provide travel options for motorists to the County's existing radial roadway network;
- Enhance the regional transportation system linkages;
- Enhance roadway safety on the county's roadway network, including the Maryville core; and
- Assist in achieving acceptable traffic flows (LOS) on the transportation network or not adversely affect traffic flows on the existing transportation network.

Other objectives include:

- Support community goals and plans;
- Minimize adverse impacts to neighborhoods and businesses;
- Minimize adverse impacts to farmlands; and
- Minimize adverse impacts to the natural and cultural environment.

1.4 Transportation Needs to be Addressed

The arterial road network in Blount County is essentially a radial network, extending out from the center of Maryville. The city of Maryville's *Urban Growth Strategy* (2005) states, "Maryville currently has a deficient circumferential road system." The existing transportation system requires travelers moving between the northwestern portion of Blount County and the eastern portions of the county to use a route that includes portions of US 129, Broadway Avenue (SR 33) and/or Hall Road (SR 35)/Washington Street (SR 35/US 321/SR 73), and US 321/SR 73. This substantial movement of traffic must travel through the Maryville core.

1.4.1 Daily Traffic Volumes

As a part of this study, TDOT conducted a traffic forecast study to provide objective estimates of future traffic volumes with and without the proposed Pellissippi Parkway Extension. The traffic forecasting process utilized existing (2006) traffic count data and future (2014 and 2030) volumes projected by the Knoxville regional travel demand model, then projected the traffic for the base year (2015) and the design year (2035) of the proposed project.

The *SR 162 (Pellissippi Parkway Extension) Traffic Forecast Study* defines the process followed to produce the 2015 and 2035 traffic forecasts for the roadways in the study area.

Additional forecasts for minor routes in the study area are contained in the *SR 162 (Pellissippi Parkway Extension) Traffic Operations Technical Report*. These reports are included in Volume 2: Technical Studies, which is on file with the TDOT Environmental Division office.

Base Year versus Design Year

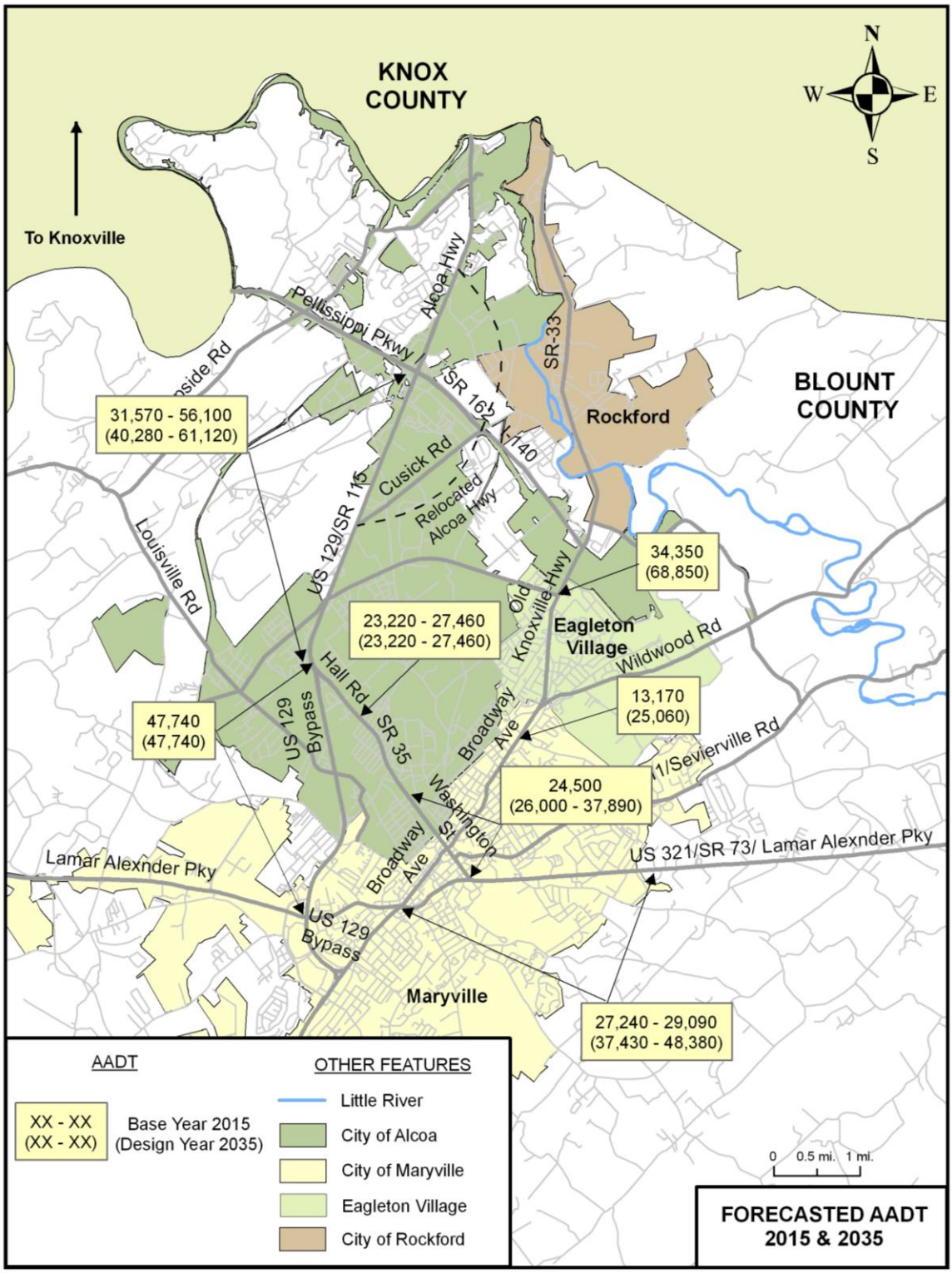
The **Base Year** of a project is generally the year following the expected opening of the roadway to traffic. For this project, the base year is expected to be **2015**.

The **Design Year** of a project is generally 20 years after the roadway opens, assuming the roadway is designed to function well (i.e., accommodate traffic demand) for 20 years into the future. The design year for this project is **2035**.

The average annual daily traffic (AADT) forecasts for the 2015 base year and for the 2035 design year without the proposed project are illustrated in Figure 1-4 and summarized below.

- Alcoa Highway (US 129) between Pellissippi Parkway and SR 35 (Hall Road) would range between 31,570 and 56,100 AADT in 2015, with the heavier traffic occurring south of Hunt Road (SR 335). By 2035, AADT would range between 40,280 and 61,120. These AADTs represent an increase of 28 percent north of SR 335, and a nine percent increase south of SR 335 along Alcoa Highway.
- Alcoa Highway Bypass (US 129) between SR 35 and US 321/SR 73 has an AADT of 47,740 in both the base and design years.
- Hall Road (SR 35) has a base year AADT of 23,220 to 27,460, with no change anticipated to 2035 because of the built-out nature of development along the road.
- Washington Street (SR 35) between SR 33 and US 321/SR 73 has AADTs in the base year of about 24,500. By 2035, the traffic volumes would be about 26,000 AADT west of US 411 (Sevierville Road). East of SR 411, the AADT would grow to 37,890 (an almost 54 percent increase).
- US 321/SR 73 has base year AADTs ranging from 27,240 near the Blount Memorial Hospital to 29,090 between the Alcoa Bypass and SR 33 (Broadway Avenue). By 2035, the AADTs will range between 37,430 and 48,380 between the Alcoa Bypass and the Blount Memorial Hospital (increases of 28 to 42 percent over 2015 volumes).
- Broadway Avenue (SR 33) between Wildwood Road and Washington Street (SR 35) has an AADT of 13,170 in the base year, increasing by 90 percent to 25,060 AADT in 2035.
- Old Knoxville Highway (SR 33 north of Wildwood Road) between Hunt Road (SR 335) and Pellissippi Parkway (I-140) would have a substantially higher 2015 AADT than segments south or north of it because of the influence of the Pellissippi Place collaborative research and development park currently being developed east of SR 33 at the intersection with Pellissippi Parkway. The AADT on SR 33 for the base year would be 34,350, and by 2035, the AADT on that segment would double to 65,850.

Figure 1-4: Average Annual Daily Traffic Forecasts (2015 and 2035, No-Build Scenario)



Note: The Relocated Alcoa Highway is shown for conceptual purposes only; no specific alignment or location has been determined.

1.4.1.1 Travel between Study Area and Knox County

Western Knox County and Oak Ridge are major trip attractors for Blount County because of the employment in these areas. In order to analyze the extent to which travel between Blount County and Knox County/Oak Ridge occurs, license plate survey gathered for this study in 2006 and 2007 was examined to help quantify the origin and destination of traffic entering the study area on each major radial route. Survey locations along US 129 and SR 33 north of Pellissippi Parkway and the survey locations in the east along SR 35 and US 321/SR 73 were of particular interest for the determination of travel between Knox County/Oak Ridge and Blount County.

The results of the license plate survey indicated that approximately four to six percent of the traffic originating in the east of Blount County traveled through the survey location at US 129, and approximately two percent traveled to SR 33.

To determine actual traffic volumes traveling back and forth between Maryville/Alcoa and the Knoxville area, TDOT conducted a review of historic traffic counts. TDOT Project Planning Division provided historic traffic counts for the period 1999–2008 for count stations located in the north (close to the Knoxville area) and south in Blount County. Generally, there was little fluctuation in traffic volumes over the 10-year period, with traffic on US 129 leveling off at 50,000 vehicles per day and traffic on SR 33 at 6,000 vehicles per day between the count stations.

Based on the license plate survey, it could be expected that six percent (3,000) of the 50,000 vehicles on US 129 could come from east of Blount County as could two percent (120) of the 6,000 vehicles on SR 33.

Figure 1-5 illustrates the most recent (2008) traffic volumes and illustrates the locations at which license plate surveys were conducted.

1.4.1.2 Note on Recent Trends in Vehicle Miles Traveled

A review of national trends in vehicle miles traveled (VMT), according to FHWA data, indicates a slight decline in VMT beginning in 2007 and continuing through the present day (2009). Spikes in gas prices in 2007 through late 2008, particularly the summer of 2008 in which gas prices topped $4.00 or more per gallon and the downturn in the economy in 2008, likely contributed to this reduction in travel. However, the changes in VMT have not been a long-term trend, and given the fluctuating state of the current economy, this will likely change prior to the ultimate construction of the proposed project. In fact, based on the most recent data available from the FHWA, comparisons in travel between February 2008 and February 2009 indicate that the VMT decreased by only 0.9 percent and by only 0.7 percent in Tennessee's South Gulf Region.

It is inconclusive to assume that national data directly applies to a localized region. Trip purposes and trends must be evaluated at the local level since, while the national average VMT are expected to decrease, the VMT for this particular area are expected to increase.

The Knoxville regional travel demand model provides VMT for the model years of 2005 and 2030. To determine VMT for the year 2035, a growth percentage based on the model's 2005-2030 trend was determined and applied to the 2030 number in order to project growth

out to the year 2035. For this study area and Pellissippi Parkway, the VMT increases are shown in Table 1-1.

Figure 1-5: Travel Volumes between Knox and Blount Counties

Source: PB Americas, June 2009.

Table 1-1: Vehicle Miles Traveled (2005, 2030 and 2035)

Route	Units	Existing (2005)	2030 No-Build	2035 No-Build
All facilities in study area	Vehicle-Miles	2,540,658	4,119,455	4,435,214
Pellissippi Parkway	Vehicle-Miles	142,344	242,880	262,987

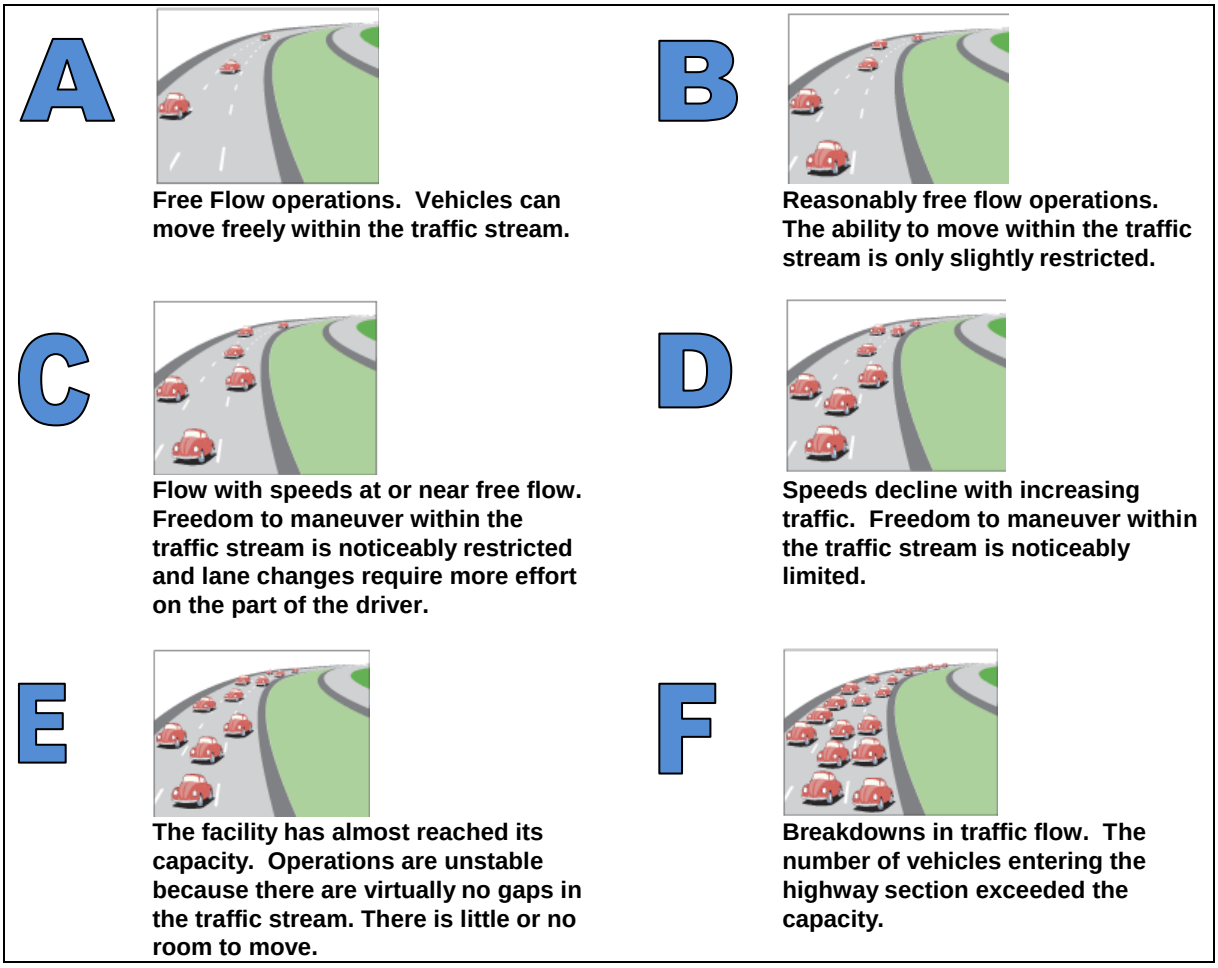
The general trend in discretionary travel is that people are staying closer to home for vacation trips. With a major recreational area (GSMNP) near Maryville/Alcoa, the demand for travel through this area is expected to increase, with many people choosing this location over distant vacation spots. Therefore, despite the recent national decline in VMT, based on localized trends and the possibility of increased local travel to nearby vacation destinations, trip demand may well increase in and around the Maryville/Alcoa area.

1.4.2 Level of Service

The *SR 162 (Pellissippi Parkway Extension) Traffic Operations Technical Report* contains a detailed description and supporting analysis of traffic operations for the study area, which is on file with the TDOT Environmental Division office. The findings of the level of service (LOS) analysis are summarized in this section.

LOS is a qualitative measure of expected traffic conflicts, delay, driver discomfort, and congestion. LOS measurements rate how well traffic operates on a given transportation facility using the letters A through F, with the letter A representing the least delayed conditions, and the letter F representing the most delayed or congested conditions. The letter grades are assigned based on the levels of delay that drivers experience. According to the American Association of State Highway and Transportation Officials (AASHTO's) *Geometric Design of Highways and Streets* reference manual, LOS D is generally considered to be the lowest threshold for desirable traffic operations used for freeways and arterial roadways in urban and suburban areas (such as the study area). LOS E and LOS F are considered undesirable levels of traffic operations in those areas. Figure 1-6 illustrates what traffic would look like at each LOS category.

Figure 1-6: Illustration of Corridor Level of Service



An LOS analysis was conducted for the project to determine how well traffic currently operates and how well it would operate on the existing road network system in 2015 and 2035 if Pellissippi Parkway were not extended through this portion of Blount County (that is, under the No-Build condition.)

Table 1-2 summarizes the results of this analysis for each roadway segment, and Figure 1-7 through Figure 1-9 show the results graphically.

Table 1-2: Traffic Level of Service (2006, 2015 and 2035)

Route	Section	Begin	End	Existing (2006)	2015 No-Build	2035 No-Build
Wildwood Road	1	SR 33	End of Study Area	C	C	C
Pellissippi Parkway	1	Topside Rd	Alcoa Hwy/US 129	C	D	F
	2	Alcoa Hwy/US 129	Relocated Alcoa Highway (proposed)	A	B	D
	3	Relocated Alcoa Highway (proposed)	SR 33	A	C	F
Lamar Alexander Parkway (US 321/SR 73)	1	Beginning of Study Area	Alcoa Hwy/US 129	B	C	D
	2	Alcoa Hwy/US 129	SR 33	C	C	D
	3	SR 33	Jones Ave			
	4	Jones Ave	Merritt Rd	B	C	D
	5	Merritt Rd	Tuckaleechee Pk	A	B	C
	6	Tuckaleechee Pk	Melrose Station Rd	A	B	C
Hall Road (SR 35)	1	Alcoa Hwy/US 129	Bessemer St	B	B	B
	2	Bessemer St	SR 33			
Washington Street (SR 35)	1	SR 33	US 411			
	2	US 411	US 321/SR 73			
US 411 (SR 35)	1	Washington St (SR 35)	Westfield Dr			
	2	Westfield Dr	Near Peppermint Rd	E	E	E
	3	Near Peppermint Rd	End of Study Area	E	E	E
E. Broadway/Old Knoxville Highway (SR 33)	1	Beginning of Study Area	Montgomery Lane	C	D	E
	2	Montgomery Lane	Hall Rd			
	3	Hall Rd	Wildwood Rd			
	4	Wildwood Rd	Hunt Rd			
	5	Hunt Rd	Williams Mill R			
	6	Williams Mill Rd	County Line	E	F	F
Alcoa Highway (SR 115/ US 129)	1	Broadway Av	US 321/SR 73	C	D	D
	2	US 321/SR 73	Hall Rd	C	D	D
	3	Hall Rd	Hunt Rd	E	E	E
	4	Hunt Rd	Pellissippi Pky	E	C	D
	5	Pellissippi Pky	County Line	D	B	C

Table 1-2: Traffic Level of Service (2006, 2015 and 2035) (cont.)

Route	Section	Begin	End	Existing (2006)	2015 No-Build	2035 No-Build
Sam Houston School Road	1	SR 33	North of Wildwood Road	E	*	*
	2	North of Wildwood Road	Wildwood Road	E	*	*
Peppermint Road	1	Wildwood Road	Sevierville Road	E	*	*
Hitch Road	1	Sevierville Road	North of Lamar Alexander Parkway	D	*	*
Helton Road	1	North of US 321/SR 73	US 321/SR 73	C	*	*
Proposed Relocated Alcoa Highway	1	Alcoa Highway/ US 129	Pellissippi Pky	**	B	B
	2	Pellissippi Pky	Alcoa Highway/US 129	**	C	D

Source: PB Americas, *SR 162 (Pellissippi Parkway Extension) Traffic Operations Technical Report*, 2008.
Shaded: Speed <45 mph, Not Analyzed
* The No-Build volumes for the local roads were not forecasted out to the future base year and design year for this study.
** Proposed Relocated Alcoa Highway is still in the planning phase, thus no existing LOS could be determined.

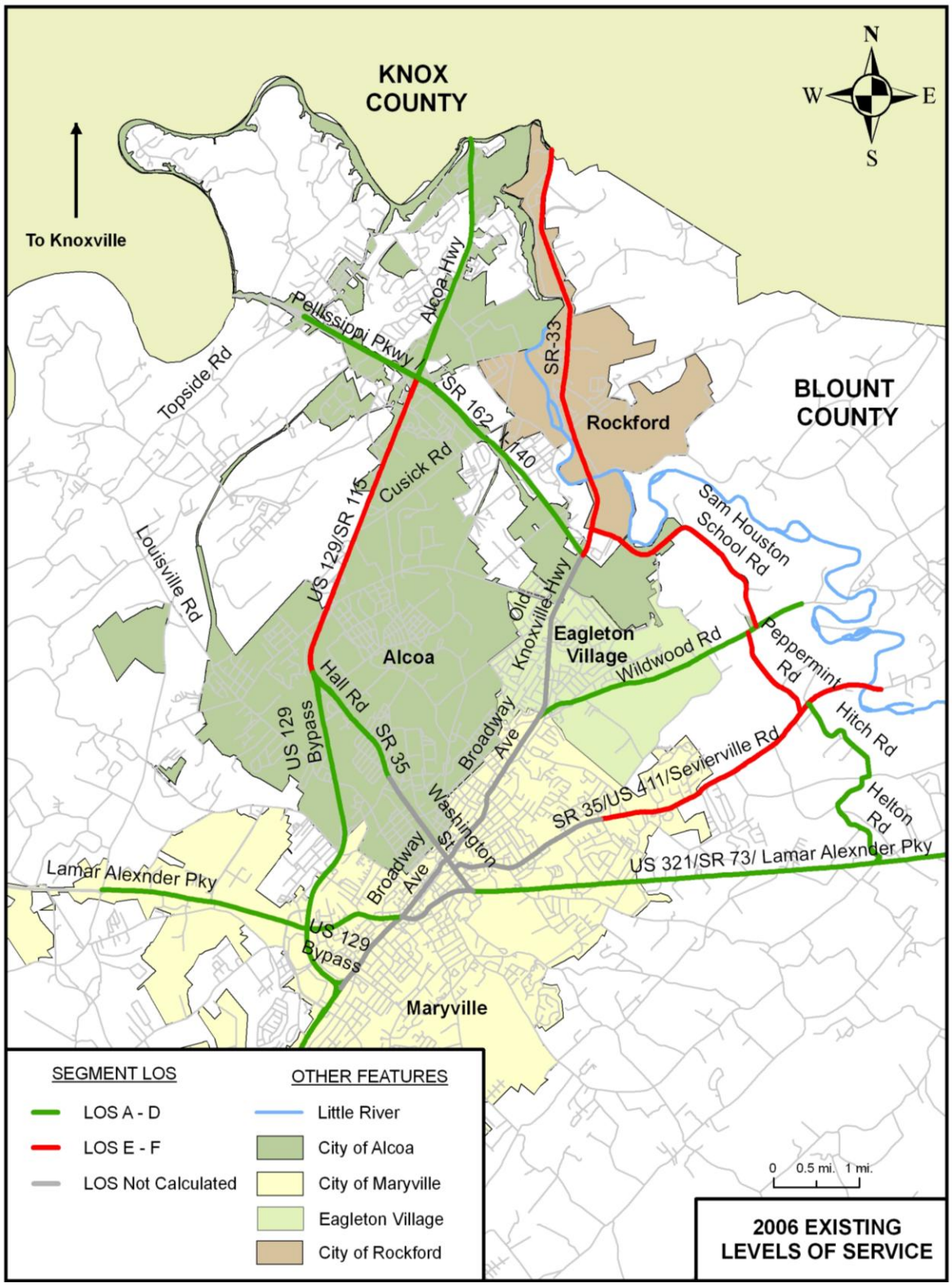
Currently, sections of US 411 (Sevierville Highway), SR 33 (Old Knoxville Highway), and US 129 (Alcoa Highway) operate at LOS E, below the desirable threshold. The local roads of Sam Houston School Road and Peppermint Road also operate at a LOS E, which is below the desirable threshold. The rest of the roadway segments in the study area operate at desirable levels of service (A through D).

The No-Build Alternative generally involves few changes, other than routine maintenance, to the area's existing roadways. The No-Build Alternative would, however, include Relocated Alcoa Highway (also referred to as Alcoa Highway Bypass), which would extend east of the existing Alcoa Highway (US 129), generally between Cusick Road and south of the Blount/Knox County line. Relocated Alcoa Highway is projected to be in place sometime between 2015 and 2024, and is shown in Figure 1-8 and Figure 1-9 as a part of the roadway network in 2015 and 2035.

By 2015, under the No-Build Alternative, most roadway sections would show a decline in traffic operations, but remain at or above the minimum desirable level (LOS D). Those segments that are currently operating below the desirable level would continue to operate at LOS E, with two exceptions. Those exceptions would be:

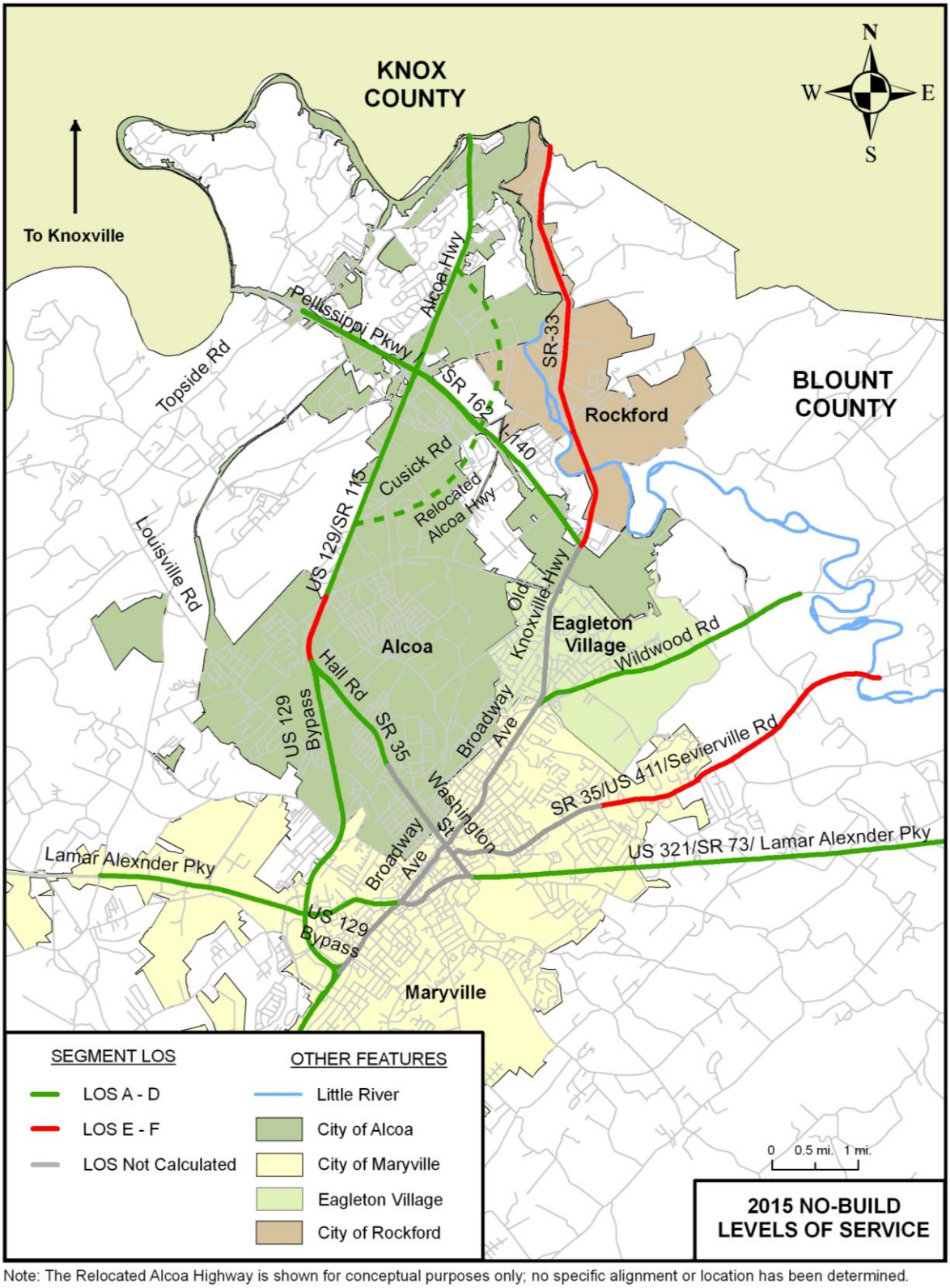
- SR 33 from the Pellissippi Parkway intersection north to the Knox County line would decline from LOS E to LOS F; and
- The section of Alcoa Highway between Hunt Road and Pellissippi Parkway would improve from LOS E to LOS C, likely because of Relocated Alcoa Highway being in place.

Figure 1-7: Existing Levels of Service



Source: PB Americas, *SR 162 (Pellissippi Parkway Extension) Traffic Operations Technical Report*, 2008.

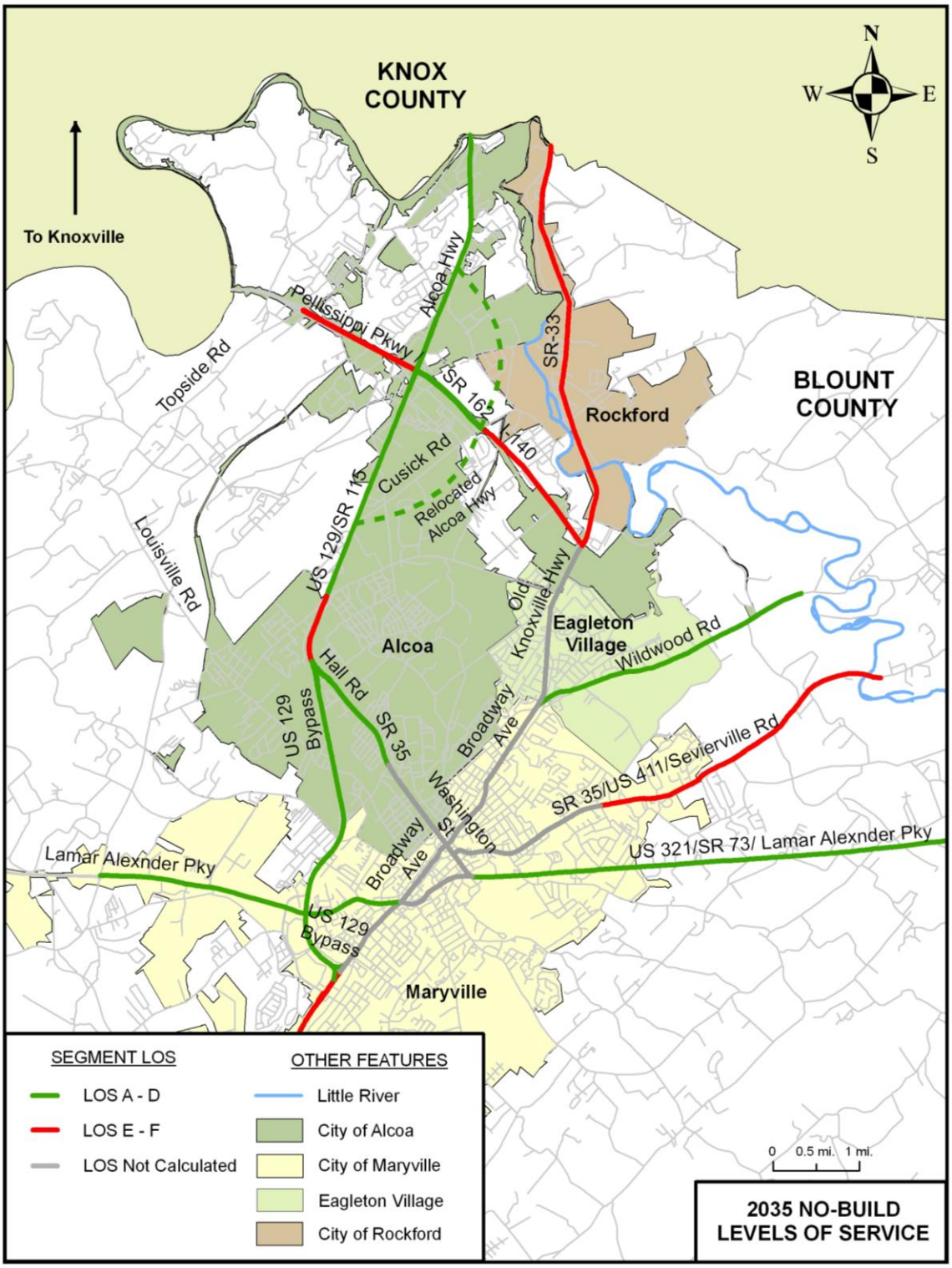
Figure 1-8: No-Build Levels of Service (2015)



Note: The Relocated Alcoa Highway is shown for conceptual purposes only; no specific alignment or location has been determined.

Source: PB Americas, *SR 162 (Pellissippi Parkway Extension) Traffic Operations Technical Report*, 2008.

Figure 1-9: No-Build Levels of Service (2035)



Note: The Relocated Alcoa Highway is shown for conceptual purposes only; no specific alignment or location has been determined.

Source: PB Americas, *SR 162 (Pellissippi Parkway Extension) Traffic Operations Technical Report*, 2008.

By 2035, most of the roadway sections that had a desirable LOS in 2015 would show a decline in traffic operations, but remain at or above the desired LOS D. Several segments at the LOS D threshold in 2015 would fall to LOS E or F in 2035. Portions of existing Pellissippi Parkway that were at a desirable LOS (C or D) in 2015 would fall to LOS F by 2035. In particular, the existing section just west of US 129 and the section between Relocated Alcoa Highway and SR 33 would operate between LOS E and F in 2035.

Sam Houston School Road, Peppermint Road, Hitch Road, and Helton Road are not part of the state-maintained system, so traffic counts were not available on these roads. No-Build volumes were not forecasted to the base year and design year. For this study, special traffic counts were conducted to determine current volumes on these two-lane local roadways in order to forecast Build Alternative volumes. For a frame of reference, the No-Build LOS is expected to be similar to the Build Alternative improvements (discussed in Section 3.1 of this DEIS), which would only seek to make geometric changes and would not necessarily increase capacity.

1.4.3 Traffic Safety

Safety for travelers on the area's existing roadways is one of the transportation needs identified as a reason to expand the mobility options in the study area. An analysis of crash data was prepared for this study to identify locations within the project corridor with high crash locations or a history of safety concerns. The analysis examined the reported accidents during a two-year period from January 1, 2006 through December 31, 2007, the most recent reporting period for which data is available. The *Crash Analysis Report Update* is included in Volume 2: Technical Studies, which is on file with the TDOT Environmental Division office.

The analysis examined data for roadway segments along the existing network and developed section crash rates based on the number of crashes along a specific segment, the average daily traffic on the roadway, the length of the segment, and the period of the analysis. The crash rates are expressed in terms of crashes per one million vehicle-miles (cpmvm) so that they can be uniformly compared to statewide crash rates.

Generally, statewide average crash rates are listed by roadway type. The majority of roadways in this study are classified as urban and the average statewide crash rates range from 2.07 cpmvm for an urban divided roadway, to 2.82 cpmvm for an urban roadway with a turn lane. For urban freeways, which include existing Pellissippi Parkway (I-140) between US 129 and SR 33, the statewide average rate is 1.06 cpmvm. The section of US 321/SR 73 east of Maryville is classified as a rural divided roadway, and the statewide average rate for this type of road is 0.80 cpmvm.

Crash Rate

A crash rate is a number based on a formula that takes into account factors such as the total number of accidents per million vehicle miles, length of roadway, and the time period over which the crashes occurred.

Statewide Average Crash Rate

This rate is based on the number of crashes statewide for a specific highway type, such as urban divided highways, urban roadways with turn lanes, urban freeways and rural divided highways.

The section crash rate for each roadway segment in the study area is shown in Table 1-3. The crash rates range from 0.57 cpmvm on US 321/SR 73 east of the Little River to the

Foothills Parkway, to 13.03 cpmvm on SR 33 between Hunt Road and existing Pellissippi Parkway.

The section and statewide average crash rates are also used to calculate a critical crash rate factor (A/C), as shown below. The A/C ratio is useful in providing a scale for determining the relative safety impact on each section.

$$\mathbf{AC} = \frac{\text{A (section crash rate)}}{\mathbf{C}\text{ (statewide critical crash rate)}}$$

Critical Crash Rate Factor

Critical Crash Rate Factor is the threshold above which it can be statistically certain (at a 99% confidence level) that the section crash rate exceeds the statewide average crash rate and is not mistakenly shown as higher than the average because of randomly occurring crashes. In practical terms, sections with a critical crash rate factor greater than one can be statistically certain that the crash rate for that section exceeds the statewide average rate and may be potential candidates for safety improvements.

In Tennessee, for a project to qualify for Hazard Elimination Safety Program (HESP) funding, the A/C ratio must be at least 3.5. A/C ratios of 2.0 or higher can indicate that a safety deficiency may need to be addressed. Based on the crash analysis and calculated A/C ratios, none of the roadway sections evaluated for this study qualify for HESP funding since the A/C ratio for all sections is less than 3.5 (see Table 1-3). There are some sections, however, with an A/C ratio that exceeds the 2.0 threshold. These roadway sections include:

- US 321/SR 73 between US 129 Bypass and SR 33 (A/C = 2.66)
- US 321/SR 73 between Montvale Road and Washington Street (A/C = 2.45)
- SR 33 between Henry Street and Everett High Road (A/C = 3.03 to 2.32)
- SR 33 between Hunt Road and Pellissippi Parkway (A/C = 2.76)

While these four sections do not qualify for HESP funding, they are considered to have safety concerns.

Sections of Hall Road (SR 35), sections of US 321/SR 73, and almost all of SR 33 have critical crash rate factors greater than one, indicating that sections of these routes are locations with a higher than average number of crashes. Additionally, Wildwood Road, a section of Lincoln Road (SR 35 [Hall Road]), and US 321/SR 73 have section crash rates that exceed the statewide average crash rate. This means that while these routes do not have a statistical certainty of being high crash rate locations, they may still have some safety issues.

Table 1-3: Crash Rates for Roadway Segments

Route	Segment Beginning	Segment Ending	Total Crashes 2006-2007	Statewide Average Crash Rate	Section Crash Rate (A)	Statewide Critical Crash Rate (C)	Section Critical Crash Rate Factor (A/C)
Cusick Road	US 129	I-140	8	2.51	1.09	3.94	0.28
Wildwood Road	SR 33	Little Rive Bridger	32	2.51	3.50	3.78	0.93
Pellissippi Parkway (I-140)	US 129	SR 33	0	1.06	0.00	1.38	0.00
US 321/SR 73	US 129 Bypass	SR 33	142	2.07	7.65	2.87	2.66
	SR 33	Montvale Rd	11	2.82	3.62	5.22	0.69
	Montvale Rd	Washington St (SR 73)	90	2.07	7.55	3.08	2.45
	Washington St (SR 73)	Knoxville Urban Boundary	181	2.82	2.50	3.29	0.76
	Knoxville Urban boundary	Foothills Parkway	42	0.80	0.57	1.05	0.54
Hall Road (SR 35)	US 129 Bypass	Lincoln Rd	109	2.07	3.32	2.67	1.24
	Lincoln Rd	Sevierville Rd	69	2.82	4.38	3.84	1.14
	Sevierville Rd	Little River Bridge	103	2.51	2.90	3.14	0.92
Washington St. (SR 35/ SR 447)	Lincoln Rd	US 321/SR 73	38	2.82	2.36	3.83	0.62
SR 33	US 129	Just north of Henry St	25	2.07	7.07	3.99	1.77
	Just north of Henry St	SR 35 Washington St./Hall Rd.	161	2.51	10.56	3.49	3.03
	SR 35 Washington St./Hall Rd.	Everett High Rd.	56	2.51	9.57	4.12	2.32
	Everett High St.	Wildwood Rd./Lincoln Rd.	61	2.51	7.13	3.83	1.86
	Wildwood Rd./Lincoln Rd.	SR 335 (Hunt Rd.)	51	2.51	4.71	3.68	1.28
	SR 335 (Hunt Rd.)	Pellissippi Parkway	42	2.51	13.03	4.72	2.76
	Pellissippi Parkway	Caney Branch Rd.	68	2.51	3.53	3.38	1.04
	Caney Branch Rd.	Knox County Line	9	2.51	0.97	3.78	0.26
US 129 Bypass	SR 33	Knox County Line	642	2.07	2.04	2.26	0.90
Lincoln Road	Hall Rd (SR 35)	Wright Rd	9	2.51	2.93	4.77	0.61
	Wright Rd	Harding St	5	3.19	1.22	5.36	0.23
	Harding St	Wildwood Rd	7	2.51	1.33	4.21	0.32

Source: PB Americas, *Crash Analysis Report Update*, 2009.

Approximately one quarter of the crashes along the routes within the study area resulted in an injury crash (483 out of 1,969 crashes). During the two-year period, 11 crashes involved a fatality. The highest number of fatal crashes occurred on US 129 Bypass, which resulted in six deaths during the two-year period.

For the entire project area, rear-end and angle crashes were the most frequent type of crashes. Conditions in the study area that contribute to these types of crashes include:

- Lack of access management along roads;
- Numerous curb cuts for driveways and intersections; and
- Lack of exclusive turn lanes and/or passing lanes.

These factors are especially prevalent along US 129, US 32, SR 33, Hall Road and Washington Street (SR 35).

The existing transportation system requires travelers between the northwestern portion of Blount County and the eastern portions of the county to use a route that includes portions of US 321/SR 73, Hall Road and Washington Street, and US 129 or SR 33. As evidenced by the crash analysis, a transportation option that would divert some through travelers away from these roadways in the center of Maryville could help to reduce exposure to potential crashes. Another opportunity to lower the crash rates would be improvements to US 129 (as part of the proposed Relocated Alcoa Highway project); however, the Relocated Alcoa Highway project would not resolve the safety issues in the Maryville core.

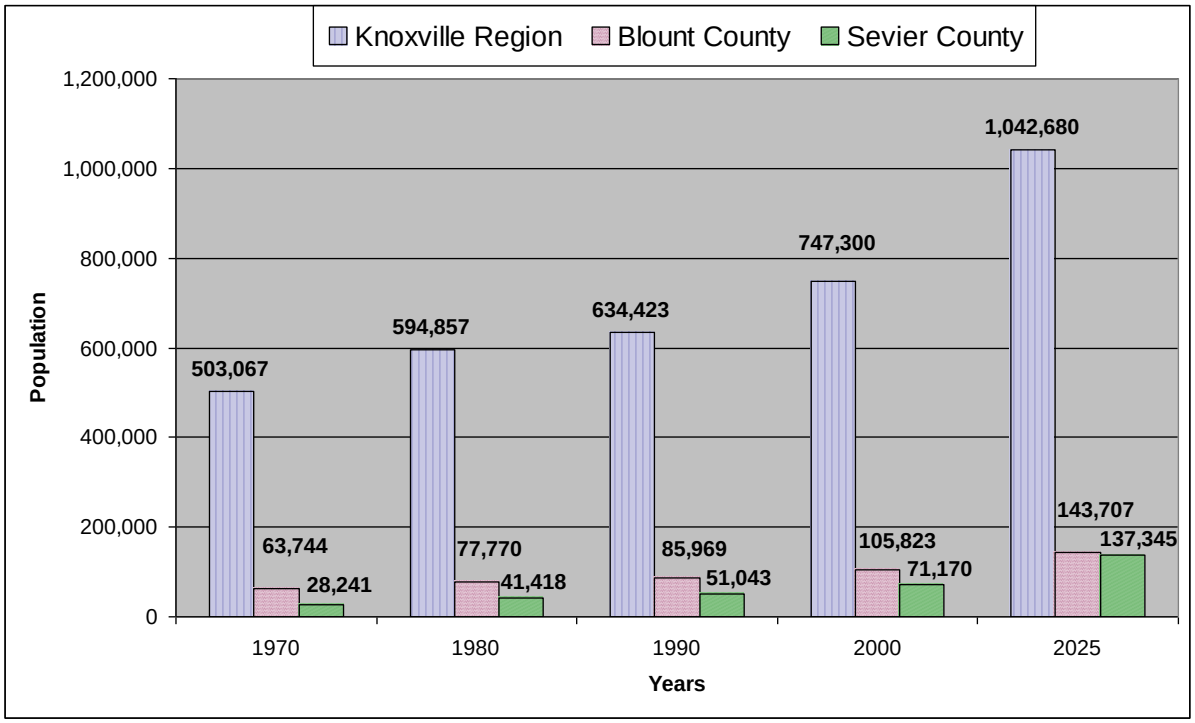
1.5 Ongoing Residential Development

Since the 1970s, Blount County has been one of the fastest growing counties in the Knoxville Region (Figure 1-10). The county has experienced double-digit population growth over each 10-year Census period, and its growth rates have exceeded those of the overall Knoxville region and the state as a whole. The county grew 22 percent between 1970 and 1980 and grew nearly 11 percent between 1980 and 1990. In 2000, the county was home to nearly 106,000 people, an increase of more than 23 percent since 1990. In the region, Blount County's growth is surpassed only by that of its neighbor to the east, Sevier County, which grew by nearly 40 percent between 1990 and 2000.

Blount County's growth is expected to continue for the near future; by 2025, Blount County is predicted to have nearly 144,000 residents, an annual rate of growth of nearly 1.4 percent. Figure 1-10 and Figure 1-11 illustrate the growth in the region, and in Blount and Sevier counties, in terms of numerical growth and percent growth.

As Blount County becomes more populated, the land will become more densely settled and the overall percentage of people living in urban areas will increase. Urban areas are defined as those areas with urban services, such as sewer and public water. According to the 1990 Census, approximately 52 percent of the population lived in urban areas of Blount County; by the 2000 Census, it had increased to nearly 64 percent. It is anticipated that the 2010 Census will show a continued increase in urban area population.

Figure 1-10: Historical Population and Projections (1970–2025)



Source: TACIR and UT Center for Business and Economic Research. *Population Projections for the State of Tennessee, 2005 to 2025.* June 2009.

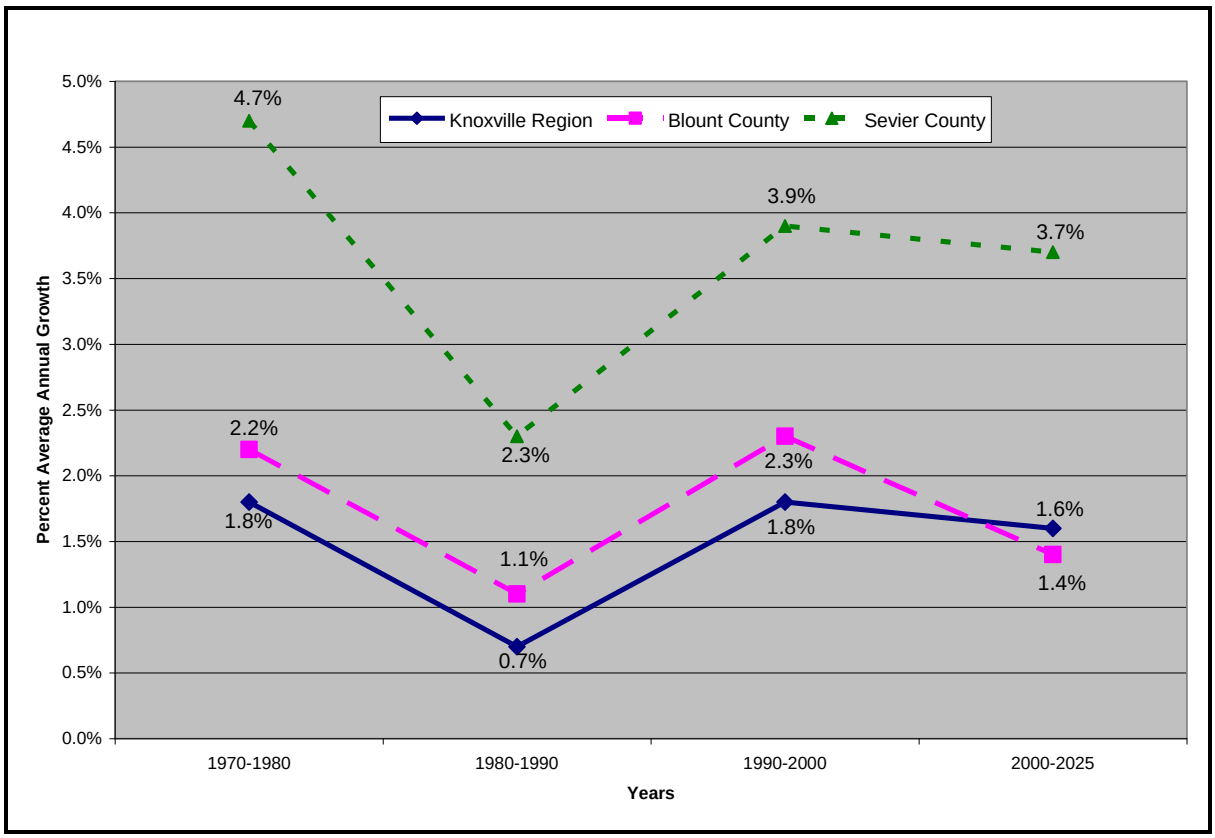
In order to keep pace with the population growth, the number of housing units in Blount County has more than doubled over the last 30 years. In 2000, there were more than 47,000 housing units in the county, a 116 percent increase over the nearly 22,000 housing units that existed in 1970. Figure 1-12 illustrates the growth in housing over the last four decades.

Blount County's Planning Department has tracked residential development in the county since the 1950s. Since the 1950s, a substantial amount of growth can be seen moving east from US 129 (Alcoa Parkway) to the east of SR 33 and moving south from Wildwood Road towards the southern city limits of Maryville.

The Blount County Planning Department has prepared a series of graphical representations of the location of residential development, generally by decade, of the county between 1950 and 2005. The figures, presented in Appendix F, differentiate between existing residences and new residential structures constructed during the decade. The following points highlight the major growth locations in eastern Blount County during the last 50 years gleaned from the Appendix F figures:

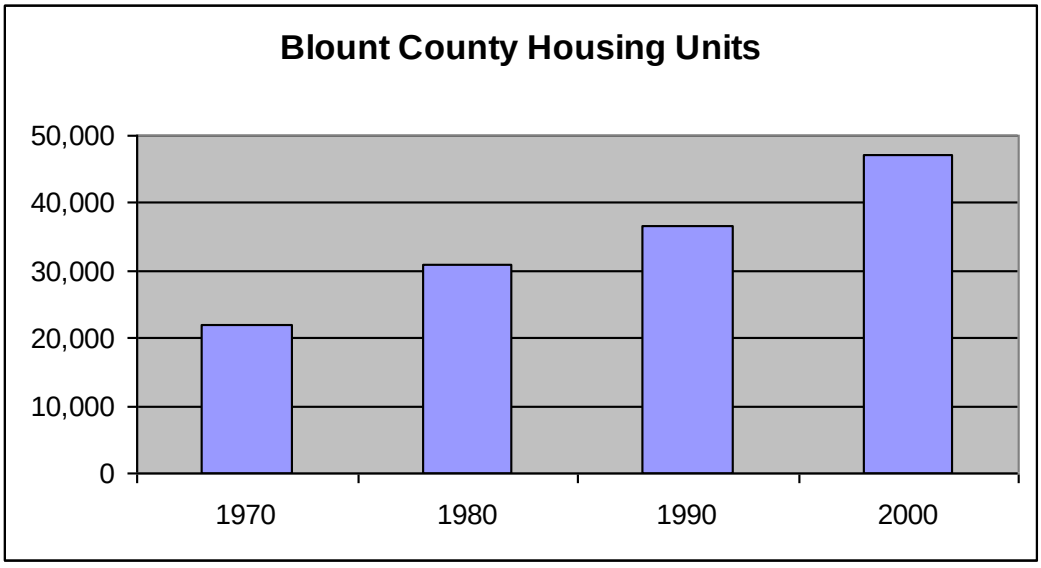
- 1950s – Residential growth is seen along the western side of SR 33/Old Knoxville Highway and along the eastern side of SR 33 towards US 411 (Sevierville Road) in unincorporated Eagleton Village. Homes are also developing along the eastern side of Broadway/US 411 in Maryville.

Figure 1-11: Average Annual Population Growth (1970–2025)



Source: TACIR and UT Center for Business and Economic Research. *Population Projections for the State of Tennessee, 2005 to 2025*. June 2009.

Figure 1-12: Housing Units (1970–2000)



Source: 2000 US Census.

- 1960s – Residential growth continues along the eastern side of SR 33 and north and south of US 411. Growth also continues south of US 321/SR 73 along the eastern edge of Broadway and US 411 in Maryville.
- 1970s – Residential growth continues to move in an easterly direction from SR 33 along the north and south sides of US 411. Strong growth can also be seen continuing south along US 411. A pocket of homes is developed to the west of US 411, just south of the Alcoa Bypass and homes continue to develop east of US 411 moving further east towards Montvale Road. During this time, a pocket of homes also begins to appear towards the Knox County border—between I-40 and US 129.
- 1980s – Residences continue to be constructed east of SR 33, primarily between US 411 and US 321/SR 73. Homes also continue to develop in Maryville east along US 411. During this decade, a cluster of homes is built near Montvale Station Road and Montvale Road.
- 1990s to mid-2000s – In addition to infilling, growth of primarily single-family developments continues eastward along US 411.

Recent increases in the costs of construction and gas prices could have an effect on the construction of new residential development, and the long-term patterns described above may or may not hold true for the future.

1.6 Consistency with Plans

The proposed project is consistent with local and regional planning efforts, as described below:

- **1986 Tennessee Urgent Highway Needs Plan** (enacted by the Tennessee General Assembly) – The extension of Pellissippi Parkway was one of six Bicentennial parkways included in the Urgent Highway Needs Plan. The remaining unconstructed portion of the 19.5-mile parkway identified in the 1986 plan would extend Pellissippi Parkway between SR 33 and US 321/SR 73
- **The Transportation Equity Act for the 21st Century (TEA-21)** – The 1998 federal transportation act included the extension of Pellissippi Parkway between SR 33 and US 321/SR 73 in the High Priority Projects Program (Section 106, Subtitle F).
- **Knoxville Regional Transportation Planning Organization (TPO) Long Range Transportation Plan (LRTP)** – The proposed extension of Pellissippi Parkway from SR 33 to US 321/SR 73 has been included in the region's long range transportation plans since 1995. The project is included in the current TPO's *2008–2011 Transportation Improvement Program* (TIP). Blount County is a part of the Knoxville TPO.
- **Local Growth Management Plans** – The following growth management plans, prepared for Blount County and the City of Maryville in 2005, assume the completion of Pellissippi Parkway Extension to US 321/SR 73.
  - City of Maryville *Urban Growth Strategy* (January 2005)
  - *Blount County Growth Strategy* (August 2005)

The City of Maryville's *Urban Growth Strategy* (2005) states:

> "Pellissippi Parkway is proposed to connect its current location northwest of Maryville at Alcoa Highway (US 129) south to East Lamar Alexander Parkway (US 321, SR 73). An estimate of the proposed location was made using data by the Knoxville Regional TPO. This link will improve Maryville traffic congestion by allowing many tourists visiting the Great Smoky Mountains National Park to bypass downtown Maryville. Furthermore, this roadway will improve circumferential access in the northeast quadrant of the city."

The plan also states, "Therefore, the primary 'big picture' improvement for Maryville's transportation network is to improve circumferential mobility." The completion of Pellissippi Parkway to US 321/SR 73 is anticipated in this plan.

The *Blount County Growth Strategy* (2005) builds on five guiding policies recommended in the *Blount County Policies Plan* adopted in June 1999 by the Blount County Regional Planning Commission. Guiding Policy #4 states that county roads should be improved and maintained to serve current and expected future development. The *Blount County Growth Strategy* recommends that the County collaborate with Maryville to build arterial road segments that will create a connected system of major roads to serve developed and developing areas. "Technical Memorandum #9" contained within the *Blount County Growth Strategy* states that the completion of Pellissippi Parkway from SR 33 to US 321/SR 73 is assumed as a necessary transportation improvement in this study. According to the technical memorandum, if this extension is not built, another connector road is recommended for the area as a part of improving circumferential access around Maryville and improving access in northeast Blount County.

The following local and/or regional planning efforts are related to this proposed project:

- **Relocated Alcoa Highway (Alcoa Highway Bypass)** – TDOT and the TPO are currently investigating the feasibility of constructing a bypass of Alcoa Highway (US 129/SR 115) from near Hall Road to South Singleton Station Road to allow through traffic to bypass the extensive commercial area known as the Motor Mile. This proposed roadway is also referred to as Relocated Alcoa Highway. The existing road currently serves multiple purposes including providing local business access; carrying traffic to and from the McGhee Tyson Airport; serving as the primary commuting route to and from Knoxville; and providing access from the I-40/Knoxville area and points west to the southern end of the GSMNP and nearby recreational opportunities. As Blount and Knox counties have continued to grow, these contrasting priorities for the roadway have adversely affected safety and capacity on US 129.
- **Pellissippi Place Research and Technology Park** – The cities of Alcoa and Maryville, and Blount and Knox counties have collaborated to facilitate the development of the new 450-acre Pellissippi Place, a mixed-use development on the southeastern side of SR 33, immediately across from the current terminus of Pellissippi Parkway (I-140). Pellissippi Place is intended to complement the high-tech environment of the Oak Ridge National Laboratory in Knox County, providing space for high-tech business and research firms, as well as retail and residential uses. The first phase of Pellissippi Place broke ground in November 2008, with business and research components of the development projected to open in 2010 or 2011. Pellissippi Place is expect to create more than 7,300

new jobs by 2030 and house 1.2 million square feet of research and development uses, 400,000 square feet of office space, 1.2 million square feet of retail space, 450 hotel rooms, and 250 residential units. Local officials see the extension of Pellissippi Parkway as an important component in the financial viability of the park. Preliminary plans for the park anticipate the completion of Pellissippi Parkway as it was conceived during the EA stage.

TDOT is improving SR 33 on the western border of the Pellissippi Place site, widening the existing roadway from two to four lanes between Hunt Road and Sam Houston School Road.

1.7 Logical Termini and Independent Utility

The proposed Pellissippi Parkway Extension Project has logical termini because of its connection to state roadways at each end. At its proposed northwestern terminus, the project would connect to existing Pellissippi Parkway (I-140) that currently ends at SR 33. The proposed southeastern terminus is with US 321/SR 73 west of the Heritage High School complex. The proposed southeastern terminus at US 321/SR 73 has been shown in related plans for Pellissippi Parkway since 1986, including the 1986 Urgent Highway Needs Plan and the 1995 regional LRTP and subsequent updates.

Logical Termini

FHWA regulations (23 CFR 771.111(f)) outline three criteria for selecting the end points of a transportation project:

- The end points should connect logical termini (rational end points) that encompass a corridor of sufficient length to ensure that environmental effects are addressed on a broad scope.
- The project limits should represent a project that has independent utility. This means that the project must be usable and a reasonable expenditure even if no other transportation improvements are made in the area.
- The project limits must not restrict consideration of alternatives for other reasonably foreseeable transportation projects.

This project demonstrates independent utility since it is not dependent upon implantation of any other transportation projects. The project would not restrict consideration of alternatives to other reasonably foreseeable transportation improvements (with the exception of funding concerns), such as Relocated Alcoa Highway or improvements on other state or local roads.

The defined study area is of sufficient size to address environmental concerns on a broad scope.

2.0 ALTERNATIVES

NEPA requires that agencies proposing a major project explore various ways that the project's purpose and need could be met. This chapter describes the alternatives that are evaluated in this DEIS and how they came to be. Section 2.1 identifies and describes the alternatives that are evaluated in the DEIS. Section 2.2 discusses how these DEIS alternatives meet the purpose of and need for the project. Section 2.3 provides preliminary cost estimates for the DEIS alternatives. This chapter concludes with Section 2.4, which describes the process for developing and evaluating preliminary alternatives and corridors as a part of the planning for this study, and describes those alternatives that were previously considered and dismissed from further consideration in the DEIS.

2.1 Alternatives Evaluated in the DEIS

Four alternatives are evaluated in detail in this DEIS. These alternatives, identified below, are described in the remainder of this section:

- No-Build;
- Build Alternatives A and C – Extend Pellissippi Parkway as New Four-Lane Roadway in one of two alternative locations; and
- Build Alternative D – Upgrade Existing Two-Lane Network.

2.1.1 No-Build Alternative

The No-Build Alternative would not extend Pellissippi Parkway beyond its existing terminus at SR 33. Traffic would continue to enter and exit Pellissippi Parkway at the existing terminal interchange with SR 33.

The No-Build Alternative assumes that other projects in the study area that are identified in the 2009 to 2034 Knoxville Regional Mobility Plan would be constructed or implemented. These projects are listed in Table 2-1 and identified on Figure 2-1. Several capacity-enhancing and safety-related projects are highlighted below:

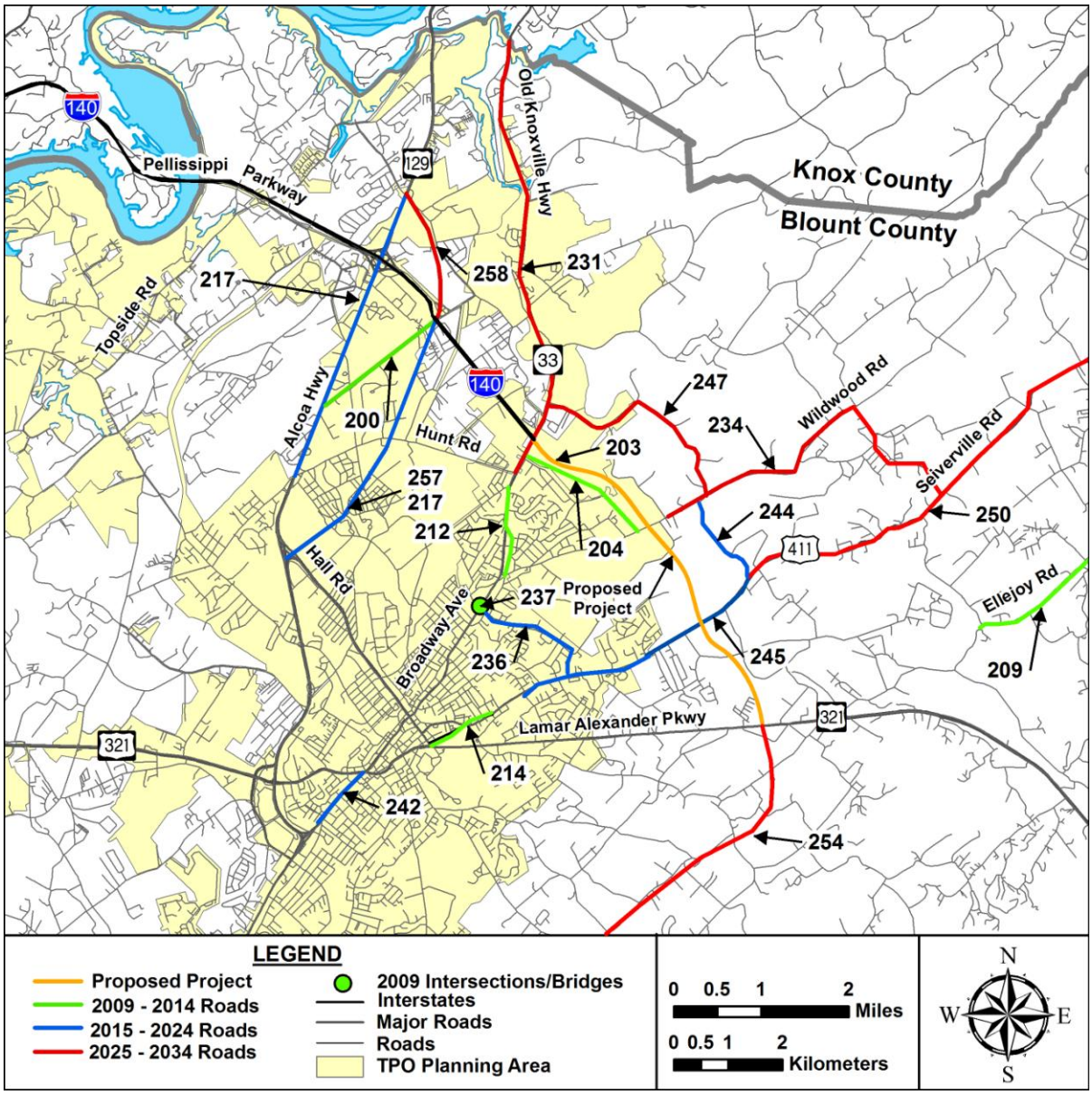
- Improvements to SR 33, including widening the existing roadway from two to four lanes between Hunt Road and Pellissippi Parkway, improving the intersection at Brown School Road, and reconstructing substandard two-lane sections to bring them up to modern standards in terms of lane widths and geometric design (chiefly to enhance the safety of the roadway);
- Improvements to sections of US 411/Sevierville Road that include adding center turn lanes and reconstructing substandard two-lane sections;
- Improvements to existing substandard two-lane sections of Peppermint Road, Sam Houston School Road, Wildwood Road, Brown School Road and Ellejoy Road;
- Construction of the proposed Alcoa Highway Bypass;
- Improvements to US 129/Alcoa Highway by adding turn lanes and traffic signals, and widening four-lane sections to six lanes; and
- Construction of an access road to serve the Pellissippi Place Research and Technology Park.

Table 2-1: Regional Mobility Plan Projects in the Study Area

LRMP # (LRTP #)	Project	Location	Description	Year
200 (47)	Cusick Rd.	Alcoa Hwy. to Pellissippi Pkwy.	Add center turn lane	2009-2014
203 (NA)	Old Knoxville Hwy. (SR 33)	Hunt Rd. (SR 335) to Pellissippi Parkway	Widen 2-lane to 4-lane with center turn lane	2009-2014
204 (612)	Pellissippi Place Access Rd.	Connects SR 33 to Wildwood Rd. thru Pellissippi Place	Construct new 2- or 4-lane road with center turn lane	2009-2014
209 (97)	Ellejoy Rd.	River Rd. to Jefferson Hollow Rd.	Reconstruct 2-lane section	2009-2014
212 (66)	Old Knoxville Hwy. (SR 33)	Wildwood Rd. to McArthur Rd.	Reconstruct 2-lane section	2009-2014
214 (NA)	US 411 (Sevierville Rd.)	Washington St. (SR 35) to Everett High Rd.	Construct 2-lane road with center turn lane along existing and new alignment	2009-2014
217 (41)	Alcoa Hwy. (SR 115)	Singleton Station Rd. to Hunt Rd. (upon completion of Alcoa Highway Bypass)	Improve intersections including turn lanes & traffic signals	2015-2024
218 (84)	Alcoa Hwy. Bypass (Relocated Alcoa Hwy.)	From Hall Rd. (SR 35)/Alcoa Hwy. (SR 115) Interchange to Proposed Interchange at McGhee Tyson Airport	Construct new 8-lane freeway	2015-2024
237 (74)	SR 33 – Broadway Ave.	Intersection at Brown School Rd.	Realign & install traffic signal	2009-2014
231 (149)	Old Knoxville Hwy. (SR 33)	Pellissippi Pkwy. to Knox County line	Reconstruct 2-lane section	2015-2024
234 (160)	Wildwood Rd.	Maryville city limits to US 411 (Sevierville Rd.)	Reconstruct 2-lane section	2015-2024
236 (NA)	Brown School Rd.	E Broadway Ave (SR 33) to US 411 (Sevierville Rd.)	Reconstruct 2-lane section	2015-2024
242 (162)	W Broadway Ave. (SR 33)	Old Niles Ferry Rd. to US 312 (SR 73)	Add center turn lane	2015-2024
244 (152)	Peppermint Rd.	Wildwood Rd. to (Sevierville Rd.)	Reconstruct 2-lane section	2015-2024
245 (NA)	US 411 (Sevierville Rd.)	Dogwood Rd. to Peppermint Rd.	Add center turn lane	2015-2024
247 (153)	Sam Houston School Rd.	Old Knoxville Hwy. to Wildwood Rd.	Add center turn lane	2025-2034
250 (123a)	US 411 (Sevierville Rd.)	Peppermint Rd. to Chapman Hwy. (US 441/SR 71)	Reconstruct 2-lane section	2025-2034
254 (609)	Corridor #7 – Southern Loop Connector	US 321/SR 73 @ proposed Pellissippi Pkwy. (SR 162) extension to Old Niles Ferry Rd. @ proposed Wm Blount Dr. (SR 335) extension	Construct 2 lane road along existing and new alignment	2025-2034
257 (84)	Alcoa Hwy. Bypass (Relocated Alcoa Hwy.)	From Proposed Interchange at McGhee Tyson Airport to Pellissippi Pkwy.	Construct new 8-lane freeway (6 thru lanes plus 2 auxiliary lanes)	2015-2024
258 (84)	Alcoa Hwy. Bypass (Relocated Alcoa Hwy.)	From Pellissippi Pkwy. to Near Singleton Station Road	Construct new 8-lane freeway (6 thru lanes plus 2 auxiliary lanes)	2015-2024

Source: Knoxville Regional Mobility Plan 2009–2034.
LRMP # = project number identified in 2009-2034 Regional Mobility Plan. LRTP # = project number identified in 2005-2030 regional Long Range Transportation Plan. (NA) – new project in 2009-2034 Regional Mobility Plan.

Figure 2-1: Regional Mobility Plan Projects in the Study Area



Source: Knoxville Regional Mobility Plan 2009–2034.
Notes: (1) Project numbers on figure correspond to Plan #s shown in Table 2-1. (2) "Proposed Project" (Pellissippi Parkway Extension) is not part of the No-Build Alternative.

Corridor #7 Southern Loop Connector is included in the Knoxville Regional Mobility Plan with a completion timeframe of 2025 to 2034. It is described as a two-lane road on existing or new alignment extending from the interchange of proposed Pellissippi Parkway extension and US 321/SR 73 to Old Niles Ferry Road at the proposed William Blount Drive (SR 335) extension. The concept of a southern and western loop around Maryville (Maryville-Alcoa Bypass) has been discussed in the past, to potentially relieve some of the congestion through Maryville by diverting many of the out-of-town travelers and some of the local traffic. The Southern Loop was suggested to connect on the east with the southern terminus of Pellissippi Parkway Extension at US 321/SR 73. The *Growth Management Plans* completed

in 2005 for Maryville and Blount County recommended in place of the Southern Loop a series of roadway improvements and short new segments to enhance circumferential movement. The 2008 *Blount County Policies Plan* includes as an implementation strategy (Objective 4C) the construction of arterial and collector roadway segments to create a circumferential system, utilizing the concepts contained in the *Blount County Growth Strategy Technical Memorandum #9*.

The region's 2008–2011 *Knoxville Regional TIP* (2008) also contains the Maryville/Alcoa signal timing project to upgrade traffic signal control infrastructure and improve multi-jurisdictional communication interconnects within Blount County. The specific intersections where signal timing would be improved include those on SR 35 between US 129/Alcoa Highway and US 411/Sevierville Road and on SR 33.

While the Regional Mobility Plan and the TIP identify specific years by which the improvements are expected to be completed; budget issues and other considerations may delay the start and/or ultimate completion of a specific project. It is also possible that some projects currently listed in the Regional Mobility Plan and/or TIP may be modified or removed from the plan as a result of currently unforeseen land use changes or other changes in the community or local priorities.

2.1.2 Build Alternatives A and C – Extend Pellissippi Parkway as New Four-Lane Roadway in One of Two Alternative Locations

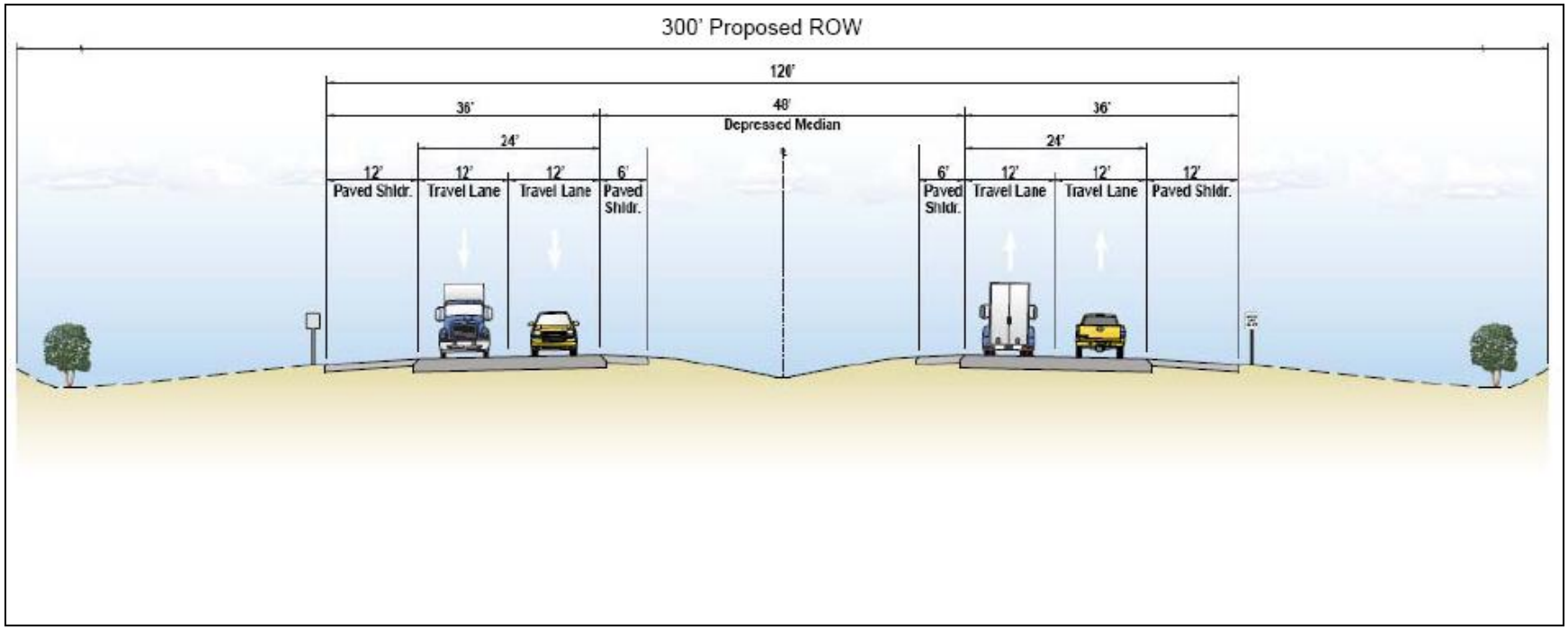
The concept of extending Pellissippi Parkway as a four-lane divided highway to US 321/SR 73 has been a part of the regional transportation planning vision since 1977. The completion of the parkway from SR 33 to US 321/SR 73 was included in the 1999 update of the region as a specific project and has been included in subsequent updates. It is identified as Project #232 in the Regional Mobility Plan. This DEIS evaluates the proposed extension of the parkway as a four-lane divided roadway in two potential alignment alternatives on a new location, Alternative A and Alternative C.

With either Alternative A or C, diamond interchanges would connect the new roadway with SR 33 and US 411/Sevierville Road, and the roadway would terminate with a trumpet interchange at US 321/SR 73. All other road crossings would be grade-separated without access. The proposed typical section evaluated in the DEIS for the extension of Pellissippi Parkway in either alignment alternative would consist of two 12-foot travel lanes in each direction, 12-foot outside shoulders, and a 48-foot depressed median with 6-foot inside shoulders (see Figure 2-2). The proposed right-of-way (ROW) for either alignment option is a minimum of 300 feet, requiring the purchase of new ROW. Depending upon the horizontal and vertical curve requirements, desired speed limits, and the slope of the existing land, actual ROW acquisition might be reduced or increased in some areas during the design phase of the project. The roadway would be designed for traffic traveling at 60 miles-per-hour.

Once the Selected Alternative is identified, TDOT will follow a Context Sensitive Solutions (CSS) design process to develop the appropriate design features such as speed, median type and width, and right-of-way width.

The distance between the two proposed interchanges, with US 411/Sevierville Road and with US 321/SR 73, is about one mile. Due to this short distance, during the design phase

Figure 2-2: Typical Section for Build Alternatives A and C



Source: PB Americas, 2009.

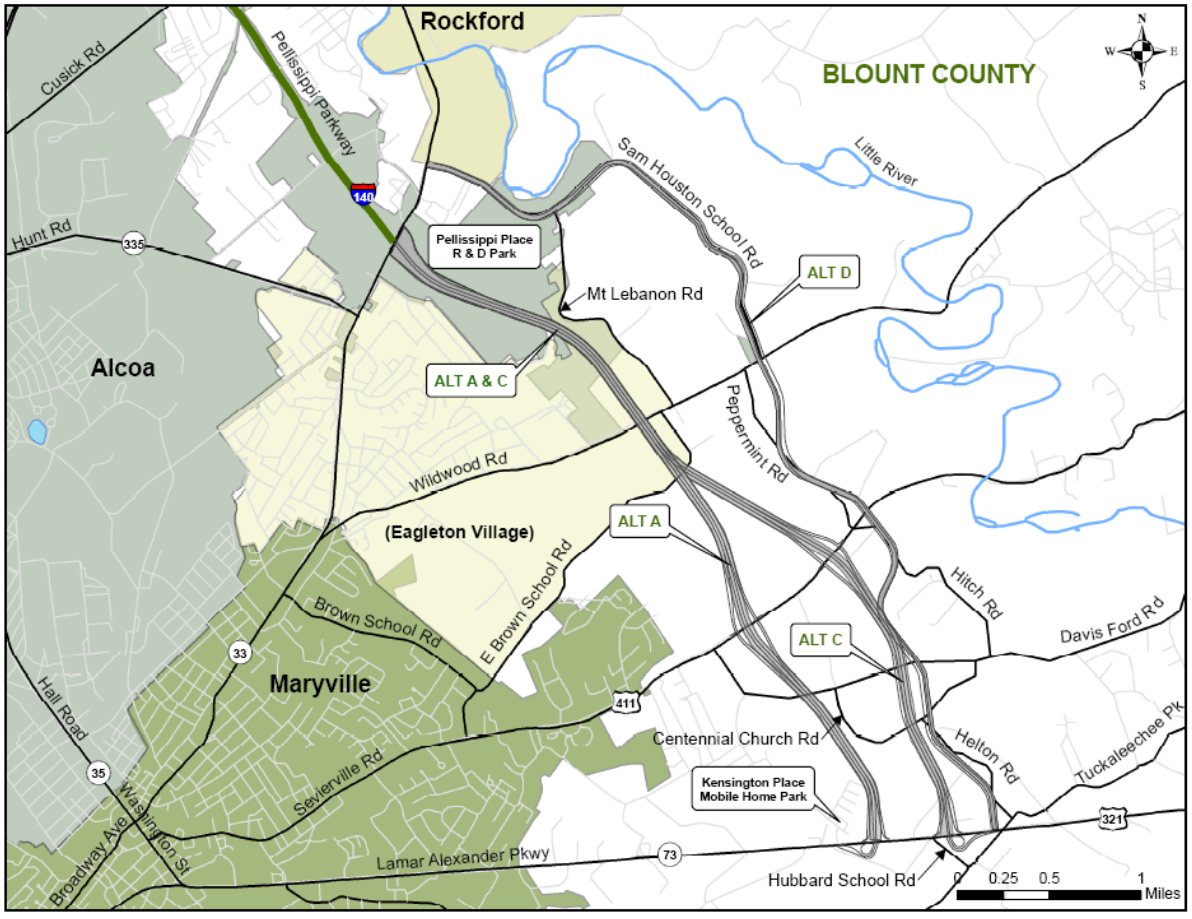
for the Selected Alternative, TDOT will consider the use of an auxiliary lane in each direction to assist traffic exiting and entering the proposed roadway.

If Alternative A or C is chosen as the Selected Alternative, the roadway could be designated as I-140, consistent with the existing sections to the west. The possibility of future Interstate designation does not preclude the provision of bicycle and pedestrian facilities within the project right-of-way. A shared-use path separated from the highway by some distance and possibly fencing or another form of barrier could provide a transportation and recreational facility through this part of Blount County. During the design of the Selected Alternative, TDOT will investigate the provision of bicycle and pedestrian facilities within the project right-of-way, as part of the CSS design process.

Two cross routes that would have interchanges with the new roadway, SR 33 and US 411/Sevierville Road, would be improved to a five-lane urban section through the interchange area. The five-lane cross section on those two roadways would consist of two 12-foot lanes in each direction with a 12-foot continuous center turn lane.

These alignment alternatives for the extension of Pellissippi Parkway to US 321/SR 73 are discussed below and illustrated in Figure 2-3.

Figure 2-3: Build Alternatives



Source: PB Americas, 2008.

2.1.2.1 Alternative A

Alternative A would begin on the east side of SR 33, opposite the existing half interchange of Pellissippi Parkway (I-140) and SR 33. From this terminus, the route would follow a generally easterly and southeasterly path to Wildwood Road, passing through former farmlands that are now the site of the Pellissippi Place Research and Technology Park, currently under development and expected to open in 2010. The corridor would also run west of Mount Lebanon Road through this area. After crossing Wildwood Road, the route would continue in a generally southerly direction, crossing Brown School Road. The route would cross US 411/Sevierville Road east of the Davis Ford Road intersection with US 411.

The route would continue across Davis Ford Road and pass along the northeastern edge of the Kensington Place mobile-home park. The corridor would intersect US 321/SR 73 just east of Flag Branch. This alternative would be approximately 4.38 miles in length. Alternative A would generally follow the corridor identified, investigated and selected as the Preferred Alternative in the 2002 EA.

Based on comments received during a resource agency field review in April 2008, TDOT reviewed the proposed location of Alternative A near its terminus with US 321/SR 73 for a possible shift to the east to avoid the mobile-home park. A slight shift was possible but because of sight distances along US 321/SR 73 and the location of a church on the south side of US 321/SR 73 at the terminus, it was not possible to entirely avoid the rear corner of the mobile-home park. One existing mobile home would be displaced at the corner of the mobile-home park.

2.1.2.2 Alternative C

The Alternative C alignment would be about 4.68 miles long. This alternative would share the same alignment and design features as Alternative A from SR 33 to the vicinity of Brown School Road, at which point Alternative C would diverge to the east. Alternative C would then run in a southeasterly direction, and intersect US 411/Sevierville Road about 0.6 miles east of Alternative A. Alternative C would continue southeasterly to cross Davis Ford Road and proceed southerly, crossing Centennial Church Road about 500 feet west of Helton Road, and terminating with US 321/SR 73 in the vicinity of Hubbard School Road.

Following a resource agency field review in April 2008, a refinement was made to the location of Alternative C in the area between Davis Ford Road and US 321/SR 73. The refined alternative was shifted westward to minimize intrusions into Crooked Creek and to avoid direct impacts to a church and cemetery at Centennial Church Road and Helton Road.

2.1.3 Alternative D – Upgrade Existing Two-Lane Network

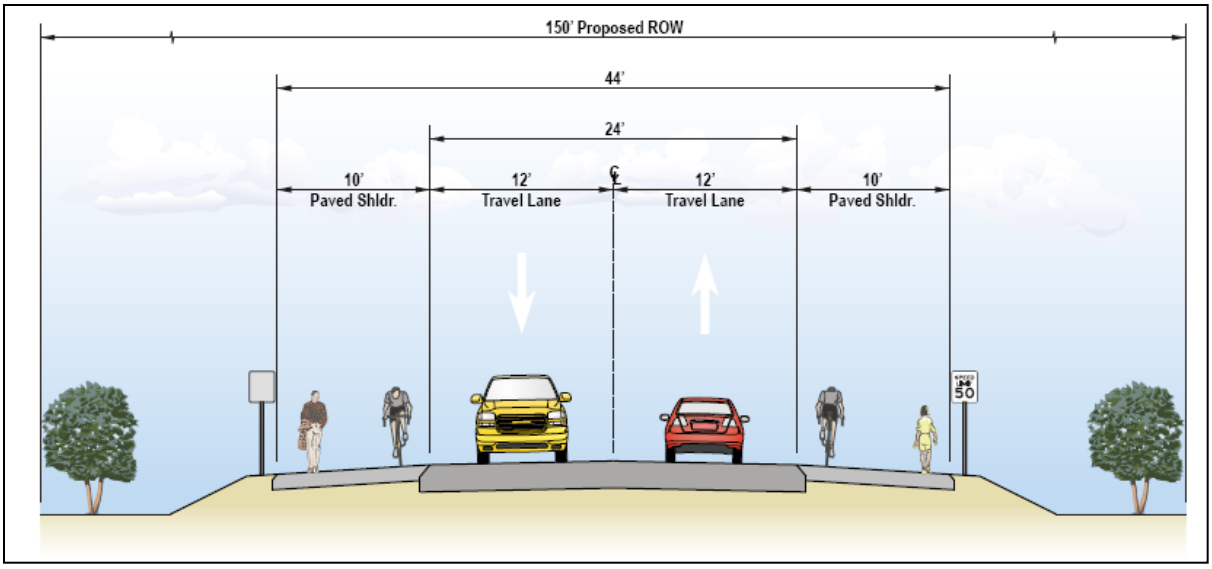
Alternative D would upgrade an existing network of two-lane roads in the area to serve as a two-lane connection between SR 33 and US 321/SR 73 (see Figure 2-3). This alternative emerged during the course of this study based on discussions with the public about travel needs and environmental concerns. This upgraded network was seen as a way to improve some of the currently deficient two-lane roads in the study area and to provide a more direct connection between SR 33 and US 321/SR 73 east of Maryville without having a new freeway. A route using existing Sam Houston School Road, Peppermint Road, Hitch Road, and Helton Road was identified. Under this alternative, an improved two-lane roadway

would be constructed using the existing roadway alignment where possible, while straightening curves and realigning intersections and using new locations to provide a continuous route with a 50 mile-per-hour design speed. The length of this corridor would be approximately 5.77 miles.

The proposed typical section for the upgraded two-lane network would consist of one 12-foot travel lane in each direction with 10-foot outside shoulders (see Figure 2-4). At major intersections, a center turn lane could be added as necessary. Bicyclists and pedestrians would use the paved shoulders.

The proposed ROW would be a minimum of 150 feet, requiring the purchase of additional ROW. Depending upon the horizontal and vertical curve requirements, desired speed limits and the slope of the existing land, actual ROW acquisition might be reduced or increased in some areas during the design phase of the project.

Figure 2-4: Typical Section for Build Alternative D



Source: PB Americas, 2009.

The corridor would generally follow Sam Houston School Road from SR 33 to Wildwood Road and would continue across Wildwood Road on a new location before joining with Peppermint Road about 2,000 feet south of the current Peppermint Road/Wildwood intersection; thus avoiding the existing offset intersections of Sam Houston School Road and Peppermint Road with Wildwood Road. The corridor would use Peppermint Road for about 1,800 feet before shifting to the east to intersect Hitch Road at its current intersection with Sevierville Road. The corridor would use Hitch Road for about 1,500 feet before shifting southwest to avoid substantial horizontal curves and a large residential subdivision. The corridor would follow a south/southeasterly course behind the subdivision and cross Davis Ford Road to the west of Misty View Drive and subdivision. The alignment would continue southerly crossing Centennial Church Road at Helton Road. Alternative D would generally follow a course to the west of Helton Road and intersecting with US 321/SR 73

about 250 feet west of the intersection of US 321/SR 73 and Old Walland Highway (Tuckaleechee Pike).

Following a resource agency field review in April 2008, a refinement was made to the location of Alternative D in the area between Davis Ford Road and US 321/SR 73. The refined alternative was shifted westward to minimize intrusions into Crooked Creek, and to avoid direct impacts to a church and cemetery at Centennial Church Road and Helton Road.

The LRTP already includes two projects (numbered 244 and 247 in Figure 2-1) to reconstruct the two-lane sections of two of these roadways by 2020: Peppermint Hills Drive from Wildwood Road to US 411/Sevierville Road, and Sam Houston School Road from SR 33/Old Knoxville Highway to Wildwood Road. Alternative D would expand the reconstruction to include the area between US 411/Sevierville Road and US 321/SR 73, and would provide a more direct route that does not require through traffic to make numerous turns to follow the route.

2.2 How Alternatives Meet Purpose and Need

As discussed in Chapter 1 of this DEIS, the purpose of the project is to develop a transportation solution that:

- Provides travel options for motorists to the existing radial roadway network;
- Enhances regional transportation system linkages;
- Enhances roadway safety on the roadway network, including the Maryville core; and
- Assist in achieving acceptable traffic flows (LOS) on the transportation network or not adversely affect traffic flows on existing transportation network.

The following subsections provide an assessment of how each of the alternatives discussed in this DEIS would meet the stated purpose and need of the project.

2.2.1 No-Build Alternative

The No-Build Alternative would do nothing more than provide normal roadway maintenance to existing roads in the project area. The No-Build Alternative would not address:

- Travel options for motorists who utilize the existing road network;
- The need for a northwest/east connection east of Alcoa and Maryville;
- Safety concerns along the existing roadway network within the study area; and
- The traffic congestion and poor LOS for some of the major arterial roads in the study area. (The LOS along major roads in the study area will deteriorate to LOS E/F in the year 2035 under the No-Build Alternative.)

By considering the No-Build Alternative in the alternatives analysis, the anticipated impacts of the various alternatives can be better understood. The No-Build Alternative allows for a comparison between the future environmental conditions (including projected growth in population and traffic volumes) with and without the extension of Pellissippi Parkway.

2.2.2 Alternatives A and C

Alternatives A and C each would substantially meet the purpose and need of the proposed project as described in Chapter 1 in that they would:

- Address the recognized need to improve the county's existing primarily radial network by implementing a segment of a non-radial alternative route in the eastern quadrant of Blount County;
- Enhance regional transportation system linkages by completing the originally envisioned Pellissippi Parkway to connect eastern Blount County with Oak Ridge as part of what is now called the Oak Ridge Technology Corridor;
- Provide a new connection east of Alcoa and Maryville for motorists who utilize the existing road network to travel between SR 33 and US 321/SR 73 (as discussed in Section 3.1, Transportation Impacts of this DEIS, travelers using either alternative would experience more than 50 percent travel time savings over using the existing network);
- Address safety concerns along the existing roadway network by allowing motorists the option of a new four-lane, controlled-access roadway instead of traveling through the Maryville urban core or using substandard local roads as a bypass to the east of downtown Maryville; and
- Assist in improving traffic operations at some locations along the existing roadway network (i.e., under either alternative, peak period traffic operations at the intersection of SR 33 at SR 35/Washington Street intersection would improve in 2015 and 2035, as discussed in Section 3.1, Transportation Impacts, of this DEIS).

2.2.3 Alternative D

Alternative D would do little to enhance the regional transportation linkages or to improve traffic operations on the existing roadway network. This alternative partially addresses the purpose and need of the proposed project as described in Chapter 1 in that it would:

- Improve substandard cross sections on several existing two-lane roads;
- Provide a more coherent and enhanced two-lane network between SR 33 and US 321/SR 73 to the east. (This connection would not, however, provide the higher level of access of the four-lane controlled access road proposed in Alternatives A and C.)
- Address safety concerns along the existing roadway network by allowing motorists the option of an upgraded two-lane route between SR 33 and US 321/SR 73 instead of traveling through the Maryville urban core or using substandard local roads as a bypass to downtown Maryville. This route may not be immediately obvious to motorists who are unfamiliar with the area and are trying to travel between SR 33 and US 321/SR 73 east of Maryville and Alcoa.

2.3 Preliminary Cost Estimates of Build Alternatives

The preliminary cost estimates for Alternatives A, C and D are shown in Table 2-2. No capital costs are associated with the No-Build Alternative. The total estimated capital costs are based on the functional level plans developed for this study, and show construction and

engineering, utility relocations, and ROW and relocation costs appropriate to the level of the plans. The costs are shown in current year (2009) dollars.

Table 2-2: Preliminary Capital Costs for Build Alternatives

Costs	Alternative A	Alternative C	Alternative D
Construction & Engineering	$ 91,536,000	$ 96,232,000	$ 54,026,000
ROW Acquisition	$ 5,384,000	$ 8,318,000	$ 5,474,000
Total Estimated Costs	**$ 96,920,000**	**$104,550,000**	**$ 59,500,000**

Source: Parsons Brinckerhoff, 2009.

2.4 Development of Alternatives

This section discusses those alternatives that were developed and evaluated prior to the decision to prepare an EIS, and describes the process used to identify and refine the range of alternatives and corridors for consideration in this DEIS.

2.4.1 Alternatives Evaluated in Prior Studies

From 1999 to 2001, TDOT prepared a NEPA-level Environmental Assessment (EA) for the proposed Pellissippi Parkway Extension. The FHWA approved the final EA in October 2001. The EA studied the No-Build Alternative and a Build Alternative to extend Pellissippi Parkway from SR 33 to US 321/SR 73 as a four-lane, controlled access highway. The EA Build Alternative included two alternative alignments, Alternative A and Alternative B/C.

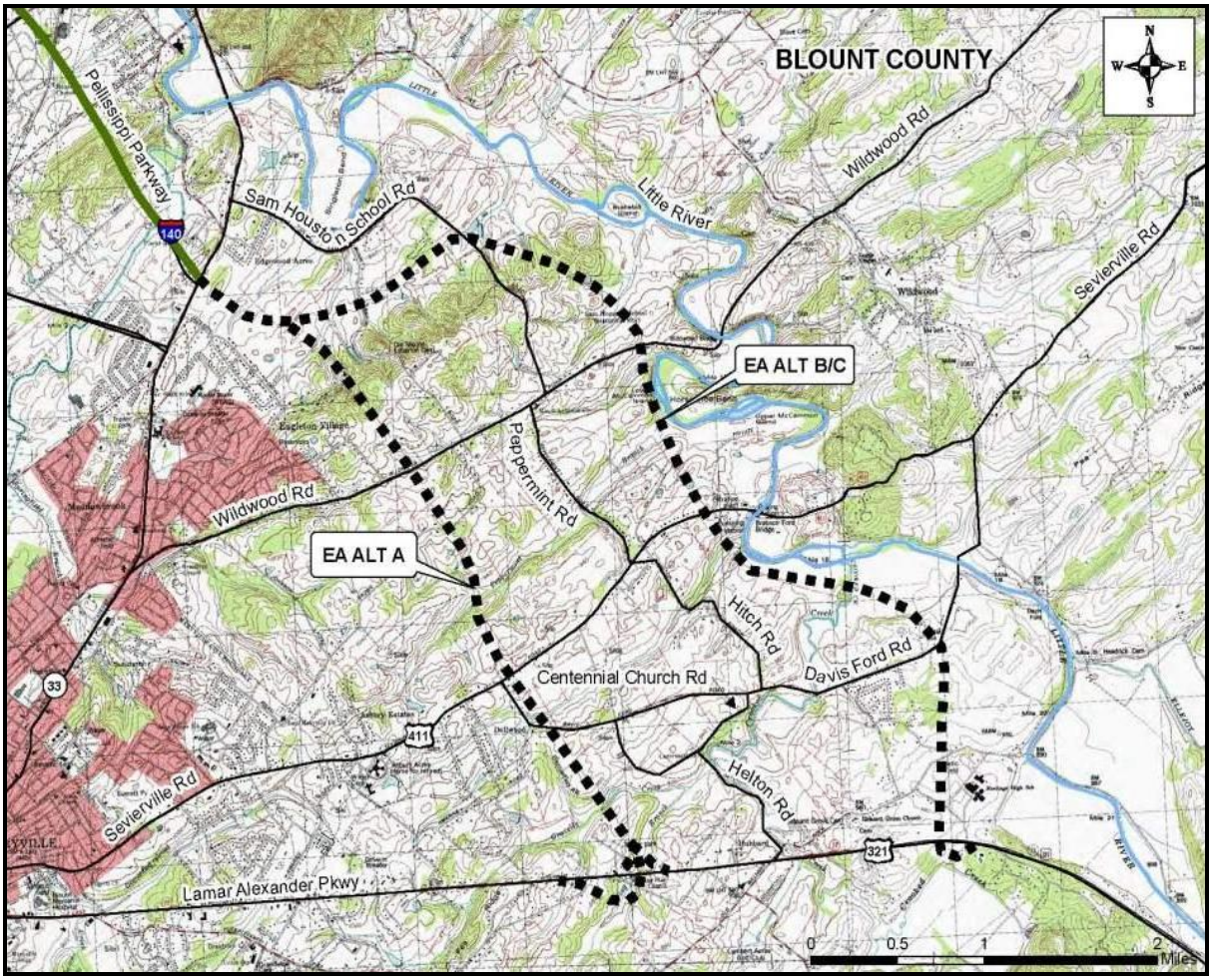
The proposed typical section showed four 12-foot traffic lanes with a grassed median within a 250-foot-wide right-of-way (ROW), with full access control. The Build Alternative included interchanges with two roads (US 411/Sevierville Road and US 321/SR 73). Figure 2-5 shows the two Build Alternative alignments evaluated in the EA.

Alternative A started at SR 33 at the current terminus of I-140 and extended in a southerly direction to connect with SR 73. Diamond interchanges were planned to connect the new roadway with SR 33 and with US 411/Sevierville Road, and the roadway would terminate with a trumpet interchange at US 321/SR 73. All other road crossings would be grade-separated without access. Two routes, SR 33 and US 411/Sevierville Road, would be improved to a five-lane urban section through the interchange area.

The five-lane cross section on those two roadways would consist of two 12-foot lanes in each direction with a 12-foot continuous center turn lane.

Alternative B started at SR 33 at the current terminus of I-140 and extended to US 321/SR 73 to the east of Alternative A. During the technical studies for this alternative, it was determined that the alignment would have encroached on the historic Hitch Farm. For that reason, TDOT identified a third location alternative (Alternative C) farther to the northeast between US 411/Sevierville Road and US 321/SR 73 to avoid the Hitch Farm. Since the Alternative C alignment contained elements of Alternative B, TDOT relabeled the revised alignment as Alternative B/C and eliminated the section of Alternative B between US 411/Sevierville Road and US 321/SR 73.

Figure 2-5: Environmental Assessment Alternatives



Source: TDOT, Pellissippi Parkway Extension Environmental Assessment, 2001.

Alternative B/C shared a common alignment with Alternative A for approximately 3,500 feet from SR 33 southward before diverting to a more easterly location. The Alternative B/C alignment would continue in a southerly direction and terminate at US 321/SR 73 just west of Heritage High School.

Alternative A was TDOT's Preferred Alternative because it would have affected fewer potentially eligible archaeological sites, cost less to build, displaced fewer residents, and would have no wetland involvement. In March 2002, following the public hearing on the EA, TDOT formally identified Alternative A as the Selected Alternative, and in April 2002 the FHWA issued a FONSI on the Preferred Alternative.

In July 2002, a group formed to oppose the project, Citizens Against Pellissippi Parkway Extension (CAPPE), brought a lawsuit against FHWA and TDOT, and a federal court injunction halted the project before TDOT could initiate ROW acquisition. The case was sent to US District Court in Nashville. The court rejected a motion in September 2002 by the FHWA to remand the EA/FONSI. In April 2004, the US Court of Appeals (Sixth Circuit) heard the case, and in July 2004 permitted the FHWA to reconsider and reissue environmental documents for the project. That led to the decision to prepare an EIS for the proposed project.

2.4.2 Initial Range of Alternatives for the EIS

Once the FHWA issued a Notice of Intent (NOI) to prepare an EIS in April 2006, TDOT initiated coordination with affected agencies and the public. The NOI was published in the *Federal Register* on April 25, 2006. The agency coordination and public involvement program is described in Chapter 4, Public Input and Agency Coordination. During the early coordination period, TDOT initiated the scoping for the project, holding two public scoping meetings in June 2006 and soliciting public and agency comments in writing. During this scoping period, TDOT asked the public to identify potential alternatives.

Members of the public identified the following alternatives to be considered:

- Spend money on the following projects in addition to, or instead of, building the extension:
  - Align intersection at Wildwood Road and SR 33 (Broadway);
  - Add a center turn lane on SR 33; and
  - Install a traffic signal at SR 33 and Sam Houston School Road [Note: This signal has since been installed.];
- Coordinate signal timing throughout the area [Note: A regional signal timing upgrade is included in the regional TIP and is underway.];
- Improve currently deficient local roads, such as Davis Ford Road, Peppermint Road, Sam Houston Road, River Ford Road, and Ellejoy Road;
- Upgrade and improve US 411/Sevierville Road (straighten curves, add center turn lane);
- Upgrade and improve US 129/Alcoa Highway;
- Construct a northbound on-ramp at the I-140 and Cusick Road interchange.
- Implement and/or expand a public transportation system; and
- Extend Pellissippi Parkway following the Preferred Alternative concept in the 2002 EA/FONSI or following a revised corridor farther to the east.

2.4.3 Refinement and Evaluation of Alternatives

In 2007, TDOT developed an initial range of alternatives and corridors. These alternatives and corridors were developed as a result of public input from the public meetings (as well as submitted letters, e-mails and comment forms), and input from local and regional agencies, including the Knoxville Regional TPO. The alternatives and corridors were evaluated using available environmental databases, including Geographic Information Systems (GIS) information from local, state and federal agencies, windshield surveys, and recent (December 2007) aerial mapping. These sources were used to refine the alternative corridors and to assist in identifying environmental constraints and conditions in the vicinity of the alternative corridors.

The initial range of alternatives and corridors that emerged from the public input and preliminary screening were:

- No-Build Alternative;

- Public Transit;
- Transportation System Management Alternative (TSM) – Improve SR 33 and SR 35/ Washington Street with intersection improvements, signal timing, and turn lanes;
- Improve currently deficient roads – Wildwood Road, US 411/Sevierville Road, SR 33, and Davis Ford Road with improved shoulders and new turn lanes;
- Upgrade a network of existing roadways to serve as a two-lane connection between SR 33 and US 321/SR 73, using Sam Houston School Road, Peppermint Road, Hitch Road, and Helton Road (later identified as Corridor D); and
- Extend Pellissippi Parkway as a four-lane, controlled access highway from SR 33 to US 321/SR 73 in one of two potential 2,000-foot-wide corridors (identified at this meeting as Corridor A and Corridor B). These are generally the corridors originally studied in the 2001 EA.

TDOT held an Alternatives Workshop on October 25, 2007, in the study area to gather public input on the refined purpose and need and potential project corridors and alternatives. A second public meeting was held on February 19, 2008, to encourage additional public input on the alternatives to be studied in the DEIS and to discuss next steps in the EIS process.

Following the February 2008 public meeting, a third additional corridor to extend Pellissippi Parkway (Corridor C) was developed in large measure due to public concerns and environmental issues associated with Corridor B.

TDOT held a field review April 10, 2008, with participating agencies to obtain agency input and identify potential conflicts related to potential alternatives and the study area. In addition to TDOT and FHWA personnel, the following resource agencies attended the field review:

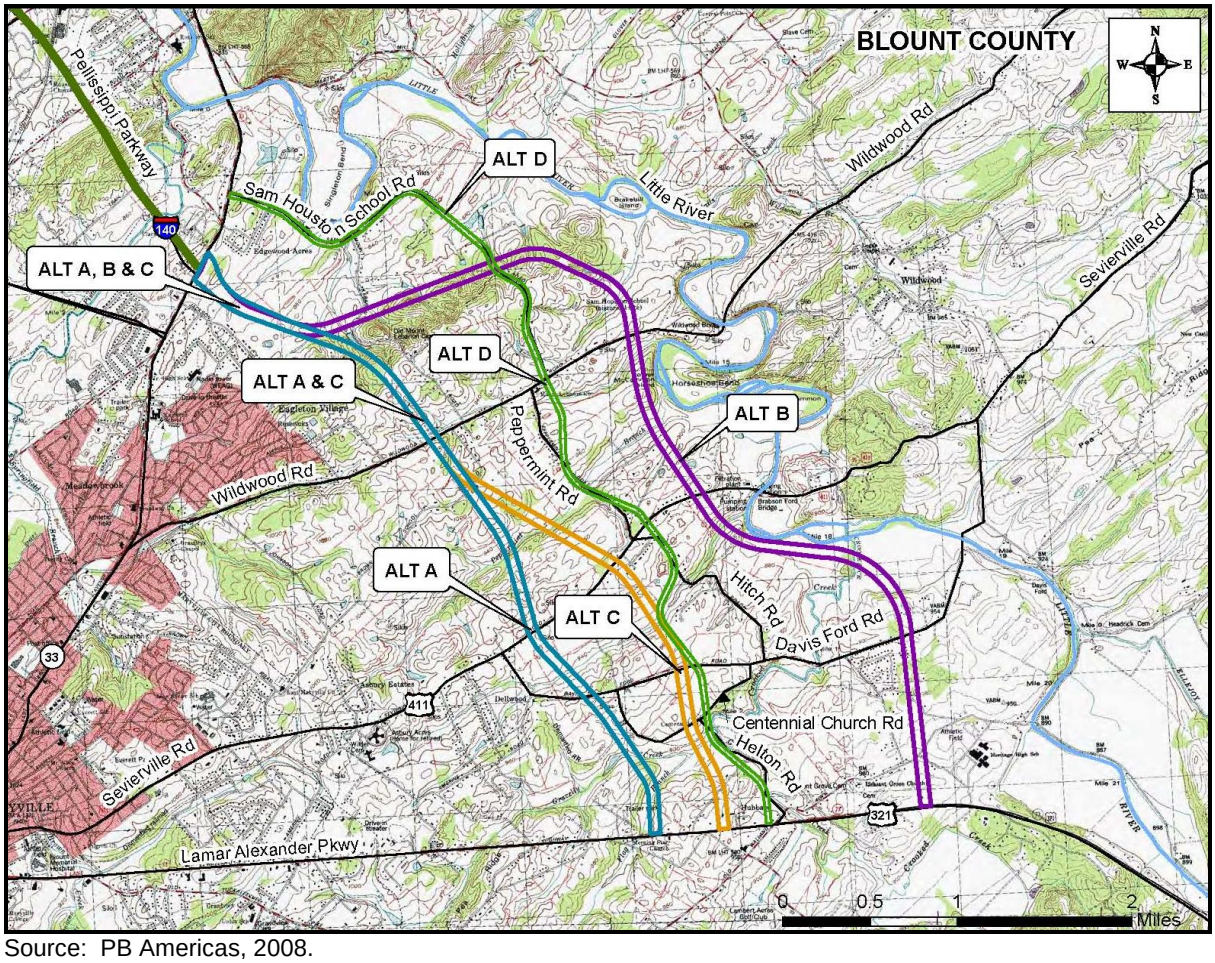
- US Army Corps of Engineers (USACE)
- US Environmental Protection Agency (EPA)
- US Fish and Wildlife Service (USFWS)
- Tennessee Valley Authority (TVA)
- Tennessee Wildlife Resources Agency (TWRA)
- Knoxville Regional TPO

Figure 2-6 shows the corridors and alternatives that were presented to the agencies during the field review.

During the field review, representatives of the attending agencies requested that additional information be included in the evaluation of alternatives:

- Travel time savings
- Stream crossings and impaired streams
- Floodplain encroachments
- Estimated relocations
- Farmlands
- Groundwater recharge areas
- Stream buffers

Figure 2-6: Preliminary Corridors Evaluated in 2008



Source: PB Americas, 2008.

Following the field review, the alternatives and corridors were evaluated in accordance with screening methodologies related to achievement of transportation objectives. The results of the screening analysis were documented in the *Alternatives to be Evaluated in the DEIS* package, June 2008. This package was submitted to the project's participating agencies as part of the Tennessee Environmental Streamlining Agreement (TESA) and in compliance with the early coordination requirements of the Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users (better known as SAFETEA-LU). This package presented an evaluation of the range of alternatives considered.

In late July 2008, the agencies concurred that four alternatives should be carried forward for further study in the DEIS: No-Build and Build Alternatives A, C and D. The agencies also concurred that the Public Transit, TSM, and Build Corridor B should be dismissed from further consideration.

A summary of advantages, disadvantages, and recommendations for future study for each corridor and alternative evaluated in the *Alternatives to be Evaluated in the DEIS* package is presented in Table 2-3. The alternatives/corridors dismissed from further consideration are discussed in the following sections.

Table 2-3: Evaluation of Preliminary Alternatives

Alternative/ Corridor	Advantages	Disadvantages	Disposition
No-Build	• Improves portions of the local road network with substandard cross sections; (future projects in the LRTP will require environmental analysis to determine impacts) • Minimal adverse impacts to farmlands, floodplains, streams and residences	• Does not provide travel options for motorists to the existing radial roadway network • Does not address lack of a northwest/east connection east of Alcoa and Maryville • Travel time: 19 minutes	To be included in DEIS for comparison to Build Alternative(s)
TSM	• Improves portions of the local road network with substandard cross sections and poor intersection configurations • Potential to address some traffic safety locations • Minimal adverse impacts to farmlands, floodplains, streams and residences	• Does not provide travel options for motorists to the existing radial roadway network • Insufficient scale of operation to reduce congestion or Level of Service issues • Does not address lack of a northwest/east connection east of Alcoa and Maryville	Recommended for removal from consideration
PUBLIC TRANSIT			
Demand Responsive (Paratransit)	• Provides a mobility option to private automobiles • Requires no adverse impacts to farmlands, residences, streams and residences, and other resources	• Does not provide travel options for motorists to the existing radial roadway network • Insufficient scale of operation to reduce congestion or resolve safety issues at intersections • Does not address poor local road network	Recommended for removal from consideration
Fixed Route Bus Service	• Provides a mobility option to private automobiles • Requires no adverse impacts to farmlands, residences, streams and residences, and other resources	• Insufficient population density to support service beyond central core • Does not provide travel options for motorists to the existing radial roadway network • Insufficient scale of operation to reduce congestion or resolve safety issues at intersections • Does not address poor local road network	Recommended for removal from consideration
Bus Rapid Transit	• Provides a mobility option to private automobiles • Requires no adverse impacts to farmlands, residences, streams and residences, and other resources	• Considered to be viable only as part of a regional system connecting to Cades Cove • Does not provide travel options for motorists to the existing radial roadway network • Does not address poor local road network	Recommended for removal from consideration

Table 2-3: Evaluation of Preliminary Alternatives (cont'd)

Alternative/ Corridor	Advantages	Disadvantages	Disposition
BUILD ALTERNATIVE – UPGRADE EXISTING ROADS			
Upgraded 2-Lane Network – Corridor D	• Provides travel options for motorists to the existing radial roadway network • Improves portions of the local road network with substandard cross sections • Addresses need for a northwest/east connection east of Alcoa and Maryville	• 8 stream crossings • 1 impaired stream crossing (Peppermint Branch; avoids Crooked Creek) • 18.4 acres floodplain encroachment • 19 residences displaced • Travel time savings over No-Build – 7 to 9 minutes	Recommended to carry forward to DEIS evaluation
BUILD ALTERNATIVE – EXTEND PELLISSIPPI PARKWAY			
Corridor A	• Provides travel options for motorists to the existing radial roadway network • Enhances regional transportation system linkages • Addresses need for a northwest/southeast connection east of Alcoa and Maryville	• Does little to improve portions of the local road network with substandard cross sections • 8 stream crossings • 3 impaired stream crossings (Peppermint Branch; Flag Branch and Gravelly Creek) • 17.3 acres floodplain encroachment • 4 residences displaced • Travel time savings over No-Build: 11 minutes	Recommended to carry forward to DEIS evaluation
Corridor B	• Provides travel options for motorists to the existing radial roadway network • Enhances regional transportation system linkages • Addresses need for a northwest/east connection east of Alcoa and Maryville	• Does little to improve portions of the local road network with substandard cross sections • 12 stream crossings • 2 impaired stream crossings – Crooked Creek and Peppermint Branch • 48.1 acres floodplain encroachment • 56 residences displaced • Travel time savings over No-Build: 8 minutes	Recommended for removal from consideration
Corridor C	• Provides travel options for motorists to the existing radial roadway network • Enhance regional transportation system linkages • Addresses need for a northwest/east connection east of Alcoa and Maryville	• Does little to improve portions of the local road network with substandard cross sections • 7 stream crossings • 3 impaired stream crossings(Peppermint Branch; Flag Branch and Gravelly Creek, but avoids Crooked Creek) • 20.5 acres floodplain encroachment • 12 residences displaced • Travel time savings over No-Build: 11 minutes	Recommended to carry forward to DEIS evaluation

2.4.3.1 Public Transit

In response to requests by members of the public to address new or improved public transit systems, an alternative to expand public transit services in Blount County was explored. This alternative focused on the most likely type of transit for this area—a fixed-route local bus service.

Fixed Route Local Bus Service

For a fixed-route local bus service to be successful, a community must have concentrations of both residential (origin) and employment (destination) areas to support the transit service. According to the Institute for Transportation Engineers (ITE) manual, *A Toolbox for Alleviating Traffic Congestion* (ITE Toolbox) :

> *A minimum level of local bus service (20 daily bus trips in each direction or one bus per hour) is often provided in residential areas averaging four to five dwelling units per acre. Typically, these residential densities correspond to gross population densities of 3,000 to 4,000 people per square mile. (**http://ntl.bts.gov/lib/jpodocs/repts_te/10803.pdf**).*

The ITE Toolbox further recommends that a local bus at one-hour intervals is suitable for non-residential concentrations of activities (such as employment, shopping and other activities) in the range of five to eight million square feet of floor space per square mile, occasionally lower. Transit service is also dependent on sufficient walk-in patronage within a quarter mile of the fixed route.

Table 2-4 shows the population and densities for Blount County and the cities of Maryville and Alcoa according to the 2000 Census, and the 2005 projected populations for these geographies based on projections by the Tennessee Advisory Commission on Intergovernmental Relations (TACIR) and the University of Tennessee's (UT) Center for Business and Economic Research. Maryville's estimated density for 2005 was about 2.4 persons per gross acre, well below the minimum threshold for fixed-route bus transit.

Table 2-4: Residential Density (2000 and 2005)

	Population	Gross Acres	Population/Sq Mi	Population/Acre
2000				
Blount County	105,823	558.56	189	0.3
Maryville	23,120	15.92	1,452	2.3
Alcoa	7,734	13.79	561	0.9
2005				
Blount County	112,222	558.56	201	0.3
Maryville	24,655	15.92	1,549	2.4
Alcoa	8,316	13.79	603	0.9

Source: TACIR and UT Center for Business & Economic Research. *Population Projections for the State of Tennessee 2005 to 2025*, June 2009.

While individual areas within Maryville likely have higher densities that could meet or exceed the thresholds for fixed-route service, there must be a broader pattern of higher-density residential areas and corresponding centers of employment as destinations in order for a fixed-route system to be successful. At some point in the future, there may be sufficient densities in the cities of Alcoa and Maryville where fixed-route transit service may be

desirable and feasible. Currently, Alcoa, Maryville, and Blount County have no plans for creating a fixed-route bus service in Blount County.

For lower levels of density, demand responsive or paratransit service may be more appropriate. Paratransit service is any form of service that does not use fixed routes, and includes carpools, vanpools, subscription buses, jitneys, shared-ride taxis, and on-demand (route-deviation) services. According to the ITE Toolbox, paratransit service "often depends less on the particular land use pattern found in an area and more on the initiatives of the affected parties …. These modes can be effective, particularly if institutional support is present from large employers with many persons working at one site with identical (and regular) working schedules."

Public transportation services in Blount County are currently provided by the East Tennessee Human Resources Agency's (ETHRA) rural transportation program, which is a rural and public demand-response transportation program serving a 16-county area. Typically pick-up and drop-off times are prearranged on a first-come-first serve basis; 48 hours notice is preferred. While ETHRA's main focus is to serve residents who have no other form of transportation for medical, essential errands and employment trips, their service is available to the general public.

The potential expansion of the regional demand-responsive system has been discussed in the region; however, funding remains an issue for the regional agency providing this service. Expansion of the regional paratransit services in the study area would provide additional mobility options for people in need of transportation services. However, as a reasonable alternative to the extension of Pellissippi Parkway, it is unlikely that expanded paratransit service would be able to meet the demand of the broader range of travelers in the study area.

Bus Rapid Transit

The TPO's *2002 Regional Transportation Alternatives Plan* (RTAP) analyzed regional transit options in East Tennessee. The plan initially examined a 10-county area, but ultimately focused on the five more-densely developed counties (Knox, Anderson, Sevier, Blount, and Loudon). The RTAP examined the characteristics of a range of transportation modes, including shuttle/trolley bus, express bus, bus rapid transit (BRT), light rail transit (LRT), and commuter rail. The RTAP's analysis of market potential concluded that there is not sufficient activity or development in the five-county area to warrant a rail-based concept in the near term.

The RTAP then described that a more likely transit scenario for the region would be a series of express buses connecting the region, and identified a conceptual regional framework. The conceptual framework provided for improved transit services in the Sevier County SR 66/US 441 corridor in the form of exclusive BRT transit lanes. The RTAP also described other "corridors of opportunity" in the region that could be linked by express bus service. The RTAP included in the regional concept the potential for express bus service between Maryville/Alcoa (McGhee Tyson Airport) and Knoxville and between Maryville and Townsend via US 321/SR 73 or the proposed Pellissippi Parkway Extension.

The RTAP's potential corridor between Maryville and Townsend was accompanied by the caveat that this potential express bus service would be appropriate only if the connection "becomes a focal point for access into Cades Cove by another transit system". The GSMNP is currently conducting the Cades Cove Development Concept and Transportation

Management Plan, focusing on possible transportation alternatives in the Cades Cove area of the park. No decision has been announced regarding the viability of transit as a transportation alternative for Cades Cove.

In order for transit to offer substantial mobility in the Pellissippi Parkway corridor, Blount County and the cities of Maryville and Alcoa would need to address the concept of transit-oriented development and set up transit agencies to establish funding policies that would match local demand and funding capacities.

Fixed-route public transit was not advanced for further study in this DEIS for the following reasons:

- Beyond the central core of Maryville, the county lacks sufficient density to support transit service;
- The transit option does not provide travel options for motorists to the existing radial roadway network;
- Its scale of operation would not be sufficient to reduce congestion or resolve safety issues at intersections; and
- Does not address poor local road networks.

A BRT option was not advanced for further study for the following reasons:

- It is considered to be viable only as part of a regional system connecting to Cades Cove;
- It does not provide travel options for motorists to the existing radial road network; and
- It does not address poor local road network.

2.4.3.2 Transportation System Management

A TSM alternative would consist of a series of lower cost improvements to maximize the efficiency of the existing roadway. A TSM alternative for this study would include improvements to SR 33 and SR 35 (Washington Street). Such improvements might include adding turn lanes in congested areas or intersections, reconfiguring intersections, and improving shoulders.

The regional LRTP already includes several projects to widen SR 33 (between Wildwood Road and McArthur Road, and between Hunt Road and the Knox County line), and install traffic lights at Sam Houston School Road and at Brown School Road. The LRTP also includes improvements to US 129/Alcoa Highway between the Knox County line and Hunt Road. In addition, a project to improve signal timing is already underway.

A TSM alternative would address improvements not already under consideration in the LRTP. These possible improvements have been discussed with the City of Maryville Traffic Engineer and represent potential solutions that the city had already been discussing. The specific elements of the TSM alternative are described below.

- Improvements to the existing configuration and signal timing of the SR 33 intersections between Lincoln Road and Wildwood Road to provide protected left turns – These improvements would address current safety concerns and traffic back-ups related to vehicles trying to turn left from the two-lane constrained SR 33.

- Improvement to the existing configuration of the intersection of US 321/SR 73 with Washington Street (SR 35) at Maryville College – This improvement would correct the awkward alignment of the existing high-volume intersection by providing additional turn lanes and signal modifications. Currently, westbound traffic on US 321/SR 73 East must turn left to continue westbound on US 321/SR 73 West using two protected turn lanes. Current volumes (700 vehicles per hour) indicate that this movement should be a through movement. According to city engineers, additional turn lanes are needed for traffic from US 321/SR 73 East onto SR 35/Washington Street northbound as well.
- Improvement to intersection of SR 35/Washington Street with High Street and US 411/Sevierville Road. Improvements would include turn lanes and signal improvements.

These improvements are needed to help traffic flow and safety concerns in the downtown Maryville area and along SR 33 between existing Pellissippi Parkway and US 321/SR 73. They would, however, do little to address the lack of non-radial routes in the study area. These improvements are not of sufficient scale to reduce congestion or level of service issues, and they do not address the lack of a northwest/east connection east of Maryville and Alcoa. For these reasons, the TSM alternative was dropped from further consideration.

2.4.3.3 Extend Pellissippi Parkway (Corridor B)

Corridor B was a third four-lane, controlled access concept for extending Pellissippi Parkway that was considered initially and later dismissed. Corridor B would have generally followed the corridor (approximately 6.5 miles in length) identified and investigated in the EA (as Alternative B/C – see Figure 2-5). Corridor B would have shared its beginning with Corridor A (now Build Alternative A in this DEIS), starting on the east side of SR 33, opposite the existing half interchange of Pellissippi Parkway and SR 33, and would have followed a generally easterly path for about 0.75 miles. At that point, Corridor B would have diverged from Alternative A and continued easterly across Mount Lebanon Road, crossing Sam Houston School Road just south of the Eagleton Elementary School property. East of Sam Houston School Road, the corridor would have curved southward to cross Wildwood Road and run west of the Little River along Horseshoe Bend. Corridor B would have continued south to cross US 411/Sevierville Road, continuing easterly to cross Crooked Creek just south of its confluence with the Little River. The corridor would have then curved to the south crossing Davis Ford Road and Old Walland Highway before intersecting with US 321/SR 73 to the west of the Heritage High School complex. Corridor B is shown on Figure 2-6.

Corridor B generated substantial comments during the October 2007 and February 2008 public meetings. Few comments indicated support for this corridor; one person stated that this corridor would be acceptable only if Corridor A is not feasible. Many people indicated concerns about the longer length of this corridor compared with Corridor A, and its proximity to the Little River, several cultural resources, existing neighborhoods, and the Heritage High School complex.

During the review of the corridors and alternatives, it was determined that Corridor B would do little to improve portions of the local road network with substandard cross sections. Compared to Corridors A and C, there would be more substantial impacts to wetlands, floodplains, and farmlands because of its proximity to the Little River. It was also anticipated to have substantially more residential displacements than the other corridors. For these reasons, Corridor B was dropped from further consideration.

2.5 Summary

A wide range of alternatives were developed based on public and agency comments and previous environmental studies. Those that were not expected to meet the purpose and need discussed in Chapter 1 were eliminated from further consideration. The Build Alternatives that are carried forward with further analysis are:

- Build Alternative A – extend Pellissippi Parkway to US 321/SR 73 as a new four-lane divided highway generally west of Alternative C;
- Build Alternative C – extend Pellissippi Parkway to US 321/SR 73 as a new four-lane divided highway generally east of Build Alternative A; and
- Build Alternative D – upgrade an existing network of two-lane roads between SR 33 and US 321/SR 73.

3.0 ENVIRONMENTAL RESOURCES, CONSEQUENCES AND MITIGATION

This chapter describes the important characteristics of the project area and discusses the potential impacts of the No-Build and Build Alternatives on the human and natural environment. This chapter also identifies potential measures to mitigate adverse impacts.

This DEIS documents the following characteristics and resources found within the project's impact area to determine the potential effects that the No-Build and Build Alternatives may have on the resources, as well as indirect and cumulative effects on these resources:

- Transportation
- Land use and community facilities
- Social and economic conditions
- Displacements and relocations
- Environmental Justice
- Farmlands
- Historic architectural and archaeological resources
- Recreational resources
- Visual quality
- Air quality
- Noise
- Soils and geology
- Floodplains
- Hazardous materials
- Energy
- Terrestrial ecology
- Water quality
- Streams, springs, seeps and other water bodies
- Wetlands
- Threatened and endangered species

Types of Impacts Analyzed in the DEIS

Direct Impacts are caused by the project at the time and place the project is constructed.

I**ndirect Impacts** may be caused by a project, but would occur in the future or outside of the project area and are reasonably foreseeable.

Cumulative Impacts are the combined effects of all projects (not just the current project and not just highway projects) on a given resource, regardless of who builds the project (developers, localities, etc., not just state departments of transportation or federal agencies). They are based on past, present, and reasonably foreseeable future actions.

The following technical reports were prepared for this project and are on file with the TDOT Environmental Division office:

- SR 162 (Pellissippi Parkway Extension) Traffic Operations Technical Report, October 2008
- SR 162 (Pellissippi Parkway Extension) Traffic Forecast Study, October 2007
- SR 162 (Pellissippi Parkway Extension) Crash Analysis Report Update, May 2009

- Pellissippi Economic and Fiscal Impacts Analysis, June 2009
- Conceptual Stage Study Relocation Plan, Pellissippi Parkway, March 2009
- Phase I Archaeological Survey for Pellissippi Parkway Extension (SR 162), May 2009
- Historical and Architectural Survey and Assessment of Effects Under 36 CFR 800, Pellissippi Parkway, April 2009
- Pellissippi Parkway Air Quality Report, revised February 2010
- Pellissippi Parkway Noise Technical Report, July 2009
- Geological Report - Preliminary, Pellissippi Parkway Extension (SR 162), February 2009
- Phase I Preliminary Assessment Study, Pellissippi Parkway Extension (SR 162), November 2008
- Ecology Report, Pellissippi Parkway Extension (SR 162), revised January 2010
- Pellissippi Parkway Extension Indirect and Cumulative Effects Technical Memorandum, August 2009

3.1 Transportation

This section describes the transportation impacts of the proposed project, and compares those impacts against the No-Build Alternative. The transportation impacts are related to roadway, transit, and bicycle and pedestrian movements. There are no rail facilities within the project area. The closest airport is the McGhee Tyson Airport in Alcoa, west of US 129/Alcoa Highway, outside the project area.

3.1.1 Transportation Resources

The existing road network in the study area is described in Section 1.3 in Chapter 1 of this DEIS. This section addresses the potential traffic impacts of the No-Build and Build Alternatives.

The traffic analysis for the Pellissippi Parkway Extension was prepared to identify how well intersections and existing roadways within the study area would operate in the future with no change in the existing infrastructure and with the proposed Build Alternatives. For the purposes of this study, forecasts for future traffic have been developed for the roadways and intersections within the study area for the Year 2015 (opening year) and Year 2035 Build (20 years after opening) scenarios. The *Traffic Operations Technical Report* prepared for this project is available through TDOT's Environmental Division; the results of that study are summarized in the following sections.

3.1.1.1 2015 and 2035 Traffic Impacts

For all highway (corridor) segments and major intersections, the projected 2015 and 2035 traffic volumes were input into the Highway Capacity Software Plus (HCS+), which is based on the Highway Capacity Manual (HCM) methodology. This software provides the commonly understood level of service (LOS) grade results for the highway corridors and the intersections. The concept of level of service is explained in Section 1.4.2 and in Figure 1-6

in Chapter 1. For reference, Figures 1-7, 1-8, and 1-9 in Chapter 1 illustrate LOS on area roadways for the existing year and the future years of 2015 and 2035 under the No-Build Alternative.

Corridor LOS

The results of the highway corridor LOS for the Build Alternatives are shown in Table 3-1 and presented graphically in Figure 3-1 and Figure 3-2. As discussed in Chapter 1, LOS D is considered the minimum desirable threshold for traffic operations on roadways in urban and suburban areas. Operations below this threshold (LOS E and F) are considered to be undesirable.

In 2015, the two four-lane alternatives (A and C) between SR 33 to south of US 321/SR 73/Lamar Alexander Parkway have a much higher (better) LOS than Alternative D. However, once 2035 is reached, the LOS gap among the alternatives begins to narrow. From SR 33 to US 411/Sevierville Road, all three Build Alternatives would operate at a poor LOS (E or F). From US 411/Sevierville Road to US 321/SR 73, Alternatives A and C still would outperform Alternative D, but not by as much as in 2015. From this comparison, the four-lane Alternatives A and C would operate better and experience less delay and higher travel speeds than would the two-lane Alternative D.

The LOS for existing I-140 (Pellissippi Parkway) is acceptable for both the existing (2006) and 2015 analysis years under the No-Build and Build Alternatives A and C. However, by 2035 for both the No-Build and Build Alternatives A and C, two sections of the existing parkway would operate below the LOS D threshold because of the substantial increase in expected traffic volumes. These two sections are:

- I-140 (Pellissippi Parkway) just west of US 129/Alcoa Highway to Topside Road, where the average daily traffic (ADT) is expected to increase by 36 percent between 2015 and 2035);and
- I-140 (Pellissippi Parkway) between the proposed Relocated Alcoa Highway and SR 33 (ADT expected to increase by 64 percent between 2015 and 2035).

The traffic operations on the northern-most section of proposed Pellissippi Parkway Extension between SR 33 and US 411/Sevierville Road for Alternatives A and C are predicted to drop from LOS D to LOS E in the year 2029. That section would reach LOS F in the year 2034. The drop in level of service along this section is due to the nearly 75 percent expected growth in traffic (from 36,000 ADT in 2015 to 63,000 ADT in 2035) using the proposed roadway.

Little change is predicted in the level of service of existing roadways between the No-Build and Build Alternatives since the traffic volumes do not change substantially for most roadways among the alternatives. The Build Alternatives do show some reduction in volumes along several sections of the major highways (including SR 33 and SR 35); however, the forecasted volumes are still high enough to cause poor levels of service. In general, there are substantial traffic volumes within the Maryville/Alcoa area that will likely continue regardless of alternative.

In 2015, one segment of existing US 129 (between SR 35/Hall Road and Hunt Road) would experience a level of service improvement with the Build Alternatives; this section would achieve LOS D with the Build Alternatives while remaining at LOS E under the No-Build

condition. By 2035, the level of service on this segment would decline to LOS E under both the Build and No-Build Alternatives.

The segment of US 129 between US 321/SR 73 and SR 35/Hall Road would experience a reduction in LOS in the Build condition by 2035 as compared with the No-Build condition. Under the No-Build condition, the segment's level of service would be D, while under the Build condition, the level of service would be E, although it would be only a few additional seconds of delay from being a LOS D. The proposed Southern Bypass that is part of the regional traffic model contributes to the expected increase in traffic on this segment by 2035 under the Build Alternatives.

Overall, this analysis does not demonstrate that any of the Build Alternatives would substantially improve the level of service for the existing highway network. Sections of SR 33 and US 411/Sevierville Road would operate at a poor level of service (LOS E or F) regardless of alternative due to existing and projected high traffic volumes on these roadways that exceed the given capacity. It should be noted that while the LOS ratings alone may not justify this project from a traffic flow perspective, other analyses support the need and purpose for this project, including travel time savings, reductions in crash exposure, regional linkages and system enhancements in Blount County, as discussed in other sections of this document.

Intersection LOS

The results of the LOS analysis for major intersections are shown in Table 3-2. Existing intersection data (e.g., turning movement counts) were not available for the Alternative D scenario; therefore, they were not included in the intersection LOS analysis.

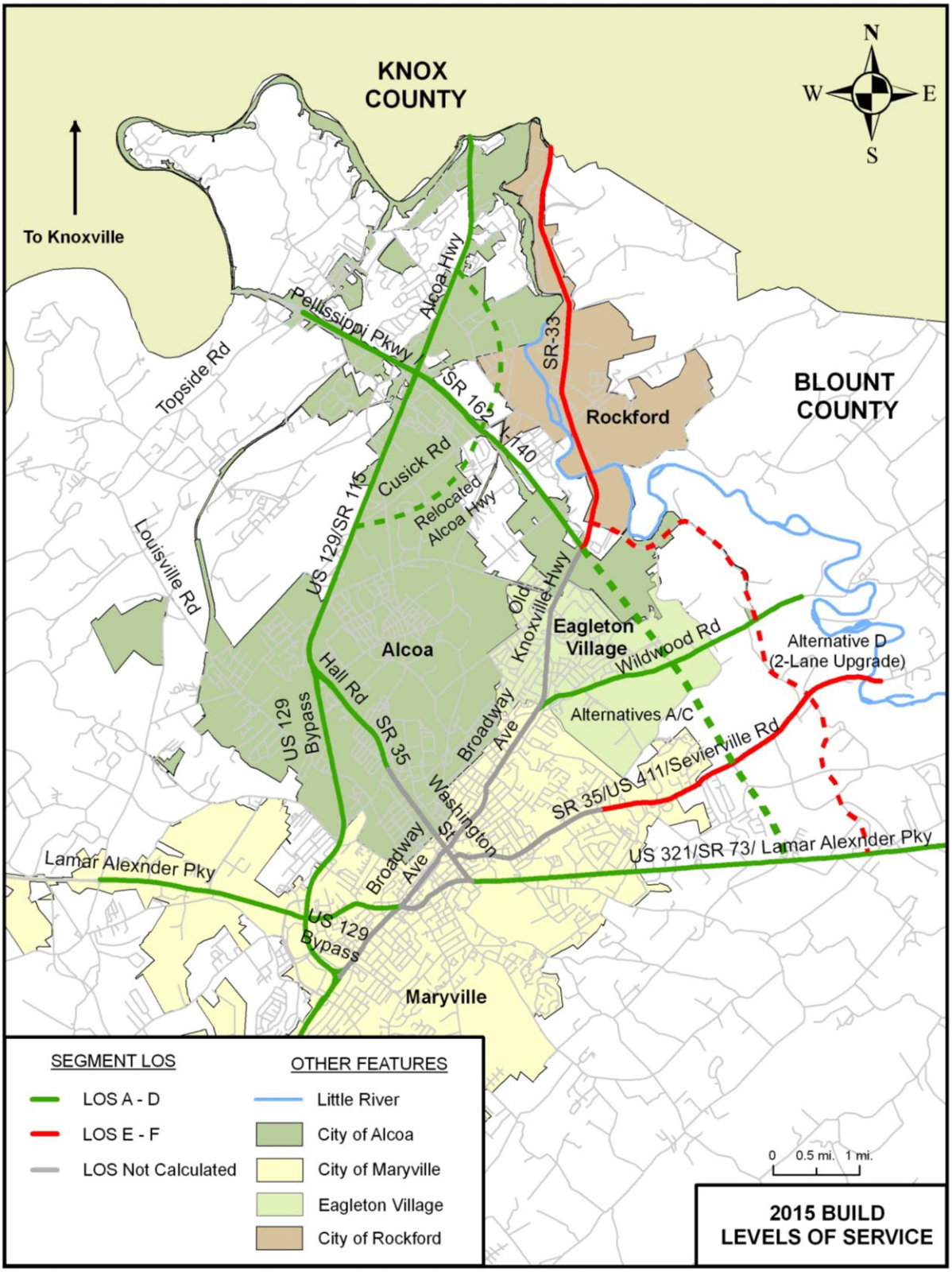
Based on the analysis, there are no intersections in the project area where the construction of the proposed Pellissippi Parkway Extension project would degrade the LOS. There are two intersections where the proposed project would improve traffic operations:

- The intersection of SR 33 at Wildwood Road for the year 2015 during the AM peak period – operation is improved from LOS E to LOS D, which is the threshold for acceptable operations; and
- The intersection of SR 33 at SR 35/Washington Street for 2015 and 2035 during both the AM and PM peak periods.

In 2015 the intersection of SR 33 and I-140 (Pellissippi Parkway) would see an improvement; however, this improvement would result from improvements at the new ramp intersections including signalizing both intersections and adding turn lanes and dual northbound/southbound through lanes.

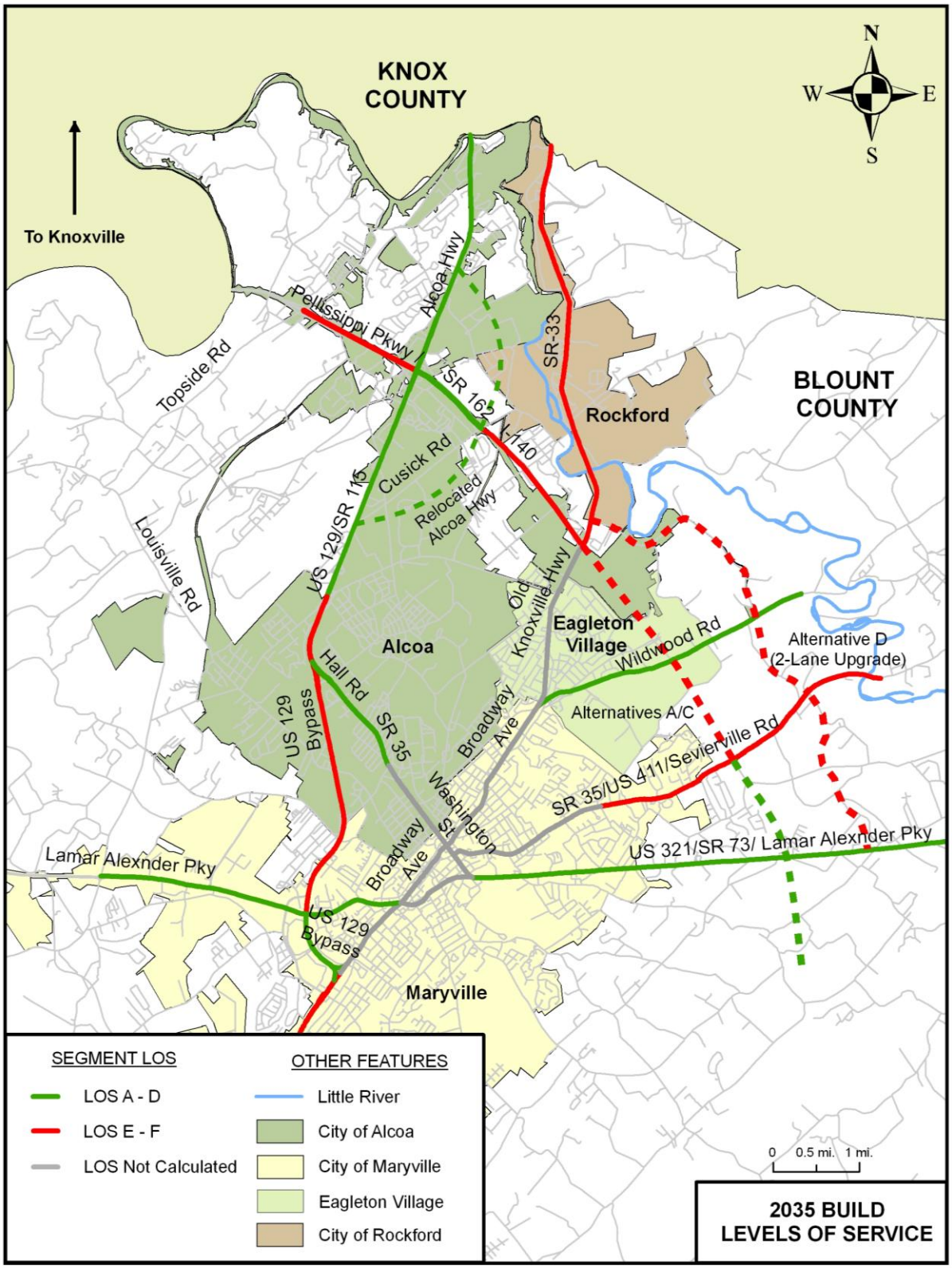
It is also possible that levels of service could change depending on the exact configuration of the new interchanges with the proposed Pellissippi Parkway at SR 33 and at US 411/ Sevierville Road, under Alternatives A or C. For this analysis, improvements that would achieve the best level of service were assumed (within reason). Additional exclusive turn lanes, allowing free-flow right turns, and other geometric design features may improve intersection operations. However, by the year 2035, there are sufficiently heavy volumes through the SR 33 interchange that additional geometrical improvements may not be enough to improve the level of service as capacity may have been exceeded.

Figure 3-1: 2015 Build Alternatives Corridor Level of Service



Note: The Relocated Alcoa Highway and Pellissippi Parkway Extension is shown for conceptual purposes only; no specific alignment or location has been determined.

Figure 3-2: 2035 Build Alternatives Corridor Level of Service



Note: The Relocated Alcoa Highway and Pellissippi Parkway Extension is shown for conceptual purposes only; no specific alignment or location has been determined.

Table 3-1: Corridor Level of Service (2015 and 2035)

Route	Begin	End	Existing LOS	2015			2035		
				No-Build	Alternatives A/C	Alternative D	No-Build	Alternatives A/C	Alternative D
Wildwood Road	SR 33	End of Study Area	C	C	C	N/A	C	C	N/A
Pellissippi Parkway Extension / SR 162	Topside Road	US 129/Alcoa Highway	C	D	D	N/A	F	F	N/A
	US 129/Alcoa Highway	Relocated Alcoa Highway	A	B	B	N/A	D	C	N/A
	Relocated Alcoa Highway	SR 33	A	C	D	N/A	F	F	N/A
	SR 33	US 411/Sevierville Road	N/A	N/A	C	N/A	N/A	F	N/A
	US 411/Sevierville Road	US 321/SR 73	N/A	N/A	B	N/A	N/A	D	N/A
	US 321/SR 73	End of Study Area	N/A	N/A	N/A	N/A	N/A	A	N/A
US 321 / SR 73US 321 / SR 73 / Lamar Alexander Parkway	Beginning of Study Area	US 129/Alcoa Highway	B	C	C	N/A	D	D	N/A
	US 129/Alcoa Highway	SR 33	C	C	C	N/A	D	D	N/A
	SR 33	Jones Avenue	***	***	***	N/A	***	***	N/A
	Jones Avenue	Merritt Road	B	C	B	N/A	D	C	N/A
	Merritt Road	Tuckaleechee Park	A	B	B	N/A	C	C	N/A
	Tuckaleechee Park	Mile Post 19.020	A	B	C	N/A	C	D	N/A
	Mile Post 19.020	Melrose Station Road	A	B	B	N/A	C	C	N/A
Hall Road	US 129/Alcoa Highway	Bessemer Street	B	B	B	N/A	B	B	N/A
	Bessemer Street	SR 33	***	***	***	N/A	***	***	N/A
SR 35 / Washington Street	SR 33	US 411/Sevierville Road	***	***	***	N/A	***	***	N/A
	US 411/Sevierville Road	US 321/SR 73	***	***	***	N/A	***	***	N/A
US 411 / Sevierville Road / SR 35 / Sevierville Rd.	Washington Street/SR 35	Westfield Drive	***	***	***	N/A	***	***	N/A
	Westfield Drive	Near Peppermint Road	E	E	E	N/A	E	E	N/A
	Near Peppermint Road	End of Study Area	E	E	E	N/A	E	E	N/A
SR 33 / Old Knoxville Highway	Beginning of Study Area	Montgomery Lane	C	D	D	N/A	E	E	N/A
	Montgomery Lane	Hall Road	***	***	***	N/A	***	***	N/A
	Hall Road	Wildwood Road	***	***	***	N/A	***	***	N/A
	Wildwood Road	Hunt Road	***	***	***	N/A	***	***	N/A
	Hunt Road	Williams Road	***	***	***	N/A	***	***	N/A
	Williams Mill Road	County Line	E	F	E	N/A	F	F	N/A

Source: PB Americas, Traffic Operations Technical Report, October 2008

*** Speed < 45 mph, Not Analyzed

Table 3-1: Corridor Level of Service (2015 and 2035) (cont'd)

Route	Begin	End	Existing LOS	2015			2035		
				No-Build	Alternatives A/C	Alternative D	No-Build	Alternatives A/C	Alternative D
US 129 / Alcoa Highway	SR 35 (Broadway Avenue)	US 321/SR 73	C	D	C	N/A	D	D	N/A
	US 321/SR 73	Hall Road	C	D	D	N/A	D	E	N/A
	Hall Road	Hunt Road	E	E	D	N/A	E	E	N/A
	Hunt Road	I-140 (Pellissippi Pkwy)	E	C	D	N/A	D	D	N/A
	I-140 (Pellissippi Pkwy)	County Line	D	B	C	N/A	C	C	N/A
Sam Houston School Road	SR 33	North of Wildwood Road	E	N/A	N/A	E	N/A	N/A	E
	North of Wildwood Road	Wildwood Road	E	N/A	N/A	E	N/A	N/A	E
Peppermint Road	Wildwood Road	US 411/Sevierville Road	E	N/A	N/A	E	N/A	N/A	F
Hitch Road	US 411/Sevierville Road	North of US 321/SR 73	D	N/A	N/A	E	N/A	N/A	E
Helton Road	North of US 321/SR 73	US 321/SR 73	C	N/A	N/A	E	N/A	N/A	E
Relocated Alcoa Highway	US 129/Alcoa Highway	I-140 (Pellissippi Pkwy)	N/A	B	B	N/A	B	B	N/A
	I-140 (Pellissippi Pkwy)	US 129/Alcoa Highway	N/A	C	C	N/A	D	D	N/A

Source: PB Americas, Traffic Operations Technical Report, October 2008
*** Speed < 45 mph, Not Analyzed

Table 3-2: Intersection Level of Service (2015 and 2035)

Intersection	Type	Existing (AM/PM)	2015 (AM/PM)		2035 (AM/PM)	
			No-Build	Alternatives A/C	No-Build	Alternatives A/C
US 129/Alcoa Highway @ US 321/SR 73	Signal	F/F	F/F	F/F	F/F	F/F
SR 33 @ I-140	Stop	F/F	F/F	N/A	F/F	N/A
SR 33 @ Wildwood Road	Signal	D/F	E/F	D/F	F/F	F/F
SR 33/SR 35/Washington Street	Signal	D/D	D/E	C/D	F/F	D/D
SR 33 @ US 321/SR 73	Signal	F/F	F/F	F/F	F/F	F/F
SR 35/Washington Street @ US 411/Sevierville Road	Signal	B/B	B/B	B/B	B/B	B/B
Washington Street/SR 35 @ High Street/SR 35	Signal	C/C	D/D	D/D	F/F	E/F
Washington Street @ US 321/SR 73	Signal	C/F	F/F	F/F	F/F	F/F
US 321/SR 73 @ SR 335/ Old Glory Road	Signal	F/F	F/F	F/F	F/F	F/F
SR 33 @ I-140 North Ramp	Signal	N/A	N/A	C/B	N/A	F/F
SR 33 @ I-140 South Ramp	Signal	N/A	N/A	D/E	N/A	F/F
US 411/Sevierville Road @ I-140 West Ramp	Signal	N/A	N/A	C/C	N/A	C/C
US 411/Sevierville Road @ I-140 East Ramp	Signal	N/A	N/A	C/B	N/A	C/C

Source: PB Americas, Traffic Operations Technical Report, October 2008

3.1.1.2 Travel Time Savings Analysis

Another issue to consider in the comparison of the alternatives (both No-Build and Build Alternatives A, C and D) is the change in travel times as the result of the Build Alternatives. Travel time data was collected during the license plate survey conducted in 2006 and 2007 and was used to perform a general comparison of travel times (and the potential savings) between the No-Build and the Build Alternatives.

For the purpose of the time savings analysis, the likely existing path of motorists traveling from the north who would divert to the new Pellissippi Parkway Extension was assumed to be along SR 33 from north of the intersection with Rockford Heights Road in Rockford, proceeding south into Maryville, turning south onto Washington Street to US 321/SR 73, then following US 321/SR 73 east out to Hubbard Drive. Table 3-3 shows the results of the travel time savings analysis for this route.

Table 3-3: Travel Time Savings (From the North along SR 33 to US 321/SR 73)

Alternative	Travel Time (minutes)	Travel Time Savings over Existing (minutes)	Travel Time Savings over Existing (%)
No-Build	19	-	-
A	8	11	56%
C	8	11	56%
D	11	8	44%

Sources: Sain & Associates, Traffic Forecast Study, 2007. PB Americas, Traffic Operations Technical Report, 2008.

For the purpose of the time savings analysis, the likely existing path of motorists traveling from the west who would divert to the new Pellissippi Parkway Extension would begin on I-140 (Pellissippi Parkway) near the CSX railroad line (near Cusick Road). The route would continue southeast on I-140 then turn south at the US 129/Alcoa Highway interchange to continue along US 129/Alcoa Highway until turning southeast onto SR 35, and following Washington Street to US 321/SR 73. The path then continues on US 321/SR 73 until ending at Hubbard Drive. Table 3-4 shows the results of the travel time savings analysis for this route.

Table 3-4: Travel Time Savings (From the West along Pellissippi Parkway to US 321/SR 73)

Alternative	Travel Time (minutes)	Travel Time Savings over Existing (minutes)	Travel Time Savings over Existing (%)
No-Build	19	-	-
A	8	11	58%
C	8	11	58%
D	12	7	39%

Sources: Sain & Associates, Traffic Forecast Study, 2007. PB Americas, Traffic Operations Technical Report, 2008.

Based on this review, all alternatives have substantial travel time savings over the existing travel paths. Alternatives A and C would have the highest travel time savings (eleven minutes) while Alternative D would have the least travel time savings (seven minutes) because of its longer route and slower speeds.

3.1.2 Freight Rail

No existing freight rail lines cross or run adjacent to the immediate project area. Neither the No-Build Alternative nor any of the Build Alternatives would affect existing freight railroads in Blount County.

3.1.3 Airports

The Knoxville-McGhee Tyson Airport, serving the Knoxville region with passenger and freight air service, is in Alcoa. It is on the west side of US 129/Alcoa Highway, about three miles west of the project area, and about 1.5 miles south of the I-140/US 129/Alcoa Highway interchange. Neither the No-Build Alternative nor any of the Build Alternatives would adversely affect the airport. Any of the Build Alternatives may have a positive effect on airport services for the region, in that a new or improved roadway would provide another travel path to and from the airport for persons in the eastern portion of Blount County.

Since the northern half of the project area is within six miles of the McGhee Tyson Airport, once the Selected Alternative is determined, and design is initiated, TDOT will inform the FAA Memphis Airports District Office of the nature of construction, including detailed layout drawings and elevations. TDOT will complete and submit FAA Form 7460-1.

3.1.4 Public Transit

As discussed in Chapter 2, public transportation services in Blount County are currently provided by the East Tennessee Human Resources Agency's (ETHRA) rural transportation program. The transit service is a demand response transportation system that covers the 16-county area. While ETHRA's main focus is to serve residents who have no other form of transportation for medical, essential errands and employment trips, the service is available to the general public.

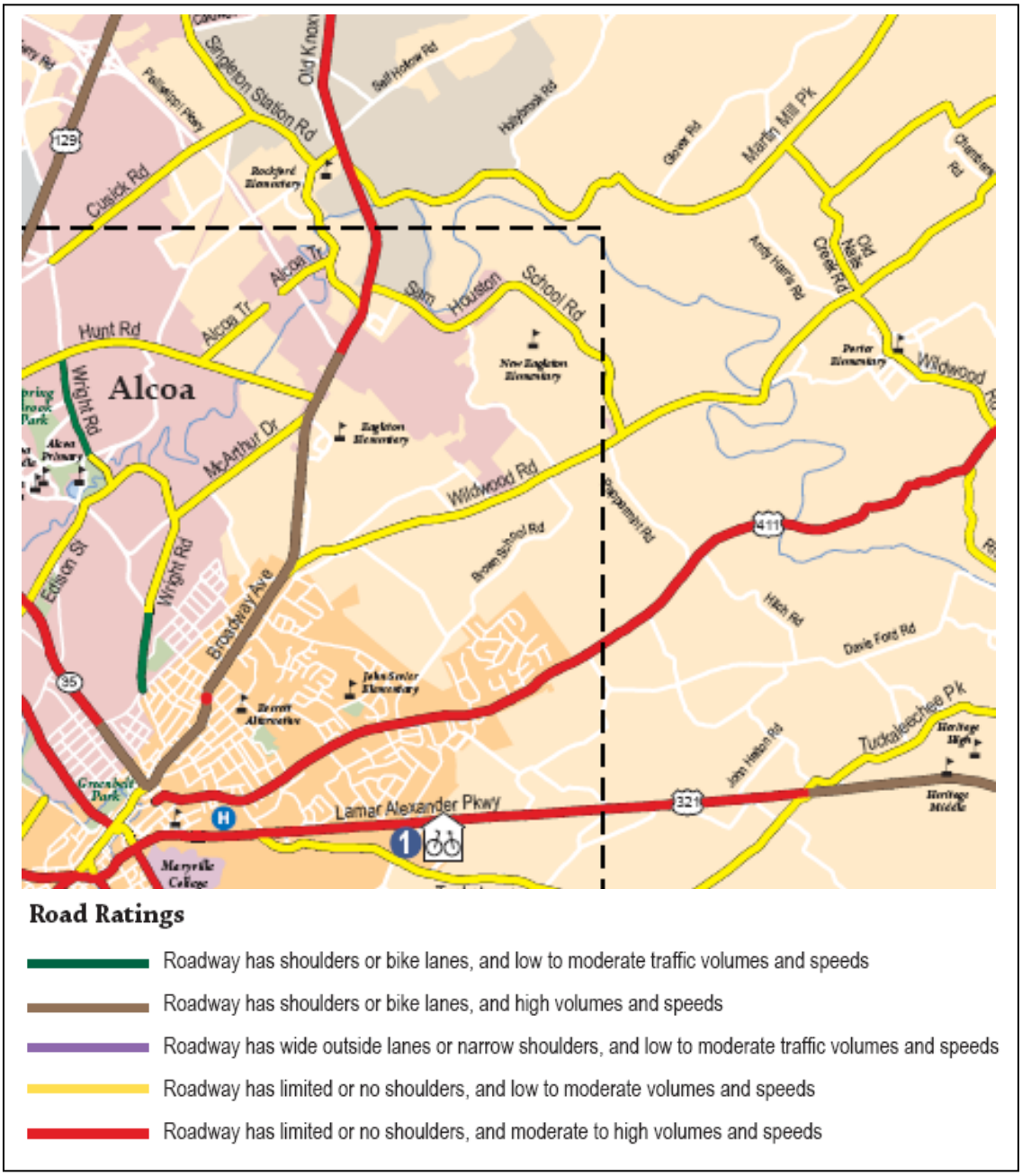
Neither the No-Build Alternative nor any of the Build Alternatives would adversely affect existing public transportation services in the project area or Blount County. Construction of a new four-lane divided roadway (under Alternatives A or C) or improvements to existing two-lane routes (under Alternative D) in the project area may have a positive impact on the existing bus service. A new four-lane roadway or the improved two-lane network may improve travel times for the paratransit vans traveling within or through the study area. The improved mobility resulting from the Build alternatives may also provide the impetus for additional service in this quadrant of Blount County. However, funding for additional services would have to be secured in order for the service to be expanded.

3.1.5 Bicycle and Pedestrian Resources

As a part of its Regional Bicycle Program, the Knoxville Regional Transportation Planning Organization (TPO) developed the *Blount County Bicycle Map* as a tool to assist residents and visitors in finding appropriate routes to bicycle for recreation or for transportation. On the map, the main roads in Blount County are classified according to traffic volumes and

speeds and the amount of space on the road for bicyclists. With this information, people can choose routes based on the road conditions they prefer. Most local streets are not rated because they tend to have low traffic volumes and speeds and are therefore comfortable for most bicyclists. Figure 3-3 illustrates the section of the *Blount County Bicycle Map* that includes the project area.

Figure 3-3: Excerpt from Blount County Bicycle Map



Source: **http://www.knoxtrans.org/plans/bikeprog/cc_maps/blount1.pdf.**

Many of the existing roads within the project area are generally not conducive to bicycle or pedestrian use because of narrow shoulders and high traffic volumes. The County Bicycle Map labels Sam Houston School Road and Wildwood Road as roadways with limited or no

shoulders, and low to moderate volumes and speeds. SR 33 is identified as a roadway with no shoulders or bike lanes, and high volumes and speeds from downtown Maryville to its intersection with the existing Pellissippi Parkway. North of its intersection with Pellissippi Parkway, SR 33 is designated as a roadway with limited or no shoulders, and moderate to high volumes and speeds. US 411/Sevierville Road and US 321/SR 73 are also labeled as roadways with limited or no shoulders, and moderate to high volumes and speeds. These roadways are thus not likely to be comfortable for bicyclists or pedestrians.

According to the *Greenways of Blount County* map, developed by Knoxville Regional TPO, there are no designated greenways within the project area. The majority of the greenways in the county are in downtown Maryville, and within the city limits of Alcoa and Townsend. One greenway has been designated to the west of SR 33 near the western terminus of the proposed project; however, the proposed project would not affect that greenway.

The *Knoxville Regional Bicycle Plan* (Knoxville Regional TPO, adopted May 27, 2009) identifies only two critical projects in Blount County, both of which are in downtown Maryville. The Build Alternatives would not adversely affect future plans for the development of bike paths or greenways.

The only sidewalks in the project area are in new major subdivisions. The Blount County Subdivision Regulations (2006) state that "sidewalks may be required where deemed necessary by the Planning Commission as an integral part of a pedestrian traffic system within one mile of existing or planned schools, neighborhood recreation or commercial areas, or other public space." The City of Maryville's Subdivision Regulations (2006) require the construction of sidewalks on streets within the corporate limits; the sidewalks must be at least five feet wide. The City of Alcoa's Subdivision Regulations (1997) do not mention sidewalks.

The possibility of future Interstate designation for Alternative A or C does not preclude the provision of bicycle and pedestrian facilities within the project right-of-way. A shared-use path separated from the highway by some distance and possibly fencing or another form of barrier could provide a transportation and recreational facility through this part of Blount County. During the design of the Selected Alternative, TDOT will investigate the provision of bicycle and pedestrian facilities within the project right-of-way, as part of the CSS design process.

Under Alternative D, the widened shoulders of the proposed project would be available for use by pedestrians and bicyclists.

3.2 Land Use and Community Facilities

This section discusses the existing land uses in the project area as well as the future land uses, and identifies the community facilities that serve the project area. The section also describes potential impacts of the project on the existing and future land-use patterns and on community facilities and services.

3.2.1 Land Use

Land use patterns and transportation patterns directly influence each other. The type of land uses in an area has a direct impact on traffic patterns, which in turn influence project design and development. Changes in one will affect the other.

3.2.1.1 Existing Land Use and Land Use Controls

The project area extends between SR 33 and US 321/SR 73 generally outside the boundaries of Maryville and Alcoa. The character of the project corridor is primarily agricultural and low-density residential with areas shifting from rural to suburban, as shown in Figure 3-4.

Residential development in the study area is primarily composed of single-family dwellings, with some mobile homes and condominiums. Subdivisions located along the proposed Build Alternatives include:

- Jackson Hills
- Eagleton Village
- Whittenberg Estates
- Sweet Grass Plantation (under development)
- Edgewood Acres
- Cromwell Village Condominiums
- Peppermint Hills
- Twelve Oaks
- Tara Estates
- Misty View
- Kensington Place Trailer Park

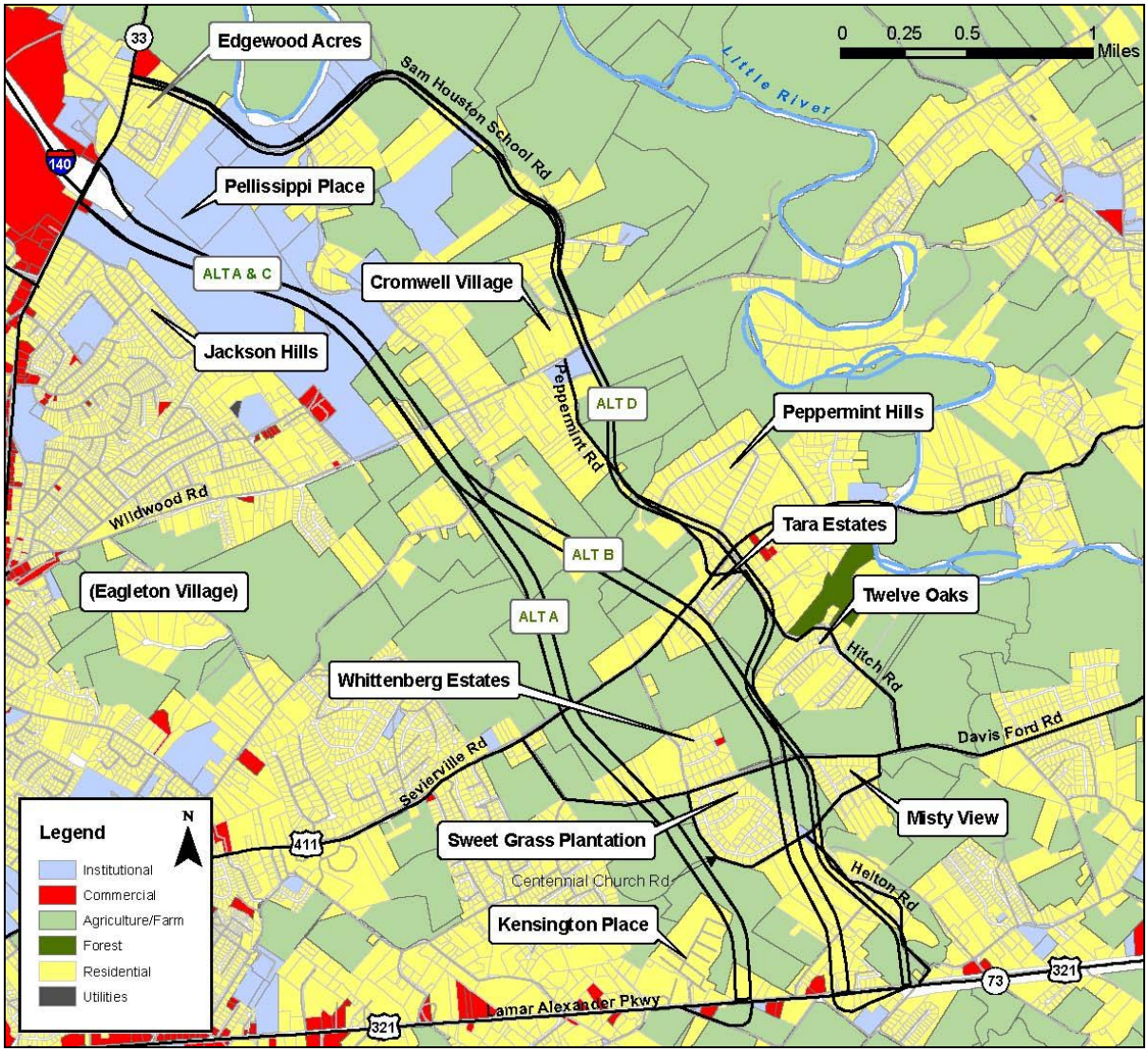
Commercial uses in the project area are primarily at the north end of the project area (along SR 33), and at the south end of the proposed alternatives (along US 321/SR 73). They consist of small or fast food restaurants, local retail shops and gas/convenience stations. In addition, several small scale farming operations are in the project area.

Most of the industrial development is centered in Maryville and Alcoa and along I-140 (Pellissippi Parkway), US 129/Alcoa Highway/Alcoa Highway, and US 321/SR 73, to the west of the project area. A large industrial enterprise, a modular and manufactured housing company, is at the northern edge of the project area. This operation is situated on the west side of SR 33, south of the half interchange with I-140 (Pellissippi Parkway).

A major new mixed-use development, Pellissippi Place, is under construction at the northwest terminus of the proposed project on a 450-acre tract of land where I-140 (Pellissippi Parkway) intersects with SR 33. The first phase of Pellissippi Place broke ground in November 2008, with elements of business and research development projected to open in 2010 or 2011. Pellissippi Place is expect to create more than 7,300 new jobs by 2030, and is estimated to house 1.2 million square feet of research and development uses, 400,000 square feet of office space, 1.2 million square feet of retail space, 450 hotel rooms, and 250 residential units (loft condominiums).

For the existing land uses in the area, Blount County and the cities of Maryville and Alcoa enforce zoning and land use ordinances.

Figure 3-4: Existing Land Use

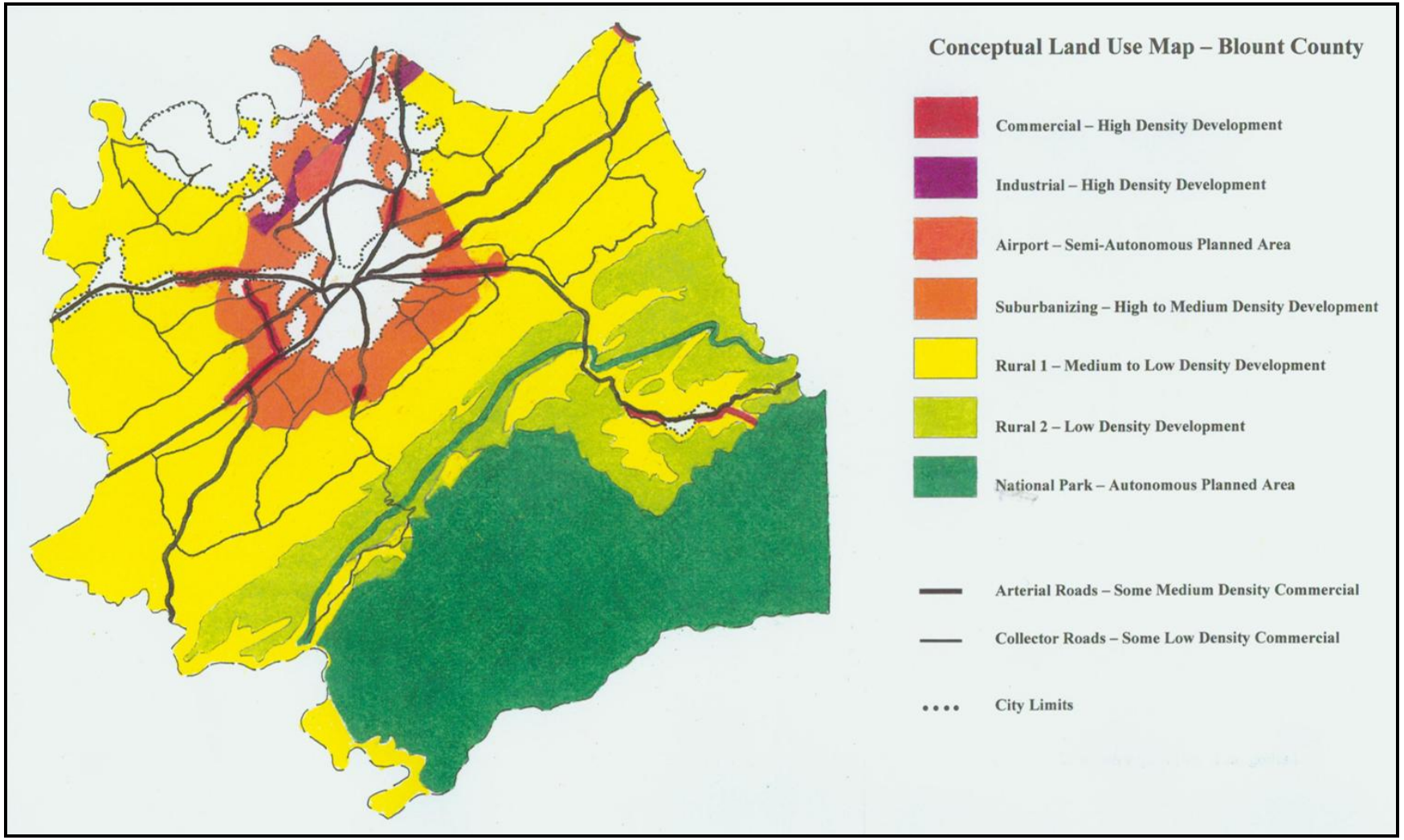


Source: Blount County GIS, 2009.

3.2.1.2 Future Land Use

The Blount County Planning Commission's *Blount County Policies Plan* (2008), shown on Figure 3-5, focuses largely on preserving the rural and suburban residential nature of the larger part of Blount County outside of the incorporated areas of Maryville, Alcoa, and Rockford. Medium- and low-density residential development is encouraged; commercial development is allowed along major corridors and key intersections only by exception. The plan emphasizes preserving the rural, small town and natural character of unincorporated Blount County and strongly supports the use of zoning regulations, including more innovative regulations such as mixed-use and rezoning to guide land use decisions.

Figure 3-5: Conceptual Land Use Map (Unincorporated Blount County)



Source: Blount County Conceptual Land-Use Plan, 2000.

The plan also includes a policy objective that encourages the location of development in areas where adequate utilities and infrastructure already exist or can be economically extended. This plan is considered a companion to the 2000 *Conceptual Land-Use Plan* (described below), and further indicates that the area surrounding the proposed Pellissippi Parkway Extension is expected to develop, given its proximity to Maryville and Alcoa. The extension of I-140 (Pellissippi Parkway) under Alternatives A or C would complement the anticipated future growth by enhancing the transportation infrastructure of the area. Alternative D would also enhance the transportation infrastructure of the area but would accommodate lower traffic volumes than would Alternatives A and C.

The *Conceptual Land-Use Plan* defines both the type of development (commercial, industrial, residential, rural) and the expectations of the potential shape of each of these land uses. For instance, commercial development is expected in the plan to be allowed to grow as needed, while industrial development is expected to be concentrated around Alcoa and Maryville. The *Conceptual Land-Use Plan* contains a Land Use Plan map that shows the county divided into various types of development categories from rural low-density to commercial high-density. Land around the proposed Pellissippi Parkway Extension is in the "Suburbanizing – High to Medium Density" category. It is expected that land in this category would be developed and annexed by the cities as growth occurs in the county.

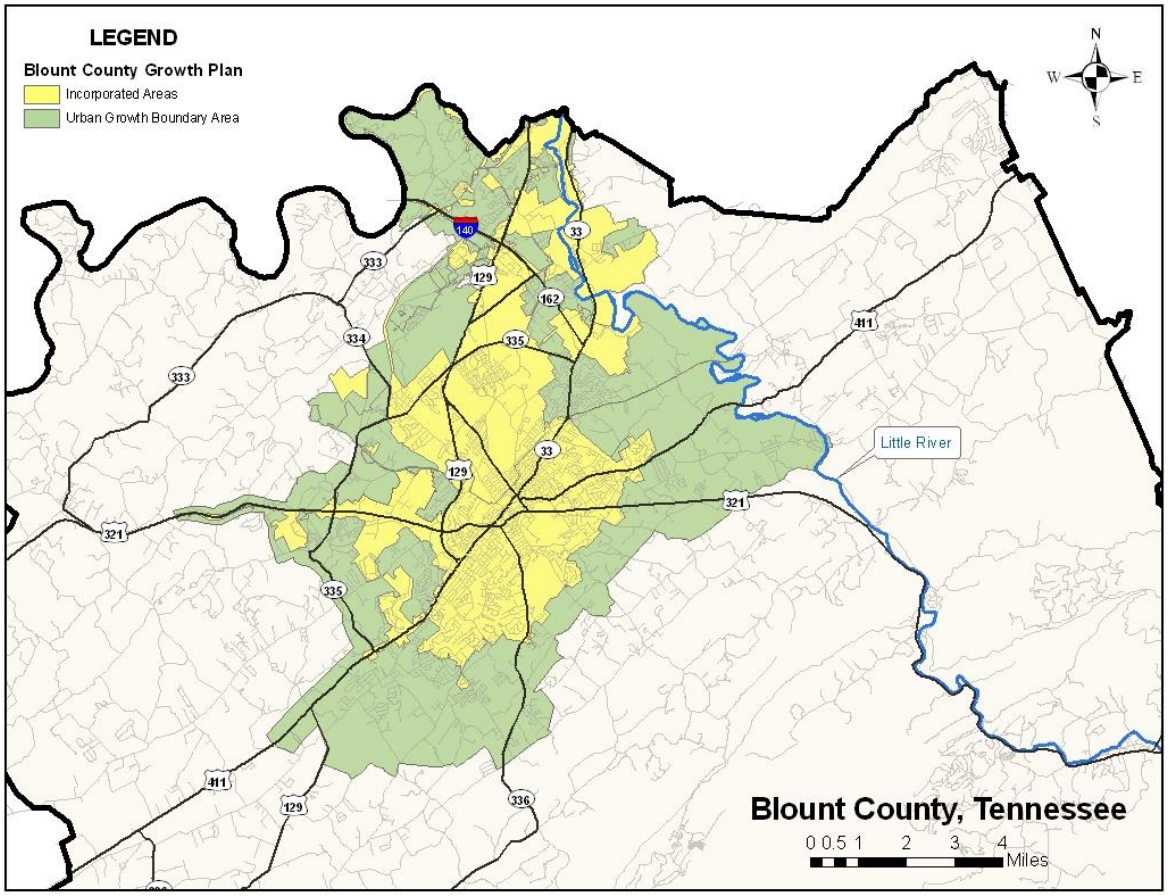
The *Conceptual Land-Use Plan* is consistent with the *Growth Plan* (August 14, 2007) developed for Tennessee's 1998 Public Chapter (PC) 1101. PC 1101 requires local governments to adopt Urban Growth Boundaries (UGBs), which show land projected to develop over the next 20 years. Urban Growth Boundaries have been established for Blount County, Alcoa, Maryville and Rockford, shown in Figure 3-6. The proposed area of the Pellissippi Parkway Extension is within these officially adopted UGBs. The proposed Build Alternatives are within the UGBs for Alcoa and Maryville.

The 2005 *Blount County Growth Strategy* and the 2005 *City of Maryville Urban Growth Strategy* were developed as implementation resources for managing and guiding future development, and to identify impacts of this development on the county. These studies build on the guiding policies of the 2008 *Blount County Policies Plan* and the *Maryville 2010 Comprehensive Plan (completed in 2005*).

The Blount County and Maryville growth strategy documents both point out the following observations and expectations, which relate to anticipated land development and the need for infrastructure enhancements in the area of the proposed Pellissippi Parkway Extension:

- Population in Blount County is expected to increase consistently between 2005 and 2050. Using the moderate level projections, an increase in population of more than 50 percent is expected in Blount County between 2000 and 2035.
- Increases in housing density allowances are recommended to accommodate the anticipated population growth in adherence to Smart Growth strategies (i.e., adopting subdivision and zoning regulations that promote mixed use developments and innovative subdivision design such as clustering, conservation neighborhoods, traditional neighborhoods, and traditional town centers).
- Increasing population and density will put continued pressure on the transportation system. Improvements will need to be made to the existing system, and new roads and alternative transportation systems will need to be explored.

Figure 3-6: Urban Growth Boundaries



Source: Blount County GIS, 2009.

- The county should coordinate with Alcoa and Maryville to fund and build arterial road segments that will create a connected system of major roads to serve developed and developing areas.
- Developing residential subdivisions should be connected to the state highway system; new roads may need to be built to accomplish this connection.
- The timing of development should be matched with the provision of adequate infrastructure.
- Some of the traffic congestion problems facing the City of Maryville and Blount County are related to the lack of circumferential access around Maryville. Improving circumferential travel will alleviate some of the congestion through downtown Maryville.
- The completion of Pellissippi Parkway from SR 33 to US 321/SR 73 is assumed as a necessary transportation improvement. If the extension is not built, another connector road is recommended for the area.
- When combined with appropriate land use regulations, the recommended transportation improvements need not contribute to urban sprawl.

PELLISSIPPI PARKWAY EXTENSION

3.2.1.3 Impacts to Land Use

The No-Build Alternative would not result in the direct conversion of existing agricultural, residential, commercial, or industrial land to a major transportation use, nor would it alter the current land use trends in the project area. The No-Build Alternative would contribute to a continuation of existing trends without providing an enhanced roadway in this section of the county.

The Build Alternatives would convert the existing land uses from their current use to a transportation use. Table 3-5 provides estimates of the area of land that would be converted to a transportation use by each alternative.

Table 3-5: Estimated Land Use Conversions by Alternatives

Alternative	Total Acres of New Right-of-Way
Alternative A	172
Alternative C	187
Alternative D	120

Source: PB Americas, 2009.

3.2.1.4 Potential Mitigation Measures for Land Use

Continued coordination among TDOT, Blount County, Maryville, and Alcoa is necessary to ensure that the project is consistent with community plans. For example, each jurisdiction through which a portion of the project would pass could include the selected alternative on their Major Thoroughfare Plans, which are required as a basis for future land division approvals. This inclusion would allow affected jurisdictions to relate new development to the proposed project and vice versa.

3.2.2 Community Facilities and Services

Community facilities and services include places of worship, public parks and recreational facilities, educational facilities, social service and healthcare facilities, and public safety facilities (police, fire, and rescue). The existing community facilities within the project area are described below and displayed on Figure 3-7.

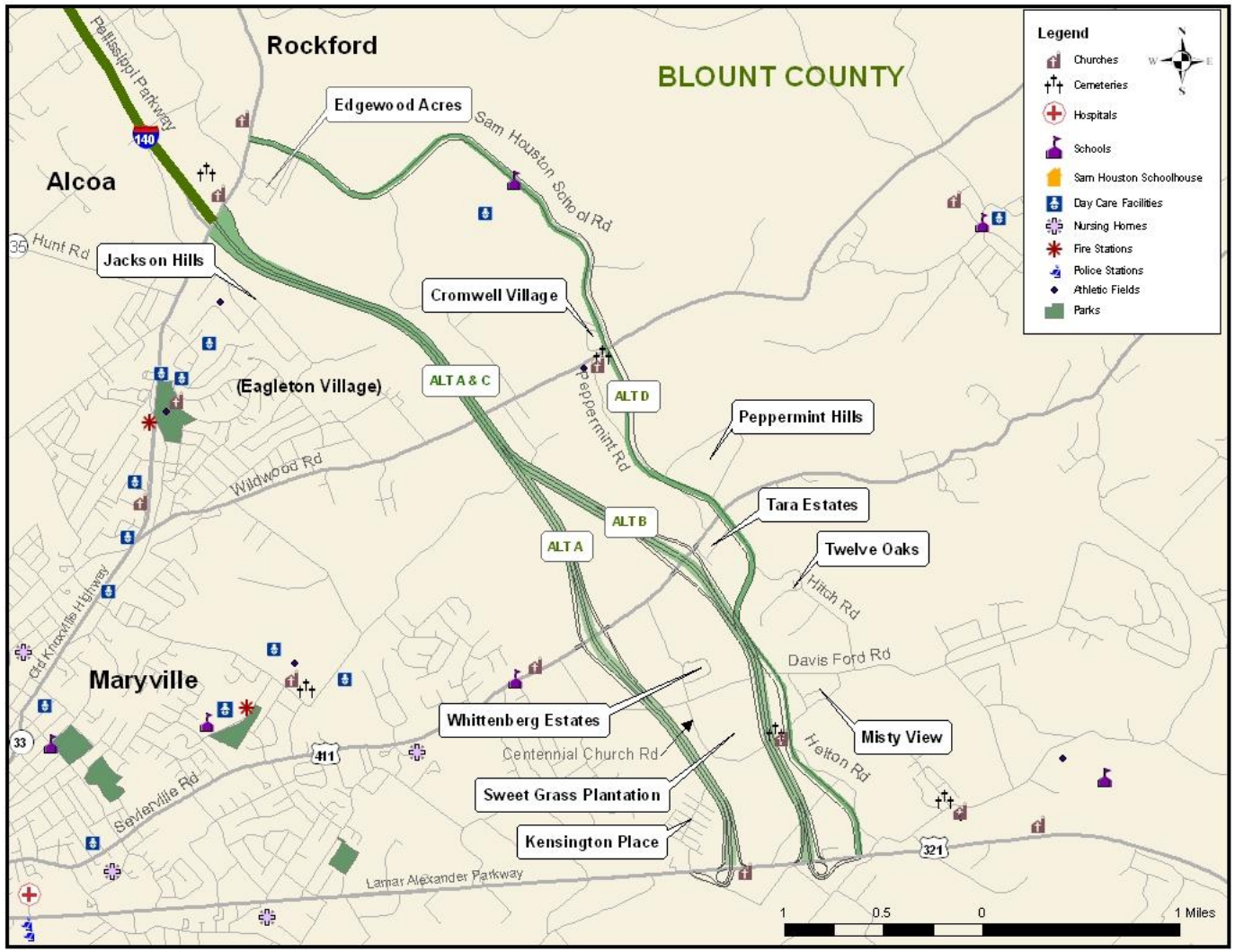
3.2.2.1 Description of Community Services and Facilities

Schools

In the Blount County school system, approximately 11,800 students attend the 19 schools housing grades K-12. There are three schools within the project area: Eagleton Elementary School on Sam Houston Road, Heritage Middle School, and Heritage High School, both on US 321/SR 73 East.

Eagleton Elementary School

Figure 3-7: Community Facilities



Source: PB Americas, June 2009.

The Maryville school system has four elementary schools, one intermediate school, one middle school and one high school. Approximately 5,100 students attend the schools in grades K-12. None of the Maryville schools are within the project area, although in 2008 the city initiated the construction of a new intermediate school, Coulter Grove, in eastern Maryville along Sevierville Road. In February 2009, after a meeting with City Council in December 2008 to review the status of the economy and the condition of the bond market, the school board made the decision to "mothball" the project until economic conditions improved.

The Alcoa school district has one high school, one middle school and one elementary school. None of these schools are in the project area.

Churches and Cemeteries

Five churches and three cemeteries are within the project area: Full Gospel Christian Fellowship Church and Cemetery, Morning Star Baptist Church, Mt. Lebanon Baptist Church and Cemetery, Clarks Grove Cumberland Presbyterian Church and Cemetery, and Faith Baptist Church.

Parks and Recreation

No public parks are found along the three Build Alternatives. Several county parks are west and southwest of the Build Alternatives. The closest park is John Sevier Park, which is owned and operated by Blount County. John Sevier Park is on Westfield Drive in Maryville, about 1.5 miles southwest of the Build Alternatives.

The Great Smoky Mountain National Park is about 5 miles south of the project area.

Public Safety Facilities

Law enforcement in unincorporated portions of Blount County is administered by the Blount County Sheriff's Office, which is located in Maryville. Most cities within Blount County also have their own police departments, including Maryville, Alcoa, and Townsend. The Tennessee Highway Patrol is also coordinated with when appropriate.

Fire protection services within Blount County are provided by the Blount County Fire Department and fire departments in Maryville, Alcoa, Townsend, Seymour, Greenback, and Friendsville.

Ambulance service for Blount County is provided by Rural/Metro Ambulance Services, which has offices in both Maryville and Alcoa. The Blount County Rescue Squad, based in Alcoa, is also available to respond to emergency calls.

Blount Memorial Hospital provides medical services for Blount County and is on US 321/SR 73 west of the project area in the city of Maryville. Several associated medical centers are dispersed throughout Blount County.

3.2.2.2 Impacts to Community Facilities and Services

The No-Build Alternative would not directly affect any community, public or social services within the project area. Since the alternative would not result in any improvements to the existing roadway network, LOS and travel speeds on local roads would continue to deteriorate, which could result in delayed response times for emergency vehicles.

None of the Build Alternatives would require the acquisition or displacement of any community, public or social services, or facilities within the project area. Alternative D would require a minimal amount of right-of-way (ROW) from the front lawn of Eagleton Elementary School. The school's facilities and parking are set back several hundred feet from the road and would not be affected; therefore, the school's operations would not be affected.

Under Alternatives C and D, the cemetery and the church on Centennial Church Road would experience substantial noise impacts as a result of each alternative because of the proximity of the proposed alignment. (See Section 3.12.3.2 for a discussion on noise impacts.) Alternative C would pass along the western boundary of the cemetery and the church. Alternative D would pass to the southeast of the cemetery and along the eastern edge of the church property. No change in access to the church or cemetery would occur under Alternative C or D.

Alternative D would also result in noise impacts to the cemetery and church ball fields of the Mt. Lebanon Baptist Church at the corner of Wildwood Road and Peppermint Road due to the proximity of the alignment. Alternative D would pass along the eastern boundary of the church property but access to the church from Wildwood Road or Peppermint Road would not be affected. Neither Alternative A nor C is in proximity to the Mt. Lebanon church.

As shown in Section 3.1.1, Alternatives A and C would operate better and experience less delay and higher travel speeds than Alternative D. Therefore, response times for emergency vehicles would be improved more under Alternatives A or C, than under Alternative D. All Build alternatives would improve response times compared to the No-Build. In addition, the proposed Build Alternatives would improve mobility by providing travel options to the existing roadway network and would improve the safety and the roadway network, which would make travel easier for individuals who need to access the community facilities in the project area.

3.2.2.3 Potential Mitigation Measures

There would be exterior noise impacts to two churches and their associated cemeteries, but an analysis of potential noise abatement measures for the project determined that abatement measures would not be reasonable (described in Section 3.12.4). Once final design details are developed for the selected alternative, the noise analysis and associated feasibility and reasonableness determinations will be updated. Final decisions regarding the construction of noise barriers will be made during final project design and following the public involvement process.

Since there would be no other adverse effects to community facilities and services resulting from any of Build Alternatives, no mitigation measures would be necessary.

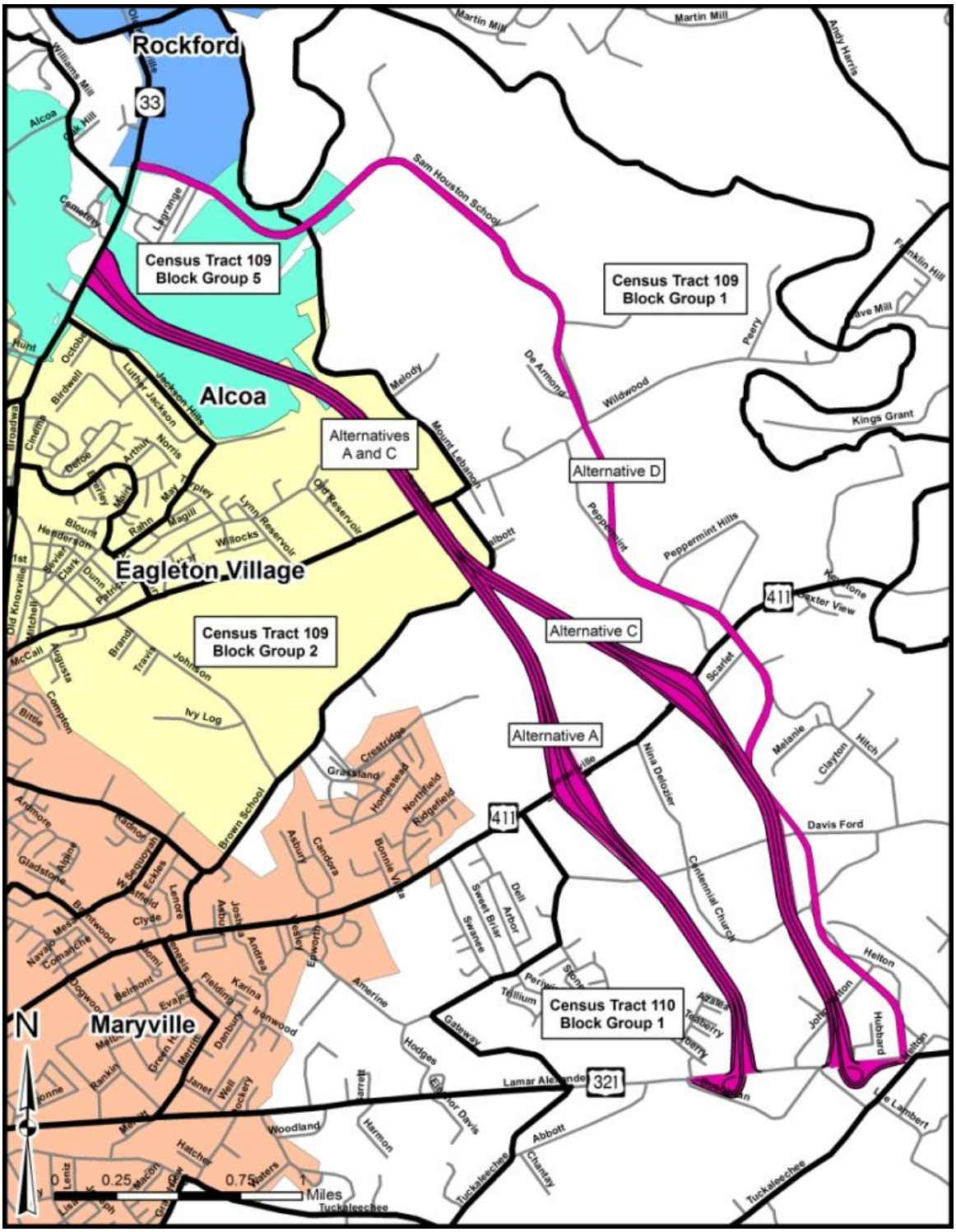
3.3 Social and Economic Conditions

Social and economic resources relate to the human environment and include people, housing, employment, and the economic base.

The existing characteristics of the study area have been compiled using data from the US Census Bureau, Tennessee's Department of Labor and Workforce Development and Department of Health, and visual inspections of the project area. The immediate project area covers 4 US Census block groups within 2 census tracts: Block Groups 1, 2, and 5 of

Census Tract 109 and Block Group 1 of Census Tract 110. The census tract and block group boundaries are shown in Figure 3-8.

Figure 3-8: US Census Tracts and Block Groups



Source: US Census, 2000.

3.3.1 Social and Economic Patterns

3.3.1.1 Population Trends and Forecasts

Since 1970, Blount County has experienced double-digit population growth over each 10-year Census period and its growth rates have exceeded those of the overall Knoxville region and the state as a whole (see Table 3-6).

Table 3-6: Historical Population and Projections (1970–2030)

Geographic Area	1970	1980	1990	2000	2030
Tennessee	3,926,018	4,607,294	4,877,185	5,689,283	7,397,302
Period Growth Rate		17.4%	5.9%	16.7%	30.02%
Average Annual Growth		1.7%	0.6%	1.7%	1.00%
Knoxville Region	503,067	594,857	634,423	747,300	1,083,838
Period Growth Rate		18.2%	6.7%	17.8%	45.03%
Average Annual Growth		1.8%	0.7%	1.8%	1.50%
Blount County	63,744	77,770	85,969	105,823	164,211
Period Growth Rate		22.0%	10.5%	23.1%	55.18%
Average Annual Growth		2.2%	1.1%	2.3%	1.84%
Sevier County	28,241	41,418	51,043	71,170	124,788
Period Growth Rate		46.7%	23.2%	39.4%	75.34%
Average Annual Growth		4.7%	2.3%	3.9%	2.51%

Sources: 2000 US Census. TACIR and UT Center for Business and Economic Research, Population Projections for the State of Tennessee, 2010 to 2030; June 2009.

Blount County grew 22 percent between 1970 and 1980 and nearly 11 percent between 1980 and 1990. In 2000, the county was home to nearly 106,000 people, an increase of more than 23 percent since 1990. In the region, Blount County's growth is surpassed only by that of its neighbor to the east, Sevier County, which grew by nearly 40 percent between 1990 and 2000, even though Sevier County's total population remains lower than Blount County's population.

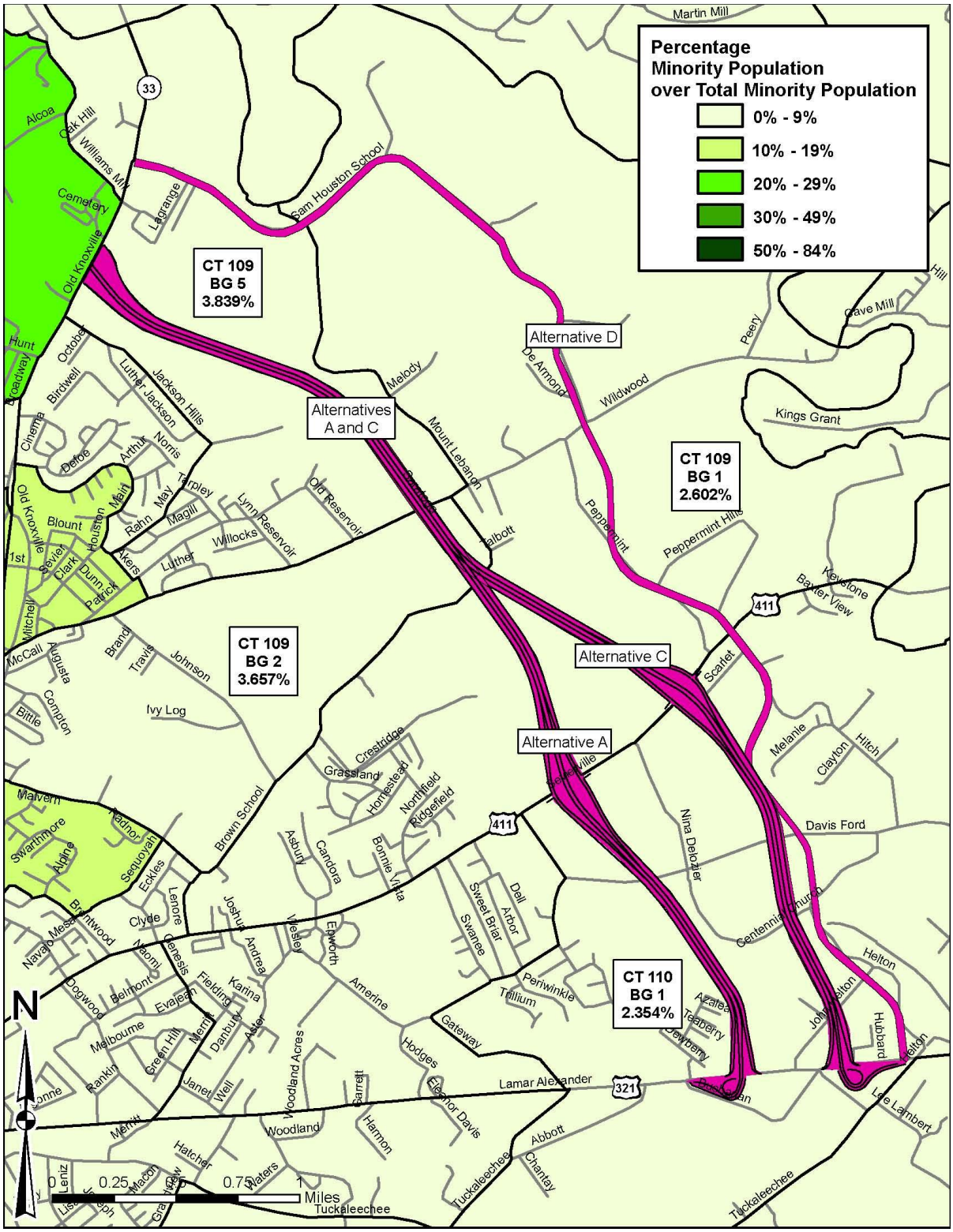
Blount County's growth is expected to continue; by 2030, Blount County is predicted to have about 164,000 residents, an annual growth rate of approximately 1.84 percent. Sevier County is expected to nearly double its population between 2000 and 2025, at which time it will have roughly the same population as Blount County.

Race

Of the 13,074 people living in the two census tracts that cover the project area, approximately 97 percent are white, and approximately three percent are minorities. Of the three percent, the largest group is Black/African-American, followed by Hispanic, Asian/Pacific Islander, American Indian, and Other. For Census Tract 110, the population of Asian/Pacific Islander is higher than the Hispanic population. Minority residents are fairly dispersed across the two census tracts, though the highest concentration of minorities is seen in Census Tract 109.

Both census tracts have percentages of minorities that are less than Blount County and Tennessee's percentage of minorities (4.4 and 2.3 percent versus 6.0 and 22.0 percent, respectively). Table 3-7 and Figure 3-9 summarize the racial characteristics in the project area.

Figure 3-9: Percent Minority Population



Source: US Census, 2000.

Table 3-7: Population by Race and Hispanic Origin (2000)

	Tennessee	Blount County	Census Tract 109	Census Tract 109 Block Group 1	Census Tract 109 Block Group 2	Census Tract 109 Block Group 5	Census Tract 110	Census Tract 110 Block Group 1
Total Population	5,689,283	105,823	5,105	1,768	748	926	7,969	2,506
Total Hispanic	2.2%	1.1%	1.0%	0.0%	0.0%	0.0%	0.4%	0.0%
White	79.2%	94.1%	95.7%	95.1%	94.1%	95.2%	97.2%	96.8%
Hispanic (White)	1.0%	0.6%	0.6%	0.0%	0.0%	0.0%	0.3%	1.2%
Black	16.3%	2.9%	1.4%	0.0%	0.0%	4.8%	0.7%	0.0%
Hispanic (Black)	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
American Indian	0.2%	0.3%	0.3%	0.0%	0.0%	0.0%	0.4%	0.7%
Hispanic (American Indian)	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Asian/Pacific Islander	1.0%	0.7%	0.9%	4.9%	0.0%	0.0%	0.5%	0.0%
(Hispanic) Asian/Pacific Islander	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Other	0.1%	0.1%	0.0%	0.0%	5.9%	0.0%	0.0%	1.3%
Hispanic (Other)	0.9%	0.3%	0.3%	0.0%	0.0%	0.0%	0.0%	0.0%
Total Minority[1]	21.9%	6.0%	4.4%	4.9%	5.9%	4.8%	2.3%	1.3%

Source: US Census, 2000.
[1] Total Minority is the sum of all persons other than white-non-Hispanic. Hispanics may be of any race, so also are included in applicable race categories.

Age

The ages of the area residents (those within the block groups in the study area) are shown in Table 3-8. The largest group is persons 18-64, followed by persons ages 0-17 and persons 65 or older. However, in Census Tract 109, Block Group 5, the percentage of persons ages 65 or above is larger than the percentage of persons ages 0–17.

The concentration of persons in each age group closely resembles the concentrations in Blount County and Tennessee. However, the median age for these two census tracts is higher than that of Blount County and the state as a whole.

Education

According to the US Census Bureau, the Tennessee high school graduation rate is 76.9 percent. The 2000 high school graduation rate among adults in Blount County was slightly higher at 78.4 percent. In addition, 11.6 percent of the population of Blount County has obtained some type of higher education (e.g., associate degree, bachelor's degree, master's degree, professional school degree, or doctorate degree).

Table 3-8: Population by Age (2000)

	Tennessee	Blount County	Census Tract 109	Census Tract 109 Block Group 1	Census Tract 109 Block Group 2	Census Tract 109 Block Group 5	Census Tract 110	Census Tract 110 Block Group 1
Total Population	5,689,283	105,823	5,105	1,768	748	926	7,969	2,506
Ages 0 to 17	24.6%	22.8%	22.2%	25.8%	20.3%	20.0%	20.2%	24.1%
Ages 18 to 64	63.1%	63.1%	61.5%	64.5%	66.3%	57.5%	60.9%	61.9%
Ages 65 or above	12.4%	14.1%	16.3%	9.7%	13.4%	22.5%	18.8%	14.0%
Median Age	35.9	38.4	39.4	N/A	N/A	N/A	42.8	N/A

Source: US Census, 2000.

Personal Income and Poverty Levels

Table 3-9 and Figure 3-10 summarize the income and poverty information in the project area.

Median household income levels in Blount County, the census tracts and most of the block groups are higher than the statewide average of $36,360. However, the median household income of $27,734 in Census Tract 109, Block Group 5 is lower than the statewide average.

Per capita income rates are higher than the statewide average of $19,393 for Blount County and Census Tract 109. Census Tract 110 has a per-capita income rate of seven percent below the statewide average. The per capita income rates for Census Tract 109, Block Groups 2 and 5, and Census Tract 110, Block Group 1, are also lower than the statewide per-capita income.

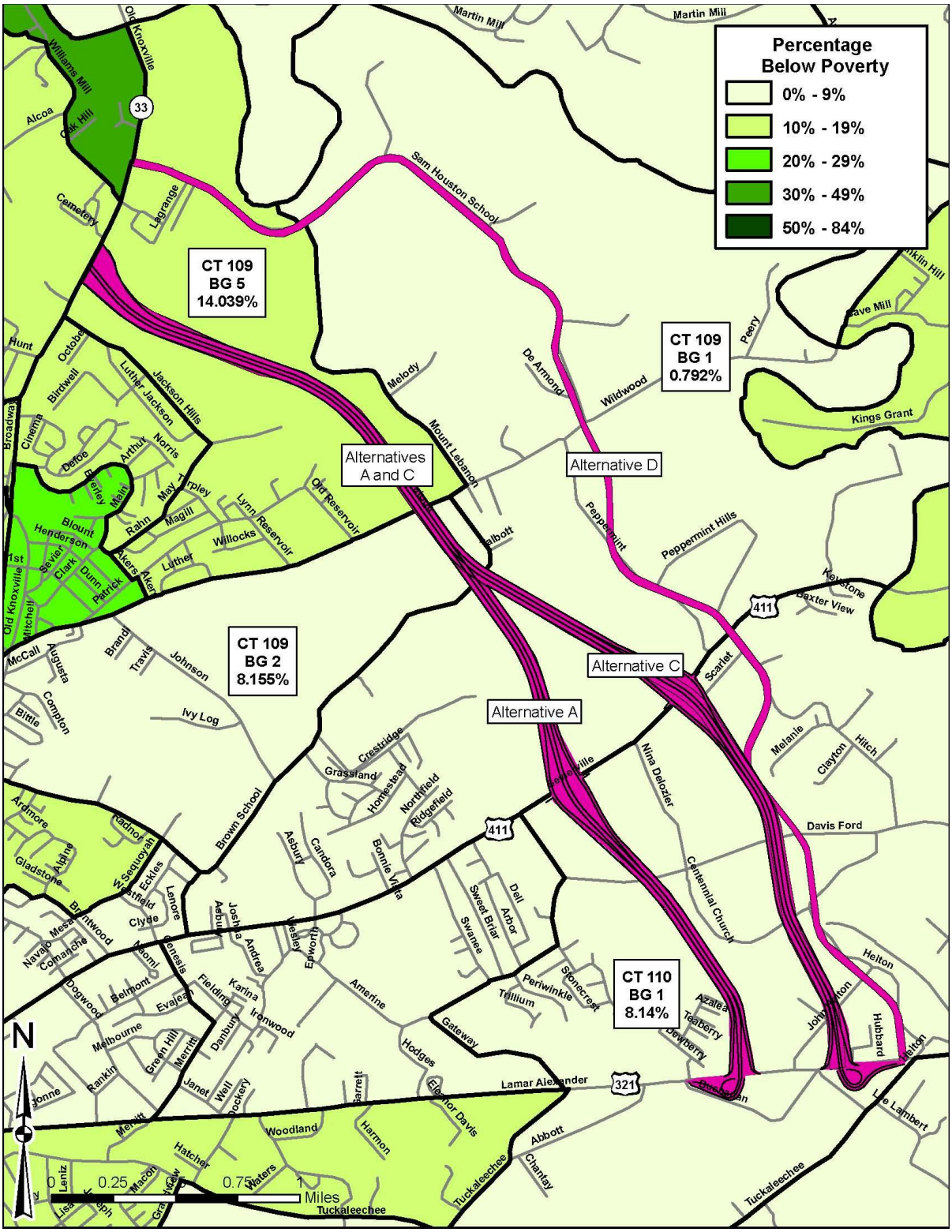
In Blount County, Census Tract 109, and Census Tract 110, the number of persons below the poverty level is less than the statewide average of 13.1 percent. Only one block group in the project area has a percentage of population below the poverty level greater than the statewide average and the county–Census Tract 109, Block Group 5.

Housing and Household Characteristics

Housing and household characteristics generally include information pertaining to housing ownership, housing vacancy, and household size. In Blount County, the majority of the households were owner-occupied as of 2000. The census tracts in the study area have homeownership averages that are higher than the state and county. As shown in Table 3-10, the median housing value in Blount County is higher than the statewide median housing value ($93,000 compared to $103,900). The median rent values for Blount County, Census Tracts 109 and 110 are lower than the statewide average of $505 per month.

Residential density in Blount County is low, though somewhat higher in the cities and towns, reflecting the rural character of the area. The current housing stock in the study area consists primarily of single-family dwellings, mobile homes, and condominiums. Some of the single-family dwellings and mobile homes are contained within subdivisions. In addition, at least one new subdivision, Sweet Grass Plantation, is under construction.

Figure 3-10: Percent of Population Below Poverty



Source: US Census, 2000.
Note: CT=Census Tract, BG = Census Block Group.

Table 3-9: Income Measures and Persons Living Below Poverty Level

	Tennessee	Blount County	Census Tract 109	Census Tract 109			Census Tract 110	Census Tract 110 Block Group 1
				Block Group 1	Block Group 2	Block Group 5		
Median Household Income	$36,360	$37,862	$37,328	$56,705	$38,145	$27,734	$36,798	$38,571
Per Capita Income	$19,393	$19,416	$20,818	$20,443	$17,374	$17,621	$18,045	$18,117
Persons below poverty level	746,789	10,084	432	14	61	130	582	204
Percent persons below poverty level	13.1%	9.7%	7.5%	0.8%	8.2%	14.0%	7.5%	8.1%

Source: 2000 Census

Table 3-10: Housing Characteristics

	Tennessee	Blount County	Census Tract 109	Census Tract 109			Census Tract 110	Census Tract 110 Block Group 1
				Block Group 1	Block Group 2	Block Group 5		
Total Households	2,439,443	47,059	2,267	651	340	477	3,403	1,003
Median Home Value	$93,000	$103,900	$96,100	$142,100	$88,800	$87,800	$109,900	$105,900
Homeownership Rate	69.6%	75.9%	78.7%	83.4%	78.6%	68.7%	81.5%	87.5%
Median Rent	$505	$450	$419	$384	$367	$305	$437	$370

Source: US Census, 2000.

According to the *Pellissippi Parkway Extension (SR 126) Economic and Fiscal Impact Analysis* (available from the TDOT Environmental Division), the Knoxville Regional TPO's 2030 forecast predicts the households in the study area will grow by roughly 400 households per year based on the amount of undeveloped land in the area. However, according to the *Economic and Fiscal Impact Analysis*, this estimate could be conservative since other properties in the area that are currently developed could be redeveloped at a higher density to accommodate future residential development in the area.

Existing Economic Characteristics

According to the US Census Bureau, approximately 63.5 percent of the available labor force in Blount County works in Blount County. The Tennessee Department of Labor and Workforce Development reported that as of February 2009, the labor force within Blount County was 62,930 individuals with an unemployment rate of 9.6 percent compared to that of Tennessee, which had an average unemployment rate of 9.1 percent.

Blount County's employment is largely dominated by the services and trade sector. In addition, Blount County is home to more than 100 manufacturing plants. Blount County's largest employer is an automotive parts supplier with 3,000 employees. The second and third largest employers are an aluminum fabricating facility, followed by the Blount Memorial Hospital.

Within the project area, there are few commercial enterprises. A golf driving range is off John Helton Road at the southern end of Alternatives C and D. There is also a small cluster of commercial development (including a nursery, pawn shop, etc.) at the northern end of Alternative D where it intersects SR 33. The majority of commercial properties are adjacent to the project area along US 129/Alcoa Highway, I-140, US 411/ Sevierville Road, US 321/SR 73, and in downtown Maryville.

Tourism is an important part of the economy in Blount County. Eastern Blount County includes part of the Great Smoky Mountains National Park (GSMNP). Townsend, east of the study area, is the southwestern gateway to the GSMNP. In addition, the project area is approximately 15 miles west of the nearest gateway into the GSMNP. It is estimated that two million people visit Cades Cove within the GSMNP each year, which is easily accessible from Townsend. Other tourist attractions in Blount County include Tuckaleechee Cavern in Townsend, the Blackberry Farms Bed and Breakfast in Walland, and Lake Loudon on the western border of the county. In 2007, Blount County ranked sixth in Tennessee for visitor spending with the highest increase in East Tennessee. Tourism expenditures were approximately $276 million, which was an 8.8 percent increase over 2006. Nearly 3,000 people were employed in the tourism industry in the county in 2007, with an annual payroll of approximately $76 million. Annual local sales tax receipts for Blount County in 2007 were more than $9 million.[1]

[1] Source: **http://www.blountchamber.com/helpcenter/focus.html#blount**

3.3.2 Impacts to Social and Economic Resources

3.3.2.1 Impacts on Population

According to the Public Chapter 1101 Growth Plan Presentation developed by the Blount County Planning Department (dated August 14, 2007), the unincorporated portion of the county is forecasted to grow at an average annual rate of 1.33 percent from 2010 to 2025. In comparison, the municipalities in the county (including Alcoa and Maryville) are expected to grow at a slightly higher annual rate of 2.23 percent (refer to the *Economic and Fiscal Impacts Analysis*, available from the TDOT Environment Division, for more information).

The extension of I-140 (Pellissippi Parkway) under Alternatives A or C would complement the anticipated future growth by enhancing the transportation infrastructure of the area; improving mobility in Blount County, Maryville, and Alcoa; and improving the safety and operation of the existing transportation network. The convenience of the proposed project could increase traffic flow in the area. With this increase in traffic in the area, residential growth is expected in the study area due to its accessibility to a major regional roadway and its close proximity to downtown Maryville and Alcoa.

Alternative D would also enhance the transportation infrastructure of the area, accommodating lower traffic volumes than would Alternative A or C.

3.3.2.2 Impacts on Neighborhoods and Communities

Community stability and cohesion is a term that describes the social network and actions that provide satisfaction, security, camaraderie, support, and identity to members of a community or neighborhood. Community cohesion is the degree to which residents have a sense of belonging to their neighborhood or community. Community cohesion revolves around the social networks that are found in communities such as the relationships between friends, neighbors and relatives in an area and between people and the services they use. There are several ways that transportation projects can disrupt community cohesion:

- Through large-scale relocation of residents;
- By removing popular meeting places or community facilities; or
- By creating a physical or perceived barrier that discourages interaction across the roadway.

The project is in an area that has been traditionally rural and agricultural with scattered or clustered low-density development, but which is experiencing increasing conversion of rural tracts to residential subdivisions (see Figure 3-4). Cohesion within the neighborhoods and the larger communities themselves appears to be fairly strong. There are several churches within and adjacent to the project area, which indicate some degree of neighborhood bonds.

Alternative A would displace five single-family residences, none of which are located within an established neighborhood. Alternative A terminates at US 321/SR 73 east of the Kensington Place Mobile Home Park. No homes within the subdivision would be displaced, but Alternative A would likely result in visual and noise impacts to the neighborhood as it skirts the northeastern and eastern boundary. All along the alignment, rural residential clusters of homes and farms may be somewhat disrupted by physically dividing the dispersed residents with a new four-lane, controlled access roadway.

Alternative C would displace 25 single-family residences and one mobile home. The alternative would traverse the western portion of Tara Estates subdivision south of US 411/ Sevierville Road, resulting in the displacement of ten residences at the western end of the subdivision. Remaining residents may experience visual and noise impacts as a result of the new road. All along the alignment, rural residential clusters of homes and farms may be somewhat disrupted by physically dividing the dispersed residents with a new four-lane, controlled access roadway.

Alternative D would displace 21 single-family residences (12 of which are in the Peppermint Hills subdivision and Tara Estates) and three mobile homes, resulting in noise impacts to the neighborhoods and changes in the visual character of the area. Alternative D may disrupt the community cohesion for residents in the Peppermint Hills subdivision, although it would use the alignment of Hitch Road on the east side of the Tara Estates subdivision (so that it would not bisect the subdivision). The alternative could disrupt established interactions among long-time residents.

While there would be individuals who would experience adverse impacts due to disruption of their immediate neighborhood, overall, the impact of the alternatives would not be substantially adverse for the following reasons:

- The rural/suburban nature of the project area makes social networks more dependent on the automobile rather than walking or bicycling;
- No community facilities would be relocated or removed from the neighborhoods or communities; and
- The area is already experiencing conversion to new residential developments.

3.3.3 Impacts to the Economy

The proposed project is expected to have a positive effect on the economic stability of the project area and Blount County. An economic and fiscal impact analysis was conducted for the project; the economic impact analysis assessed the direct, indirect, and induced effects of the one-time demand for construction labor and materials needed to implement each of the Build Alternatives. The proposed project represents an increase in demand for construction services; therefore, the construction industry is estimated to receive the largest economic benefits from the project. Each of the other industries in Blount County would also benefit from the proposed project, with the level of benefit based on the quantity of goods and services each industry would supply to create an additional dollar of construction services output. Table 3-11 summarizes the economic impacts of the project alternatives

Table 3-11: Economic Impacts of Project

Characteristics	Alternative A	Alternative C	Alternative D
Jobs Created in Tennessee	1,392	1,457	524
Jobs Created in Blount County	816	854	307
Labor Income in Tennessee	$47.2 mil	$49.4 mil	$17.8 mil
Labor Income in Blount County	$26.9 mil	$28.2 mil	$10.1 mil
Economic Output for Tennessee	$157.3 mil	$164.7 mil	$59.2 mil
Economic Output for Blount County	$103.0 mil	$107.9 mil	$38.8 mil

Source: PB Americas, Economic and Fiscal Impact Study, June 2009.

The four-lane alternatives (A and C) would generate substantially more jobs, labor income, and economic output (about 175 percent more) than would the two-lane alternative (D). Due to its slightly longer length, Alternative C shows slightly higher economic benefits (about 4.7 percent) than does Alternative A.

Roughly 59 percent of the jobs, 57 percent of the income, and 65 percent of the output generated by each alternative would occur in Blount County, with the largest benefit accruing to the construction, retail trade, and health care sectors.

In addition to the effects of the Pellissippi Parkway Extension on the Blount County economy, economic impacts would be expected to accrue to areas beyond Blount County. Due to its small population density, Blount County is relatively dependent on inter-county trade to support local production. Roughly 40 percent of the total increase in employment due to the proposed project is estimated to occur outside of Blount County.

3.3.4 Potential Mitigation Measures

Since there would be no adverse impacts to economic conditions, no mitigation measures would be necessary.

3.4 Displacements and Relocations

The acquisition of rights-of-way for a new transportation project requires the purchase or transfer of property owned by individuals, corporations, or other governmental agencies. The land to be acquired for a transportation project may currently be used for residential, commercial, industrial, institutional, or other purposes and, as a result of the acquisition, the current occupants of the land would be displaced from their current premises and relocated elsewhere. This section identifies the displacements that may occur with completion of the Pellissippi Parkway Extension and discusses potential mitigation measures, including the relocation assistance program that would be carried out by TDOT to assist those persons and businesses that would be displaced.

The project would require the acquisition of private property along the path of the new roadway. In some instances, the project would require only a partial take from a parcel, while in other instances the project would require the acquisition of the entire parcel. Table 3-12 summarizes the number of displacements for each alternative.

Table 3-12: Displacements for Build Alternatives

Displacement	Alternative A	Alternative C	Alternative D
Single-Family Units	5	25	21
Multi-Family Units	0	0	0
Mobile Homes (Modular)	0	1	3
Businesses	1	2	0
Community Facilities	0	0	0
Farms Parcels[1]	10	12	24
Total (excluding farm parcels)	**6**	**28**	**24**

Source: PB Americas, Conceptual Stage Relocation Plan, 2009.
1. Additional information on farm displacements is discussed in Section 3.6, Farmlands.

3.4.1 Displacement of Existing Businesses

The project would result in up to two non-agricultural commercial business displacements, depending upon which alternative is selected. For Alternative A, the only business to be displaced would be a convenience store. Alternative C would result in the displacement of a golf driving range and an antique shop or storage unit. Alternative D would not displace any businesses.

A review of the local commercial real estate market indicates there are a sufficient number of replacement sites available to relocate eligible displaced businesses. Displacement of these businesses is not expected to have a major economic or otherwise generally disruptive effect on the community affected by this project.

The impacts of the project on farms are discussed below in Section 3.6, Farmlands.

3.4.2 Displacement of Existing Residences

The project would result in five to 26 residential displacements, depending upon which alternative is selected.

- Alternative C would displace the most residences—25 single-family units and one mobile home. These houses are valued between $94,500 and $299,900. The largest cluster of residences that would be displaced (11) is in the vicinity of the proposed interchange at US 411/Sevierville Road, including the western section of Tara Estates. At the southern end of the alternative, ten residences would be displaced. Three of those homes are on John Helton Road, three others are on the north side of US 321/SR 73 and four are on the south side, within the footprint of the proposed terminal interchange with US 32. The other homes that would be displaced by Alternative C are scattered along the alignment.
- Alternative D would displace 21 single-family units and three mobile homes. These houses are valued between $79,900 and $354,895. Of the 24 total residences that would be displaced, 14 of those structures are generally clustered along Peppermint Road and Hitch Road north and south of US 411/Sevierville Road, within the Peppermint Hills subdivision and the eastern end of Tara Estates. The other displaced residences are dispersed along the alignment.
- Alternative A would displace the fewest residences—five single-family units, dispersed along the entire length of the alignment. These homes are valued between $79,900 and $169,900.

A review of the real estate market in the project area indicated that ample replacement sites and dwellings exist within the area that should be within the financial means of the potential displacees.

3.4.3 Potential Mitigation Measures

3.4.3.1 Design Refinements

The number of residential displacements disclosed in this document tends to represent a worst-case scenario for each alternative. As the project moves forward into design, it may be possible to reduce the number of actual residential relocations based on available design

solutions. One example of a potential design solution would be the use of retaining walls to reduce the width of ROW necessary to accommodate normal side slopes.

3.4.3.2 Relocation Assistance

To minimize the unavoidable effects of the ROW acquisition and displacement of people and businesses, TDOT will carry out a ROW and relocation program in accordance with the *Tennessee Uniform Relocation Assistance Act of 1972* and the *Uniform Relocation Assistance and Real Property Acquisition Act of 1970* (Public Law 91-646). Relocation resources will be available without discrimination to all displaced residences and businesses.

TDOT will provide advance notification of impending ROW acquisition and, before acquiring ROW, have all properties appraised on the basis of comparable sales and land values in the area. Owners of property to be acquired will be offered and paid fair market value for their property.

TDOT will designate a relocation agent to carry out the relocation assistance and payments program. A relocation agent will contact each person or business to be relocated to determine individual needs and desires and to provide information, answer questions, and provide help in finding replacement property. Relocation services and payments are provided without regard to race, color, religion, sex, or national origin.

In order for businesses to relocate, owners or tenants will be given assistance in the form of moving cost reimbursement, compensation for direct loss of tangible personal property, reimbursement for replacement property searches, and payment of re-establishment expenses. Businesses may qualify for "in lieu of" payments if 1) they cannot be relocated without a substantial loss of existing patronage, or 2) they are not part of an enterprise having at least one other establishment not being acquired, which is engaged in the same or similar activity. Every effort will be made to assist in relocation within the same area, rather than relocating to other areas or closing entirely.

More detailed information on the state's Relocation Assistance Program can be found at **http://www.tdot.state.tn.us/Chief_Engineer/assistant_engineer_design/row/relocation.pdf**.

3.5 Environmental Justice

Executive Order 12898 requires that each federal agency, to the greatest extent permitted by law, administer and implement its programs, policies, and activities that affect human health or the environment so as to identify and avoid "disproportionately high and adverse" effects on minority and low-income populations. There are three basic principles of environmental justice:

- To avoid, minimize, or mitigate disproportionately high and adverse human health and environmental effects, including social and economic effects, on minority and low-income populations;
- To ensure the full and fair participation by all potentially affected communities in the transportation decision-making process; and
- To prevent the denial of, reduction in, or significant delay in the receipt of benefits by minority and low-income populations.

Disproportionately High and Adverse Effects

A disproportionately high and adverse effect on minority and low-income populations means an adverse effect that:

Is predominately borne by a minority population and/or a low-income population; or

Will be suffered by the minority population and/or low-income population and is appreciably more severe or greater in magnitude than the adverse effect that will be suffered by the non-minority population and/or low-income population.

3.5.1 Identification of Environmental Justice Communities

The evaluation of 2000 Census tract and block group data for the immediate project area and more recent visual inspections do not reveal any concentration of minority populations within the project area (see Figure 3-9). (Refer to Section 3.3.1.1 and Table 3-7 for a detailed description of the racial composition of the project area.) US Census (2000) figures indicated that Blount County had a substantially lower minority population (6 percent) than Tennessee (22 percent). All of the block groups in the project area have percentages of minority populations that are less than percentages for Tennessee and Blount County as well.

An evaluation of 2000 Census tract and block group data for the immediate project area as well as field observations were conducted in order to identify any areas containing high concentrations of low-income persons (see Figure 3-10). As shown in Table 3-9, Blount County had a substantially lower poverty rate (9.7 percent) than Tennessee (13.1 percent) in 2000. All but one of the block groups in the project area has a smaller percentage of the population below the poverty level when compared to Tennessee and Blount County (see Figure 3-10). The exception is Census Tract 109, Block Group 5 with approximately 14 percent of population below poverty level, a rate higher than Blount County (9.7 percent).

While not shown as a low-income or minority area in the 2000 Census, based on field observations, the mobile home park on the north side of US 321/SR 73, adjacent to the southern terminus on Alternative A, appears to be a concentration of low-income and/or minority population. There are approximately 130 mobile homes in this park.

3.5.2 Potential Impacts to Environmental Justice Communities

The project complies with Executive Order 12988. TDOT has attempted to minimize impacts to the surrounding community, including low-income and minority communities within the project area. Alternative A would pass through the rear boundary of the mobile home park off US 321/SR 73, but would not result in the relocation of any mobile homes. The ROW edge would be within 100 to 150 feet of several homes on the northeastern edge of the park, which would experience a substantial increase in noise levels. The new roadway would be visible to the homes in the park. This is not, however, a disproportionately adverse effect; other individual homes and homes in subdivisions would experience similar proximity and noise impacts.

The safety and mobility improvements that would result if one of the Build Alternatives is selected would benefit the local residents who use the roadways in the area.

The proposed Build Alternatives may also result in relocations of minorities and low-income individuals in the project area. Residential relocations would be conducted in accordance with the *Tennessee Uniform Relocation Assistance Policies Act of 1972* and the *Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970* (Public Law 91-646).

In addition, public workshops for this project were held at Eagleton Elementary School and Heritage High School, which are located adjacent to the Build Alternatives. These workshops provided the public, including minority and low-income persons, an opportunity to learn about the project and offer comments and suggestions.

Under a Title VI of the Civil Rights Act analysis, if the proposed optional improvements and possible rights-of-way discussed above are used, this assessment finds no evidence or indication of discrimination on the basis of race, color, national origin, age, sex, or disability. Overall, the Build Alternatives would not be expected to have a disproportionate adverse impact on minority populations.

3.5.3 Potential Mitigation Measures

Since there would be no disproportionately adverse impacts, no mitigation measures would be necessary.

3.6 Farmlands

Congress passed the Farmland Protection Policy Act (FPPA) in 1981. The purpose of the FPPA is to minimize the impact Federal programs have on the unnecessary and irreversible conversion of farmland to nonagricultural uses. Before farmland can be used for a project using federal funds, an assessment must be completed to determine if prime, unique, or statewide or locally important farmlands would be converted to non-agricultural uses. If the assessment determines that the use of farmland is in excess of the parameters defined by the US Department of Agriculture (USDA) Natural Resources Conservation Service (NRCS), then the federal agency must take measures to minimize impacts to these farmlands.

NRCS characterizes eligible farmlands as prime, unique, or of statewide or local significance. The designations, defined below, are based on NRCS soil type and are protected by federal legislation.

- **Prime farmland** is land that has the best combination of physical and chemical characteristics for producing food, feed, fiber, forage, or oil-seed and other agricultural crops with minimum inputs of fuel, fertilizer, pesticides, and labor without intolerable soil erosion. Prime farmland includes land that possesses the above characteristics and may include land currently used as cropland, pastureland, rangeland or forestland. Prime farmland does not include land already in or committed to urban development or water storage.
- **Unique farmland** is land other than prime farmland that is used for production of specific high-value food and fiber crops. It has the special combination of soil quality, location, growing season and moisture supply needed to economically produce high quality or high yields of specific crops when treated and managed according to acceptable farming methods.

- **Statewide or locally important farmland** is land that has been designated of state or local importance for the production of food, feed, fiber, forage or oil-seed crops but is not of national significance.

Initial coordination with the NRCS in 2006 for this project indicated that the project area crosses soils that meet the criteria as prime farmland (see NCRS response letter dated June 13, 2006 in Appendix A).

3.6.1 Farmland Characteristics

3.6.1.1 Blount County

Farming has been an important part of Blount County's heritage. A review of data contained in the US Census of Agriculture, conducted every five years, provides a picture of Blount County's farmland trends since 1982. The US Census of Agriculture currently defines a farm as any place from which $1,000 or more of agricultural products were produced and sold, or normally would have been sold, during the census year. Table 3-13 summarizes trends in the county's farmlands since 1982.

Table 3-13: Farmland in Blount County

Characteristics	1982	1992	2002	2007	% Change (1982–2007)
Number of Farms	1,219	1,012	1,302	1,154	-5.3
Land in Farms (acres)	111,029	96,181	105,148	98,403	-11%
Land in Farms – Average Size of Farm (acres)	91	95	81	85	-6%

Source: US Census of Agriculture, 1982, 1992, 2002, 2007

Since 1982, the amount of farmland in Blount County has remained relatively stable but demonstrates a declining trend. In 1982, approximately 31 percent of the county's 560 square miles was in farmland; 25 years later (2007), the amount of farmland in the county had decreased slightly, to approximately 27 percent of total land. Overall, about 11 percent of farmland acres have been converted to other uses over the 25-year period. The size of the average farm has seen a six percent decline during that period. The average size of a farm in Blount County in 2007 was 85 acres, compared with 91 acres in 1982.

In more recent comparisons, in 2007 Blount County was home to 1,154 farms, which represents an 11 percent decline since the previous Census of Agriculture was taken in 2002. The county featured 98,403 acres of farmland, a six percent decrease from 2002. The average size of a Blount County farm had increased slightly to 85 acres from 81 acres in 2002, which may be indicative of a trend toward farm consolidation throughout the state, or the loss of smaller farms due to economic conditions.

The county's total market value of farm production had decreased by 29 percent from 2002, ranking it 53rd of the state's 95 counties. The average production per farm in Blount County had decreased 20 percent to $15,052. The vast majority of farms are small, with production valued less than $5,000; only 24 farms had productions valued over $100,000. In 2007, the county's top crops were hay, corn, soybeans, and wheat.

Approximately 54,050 acres of land in Blount County meet the soil requirements for prime farmland designation by NRCS. This is about 15 percent of the total land acreage in the county. The county has no farmland designated as statewide or locally significant.

3.6.1.2 Project Area Farmlands

The project area includes land currently zoned agricultural and/or in agricultural production.

Historically, the project area was a rural, farming area featuring primarily dairy farms where cattle is raised and crops such as hay and corn are grown. Cattle and dairy farms have been common in all parts of Tennessee, but especially East and Middle Tennessee. As of the end of 2007, Blount County counted 900 dairy milk cows in its entire herd of 34,000 cattle.[2]

Beginning in the 1960s and 1970s, new residential subdivisions and commercial developments began to be constructed along the main transportation corridors in the project area, including SR 33, US 441, and US 321/SR 73. Since the 1990s, the project area has become part of the fast-growing suburban growth area for Alcoa and Maryville and has seen substantial new construction, including both private developments and public infrastructure. This includes upscale residential subdivisions, retirement condominiums, a subdivision for manufactured housing, a new elementary school, an improved water treatment plant, and enlarged church complexes. Along US 321/SR 73, new commercial roadside developments have been constructed as well as a large telecommunications tower.

Much of this new construction has taken place on former farmland, resulting in the destruction of older farmhouses, outbuildings, and support structures. In 1982, the Tennessee Historical Commission documented 55 potentially historic buildings in the project area. In 2008, only about half were still standing (29 buildings or 47 percent of the 1982 structures recorded).

3.6.2 Impacts to Farmlands

3.6.2.1 Methodology

Impacts on farmland were determined through coordination with NRCS, which included an evaluation using the USDA Farmland Conversion Impact Rating form for Corridor Type [highway] Projects. The site assessment criteria (part VI on the form) are designed to

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[2] Source: *Tennessee Farm Facts, 2008* produced by the US Dept. of Agriculture (USDA) in cooperation with the Tennessee Dept. of Agriculture.

assess important factors other than the agricultural value of the land. The ten assessment criteria used for transportation and other corridor-like studies consider not only the land currently being farmed, but also the land use around the project area and whether or not that land use is urban, non-urban or in transition. The criteria also determine the following:

- Whether the conversion of the proposed agricultural site would eventually cause the conversion of neighboring farmland;
- Whether there are adequate support facilities, activities and industry to keep the farms in business;
- The extent to which local and state government and private programs have made efforts to protect farmland from conversion;
- Relative amount of on-farm investment; and
- Whether there are agriculturally related activities, businesses or jobs dependent on the site

Each factor is assigned a score relative to its importance. Corridors that receive a total site assessment score of 160 points or less need not be given further consideration for protection. Corridors with a total site assessment score of 161 points or more require the consideration of alternative project alignments that would serve the proposed purpose but convert either fewer acres of farmland or other farmland that has a relatively lower value.

3.6.2.2 Impacts by Alternatives

The No-Build Alternative would have no direct effect on existing farming operations. No farms would be divided as a result of the No-Build activities.

The Build Alternatives would result in direct impacts to farmlands and farming operations in the project area. In addition to the direct conversion of farmlands to a transportation use, individual farms would be bisected by the proposed alternatives, which could reduce the productivity of the individual farm, depending on the location and size of the amount of ROW take. The alternatives may also alter the access to the remaining portions of the farmlands.

The NCRS has determined that each of the Build Alternatives would affect prime farmlands, as documented in the form NCRS-CPA-106 that was returned to TDOT in January 2009.

The effects of the Build Alternatives on farms are discussed briefly below and summarized in Table 3-14.

Alternative A would affect approximately 128 acres of farmlands; most of the land (about 74 percent) within the proposed right-of-way of this alternative is classified as farmland. Alternative A would convert about 39 acres of prime farmlands to a transportation use, which would be about 30 percent of the total farmland acres to be converted.

Table 3-14: Farmland Impacts

Alternative	A	C	D
Total acres of land in ROW	172	187	120
Acres of Farmland in ROW	128	74	45
Farmland as percent of total land in ROW	74%	40%	38%
Acres of prime farmland in ROW	39	44	23
Prime farmland as percent of total farmland in ROW	30%	59%	51%
Percent of farmland in Blount County to be converted	0.01%	0.01%	0.01%
Total Corridor Assessment Score	134	122	127

Source: Blount County Property Assessment, 2008 and NCRS-CPA-160 (in Appendix A).

Alternative C would convert about 74 acres of farmlands to a transportation use; this would be about 40 percent of the proposed land to be acquired. About 44 acres of prime farmlands would be converted, which would be approximately 59 percent of the total farmland acres to be acquired for this alternative.

Alternative D would concert about 45 acres of farmland, approximately 38 percent of the new right-of-way to be acquired for the project. This alternative would acquire about 23 acres of prime farmland, which is about 51 percent of the total farmland acres to be acquired.

TDOT conducted the required corridor assessment for the three Build Alternatives. Total scores for the three alternatives are shown in Table 3-14 and in the completed NCRS-CPA-106 form included in Appendix A. The scores for each Build Alternative are less than the 160-point threshold that would require the consideration of alternative project alignments that would serve the proposed purpose but convert either fewer acres of farmland or other farmland that has a relatively lower value. Thus, the conversion of farmland to a transportation use by any of the Build Alternatives is consistent with the FPPA.

The three Build Alternatives are entirely within the UGB for Maryville and Alcoa. Future developments by public agencies and private entities in this portion of the study area are likely to convert existing agricultural lands to residential and/or commercial use, which is generally consistent with the *Conceptual Land-Use Plan* discussed in Section 3.2.1. This plan divides Blount County into various types of development categories from rural low-density to commercial high-density (refer to Figure 3-5). Land around the proposed Pellissippi Parkway Extension is in the “Suburbanizing – High to Medium Density” category. It is expected that land in this category would be developed and annexed by the cities as growth occurs in the county. Therefore, the agricultural land in the project area would be designated as suburbanizing in the future as opposed to agricultural.

3.6.3 Potential Mitigation Measures

During design of the selected alternative, TDOT will work with farm owners to reduce the impact on farmlands as much as possible based on available design solutions. TDOT will endeavor to minimize the amount of division of farms and ensure that remnants are viable. One of the guiding policies for the Blount County Policies Plan was to preserve the area’s rural character. Zoning and land use controls can assist in minimizing future effects.

3.7 Cultural Resources

Section 106 of the National Historic Preservation Act requires that historic and archaeological resources be considered in project planning for federally funded or permitted projects. Pursuant to the Section 106 guidelines outlined in 36 CFR 800, studies were conducted to determine if historic, architectural, or archaeological resources exist in the project's Area of Potential Effect (APE) that are listed in or eligible for listing in the National Register of Historic Places (NRHP). A project's APE is defined in 36 FR 800 as:

> *the geographic area or areas within which an undertaking may directly or indirectly cause changes in the character or use of historic properties, if any such properties exist. The APE is influenced by the scale and nature of an undertaking and may be different for different kinds of effects caused by the undertaking.*

NRHP criteria of eligibility were applied to all surveyed resources. The criteria of effect were then applied to each listed or eligible resource.

The studies have been reviewed by the Tennessee State Historic Preservation Office (SHPO) and comments regarding NRHP eligibility and effects are in Appendix B. The project has also been coordinated with parties pursuant to Section 106. A summary of this coordination is in Chapter 4 and all Section 106 related coordination is in Appendix B.

Tribal consultation for this project included the following Native American tribes:

- Cherokee Nation;
- Eastern Band of Cherokee Indians;
- Eastern Shawnee Tribe of Oklahoma;
- Shawnee Tribe; and
- United Keetoowah Band of Cherokee Indians

The results of the studies are documented in two reports, *Historical and Architectural Survey and Assessment of Effects Under 36 CFR 800* and *Phase I Archaeological Survey for Pellissippi Parkway Extension (SR 162)*, which are on file with TDOT. The results of these studies are summarized in the following sections.

3.7.1 Historic and Architectural Resources

3.7.1.1 Area of Potential Effects

The APE for the potential historic and architectural resources was defined as an area approximately one-half mile in either direction from the centerline of each Build Alternative. The area surveyed included land needed for additional ROW as well as areas that might be affected by changes in air quality, noise levels, setting, and land use.

3.7.1.2 Existing Historic Architectural Resources in Project Area

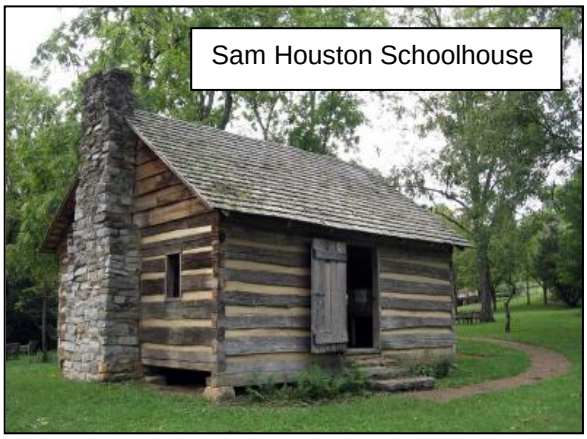
Twenty-nine properties had been previously surveyed in 1982–1984 by the Tennessee Historical Commission (THC) and local representatives from the University of Tennessee as

part of the Blount County Architectural Survey. One of those properties, Sam Houston Schoolhouse, is listed on the NRHP. In 1997, several properties in the project area were documented for the original assessment for the Pellissippi Parkway Extension from SR 33 to US 321/SR 73. In a 2000 report, this survey determined that the project area contained two historic properties, Sam Houston Schoolhouse and Mack Hitch Farm.

In 2008, the 29 properties previously surveyed by the THC and 17 additional properties identified within the APE were evaluated. No additional eligible or listed properties were identified.

Sam Houston Schoolhouse

The Sam Houston Schoolhouse is situated to the east of Sam Houston School Road. Listed on the NRHP in 1972, the schoolhouse is a circa 1790s log building where the historic figure, Sam Houston, taught classes in 1811–1812. The State of Tennessee purchased the landmark building in 1945 and opened it as a historic site museum in the 1950s after a full restoration. The NRHP boundaries include the entire 4-acre parcel.


Sam Houston Schoolhouse

Mack Hitch Farm (932 Hitch Road)

The Mack Hitch Farm is situated north of Davis Ford Road and east of Hitch Road. It is a privately owned farm that the SHPO determined in 1999 to be eligible for listing in the NRHP for architectural and historical significance. The SHPO determined that the boundaries would be the 194-acre northeastern portion of the 254-acre farm.

Since 2000, TDOT has revised the locations for the project alternatives, resulting in the APE evaluated in the 2008 *Historical Architectural Survey and Assessment of Effect Under 36 CFR 800*. Due to these revisions, the National Register-eligible Mack Hitch Farm is located more than one-half mile from the project's APE and is therefore outside of the APE.

3.7.1.3 Project Impacts to Historic/Architectural Resources

In consultation with the SHPO, Section 106 Criteria of Adverse Effect, as defined in 36 CFR 800.9, were applied to architectural and historical resources in the APE.

Only one eligible/listed resource is within the project's APE: Sam Houston Schoolhouse. Alternatives A and C would result in the construction of a four-lane divided freeway on new location more than one mile west of the Sam Houston Schoolhouse. Due to the distance separating Alternatives A and C from the Sam Houston Schoolhouse, the historic property has been determined to be outside of the APE for these project alternatives.

Alternative D would improve the existing two-lane Sam Houston School Road. Sam Houston School Road is approximately 1,600 feet west of the Sam Houston Schoolhouse. Construction of Alternative D would not:

- Result in any physical destruction, damage, or alteration to the historic property;

- Change the character of the physical features that contribute to the historic significance within the property's visual setting or surrounding view shed;
- Incorporate any land from the National Register-listed boundary;
- Substantially impair any activities, features, or attributes that quality the resource for listing on the National Register; and
- Affect noise levels at the historic site.

In a letter dated May 4, 2009, the SHPO concurred that the proposed project would not adversely affect the Sam Houston Schoolhouse. A copy of the letter is included in Appendix B.

3.7.1.4 Potential Mitigation Measures

Since no historic architectural resources would be adversely affected by any of the Build Alternatives, no mitigation measures would be necessary.

In an e-mail dated March 25, 2009, the SHPO requested that the Anne Elizabeth Thompson Pershing historic marker be preserved during this road project. The marker, erected in 1922 by the THC, is located along Buchanan Road outside Maryville. While it is not eligible for the National Register, it is of local interest and should not be demolished. If the project involves relocating the marker, it should be re-erected in a pull-off (instead of just by the road), which is safer and makes the marker more accessible to the public. A copy of this email is included in Appendix B. The marker is numbered BT.2361, with "BT" indicating that the marker is in Blount County.

3.7.2 Archaeological Resources

3.7.2.1 Area of Potential Effects

The APE for archaeological resources was defined as an area approximately 250 feet in either direction from the centerline of each Build Alternative. The total length of the survey corridor is 12.42 miles. The APE, therefore, covers approximately 752.7 acres.

3.7.2.2 Existing Archaeological Resources in Project Area

A literature and records search at the Tennessee Division of Archaeology indicated eight previously recorded sites within the Build Alternative corridors, and an additional 21 sites within a 1-mile radius. Fieldwork conducted from October 2008 to January 2009 and in March 2009 resulted in the identification of 15 previously unrecorded archaeological sites. The SHPO reviewed the archaeological survey report and concurred with the findings

related to these sites, in a letter dated May 20, 2009. A copy of the letter is included in Appendix B.

3.7.2.3 Project Impacts to Archaeological Resources

Nine archaeological sites within the APE are recommended as potentially eligible for the NRHP pursuant to 36 CFR 60.4, criterion D. Phase II testing to determine NRHP eligibility or avoidance will be required for any of these sites within the selected Build Alternative. The SHPO reviewed the archaeological survey report and concurred with these findings in a letter dated May 20, 2009. A copy of the letter is included in Appendix B.

As shown in Table 3-15, Alternatives A and C would each affect five potentially eligible archaeological sites. One of the sites lies within the common footprint of Alternatives A and C. Alternative D would affect one potentially eligible site, which would also be affected by Alternative C.

Table 3-15: Potentially Eligible Sites Affected by Build Alternatives

Site	Alt.	Cultural Affiliation	Resource Type
40BT202	A	Early Archaic, late 19th/20th c.	lithic scatter/camp, barn
40BT203	A	Early Archaic, Late Woodland	lithic scatter/camp, historic isolate
40BT205	C	Late Archaic, Early Woodland; 19th c.	lithic scatter, historic house
40BT207	C	Middle/Late Archaic; 20th c.	lithic scatter, historic isolate
40BT208	C	Early Archaic; early 19th/20th c.	lithic workshop, railroad grade, rural domestic
40BT209	D, C	Early/Middle/Late Archaic, Early/Late Woodland; 20th c.	prehistoric habitation
40BT100	A/C	mid-19th c. historic	historic house site
40BT122	A	undetermined prehistoric	chert quarry, historic isolate
40BT125	A	undetermined prehistoric; late 19th/20th c.	lithic, historic scatter

Source: Panamerican Consulting, 2009

3.7.2.4 Avoidance Potential

Alternative A. It may be possible to avoid intrusion into Site 40BT100 by a design shift to the west. It is not likely that Sites 40BT122, 125, 202, and 203 could be avoided since the corridor bisects the sites and the sites extend beyond the boundaries of this alternative.

Alternative C. Sites 40BT209, 40BT205, 40BT10, and Site 40BT207 may be avoidable by design shifts. Site 40BT208 would not be avoidable since the corridor bisects the site and the site extends beyond the boundaries of this alternative.

Alternative D. Site 40 BT209 is on the western edge of Alternative D, and it may be possible to avoid this site by shifting the alignment slightly eastward.

Site 40BT214 (a cemetery) is situated between Alternatives C and D north of Centennial Church Road and should be avoided.

3.7.2.5 Proposed Mitigation for Archaeological Resources

After the DEIS has been approved and a Preferred Alternative has been selected, measures will be evaluated to avoid affecting sites within the APE of the Preferred

Alternative. If a site cannot be avoided, it will undergo Phase II archaeological testing to determine its NRHP eligibility. If one or more sites is determined to be eligible for the NRHP, Native American tribes and the SHPO will be consulted to develop a Memorandum of Agreement and a mitigation plan. Until that time, Section 106 obligations have not been met.

Pursuant to TCA 11-6-107(d), if human remains are identified, construction work must be halted, and the state archaeologist, the county coroner and local law enforcement must be contacted immediately. In addition, each recognized Native American tribe will be contacted to afford a representative the opportunity to examine and evaluate the material found.

3.8 Recreational Resources

No national forests, wilderness areas, state or local parks or other documented public recreational resources are within the project corridor. However, the project terminates on US 321/SR 73, which crosses the National Park Service's Foothills Parkway approximately five miles to the east. US 321/SR 73 also connects the project area to the Great Smoky Mountains National Park (GSMNP) approximately 15 miles to the east. Cades Cove within the Park is also approximately 20 miles to the southeast of the project area, east of Townsend. Figure 3-11 shows the location of these recreational resources in relation to the project area.

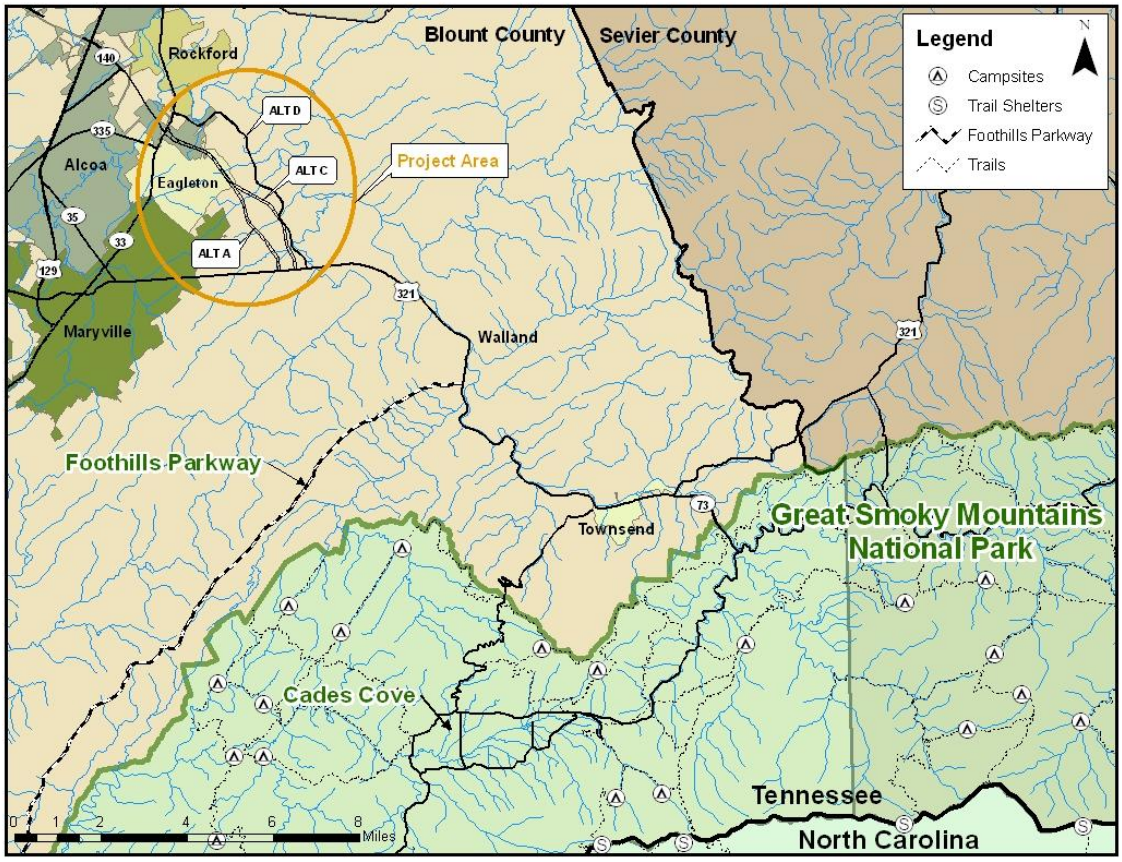
3.8.1 Identification of Parks and Recreation Areas

Encompassing much of the eastern portion of Blount County is the GSMNP. This park, which straddles the Tennessee and North Carolina border, is one of the largest national parks east of the Rocky Mountains, occupying more than 814 square miles with over 500,000 acres of forest. Established in 1934, the park has long been the most visited in the National Park Service system; in 2008, more than nine million people visited the GSMNP. The park offers auto touring, bicycling/hiking trails, camping, fishing, historic buildings, horseback riding, picnic sites, waterfalls, and wildflowers/wildlife viewing. The GSMNP is also designated as an International Biosphere Reserve by the United Nations. The primary objective of the reserve is to conserve genetic diversity and coordinate environmental education, research and monitoring. The park is also a unit of the Southern Appalachian Man and Biosphere Reserve and is designated as a World Heritage Site and a State Natural Heritage Area by Tennessee and North Carolina.

Within Blount County's portion of the GSMNP is the single most frequented destination in the entire national park - Cades Cove. Cades Cove is a valley with a well preserved collection of historic buildings (log cabins, churches and barns) representing southern Appalachian life. It also features an 11-mile one-way loop road around the cove, a visitor center, numerous bike/hiking trails, and campsites. More than two million people visit Cades Cove each year.

Foothills Parkway skirts the GSMNP's northern side in Tennessee. This scenic roadway was approved by Congress in 1944 to connect US 129/Alcoa Highway to I-40. The parkway was to contain eight sections with an approximate length of 71 miles; however, only three of these sections have been completed, approximately 22.6 miles.

Figure 3-11: Recreational Resources

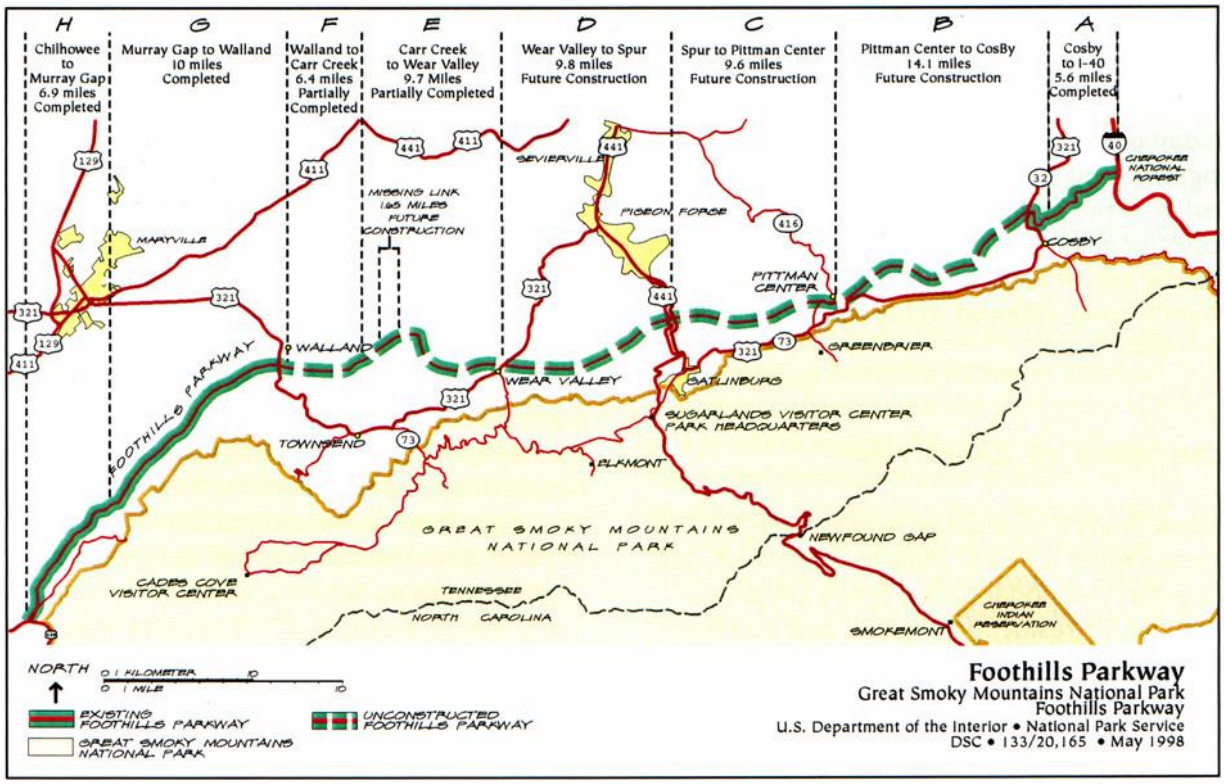


The longest open section consists of a 16.5-mile leg traversing the western flank of Chilhowee Mountain in Blount County, connecting with US 321/SR 73 in the town of Walland (shown as Sections G and H in Figure 3-12). The other open section is a 6-mile stretch traversing Green Mountain in Cocke County, connecting US 321/SR 73 in Cosby with I-40 in the Pigeon River valley (Section A in Figure 3-12).

Construction on the Parkway segments between US 321 in Walland and US 321 in Wears Valley (Sections E and F) was initiated in 1984 and 1985, but as a result of problems encountered, work was suspended. This left a 1.6-mile "missing link" shown on Figure 3-12. The sections of road on either end of the missing link have been constructed and would only require paving and miscellaneous work to be open to traffic. A new design that minimizes surface disturbance and environmental impacts was developed for this 1.6 mile missing link segment. To date, three bridges have been completed along with some of the roadway. Design of the remainder of the missing link is underway, and construction on the next section is scheduled to begin in 2010. If funding is available, completion of the missing link and the remainder of the road could be completed as soon as 2016. This will open 16 miles of the Foothills Parkway between US 321 in Walland (Blount County) and US 321 in Wears Valley (Sevier County) to traffic.

Due to funding and legislative difficulties, the ultimate status of the parkway remains uncertain.

Figure 3-12: Foothills Parkway



Source: National Park Service, February 2010

3.8.2 Impacts to Parks and Recreation Areas

The proposed project would have no direct effect to the GSMNP, Cades Cove, or Foothills Parkway. No property would be taken from the boundaries of these resources as a result of any of the project alternatives.

3.8.3 Potential Mitigation Measures

Since no parks or recreation areas would be adversely affected by the project, no mitigation measures would be necessary.

3.9 Section 4(f) and Section 6(f) Resources

3.9.1 Section 4(f) Resources

Section 4(f) of the U.S. Department of Transportation Act of 1966 is a national policy that declares that a special effort will be made to preserve the natural beauty of the countryside, public parks and recreation lands, wildlife and waterfowl refuges, and historic and archaeological sites. Section 4(f) permits the U.S. Secretary of Transportation to approve a project that requires the use of publicly owned land from a park, recreation area, wildlife refuge, or any land from a historic site of national, state, or local significance only if the following determinations have been made:

- There is no feasible and prudent alternative to the use of such land, and
- All possible planning has been undertaken to minimize harm to the Section 4(f) lands resulting from such use.

An investigation of the project corridor has been conducted. The National Register-listed Sam Houston Schoolhouse is accessed from Sam Houston School Road, which would be widened by Alternative D. However, construction of Alternative D would not require any easement or ROW from the National Register boundary of the Sam Houston Schoolhouse. There are no National Register-eligible or -listed historic properties along Alternatives A and C.

None of the alternatives would require ROW or easement from public parks, recreation lands, and/or wildlife/waterfowl refuges.

As discussed in Section 3.7.2, Alternative D would affect one potentially eligible archaeological site and Alternatives A and C would each affect five potentially eligible archaeological sites. Section 4(f) applies to all archaeological sites that are on, or eligible for inclusion on, the National Register and that warrant preservation in place. At this time, none of these sites are recommended for preservation in place. Assuming that the archaeological sites within the project's APE do not warrant preservation in place, Section 4(f) would not apply.

Since the proposed project would not affect any resources covered by Section 4(f) of the Transportation Act of 1966, no Section 4(f) analysis is required for this project. If, during the Phase II archaeological investigations, information points to the need for one or more sites to be preserved in place, a Section 4(f) evaluation will be conducted.

3.9.2 Section 6(f) Resources

Section 6(f) of the Land and Water Conservation Fund Act of 1965 (36 CFR 59) protects grant-assisted areas from conversions to other uses. The purpose of the Land and Water Conservation Fund Act is to

> *…assist in preserving, developing and assuring accessibility to all citizens of the United States of America of present and future generations…such quality and quantity of outdoor recreational resources as may be available and are necessary and desirable for individual active participation.*

The program provides matching grants to states and local governments through the U.S. Department of Interior, National Park Service, for the acquisition and development of public outdoor recreation areas and facilities.

An investigation of the project corridor has been conducted and no Section 6(f) resources have been identified. Thus, no Section 6(f) analysis is required for this project.

3.10 Aesthetics and Visual

A visual impact assessment was conducted to evaluate the positive and negative visual effects of the project on the area's visual resources. A visual assessment describes the

existing visual character, visual quality, visually sensitive resources, and the viewers of the project area. These elements are discussed and evaluated in the following sections.

3.10.1 Visual Environment and Identification of Sensitive Resources

3.10.1.1 Visual Character

The visual character of an area consists of a combination of physical, biological, and cultural attributes that make a landscape identifiable or unique.

The terrain in the project area is most primarily consists of rolling hills with the most prevailing visual element being the panoramic background views of the Smoky Mountains in the distance. The existing visual landscape of the project area can be described as predominately rural with pockets of scattered suburban development. Within this rural landscape there are several other subcategories or landscaping units. These landscaping units are rural residential, rural suburban, natural and agriculture. The landscaping units comprising the project alternatives are relatively large and remain consistent in their visual quality throughout each of their reach.

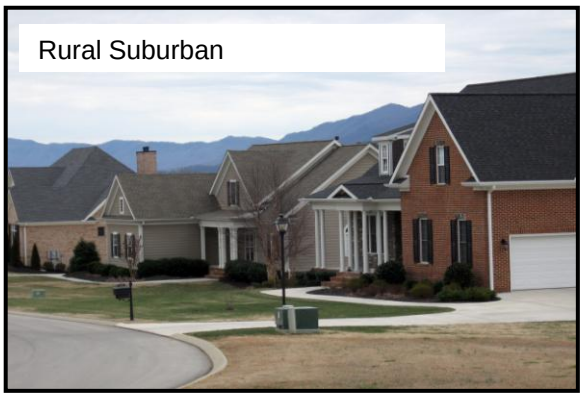
A description of each of the landscape units is provided below:

- **Rural Residential –** This landscape unit consists of an interweaving of agriculture and residential land uses which can predominately be found at the northern end of the project area (near the end of existing Pellissippi Parkway) as well as the terminus of the project area at the intersection with US 321/SR 73.

  Rural Residential Landscape

  The landscape in the area consists of modern commercial and retail buildings interspersed with farmland, scattered residences, low density neighborhoods and farm buildings. This area does not contain as many densely populated neighborhoods as the suburban residential landscape unit which is described in further detail below. This development is typical of built-up areas found around small towns and does not indicate visual sensitivity or unique visual importance.

- **Rural Suburban –** This landscape unit is becoming increasingly common in the project area as the population of Blount County has continued to grow. The neighborhoods of Whittenberg Estates, Sweet Grass Plantation and Cromwell Village Condos are examples of rural suburban developments within this landscaping unit. Many of these developments

  
  Rural Suburban

are found interspersed between the agricultural and rural residential landscaping units.

This landscape unit has developed from land being converted from the rural agriculture landscape unit to medium-density suburban neighborhoods. This development is typical of built-up areas found around small rural towns and does not indicate any visual sensitivity or unique visual importance.

- **Agriculture –** The visual environment of most of the project corridor falls into this landscaping unit. The landscape is composed to a large degree of open fields used for pastures, row crops or hayfields. Scattered between these fields are residences and farm buildings. The landscape is generally intact with a medium degree of unity due to encroachment of more medium density residential neighborhoods. In terms of vividness, the landscape scores lower since the components are relatively common in rural areas and do not generally combine in striking and distinctive visual patterns.

Agricultural Landscape

Natural Landscape

- **Natural -** This landscape unit covers the smallest amount of actual land cover in the project area. Interspersed between the rural agriculture and suburban development are small tracts of isolated, undistributed land. These areas consist of streams, wetlands and native vegetation. This landscape is considered low in vividness, intactness and unity due to a loss of connectivity and an isolated pocketed appearance from encroaching development and farming activities.

3.10.1.2 Visual Quality and Visually Sensitive Resources

Visual quality of a landscape relates to the relative excellence of a visual experience. The visual quality of the study area has been evaluated using three criteria recommended by FHWA in its 1981 publication, *Visual Impact Assessment for Highway Projects: Vividness, Intactness and Unity*. All three criteria must be high for the landscape to be given a high quality rating. Vividness refers to the visual power or memorability of the landscape components as they combine to form striking and distinctive patterns. Intactness refers to the visual integrity of the landscape. The fewer encroaching (out-of-character) elements, the higher the visual integrity. Unity refers to the visual coherence and compositional harmony of the landscape when it is considered as a whole.

Visually sensitive resources are those that are visually important for historic, architectural, recreational or community associations. Noteworthy natural features that are visually important can also be categorized as visually sensitive resources.

There are no officially designated scenic areas along the corridor and the corridor does not have a scenic byway designation.

The GSMNP is approximately 15 miles from the terminus of the project. Background views of the Smoky Mountains are present to the south and east of the project area. These views of the Smoky Mountains are valuable to residents within the study area and would be visible to motorists accessing the proposed project. However, this viewshed is not unique to the study area and is visible in almost all areas of this region of Tennessee.

View to south toward GSMNP from Whittenburg Estates

View to southeast toward GSMNP from Sam Houston School Road

The Blount County Growth Policies Plan (2008) defines as one of its guiding principles the preservation of the “rural, small town and natural character” of the county. The generally rural, open landscape units of the project area are considered valuable by members of the community.

3.10.1.3 Viewer Groups

Viewer groups in the project area fall into two main categories: persons with a view of the surrounding area from the new roadway and persons with a view of the new roadway from the surrounding area. Viewer response to the visual quality of an area is evaluated by considering differing viewer groups and the number of viewers in a particular group, the duration and frequency of their exposure, their distance from the road, and their level of sensitivity - that is, their activity or purpose as they use the road.

Those viewers who would be traveling though the project area include:

- The local user, who has long-term familiarity with the area's visual resources and will be acutely aware of changes;
- The commuter, who is somewhat less aware of his or her surroundings, due to the repetitive nature of the activity; and
- The tourist or traveler, who generally has a high awareness of visual resources, yet is less sensitive to specific changes in an unfamiliar environment. For these travelers viewing the area for the first time or infrequently, the background views of the Smoky Mountains and the semi-rural nature of the study area are appealing.

Viewers of the road include nearby residents, farmers, persons attending church or school, employees and customers of commercial areas, and recreational users such as bicyclists, runners or pedestrians. These observers have longer duration views of the highway and their awareness of visual resources and change is high.

3.10.2 Impacts to Sensitive Visual Resources

Visual impacts can be defined as changes to the visual landscape. Visual impacts can be categorized as minimal, moderate or high.

Levels of Visual Impact

Minimal. Existing transportation facilities are already part of the viewshed, the view has few or no visually sensitive resources, and the proposed project would introduce few, if any, noticeable changes to the viewshed.

Moderate. Changes are made to the existing viewshed that would be noticeable but not substantial and/or visually sensitive resources would undergo a noticeable change in view.

High. Substantial changes are made to the existing viewshed that would result in a greatly changed view and/or visually sensitive resources would undergo a substantial change in view.

The following sections discuss the impacts of each alternative on the visual character of the project area.

No-Build Alternative

The No-Build Alternative would not add or remove new transportation elements to the visual setting of the project corridor. The No-Build Alternative would not directly change the form,

character or quality of the visual environment in the project corridor. The expected shift from rural to suburban development will alter the rural character of the landscape over time.

Alternative A

Alternative A would introduce a new, four-lane roadway into the landscape where one does not presently exist. From the eastern terminus of SR 33, this route would follow a generally easterly and southeasterly path to Wildwood Road, passing through former farmlands that are the site of the Pellissippi Place Research and Development Park now under development. There would be distant views of the road from adjacent subdivisions such as Jackson Hills to the west, and to the east Edgewood Acres and Cromwell Village. After crossing Wildwood Road, the route would continue in a generally southerly direction, crossing existing roadways and passing through active agricultural lands. A new interchange would be constructed at US 411/Sevierville Road and would be approximately 20 feet high. Alternative A would pass along the northeastern edge of the Kensington Place mobile-home park, where the new four-lane divided highway would be in the foreground views of those persons living in the northeastern portion of the mobile home park. The corridor would intersect US 321/SR 73 just east of Flag Branch with an elevated interchange.

Currently, the visual scene of Alternative A is dominated by a rural residential landscape with pockets of rural suburban, agriculture and forested areas (natural). The construction of the proposed alternative could result in a visual split of the project area, which could result in a loss of visual connectivity for residents within the study area. The lack of existing vegetation to buffer views of the new roadway could also further increase the amount of visual impact the new roadway would have on residents within the study area.

The overarching background views of the Smoky Mountains would remain intact and unchanged for most viewers including those commuters and travelers using the new roadway facility. The foreground views for residents within the study area and commuters/travelers using the new roadway to pass through the study area would be altered and segregated by the construction of Alternative A. Consequently, the viewshed for adjacent residents, whose views are important to them, would be altered somewhat. Overall, the visual impact of the construction of Alternative A is considered to be moderate due to the existing visual quality and visual character of the study area. There are no visually sensitive resources that would be affected by Alternative A.

Alternative C

Much like Alternative A, Alternative C would introduce a new, four-lane roadway into the landscape where one does not presently exist. This alternative would share the same alignment and design features as Alternative A from SR 33 to the vicinity of Brown School Road, at which point Alternative C would diverge to the east. Alternative C would then run in a southeasterly direction, and intersect with US 411/Sevierville Road about 0.6 miles east of Alternative A. The visual units of this area consist of agricultural farmlands with a few small pockets of natural vegetation. Agricultural fields and natural areas would be divided through this portion of Alternative C. Alternative C would continue southeasterly across agricultural farmlands to Davis Ford Road and proceed southerly, crossing Centennial Church Road about 500 feet west of Helton Road, crossing John Helton Road and terminating with US 321/SR 73 in the vicinity of Hubbard School Road with an elevated interchange.

The small church and the old cemetery on Centennial Church Road currently sit in a predominately rural setting being threatened by encroaching residential development to the north (Sweet Grass Plantation and Misty View subdivisions). The construction of Alternative C could further alter the viewshed of this rural county church by bisecting views of the local community to the west.

The most prevailing landscape units along Alternative C are rural residential and agriculture. Between these two landscape units are interspersed areas of rural suburban and natural landscapes. The construction of the proposed alternative could result in a visual split of the project area that could result in a loss of visual connectivity for residents within the study area. The lack of existing vegetation to buffer views of the new roadway could also further increase the amount of visual impact the new roadway would have on residents within the study area.

The overarching background views of the Smoky Mountains would remain intact and unchanged for all viewers including those commuters and travelers using the new roadway facility. The foreground views for residents within the study area and commuters/travelers using the new roadway to pass through the study area would be altered and segregated by the construction of Alternative C. Consequently, the viewshed for residents, whose views are important to them, would be changed. Overall, the visual impact of the construction of Alternative C is considered to be moderate due to the existing visual quality and visual character of the study area. There are no visually sensitive resources that would be adversely impacted by Alternative C.

Alternative D

Alternative D would upgrade an existing network of two-lane roads in the area to serve as a wider two-lane connection between SR 33 and US 321/SR 73.

There is one visually sensitive resource in the vicinity of Alternative D, the Sam Houston Schoolhouse. This National Register-listed historic property is approximately 1,600 feet west of Sam Houston School Road and is not currently visible from the road nor would be for the proposed alternative. The general topography of the study area as well as the natural vegetative buffer surrounding the schoolhouse limits the views for visitors to the schoolhouse. Therefore, there would be no visual impact on the Sam Houston Schoolhouse.

From the northwestern terminus of Alternative D, this alternative would follow the alignment of Sam Houston School Road. The landscaping units present along this portion of Alternative D consist of rural residential and rural suburban. In this area, Alternative D would pass two community facilities—Alcoa's water treatment plant and Eagleton Elementary School. At the intersection of Sam Houston School Road and Wildwood Road, Alternative D would continue on a new alignment through agricultural farmlands until the alignment joins Peppermint Road. In this area, Alternative D would be on new location, passing along the eastern side of the Mt. Lebanon Baptist Church cemetery and ball fields and bisecting agricultural farmlands before shifting closer to Peppermint Road. The alternative would result in the displacement of several homes in the Peppermint Hills subdivision on the east side of Peppermint Road north of Hitch Road.

Throughout the remainder of Alternative D, the alignment would cross and divide agricultural farmlands as well as rural residential areas. The Full Gospel Church and its associated cemetery are the only community facilities in the general vicinity of Alternative D

at this point. The viewshed from this church looking east would be affected by Alternative D. This church's rural viewshed is already being threatened by residential development patterns.

Along most of the length of Alternative D, an existing transportation facility is already part of the landscape. The expected visual impact of this improved or new two-lane roadway is expected to be minimal or moderate. Background views of the Smoky Mountains would remain intact and be substantially unchanged for most viewers. The visual changes for residents within the study area and commuters/travelers using the expanded roadway to pass through the study area would be noticeable but not substantial and would be limited once vegetation has been re-established. The visual patterns of remaining farm fields and scattered residences would remain intact. There are no visually sensitive resources that would be adversely affected by Alternative D.

Table 3-16 presents a summary of the visual impacts of the alternatives.

Table 3-16: Summary of Visual Impacts

Alternative	Visual Character	Visual Quality	Visually Sensitive Resources
No-Build	No Impact	No Impact	No Impact
Alternative A	Moderate	Moderate	No Impact
Alternative C	Moderate	Moderate	No Impact
Alternative D	Minimal to Moderate	Minimal to Moderate	No Impact

3.10.3 Potential Mitigation Measurers

There is no visual mitigation proposed for this project since there are no high amounts of visual impacts associated with any of the project alternatives.

3.11 Air Quality

Air pollution is a general term that refers to one or more chemical substances that degrade the quality of the atmosphere. Individual air pollutants degrade the atmosphere by reducing visibility, damaging property, reducing productivity or vigor of crops or natural vegetation, or reducing human or animal health. Air quality describes the amount of pollution in the air.

An *Air Quality Report* (revised February 2010) was prepared to analyze air quality impacts of the proposed project. The report is on file with TDOT's Environmental Division. The following sections summarize the findings of the air quality assessment.

Clean Air Act

The Clean Air Act of 1970, 42 United States Code (USC) 7401 et seq., was enacted to protect and enhance air quality and to assist state and local governments with air pollution and prevention programs. Under the Clean Air Act Amendments of 1990, the U.S. Department of Transportation cannot fund, authorize, or approve federal actions to support programs or projects that are not first found to conform to the Clean Air Act requirements.

3.11.1 Current Air Quality

As required by the Clean Air Act, National Ambient Air Quality Standards (NAAQS) have been established for six major air pollutants, known as criteria pollutants: carbon monoxide, nitrogen dioxide, ozone, particulate matter (PM_{10} and $PM_{2.5}$), sulfur dioxide, and lead. The State of Tennessee has also established its own ambient air quality standards.

Air Quality Attainment Areas

Areas where concentrations of pollutants are below the NAAQS are classified as "attainment areas." This means that the area attains the standards and generally has air quality that is protective of human health and welfare.

Knox and Blount Counties are classified as attainment areas for all criteria pollutants except 8-hour ozone and $PM_{2.5}$, for which they are classified as a non-attainment area. The concept of extending Pellissippi Parkway as a new four-lane divided highway is included in the *2009-2034 Knoxville Regional Mobility Plan* as project #232. The project is included in the Knoxville Region 2008-2011 Transportation Improvement Program (TIP) as TIP #2008-039 (page 19). The inclusion of the project in the *Regional Mobility Plan* and TIP satisfies the conformity requirements of the Clean Air Act.

In addition to the criteria pollutants for which there are air quality standards, the EPA also regulates air toxics. Toxic air pollutants are those pollutants known or suspected to cause cancer or other serious health effects. Most air toxics originate from human made sources, including on-road mobile sources, non-road mobile sources (e.g., airplanes), area sources (e.g., dry cleaners), and stationary sources (e.g., factories or refineries). EPA has identified seven compounds with significant contributions from mobile sources that are among the national and regional-scale cancer risk drivers from their 1999 National Air Toxics Assessment (NATA) (**http://www.epa.gov/ttn/atw/nata1999/**). These compounds are acrolein, benzene, 1,3-butadiene, diesel particulate matter plus diesel exhaust organic gases (diesel PM), formaldehyde, naphthalene, and polycyclic organic matter.

3.11.2 Air Quality Impacts

The project is not predicted to cause or exacerbate a violation of the NAAQS.

3.11.2.1 Regional Impacts

The project is predicted to increase regional vehicle miles traveled (VMT) when compared to the No-Build scenario (see Table 3-17). This VMT increase, along with a slight increase in regional speed, is predicted to cause an increase in regional pollutant levels ranging from no increase to four percent. Alternatives A and C are predicted to have the largest impacts as compared to the No-Build Alternative. Alternative D is predicted to have lower regional emission impacts than Alternatives A and C, but higher emissions impacts compared to the No-Build Alternative.

Table 3-17: Regional Pollutant Emission Burdens (kilograms/day)

Year 2030 Scenario	VMT	Speed (mph)	Pollutant Burden				
			CO	NOx	VOC	PM_{10}	$PM_{2.5}$
No-Build	4,119,455	42	48,737	1,491	1,652	105	49
Alternatives A & C	4,226,278	44	50,605	1,543	1,674	108	50
Alternative D	4,139,386	43	49,275	1,507	1,647	106	49
Year 2030 Scenario	**VMT**	**Speed (mph)**	**% Change from No-Build**				
			CO	**NOx**	**VOC**	**PM_{10}**	**$PM_{2.5}$**
No-Build	4,119,455	42	--	--	--	--	--
Alternatives A & C	4,226,278	44	4%	4%	1%	3%	3%
Alternative D	4,139,386	43	1%	1%	0%	0%	0%

Source: PB Americas, Air Quality Report, 2009.
CO – carbon monoxide; NOx – nitrogen oxides, VOC – volatile organic compounds.

3.11.2.2 Particulate Matter

Since the project is in an area designated as being in non-attainment for particulate matter, an analysis for $PM_{2.5}$ is required. On January 22, 2009, the Knoxville Area Interagency Consultation (IAC) group concurred that the project is not a project of air quality concern and that this project is in conformity with the SIP. Documentation of this finding can be found in Appendix C. Based on these findings, the Clean Air Act and 40 CFR 93.116 requirements are met.

3.11.2.3 Carbon Monoxide Impacts

Carbon monoxide impacts are generally localized and vehicle emissions are the major sources of CO. Even under the worst meteorological conditions and most congested traffic conditions, high concentrations of CO are limited to a relatively short distance (300 to 600 feet) from heavily traveled roadways. The proposed project is in an area that is in attainment for CO, and as such CO modeling is not required. However, a localized "microscale" analysis was performed using the most recent version of the EPA mobile source emission factor model (MOBILE6.2) and the CAL3QHC (Version 2.0) air quality dispersion model to estimate future No-Build and future Build CO levels. Though the Build Alternatives would have different regional traffic impacts, the analysis tools used to perform the analysis are not sensitive enough to provide distinct differences in traffic at the local microscale level. As a result, the same microscale traffic results are used for all Build Alternatives and the predicted air quality levels are representative of all Build Alternatives.

Maximum 1-hour and 8-hour CO levels were predicted at receptor sites along the proposed project. CAL3QHC (Version 2.0) input and output information for each site is contained in the *Air Quality Report.* No violations of the NAAQS are predicted under any alternative.

3.11.2.4 Mobile Source Air Toxics

A qualitative analysis was performed for this project to identify and compare the potential differences among the No-Build and Build Alternatives for Mobile Source Air Toxics (MSATs) emissions.

No roadways in the project area, including the new portion of the Pellissippi Parkway, would have average daily traffic volumes approaching the range of 140,000 to 150,000 vehicles, which is the threshold for conducting qualitative MSAT analyses. Furthermore, for each of

the Build Alternatives, the amount of MSAT emitted would be proportional to the vehicle miles traveled (VMT), assuming that other variables such as fleet mix are the same for each alternative. When compared to the No-Build Alternative, the VMT for the four-lane Build Alternatives (A and C) is predicted to have less than a one percent increase, and the VMT for Build Alternative D is predicted to have less than a three percent increase. This is not considered an appreciable difference in VMT (for the purposes of air quality modeling), and therefore is not expected to result in a measurable difference in MSAT emissions for the Build Alternatives, when compared to the No-Build Alternative.

Regardless of the alternative chosen, emissions will likely be lower than present levels in the design year as a result of EPA's national control programs that are projected to reduce annual MSAT emissions by 72 percent from 1999 to 2050. Local conditions may differ from these national projections in terms of fleet mix and turnover, VMT growth rates, and local control measures. However, the magnitude of the EPA-projected reductions is so great (even after accounting for VMT growth) that MSAT emissions in the study area are likely to be lower in the future in virtually all locations.

Under each alternative, it is possible that localized increases and decreases in MSAT emissions may occur. The localized increases in MSAT emissions would likely be most pronounced along the new roadway sections between SR 33 and US 321/SR 73. There are several residential areas adjacent to this new roadway corridor, both on the east and west sides of the project area. However, even if increases do occur at these locations, they are expected to be substantially reduced in the future due to implementation of EPA's vehicle and fuel regulations.

The Build Alternatives could increase exposure to MSAT emissions in certain locations, although the concentrations and duration of exposures are uncertain. However, available technical tools do not enable prediction of the project-specific health impacts of the vehicle emission changes associated with the Build Alternatives.

3.11.3 Potential Mitigation Measures

Because there would be no adverse impacts to air quality as a result of the alternatives, no mitigation measures would be required, other than the requirement for state and local regulations regarding dust control and other air quality emission reduction controls during construction.

3.12 Noise

Sound exists in the human and natural environment at all times. Some sounds are necessary or desirable for human communication or pleasure, some sounds are unnoticed, and others are unwanted or disturbing. Unwanted sounds are called noise.

The potential noise impacts of the project’s alternatives were assessed in accordance with FHWA and TDOT noise assessment guidelines. The FHWA guidelines are set forth in 23 CFR Part 72. TDOT’s regulations are contained in the TDOT Policy on Highway Traffic Noise Abatement, September 2005. The results of the noise assessment are presented in the *Noise Technical Report* (July 2009), which is on file with TDOT's Environmental Division. The findings are summarized in the following sections.

3.12.1 Fundamentals of Sound and Noise

Highway traffic sound is usually called highway traffic noise. The level of highway traffic noise depends upon the volume and speed of traffic and the number of trucks in the traffic flow. In general, heavier traffic volumes, higher speeds, and larger numbers of trucks increase the loudness of noise.

Examples of Traffic Noise

- 2,000 vehicles per hour sound twice as loud as 200 vehicles per hour.
- Traffic at 65 mph sounds twice as loud as traffic at 30 mph.
- One truck at 55 mph sounds as loud as 28 cars at 55 mph.

Source: **http://www.fhwa.dot.gov/environment/htnoise.htm**

Vehicle noise is a combination of the noise produced by the engine, exhaust, and tires. Any condition such as a steep incline that causes heavy laboring of the vehicle's engine will increase traffic noise levels. In addition, proximity to the highway affects the loudness of traffic noise. For example, as a person moves away from the highway, noise levels are reduced by distance, terrain, vegetation, and natural and man-made obstacles. According to the FHWA, traffic noise is usually not a serious problem for people who live more than 500 feet from heavily traveled highways or more than 100 to 200 feet from lightly traveled roads.

Measure of Noise Level - dBA

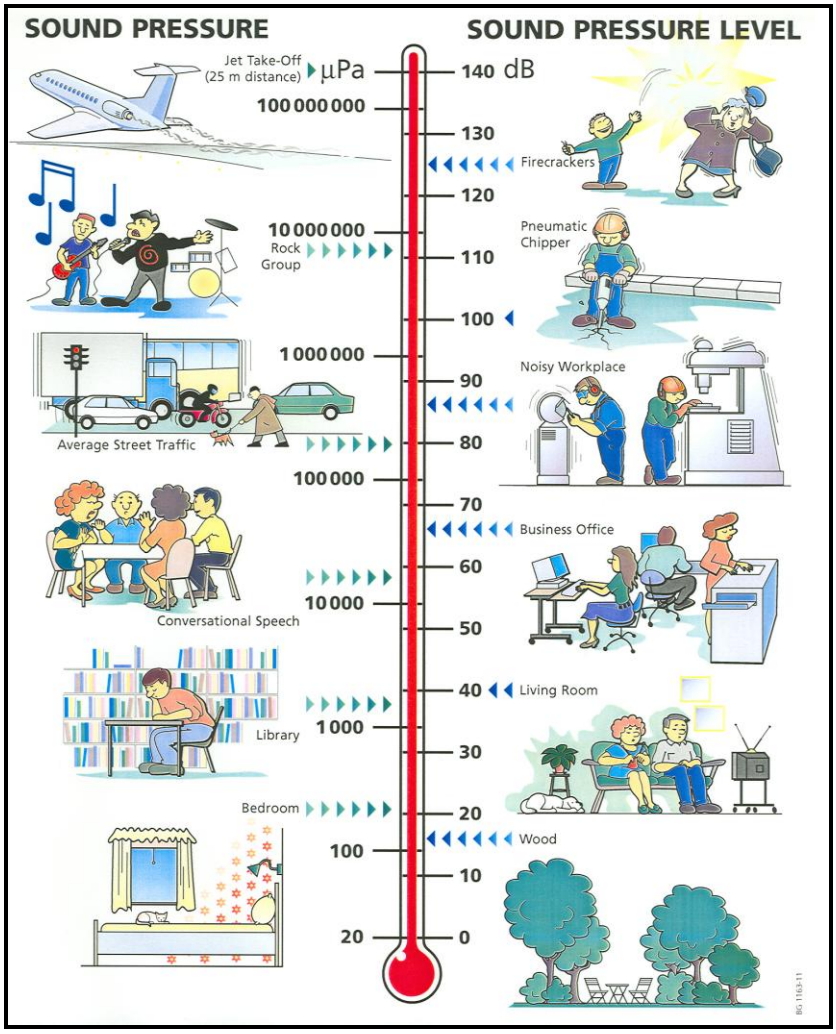
The intensity of loudness of sound is measured in units called decibels (dB). The most commonly used measure of noise level is the A-weighted sound level or dBA. From many experiments with human listeners, scientists have found that the human ear is more sensitive to mid-range frequencies than it is to either low or very high frequencies.

At the same sound level, mid-range frequencies are therefore heard as louder than low or very high frequencies. This characteristic of the human ear is taken into account by adjusting or weighting the spectrum of the measured sound level for the sensitivity of human hearing. The A-weighted sound level is a measure of sound intensity with frequency characteristics that correspond to human subjective response to noise.

Except in carefully controlled laboratory experiments, an increase of only 1 dBA cannot be perceived. Outside of the laboratory, a 3 dBA increase is considered a just-noticeable difference. A 10 dBA increase is subjectively heard as approximately a doubling in loudness, independent of the existing noise level.

The level of highway traffic noise is never constant so it is necessary to use a statistical descriptor to describe the varying traffic noise levels. The equivalent continuous sound level (Leq) is the steady A-weighted sound energy that would produce the same sound energy over a stated period of time (one-hour for this study) as a specified time-varying sound. Leq has been shown to be a particularly stable descriptor for roadways with low traffic volumes. For reference and orientation to the decibel scale, representative environment noise sources and their respective dBA levels are shown in Figure 3-13.

Figure 3-13: Representative Noise Sources



Source: Brüel and Kjær. Environmental Noise, Sound and Vibration Measurements, 2000

3.12.2 Noise Impact Criteria

FHWA has developed a set of noise abatement criteria (NAC) and procedures to be used in the planning and design of highways. FHWA has determined that traffic noise impacts occur when the future predicted traffic noise levels approach or exceed the NAC or when the future predicted traffic noise levels substantially exceed the existing noise levels. Table 3-18 presents a summary of the NAC for various land uses. These values represent the upper limit of highway traffic Leq (one-hour) noise deemed acceptable for various exterior land use activity categories and for certain indoor activities.

The 2005 *TDOT Policy on Highway Traffic Noise Abatement* defines the term “approach” to be 1 dBA less than the NAC. Thus, for Category B, which includes the exterior of residences, churches and playgrounds, the approach level would be 66 dBA Leq (one-hour), and for a Category C use, such as the exterior of commercial properties, the approach level would be 71 dBA Leq (one-hour).

Table 3-18: FHWA Noise Abatement Criteria

Activity Category	Leq for Noisiest Traffic Hour (dBA)	Description of Activity Category
A	57 (Exterior)	Lands on which serenity and quiet are of extraordinary significance and serve an important public need, and where the preservation of those qualities is essential if the area is to continue to serve its intended purposes
B	67 (Exterior)	Picnic areas, recreation areas, playgrounds, active sports areas, parks, residences, motels, hotels, schools, churches, libraries, and hospitals
C	72 (Exterior)	Developed lands, properties, or activities not included in Categories A or B above
D	-----	Undeveloped lands
E	52 (Interior)	Residences, motels, public meeting rooms, schools, churches, libraries, hospitals, and auditoriums

Source: FHWA 23 CFR 772. "*Procedures for Abatement of Highway Traffic Noise and Construction Noise*," Federal Highway Administration, USDOT, April 1992.

The goals of noise criteria, as they apply to highway projects, are to minimize the impacts on the community and, where necessary and appropriate, to provide feasible and reasonable measures to abate predicted noise impacts. The NAC are noise impact thresholds for considering abatement measures.

In addition to the approach level impact thresholds, traffic noise impacts can also occur if a substantial increase in Build noise levels is predicted. In some locations, a project may result in a large increase in future noise levels over existing levels, even though future noise levels may not reach the NAC. According to current TDOT policy, noise mitigation should be considered for any receptors where predicted noise levels for future conditions are greater than existing noise levels by 10 dBA or more when future noise levels are between 57 and 67 dBA. Table 3-19 presents the TDOT criteria used to define increase in noise levels.

Table 3-19: Noise Level Increases

Increase in Existing Noise Level (dBA)	Subjective Descriptor
0-5	Minor Increase
6-9	Moderate Increase
10 or more	Substantial Increase

Source: TDOT Policy on Highway Traffic Noise Abatement, September 15, 2005

3.12.3 Noise Impact Assessment

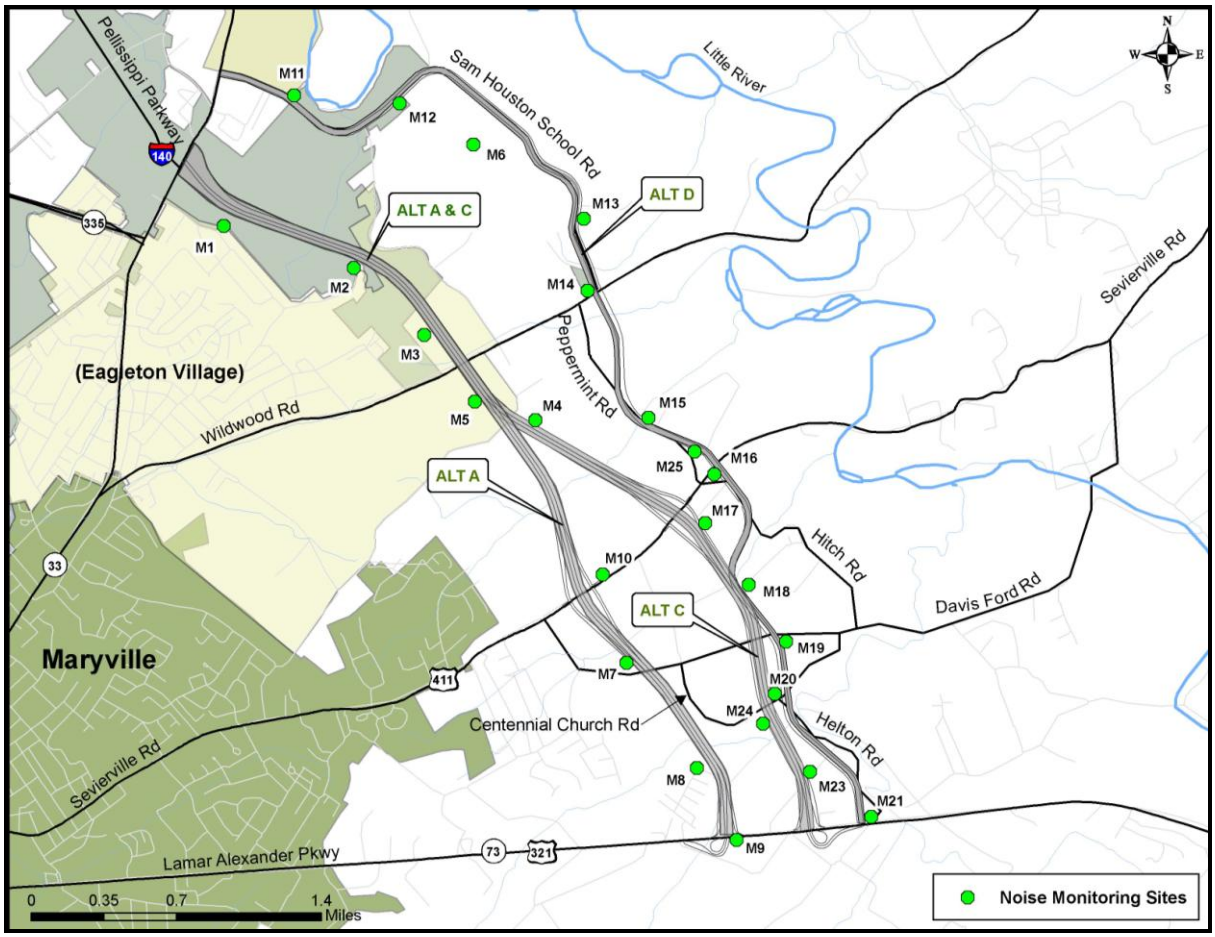
To assess the existing conditions within the project area, noise measurements were conducted in October 2008. Existing noise levels were measured at 25 representative properties identified along the proposed Build Alternative alignments within the project study area (see Figure 3-14). The 25 measurement sites consisted of one commercial property, one cemetery, one school, one church and 21 residences. The measurement locations represent a variety of ambient noise conditions and are considered representative of other nearby noise-sensitive receptors within the project study area.

The noise impact assessment identified and evaluated 311 noise-sensitive locations in the project area, including the 25 noise measurement sites described above. The remaining 286 modeled locations consisted mainly of residential development, but also included a

town-home complex, a water treatment plant, a historic school museum, and several commercial sites. The noise sensitive locations are primarily composed of FHWA Category B land use activities consisting of mainly undeveloped farmland and residential dwellings along with Category C land uses consisting of the commercial developments and the water treatment plant. Figures in Appendix D illustrate the noise sensitive locations and noise receptor sites.

The noise levels for the existing conditions range from a low of 38 dBA at several sites within the project study area (generally north of Wildwood Road), to a high of 71 dBA at site R111, a commercial enterprise on US 321/SR 73. Of the 311 noise-sensitive locations, ten sites currently experience noise levels that approach or exceed the NAC. These ten sites consist of eight residential properties, one church (Morning Star Baptist Church) and one commercial establishment. Noise levels for these ten sites are shown in Table 3-20. These sites are generally close to SR 33 or adjacent to US 321/SR 73. The predicted noise levels for the remaining noise receptors that do not approach or exceed the NAC are listed in the Noise Technical Report.

Figure 3-14: Noise Measurement Locations



Source: PB Americas, Noise Technical Report, 2009.

Table 3-20: Existing (2008) Noise Level Locations that Approach or Exceed the NAC

Receptor ID	FHWA Land Use Category	Receivers	2008 Existing Leq (H)
R72/M10	B	Residential	68
R91	B	Residential	68
R92	B	Residential	69
R93/M9	B	Church	70
R100	B	Residential	69
R109	B	Residential	68
R111	C	Commercial	71
R165	B	Residential	68
R166	B	Residential	68
R211/M14	B	Townhomes	67

Source: PB Americas, Noise Technical Report, 2009. See Figures in Appendix D for locations of noise receptors.

3.12.3.1 Predicted 2035 No-Build Level Estimate

The FHWA Traffic Noise Model (TNM) Version 2.5 was used to predict the noise levels for the project in the year 2035. In 2035, the predicted peak hour traffic under the No-Build Alternative is expected to generate increases ranging from one to six decibels over the 2008 existing peak hour noise levels. The predicted noise levels under the 2035 No-Build conditions are expected to range from 40 dBA at several sites within the project study area up to 75 dBA projected at site R111.

Thirty-three receptor locations, consisting of 28 residential properties, one church and four commercial establishments would experience noise levels that approach or exceed the NAC in 2035 under the No-Build Alternative. The predicted noise levels of these 33 receptors are shown in Table D-1 in Appendix D. The location of each of the noise receptor sites is shown in figures in Appendix D.

3.12.3.2 2035 Build Alternative Noise Levels

If the proposed Pellissippi Parkway Extension project is constructed, the design year (2035) Build noise levels along the corridor are predicted to:

- Increase between 1 dBA and 32 dBA under Alternatives A and C; and
- Range from a decrease of 5 dBA to an increase of 27 dBA under Alternative D.

The predicted noise levels in 2035 under each Build Alternative are expected to range as follows:

- Alternative A - from a minimum noise level of 46 dBA to a maximum noise level of 73 dBA Leq;
- Alternative C - from a minimum noise level of 45 dBA to a maximum noise level of 73 dBA Leq; and
- Alternative D - from a minimum noise level of 42 dBA to a maximum noise level of 73 dBA Leq.

The predicted TNM model noise level predictions for all modeled properties under each alternative for the 2035 Build and No-Build alternatives are listed in the Noise Report and in Tables D-2 to D-4 in Appendix D. Each build option is discussed below in greater detail, and the results are summarized in Table 3-21.

Alternative A Noise Analysis Findings

A total of 83 locations would be affected by traffic noise under Alternative A. Of the total 83 locations, 39 receptor sites would experience noise levels that approach or exceed the NAC and 56 receptor sites would experience noise level increases of 10 decibels or more. In addition, 12 receptor sites would exceed the impact threshold of both criteria; however, affected properties were only counted once. The 39 NAC identified impacts consist of 38 FHWA Category B properties (one church and 37 residences) and one FHWA Category C land use (a commercial establishment). The 56 receptors that would experience increases of 10 decibels or more over existing conditions would be FHWA Category B land uses (churches and residences). Predicted build noise levels range from 46 dBA at the Sam Houston Schoolhouse to 73 dBA at a commercial property (site R111) and a church (site R93/M9), both along US 321/SR 73.

Table 3-21: Summary of Affected Noise-Sensitive Receptors

Type of Noise Impact	2008 Existing	2035 No-Build	Build Alternative A	Build Alternative C	Build Alternative D
Approaches or exceeds NAC	11	33	39	46	46
Minor Increase over 2008 Existing	NA	302	198	146	199
Moderate Increase over 2008 Existing	NA	9	25	31	47
Substantial Increase over 2008 Existing	NA	0	56	86	25
Both a Substantial Increase and NAC Impact	0	0	12	22	7
Total Receptors Affected	11	33	83	110	64

Source: PB Americas, Noise Technical Report, 2009

Alternative C Noise Analysis Findings

Under Alternative C, a total of 110 receptor sites were affected. Forty-six receptor sites would experience noise levels that approach or exceed the NAC and 86 receptors would experience noise level increases of 10 decibels or more. Of these, 22 receptor sites would exceed the impact threshold of both criteria. The 46 NAC impacts identified consist of 44 FHWA Category B land uses (two churches, one cemetery and 41 residences) and Category C properties (two commercial establishments). The 86 receptor sites that would experience increases of 10 decibels or more over existing conditions consist of 85 Category B land uses (one church, one cemetery and 83 residences) and one Category C land use (a commercial property). Predicted build noise levels range from 46 dBA at the Sam Houston Schoolhouse site to 73 dBA at a commercial property (site R111) on US 321/SR 73.

Alternative D Noise Analysis Findings

Under Alternative D, a total of 64 receptor sites were affected. The noise levels at 46 receptor sites would approach or exceed the NAC and 25 receptor sites would experience noise level increases of 10 decibels or more. Of these, seven receptor sites would experience noise levels above both criteria. The 46 NAC impacts consist of 45 FHWA

Category B land uses (two churches, one cemetery and 42 residences) and one Category C (commercial) land use. The 25 properties that would experience increases of 10 decibels or more over existing conditions are all Category B land uses (one church, one church ball field, one cemetery, and 22 residential properties). Furthermore, predicted build noise levels range from 42 dBA Leq at several residential sites to 73 dBA Leq at a commercial property (site R111).

3.12.4 Noise Abatement

FHWA and TDOT require that noise abatement measures be considered at all locations where traffic-related noise impacts are identified. Potential abatement measures and their applicability to this project are discussed below.

3.12.4.1 Alignment Shifts

Shifting the alignment to reduce impacts would likely result in impacts to other sensitive receptors or greater environmental impacts because the alignments have been developed to minimize impacts to residences, businesses, wetlands, and cultural resources. For these reasons, alignment shifts do not appear to be a reasonable measure to reduce noise impacts.

3.12.4.2 Traffic Control Measures

The use of traffic control measures, such as reducing speed limits, prohibiting heavy trucks, etc., would be contrary to the purpose of the road, which is to facilitate the movement of automobile traffic and trucks in the area.

3.12.4.3 Acquisition of Property Rights

Acquisition of property rights is generally limited to large-scale projects where ROW needs for a proposed roadway widening project would require additional space for the construction of noise walls.

3.12.4.4 Sound Insulation of Public Use or Non-Profit Institutional Structures

The reasonableness determination for non-residential Category B land uses includes schools, churches, parks, hospitals, rest homes and day care centers. Within the study area, there are no impacts identified for these types of structures and, therefore, it is not a necessary consideration.

3.12.4.5 Construction of Noise Barriers

Eight locations were considered for an in-depth barrier analysis. All noise barriers were evaluated at heights ranging from six to 24 feet. Three of the eight barrier locations (Barriers 1, 2 and 5) would be along the combined corridor portion for Alternatives A and C. Two additional barrier locations would be located along the remaining portion of Alternative A (Barriers 3 and 4), and two additional barrier locations would be located along the remaining portion of Alternative C (Barriers 6 and 7). Along the Alternative D alignment, only one barrier location (Barrier 8) was evaluated, primarily because there are several locations along the proposed Alternative D corridor where barrier placement would not be

feasible due to access control breaks needed for cross streets and driveways. All eight barriers were determined to be too costly based on cost criteria defined in the TDOT noise policy and procedure guidelines, as demonstrated in Table 3-22. The cost per benefitted residence in all eight cases was higher than the allowable $38,000. This was due in part to the low density of homes in areas likely to have noise impacts, and because of the height of the noise barrier that would be required to achieve adequate mitigation.

Once final design details are developed for the selected alternative, the noise analysis and associated feasibility and reasonableness determinations will be updated. Final decisions regarding the construction of noise barriers will be made during final project design and following the public involvement process.

Table 3-22: Noise Barrier Design Results and Reasonableness Analysis

Noise Analysis Area	Length (ft.)	Average Height (ft.)	Cost	Benefitted Residences	Cost Per Benefitted Residence	Allowable Cost Per Benefitted Residence	Cost Effectiveness
Barrier 1	5678	24	$2,044,080	14	$146,006	$38,000	Not Cost Effective
Barrier 2	6767	24	$2,030,850	13	$156,219	$38,000	Not Cost Effective
Barrier 3	2700	24	$972,000	5	$194,400	$38,000	Not Cost Effective
Barrier 4	2548	24	$917,280	22	$41,695	$38,000	Not Cost Effective
Barrier 5	4287	24	$1,358,100	4	$339,525	$38,000	Not Cost Effective
Barrier 6	2898	24	$1,043,280	3	$181,656	$38,000	Not Cost Effective
Barrier 7	2499	24	$899,640	0	N/A	$38,000	Not Cost Effective
Barrier 8	1491	20	$447,300	9	$49,700	$38,000	Not Cost Effective

Source: PB Americas, Noise Technical Report, 2009.
Note: in Noise Report, Barrier 8 is referred to as Barrier 9.

3.13 Physical Environment

The physical environment in the project area includes soils and geological conditions, floodplains and hydrology, hazardous materials, and energy. The potential impacts of the project alternatives on these issues are discussed below.

3.13.1 Soils and Geology

The proposed project is in north central Blount County, Tennessee, which is within the Ridge and Valley physiographic unit. The region's roughly parallel ridges and valleys have a variety of widths, heights, and geologic materials, including limestone, dolomite, shale, siltstone, sandstone, chert, mudstone, and marble. Soils in the areas are primarily in the Decatur-Dewey-Waynesboro and the Talbott-Rock outcrop-Etowah soil associations described in the Soil Survey Geographic (SSURGO) database for Blount County Area, Tennessee. Springs and caves are relatively numerous. Blount County is drained mainly by the Little River and its tributaries. Present-day forests cover about 50 percent of the region.

Analysis for the *Preliminary Geologic Report* was conducted for the proposed project, which included limited field inspections in December 2008 and January 2009. Based on the results of the preliminary geologic study, there appear to be no substantial geotechnical issues that cannot be addressed during the design or construction phases of the proposed project. Limited areas of flooding were observed immediately north of East Brown School Road (where Alternatives A and C diverge) during field investigations. The flooding was due to the extensive and substantial rainfall prior to January 9, 2009. The potential for flooding in the future should be considered as these alignments are being evaluated.

According to the *Preliminary Geologic Report*, karst topography with sinkhole features is present within the project area. A review of topographic mapping indicates a few areas of sinkholes that could possibly impact the proposed alignments. The greatest number of mapped sinkholes is along US 411/Sevierville Road from east of Davis Ford Road to east of Hitch Road, and primarily to the south of Sevierville Road. Short segments of all three of the Build Alternatives could be affected by the presence of sinkholes in this area. A smaller number of mapped sinkholes are present along the northern half of Peppermint Road, which could be affected by Alternative D.

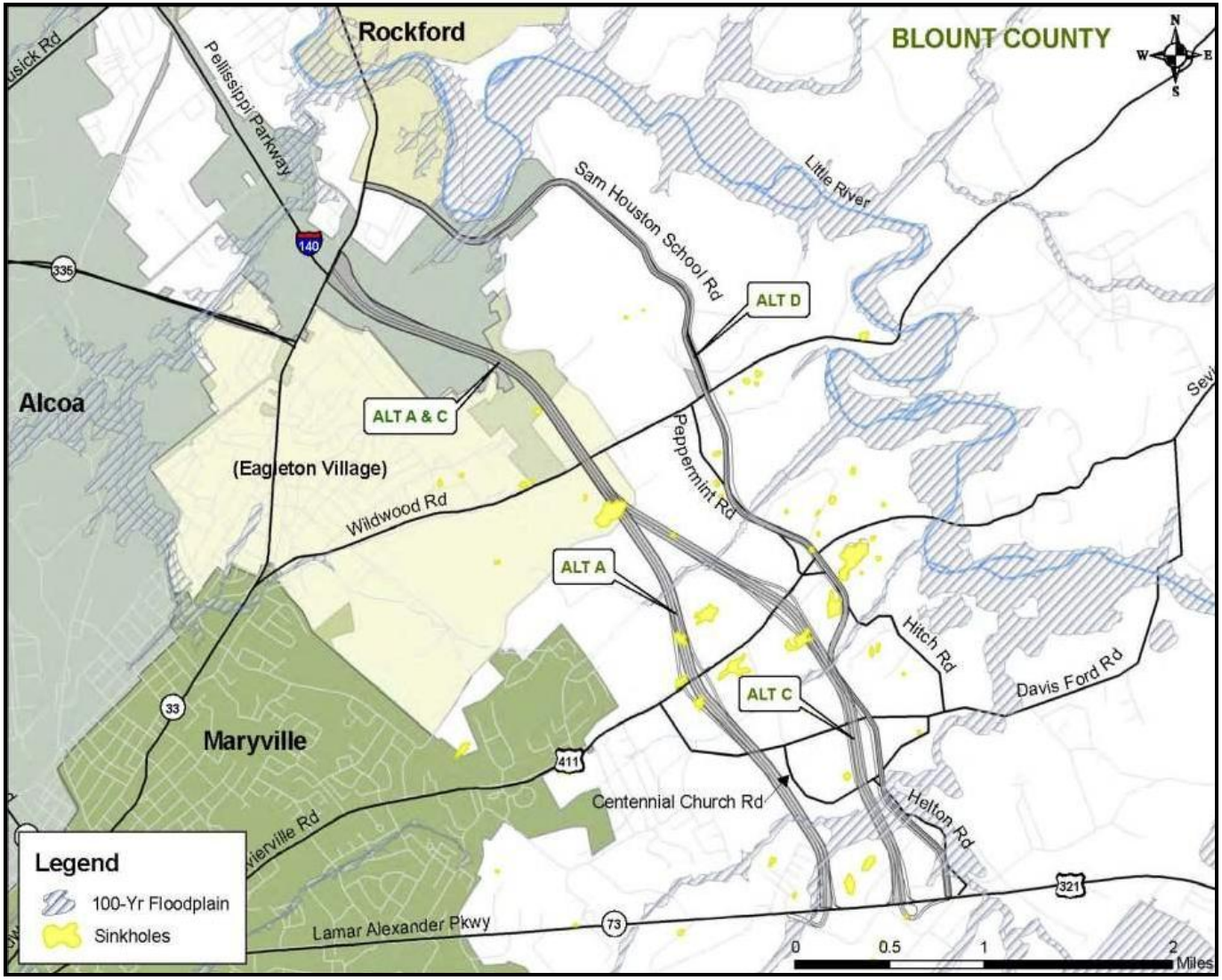
Karst Topography

Karst topography describes a landscape that is characterized by numerous caves, sinkholes, fissures, and underground streams. Karst topography usually forms in regions of plentiful rainfall where bedrock consists of carbonate-rich rock, such as limestone, gypsum, or dolomite, that is easily dissolved. Surface streams are usually absent from karst topography.

In addition, a large sinkhole was mapped on the north side of Brown School Road near its eastern intersection with Wildwood Road. This is within the area where Alternatives A and C diverge, in the area where the flooding was observed during the December 2008 and January 2009 field investigations. Periodic flooding in this area may be an issue in this area.

Areas of mapped sinkholes of potential interest to the project are indicated on Figure 3-15.

Figure 3-15: Sinkholes and Floodplains within the Project Area



Source: PB Americas, Ecology Report, Revised 2010.

Potential Mitigation Measures

As per conventional practice, during the design phase, TDOT will conduct a subsurface investigation program (with auger drilling and potential core drilling) along the Selected Alternative's alignment and will develop a project-specific geotechnical and geological design. Special care would be taken to minimize unnecessary impacts to the habitats of the numerous karst features in the project study area, since many areas of the state rich with karst have not been surveyed for rare species. The design will address the protection of aquatic species and groundwater in the area during and after project construction.

3.13.2 Floodplains and Hydrology

As required under the provisions of Executive Order 11988, a survey of the proposed alternatives for floodplains has identified transverse crossings of the 100-year floodplain associated with tributaries of Little River. Floodplains provide important ecological values that include surface water and storm water storage, bank stabilization, filtration of sediment, shading for stream channels, and food and shelter for wildlife.

The Build Alternatives would affect 100-year floodplains at various stream crossings throughout the project area, as shown on Figure 3-15. As presented in Table 3-23, Alternatives A, C, and D could affect 6.9 acres, 9.0 acres, and 8.1 acres of the 100-year floodplains, respectively. The No-Build Alternative would not affect any floodplains.

Table 3-23: Acres of Floodplain Affected by Alternative

Resource Name	Class	Alternative A (acres)	Alternative C (acres)	Alternative D (acres)
Unnamed Tributary to Little River (STR-1 D)	STR	0	0	0.9
Unnamed Tributary to Little River (STR-2 D)	STR	0	0	1.4
Peppermint Branch	STR	0.8	1.2	0.5
Crooked Creek	STR	0	0	0
Unnamed trib. to Little River (STR-8 C; STR-6 D)	STR	0	0.7	0.3
Gravelly Creek	STR	1.8	0	0
Flag Branch	STR	4.3	7.1	0
Crooked Creek/Gravelly Creek*	STR	0	0	5.0
Total Floodplain Impacts		**6.9**	**9.0**	**8.1**

Source: PB Americas, Ecology Report, revised 2010.
STR = stream. Stream locations are shown on Figure 3-17 and Figure 3-18.
* = Alternative D intersects the floodplains of Crooked Creek and Gravelly Creek where the floodplains of these streams converge.

The Build Alternatives would not involve a significant encroachment on floodplains in the study area because construction of the proposed alternatives would not:

- Represent a significant risk to life or property;
- Have a significant impact on natural and beneficial floodplain values; and
- Support incompatible floodplain development; and it would not interrupt or terminate a transportation facility that is needed for emergency vehicles or provides a community's only evaluation route.

The ecological values associated with the floodplains of the surveyed streams in the project area are bottomland hardwoods, which provide shading, bank stabilization, filtration of sediments, and food and cover for wildlife and fish. Impacts to riparian corridors would be avoided or minimized by crossing the floodplain at a near-perpendicular angle, with appropriately sized bridges and culverts.

Potential Mitigation Measures

Because the proposed alignments run generally perpendicular to the floodplains, avoidance of all floodplains is not possible. Minimization measures are being evaluated and would be implemented during the design and construction of the proposed project to reduce the direct impacts to the 100-year floodplain. These measures would include the following;

- The floodplain would be crossed at or near a perpendicular angle where possible.
- The new bridges would be constructed to either completely span the channels or to utilize embankments. Waterway openings for project crossings would be the same size or larger than those of the existing crossings.
- Where the roadway embankment must be widened in proximity to a base floodplain, minor regrading or filling in of the base floodplain could be required. Modeling would be performed during detailed design to ensure that any increases in backwater levels would be less than that permitted by federal law and local ordinances.
- Where culverts penetrate the existing embankment, they would be lengthened so that the existing drainage function would be preserved. Therefore, there would be no additional flooding upstream of the existing berm. Additional culvert improvements would be made during final design, if necessary, based on a hydraulic capacity analysis.

3.13.3 Hazardous Materials

A *Phase I Preliminary Assessment Study* was conducted to determine the potential for hazardous materials contamination of properties and business operations located adjacent to the proposed alignment. This report is on file with TDOT's Environmental Division.

An environmental database search of the proposed project alternatives was conducted on September 19, 2008. The search identified numerous sites listed in federal and state databases with potential hazardous materials and/or petroleum contamination within the proposed project corridor.

A field review was conducted in October 2008. Site assessments were conducted for each property identified in the data search and for those sites discovered during the field review as having potential for contamination. These sites were researched for evidence of documented contamination, apparent changes to the ground surface and landscaping, ground staining, storage containers, and other indications of current or previous petroleum and hazardous materials use or storage.

Telephone and on-site interviews were conducted as necessary. The evaluation also included reviews of property ownership and historical aerial photographs.

3.13.3.1 Potential Contamination Sites

Eight sites within the limits of the project alternatives were identified and evaluated for potential hazardous materials and petroleum involvement. These sites are shown in Figure 3-16 and listed in Table 3-24. No sites within a one-mile radius of the proposed alternatives were identified in the EPA CERCLIS database as Superfund sites

The eight potentially contaminated sites were rated according to the Hazardous Materials Rating System (i.e., NO, LOW, MEDIUM, and HIGH). Two sites were rated NO; two sites were rated LOW; no sites were rated MEDIUM; and four sites were rated HIGH. Table 3-24 shows the rating for each site.

Hazardous Materials Rating System

NO: A review of all available information finds there is nothing to indicate contamination would be a problem.

LOW: The former or current operation has a hazardous waste generator identification (ID) number or deals with hazardous materials; however, based on all available information, there is no reason to believe there would be any involvement with contamination in relation to this project.

MEDIUM: After a review of all available information, indications are found (e.g., reports, Notice of Violations, consent orders) that identify known oil or water contamination and that the problem does not need remediation, is being remediated, or that continued monitoring is required.

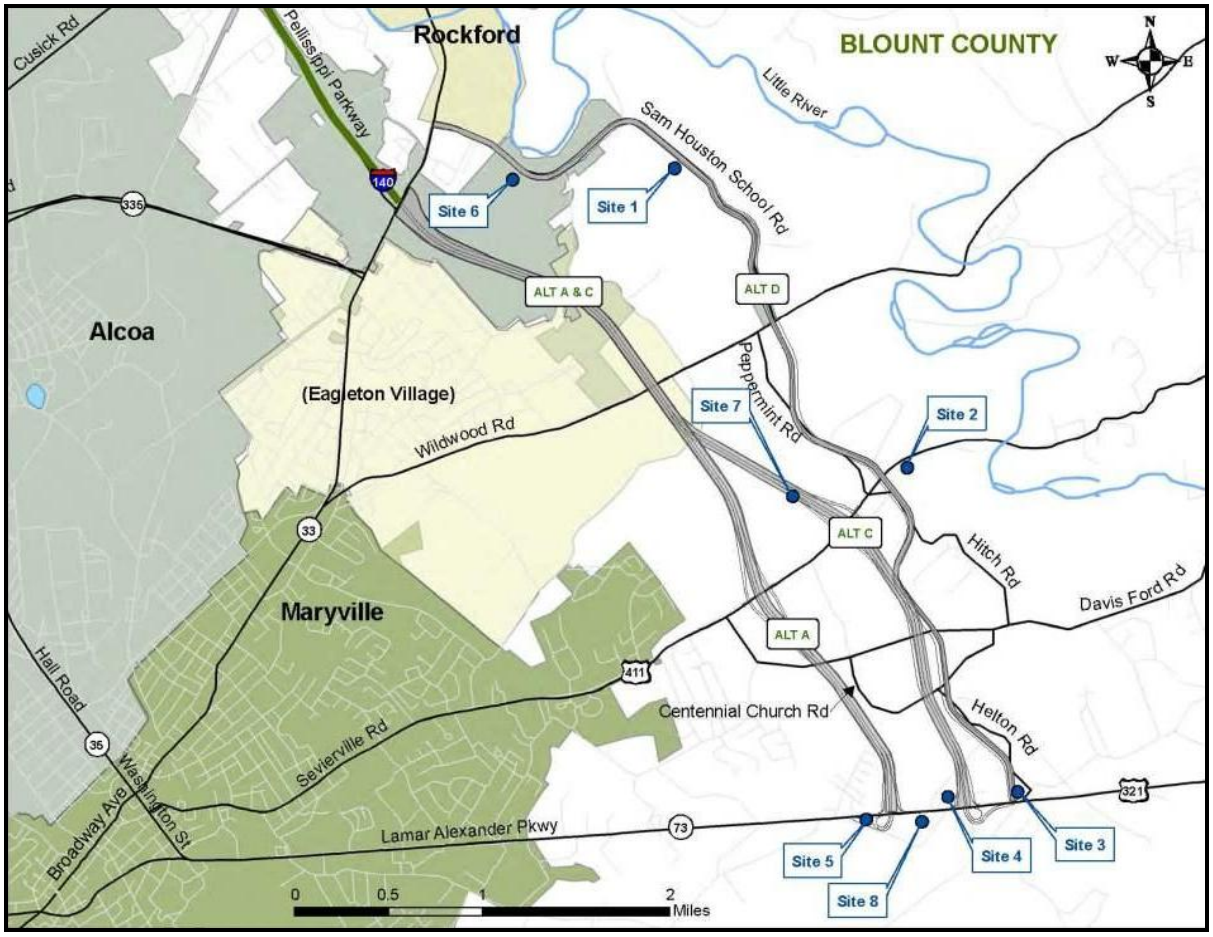
HIGH: After a review of all available information, there is a potential for contamination problems. Further assessment will be required after alignment selection to determine the actual presence or levels of contamination and the need for remedial action.

Table 3-24: Potential Contamination Sites

Site #	Site Name	Storage Tank(s) Currently in Service	Alternative Requiring ROW for Expansion	Risk Evaluation
1	Eagleton Elementary School	No	D	No
2	Pappy's Quilt Shop	No	None	No
3	Hackney Amoco/Aztec Food Shop	Yes	D	High
4	Sunoco/D.T.'s Market and Deli	Yes	C	High
5	A and M American Gas	Yes	A	High
6	City of Alcoa Water Treatment Plant	Yes	D	Low
7	Dump Site - Located 850 feet west of Sevierville Road	No	C	High
8	Foster's Auto Body Shop	No	A	Low

Source: PB Americas, Phase I Preliminary Assessment Study, 2008.

Figure 3-16: Potential Contamination Sites



Source: PB Americas, Phase I Preliminary Assessment Study, 2008.

3.13.3.2 Mitigation

Once a Preferred Alternative is selected, TDOT will conduct a Level 2 Contamination Assessment on the site(s) with a high risk evaluation within that alternative's corridor to verify or refute potential contamination concerns. The results will be reported in the Final EIS for this project. This further analysis is recommended because of the potential acquisition of ROW from those sites and the nature of past or current business operations of these sites.

Sites recommended for a Level 2 Contamination Assessment under each Build Alternative are as follows:

- Alternative A: Site 5
- Alternative C: Sites 4 and 7
- Alternative D: Site 3

The Level 2 Contamination Assessment would include additional field screening and the collection of soil and groundwater samples for laboratory analysis, where applicable. If the

results of the testing indicate no evidence of soil or groundwater contamination, the rating of a particular site could be revised downward. Typically, the rating of field-tested sites with no evidence of contamination would be revised. Because of the nature of the businesses conducted or formerly conducted, these sites could retain a MEDIUM or HIGH rating, even if field-testing did not reveal the presence of contamination.

In the event hazardous substances/wastes are encountered within the proposed right-of-way, their disposition shall be subject to the applicable sections of the Federal Resources Conservation and Recovery Act, as amended; and the Comprehensive Environmental Response, Compensation, and Liability Act, as amended; and the Tennessee Hazardous Waste Management Act of 1963.

3.13.4 Energy

The energy that would be used by the proposed project is characterized as follows:

- **Construction.** Energy would be used for the manufacturing and transport of the construction components and by the heavy equipment used for roadway and bridge construction.
- **Maintenance.** The project would require routine maintenance that would result in energy use. Traffic delays could result from maintenance activities and cause temporary increases in energy use.
- **Motor Vehicle Use.** Improved traffic flow and reduced travel time could decrease existing energy use.

In summary, the amount of energy required to construct a highway project of this type is substantial, but temporary in nature, and generally leads to reduced operating costs once the project is completed. A reduction in costs and energy use should result from improved access, reduced travel time, and increased safety (e.g., fewer crashes on local roads that hold up traffic and require emergency services).

3.14 Natural Resources

An ecological evaluation was conducted for this study to examine terrestrial ecology, aquatic resources (water bodies and wetlands) and threatened and endangered species. The *Ecology Report* (revised February 2010), which is on file with TDOT's Environmental Division, is summarized in the following sections.

3.14.1 Terrestrial Resources

The following physical and natural communities were identified along the project corridor:

- Industrial, commercial, and residential communities;
- Agricultural;
- Forested communities; and
- Old field communities.

Most of the land along the project alternatives has been disturbed at one time or another. A small percentage of the land is forested or in shrub/scrub thickets. The majority of the land is being utilized for agricultural activities such as cash crop production or as pastureland for grazing livestock. Conversion of agricultural land to residential use is evident by the presence of the numerous, existing and currently being constructed, single-family home subdivisions throughout the alternatives. Some old field habitats are also present where pastureland has been left fallow.

Plant communities found in the area are characteristic of communities formed over limestone and sandstone. Different communities may develop on different strata; elevation differences also have an influence. The forested and shrub-scrub areas primarily occur in small fragmented tracts within the agricultural fields and along the numerous stream corridors and fence rows. Both upland and floodplain forested habitats provide food cover, and nesting opportunities for numerous small mammals, including rabbits, squirrels, and other rodents, as well as numerous reptiles, native birds, spiders and other arachnids, and insects.

The old field habitats along the alternative corridors are in various stages of succession and are useful to many types of wildlife. These communities were abandoned pastureland areas that are gradually being overtaken by various tree, shrub, and vine species including hawthorns, Chinese privet, smooth sumac, blackberry, and Japanese honeysuckle.

The industrial, commercial, and residential lands generally have limited wildlife value, as they are usually paved or mowed, except for undisturbed vegetation along fencerows or boundaries.

3.14.1.1 Impacts to Terrestrial Resources

The No-Build Alternative would not affect terrestrial resources in the project area. Table 3-25 summarizes the impacts each Build Alternative would have on the current terrestrial communities in the project area.

Table 3-25: Impacts to Terrestrial Habitat

Alternative	Forested, Scrub-Shrub, Forested Floodplain (Acres)	Pasture, Agricultural, or Early Stages of Old Field Succession (Acres)	Commercial/ Industrial/ Residential (Acres)	Total Impacts per Alternative (Acres)
A	37	132	3	172
C	33	145	9	187
D	20	79	21	120

Source: PB Americas, Ecology Report, revised 2010.

Alternatives A and C would have the greatest impacts to terrestrial vegetation communities since these alternatives are all on new location. The most substantial impact would be the reduction of forested communities and open spaces. Forested habitats typically provide the greatest value for wildlife in terms of habitat, refuge, and foraging opportunities. Currently, forested communities make up approximately 21 percent of Alternative A's project area and 18 percent of Alternative C's. These communities primarily occur as small (one to two acres) fragmented tracts, or along stream corridors and fence rows.

The agricultural and old field communities also provide foraging opportunities as well as nesting potential for numerous bird species. The agricultural and old field communities would incur the largest impact from the proposed project since they constitute approximately 77 percent of Alternatives A and C.

The remaining land use is comprised of residential and commercial areas that are located throughout Alternatives A and C and along many of the existing roadway networks. These areas also provide some foraging and nesting opportunities for birds because of the presence of fruit-producing trees and shrubs.

Alternative D would also affect forested, agricultural, and old field habitats; however, the impact would mainly occur along the edges of these communities since a substantial portion of this alternative would upgrade existing roadways.

The mortality of individual wildlife may occur during both construction and highway operation. Roadway mortality is generally not believed to substantially affect animal populations under normal conditions. However, if the population is experiencing other sources of stress (i.e., disease, habitat degradation, or elimination, etc.), then traffic-related mortality can contribute to the demise of the population. Although vegetated rights-of-way would be maintained after project construction, these areas would not be planted with wildlife-attracting plant species as a means to reduce vehicle-wildlife collisions. As a result, rights-of-way would not effectively provide refuge for local wildlife as the surrounding areas continue to urbanize and habitats are further reduced in size and number.

Highway noise can also affect the utilization of habitats by wildlife. Residential development occurs throughout the proposed alternative corridors and the project area is traversed by several major roadways (Wildwood Road, US 411/Sevierville Road, and US 321/SR 73). These roads carry large volumes of traffic and are bordered by moderate densities of commercial and residential development. Therefore, noise is already a factor within many of the existing habitats, particularly those in the vicinity of US 321/SR 73.

3.14.1.2 Migratory Birds

As directed under Executive Order 13186, in furtherance of the Migratory Bird Treaty Act (16 USC 703-711), federal agencies are required to ensure that the environmental analyses of federal actions required by the NEPA review process evaluate the effects of actions on migratory birds. Large tracts of undeveloped, forested habitat are required for the successful nesting of many migratory bird species. Forest fragmentation is thought to be one of the leading contributors to the decline in migratory bird populations. The edge habitat created by fragmentation contributes to increasing populations of disturbance-tolerant predators, such as opossums, raccoons, domestic cats, and parasitic birds, such as the brown-headed cowbird. The cowbird is a brood parasite that lays its eggs in the nests of many migratory bird species, reducing the success for the host bird species.

Typically, forested habitats, such as the upland hardwood communities, provide the best foraging and nesting habitat for a majority of the migratory bird species. However, the upland hardwood communities that occur along the proposed project corridor have been drastically disturbed by past and present land use activities resulting in the fragmentation and degradation of this vegetative community. While the upland hardwood forests would provide foraging and nesting opportunities for migratory bird species, the significance of

these forested areas has been greatly diminished due to their small size and degraded condition.

Impacts to Migratory Birds

Given the existing conditions of the proposed project corridors, migratory bird species currently utilizing the area for nesting and foraging are likely adapted to frequent disturbances, habitat alteration, and other human activities. Therefore, any impacts to migratory bird species from the construction of the proposed project would likely be minimal. Furthermore, it is not likely that the area is of great significance to migratory bird species since it does not contain large amounts of undisturbed forested habitat, which is preferred by most migratory bird species.

3.14.1.3 Invasive Species

Executive Order 13112 of 1999 calls for the prevention of and control of invasive species (non-native exotics). This Executive Order directs federal agencies to expand and coordinate their efforts to combat the introduction and spread of plants and animals not native to the United States. The purpose of Executive Order 13112 is to avert the spread of non-native species and prevent them from encroaching upon and altering plant and animal habitat; prevent further loss of native species; avoid the loss of agricultural and recreational lands; and avoid other detrimental effects caused by these species.

Highways provide opportunities for the unimpeded movement of invasive species. Non-native plant species are of a great concern along roadways. These invasive species can be spread along roadways by automobile and animal traffic; mowing and spraying operations; the importing of dirt, gravel, or sod; planting for erosion control, landscape, or wildflower projects; or by the inadvertent spread of seeds. While some of these factors are beyond human control, some measures can be taken to prevent the spread of invasive species.

Exotic invasive plant species are determined by the U.S. Department of Agriculture (USDA) and designated by the state on “Regulated Noxious Weeds” list. The list includes only two species that are recognized as agricultural threats in Tennessee. The two are purple loosestrife (*Lythrum salicaria*) and tropical soda apple (*Solanum viarum*). Neither of these two plants was observed in or near the project area.

In addition, the Tennessee Exotic Plant Council has developed a list of non-regulated invasive exotic pest plants that are commonly found throughout Tennessee and are considered to pose a potential threat to native plant species. This list includes over 100 invasive exotic pest plants that could occur throughout Tennessee. Of this list, four invasive exotic pest plants were identified within the proposed project corridor:

- Chinese privet (*Ligustrum sinense*);
- Japanese honeysuckle (*Lonicera japonica*);
- Multiflora rose (*Rosa multiflora*); and
- White poplar (*Populus alba*).

Chinese privet

During construction of the proposed project, TDOT would follow the guidelines of Executive

Order 13112 to control and prevent the spread of these invasive exotic pest plant species. The use of native trees, shrubs and warm season grasses, where practicable, can be used for the stabilization of disturbed areas, and to prevent revegetation of disturbed areas by harmful exotic plants. Disturbed areas should not be revegetated with plants listed by the Tennessee Exotic Pest Plan Council as harmful exotic plants.

3.14.2 Aquatic Resources and Water Quality

The US Army Corps of Engineers (USACE) has jurisdiction over "waters of the United States" under the Clean Water Act of 1972 and subsequent amendments. Non-tidal waters of the US include "lakes, rivers, streams, mudflats, sand flats, wetlands, sloughs, prairie potholes, wet meadows, playa lakes or natural ponds and tributaries or impoundments of such bodies" (33 CFR 328.3).

The Tennessee Department of Environment and Conservation (TDEC) Division of Water Pollution Control (WPC) has regulatory authority over "waters of the state" as per the Tennessee Water Quality Control Act (TCA) of 1977. Waters of the state are defined as: "*any and all water, public or private, on or beneath the surface of the ground, which is contained within, flows through or borders on Tennessee or any portion thereof except those bodies of water confined to and retained within the limits of private property in single ownership which do not combine or effect a junction with natural surface or underground waters*" (TCA Section 69-3-103(33)).

The Tennessee Valley Authority Act of 1933 (TVA Act) delegated broad authority to the TVA for activities related to the conservation and development of the Tennessee River Valley and the surrounding areas. In particular, Section 26a of the Act requires that TVA's approval be obtained prior to the construction, operation, or maintenance of any dam, appurtenant works, or other obstruction affecting navigation, flood control, or public lands or reservations along or in the Tennessee River or any of its tributaries. The proposed project occurs within the Tennessee River Valley; therefore, stream impacts such as bridge crossings or culvert placements, stream channel modifications or relocations, and/or wetland impacts are subject to review and/or approval by the TVA.

Studies to determine the impacts of the proposed alternative alignments on the local ecology were conducted by biologists in September and October 2008. Studies included literature and database surveys as well as field investigations. Particular attention was given to locating streams, wetlands, and specialized habitats (such as glades and streams) that could harbor protected species or influence water quality.

3.14.2.1 Streams, Springs, Seeps, and Other Water Bodies

Waters of the US (other than wetlands, which are discussed in Section 3.14.2.3) were identified in the field by evidence of standing or flowing water, the presence of a stream channel and lack of terrestrial vegetation. A stream or drainage course was considered to be a Water of the US provided a definable channel bed and bank existed. Jurisdictional limits for non-wetland waters were based upon the "ordinary high water mark (OHWM)." Stream channels are considered regulated waters of the US by the USACE.

Streams were determined to be perennial based upon:

- Symbology shown on US Geological Survey (USGS) 7.5-minute topographic quadrangle maps;

- Presence of flowing water; and
- The presence of aquatic organisms, most notably fish and benthic macroinverterbrates.

A non-flowing stream was deemed intermittent streambed if the channel intercepted the groundwater table or standing water was present. Watercourses that were considered wet weather conveyances lacked standing or flowing water and showed evidence of flow only after a short duration of rainfall events.

Impacts to Streams, Springs, Seeps, and Other Water Bodies

The No-Build Alternative would not affect any streams, springs, seeps or any other water bodies.

Alternatives A, C and D would affect streams, wet weather conveyances and ponds, all of which are within the Watts Bar Lake Watershed (HUC 06010201). Table 3-26 compares the impacts to aquatic resources for each Build Alternative. The magnitude of stream effects differs substantially among the Build Alternatives.

Stream effects associated with Alternative A and Alternative C are greater than with Alternative D due to the fact that the four-lane alternatives would primarily be located on new alignment. Alternatives A and C would each cross four established perennial streams, while Alternative D would cross three perennial streams.

Based on preliminary engineering assessments, at least three perennial streams would be crossed via bridge (Peppermint Branch, Flag Branch and an unnamed tributary to the Little River). The remainder of the stream crossings would be accommodated via culverts. Alternative A may result in channel relocations for two streams; Alternative C may result in the channel relocation for one stream. No channel relocations are anticipated under Alternative D.

Table 3-26: Summary of Aquatic Resource Impacts

Streams	Alternative A	Alternative C	Alternative D
Perennial Streams (linear feet affected)	1,760	1,528	506
Intermittent Streams (linear feet affected)	1,458	1,074	377
Wet Weather Conveyances (linear feet affected)	841	415	1,424
Ponds (acres affected)	0.4	0.4	0.1
Seeps/Springs (number affected)	0	0	0
303(d) listed streams (number crossed)	3	3	2

Source: PB Americas, Ecology Report, revised 2010.

The project would not affect seeps or springs; none of these features were identified during field surveys of the project area.

Impacts to individual streams, springs, seeps, and other water bodies are described in Table 3-27 through Table 3-29. The locations of the aquatic resources are shown on Figure 3-17 and Figure 3-18.

Table 3-27: Summary of Alternative A Impacts to Aquatic Resources

Waterbody	Location	Potential Impacts		Legal Designation (confirmed/ unconfirmed)
		Type of Impact	Size of Impact	
STR-1 Unnamed tributary to Little River	Approximately 0.4 miles north of Eagleton Village	Potential culvert placement within channel	340 linear feet	Intermittent Stream/ Unconfirmed
STR-2 Unnamed tributary to Little River	Approximately 0.4 miles north of Eagleton Village	Potential culvert placement within channel	147 linear feet	Intermittent Stream/ Unconfirmed
STR-3 Unnamed tributary to Little River	Approximately 0.57 miles slightly southwest of the intersection of Sam Houston School Rd. and Mt. Lebanon Rd.	Potential culvert placement within channel and channel relocation	640 linear feet	Perennial Stream/ Confirmed
STR-4 Unnamed tributary to Little River	Approximately 0.26 miles slightly northwest of the intersection of Melody Rd. and Mt. Lebanon Rd.	Potential impact from sediment run-off from proposed project	0 linear feet	Perennial Stream/ Confirmed
STR-5 Unnamed tributary to Little River	Approximately 0.26 miles slightly northwest of the intersection of Wildwood Rd. and Mt. Lebanon Rd.	Potential culvert or bridge placement over channel	300 linear feet	Intermittent Stream/ Unconfirmed
STR-6 Peppermint Branch	Approximately 0.7 miles northwest of the intersection of Peppermint Rd. and Sevierville Rd.	Potential culvert placement within channel	336 linear feet	Perennial Stream/ Confirmed
STR-7 Unnamed tributary to Little River	Approximately 0.3 miles northwest of the intersection of Davis Ford Rd. and Nina Delozier Rd.	Potential culvert placement within channel	335 linear feet	Intermittent Stream/ Unconfirmed
STR-8 Gravelly Creek	Approximately 0.47 miles north of Morning Star Church	Potential culvert placement within channel and channel relocation	640 linear feet	Perennial Stream/ Confirmed
STR-9 Flag Branch	Approximately 0.23 miles north of Morning Star Church	Potential culvert or bridge placement over channel	480 linear feet	Perennial Stream/ Confirmed
WWC-1 Unnamed tributary to Little River	Approximately 0.3 miles northeast of the intersection of SR 33 and Jackson Dr.	Potential culvert placement within channel	415 linear feet	Wet Weather Conveyance/ Unconfirmed
WWC-2 Unnamed tributary to Little River	Approximately 0.3 miles south of the intersection of Davis Ford Rd. and Nina Delozier Rd.	Potential culvert placement within channel	426 linear feet	Wet Weather Conveyance/ Unconfirmed
WWC-3 Unnamed tributary to Little River	Approximately 0.57 miles southeast of the intersection of Davis Ford Rd. and Nina Delozier Rd.	Potential culvert placement within channel	0 linear feet	Wet Weather Conveyance/ Unconfirmed
PND-1	Approximately 0.26 miles slightly northwest of the intersection of Melody Rd. and Mt. Lebanon Rd.	No Impact; resource outside proposed ROW	0 acres	Freshwater Pond connected to STR-4/ Confirmed
PND-2	Approximately 0.3 miles northwest of the intersection of Wildwood Rd. and Mt. Lebanon Rd.	Fill	0.4 acre	Isolated Freshwater Pond/ Unconfirmed

*See Figure 3-17 and Figure 3-18 for locations of resources listed.

Table 3-28: Summary of Alternative C Impacts to Aquatic Resources

Waterbody	Location	Potential Impacts		Legal Designation (confirmed/ unconfirmed)
		Type of Impact	Size of Impact	
STR-1 Unnamed tributary to Little River	Approximately 0.4 miles north of Eagleton Village	Potential culvert placement within channel	340 linear feet	Intermittent Stream/ Unconfirmed
STR-2 Unnamed tributary to Little River	Approximately 0.4 miles north of Eagleton Village	Potential culvert placement within channel	147 linear feet	Intermittent Stream/ Unconfirmed
STR-3 Unnamed tributary to Little River	Approximately 0.57 miles slightly southwest of the intersection of Sam Houston School Rd. and Mt. Lebanon Rd.	Potential culvert placement within channel and channel relocation	640 linear feet	Perennial Stream/ Confirmed
STR-4 Unnamed tributary to Little River	Approximately 0.26 miles slightly northwest of the intersection of Melody Rd. and Mt. Lebanon Rd.	Potential impact from sediment run-off from proposed project	0 linear feet	Perennial Stream/ Confirmed
STR-5 Unnamed tributary to Little River	Approximately 0.26 miles slightly northwest of the intersection of Wildwood Rd. and Mt. Lebanon Rd.	Potential culvert or bridge placement over channel	300 linear feet	Intermittent Stream/ Unconfirmed
STR-6 Peppermint Branch	Approximately 0.5 miles northwest of the intersection of US 411/Sevierville Rd. and Nina Delozier Rd.	Potential culvert placement within channel	247 linear feet	Perennial Stream/ Confirmed
STR-7 Unnamed tributary to Little River	Approximately 0.5 miles northwest of the intersection of US 411/Sevierville Rd. and Nina Delozier Rd.	Potential culvert or bridge placement over channel	330 linear feet	Perennial Stream/ Unconfirmed
STR-8 Unnamed tributary to Little River	Approximately 0.5 miles northeast of the intersection of Davis Ford Rd. and Nina Delozier Rd.	Potential culvert or bridge placement over channel	287 linear feet	Intermittent Stream/ Unconfirmed
STR-9 Gravelly Creek	Approximately 0.14 miles south of Centennial Church	Potential culvert or bridge placement over channel	311 linear feet	Perennial Stream/ Confirmed
STR-10 Flag Branch	Approximately 0.27 miles south of Centennial Church	Potential culvert or bridge placement over channel	0 linear feet	Perennial Stream/ Confirmed
WWC-1 Unnamed tributary to Little River	Approximately 0.3 miles northeast of the intersection of SR 33 and Jackson Dr.	Potential culvert placement within channel	415 linear feet	Wet Weather Conveyance/ Unconfirmed
WWC-2 Unnamed tributary to Little River	Approximately 0.6 miles northwest of the intersection of US 411/Sevierville Rd. and Nina Delozier Rd.	Fill or potential culvert placement within channel	0 linear feet	Wet Weather Conveyance/ Unconfirmed
POND-1	Approximately 0.26 miles slightly northwest of the intersection of Melody Rd. and Mt. Lebanon Rd.	No Impact; resource outside proposed ROW	0 acres	Freshwater Pond connected to STR-4/ Confirmed
POND-2	Approximately 0.3 miles northwest of the intersection of Wildwood Rd. and Mt. Lebanon Rd.	Drain and fill	0.4 acre	Isolated Freshwater Pond/ Unconfirmed

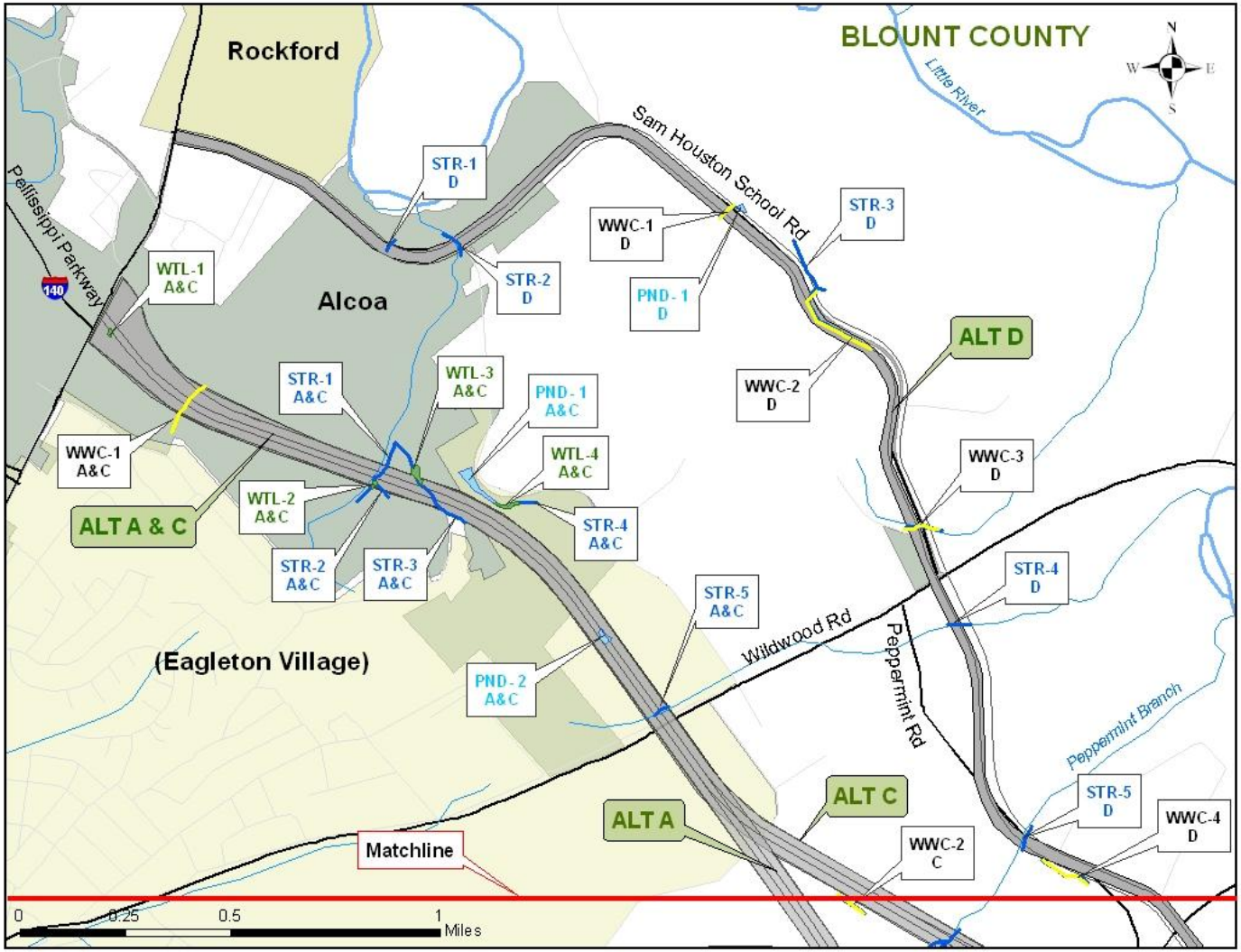
*See Figure 3-17 and Figure 3-18 for locations of resources listed.

Table 3-29: Summary of Alternative D Impacts to Aquatic Resources

Waterbody	Location	Potential Impacts		Legal Designation (confirmed/ unconfirmed)
		Type of Impact	Size of Impact	
STR-1 Unnamed tributary to Little River	Approximately 0.2 miles west of the intersection of Mt. Lebanon Rd. and Sam Houston School Rd.	Potential culvert placement within channel	108 linear feet	Intermittent Stream/ Unconfirmed
STR-2 Unnamed tributary to Little River	Approximately 160 feet southwest of the intersection of Mt. Lebanon Rd. and Sam Houston School Rd	Potential culvert placement within channel	186 linear feet	Perennial Stream/ Confirmed
STR-3 Unnamed tributary to Little River	Approximately 0.7 miles slightly north of the intersection of DeArmond Rd. and Sam Houston School Rd.	No Impacts or potential impact from sediment run-off from proposed project	0 linear feet	Intermittent Stream/ Unconfirmed
STR-4 Unnamed tributary to Little River	Approximately 0.14 miles southeast of the intersection of Wildwood Rd. and Peppermint Rd.	Potential culvert placement within channel	136 linear feet	Intermittent Stream/ Unconfirmed
STR-5 Peppermint Branch	Approximately 0.54 miles southeast of the intersection of Wildwood Rd. and Peppermint Rd.	Potential culvert or bridge placement over channel	168 linear feet	Perennial Stream/Confirmed
STR-6 Unnamed tributary to Little River	Approximately 0.55 miles east of the intersection of US 411/Sevierville Rd. and Nina Delozier Rd.	Potential culvert or bridge placement over channel	133 linear feet	Intermittent Stream/ Unconfirmed
STR-7 Crooked Creek	Approximately 0.66 miles northwest of the intersection of US 321/SR 73 and Brookfield Rd.	No Impact; resource outside proposed ROW	0 linear feet	Perennial Stream/ Confirmed
STR-8 Gravelly Creek	Approximately 0.6 miles northwest of the intersection of US 321/SR 73 and Brookfield Rd.	Potential culvert placement within channel	152 linear feet	Perennial Stream/ Confirmed
WWC-1 Unnamed tributary to Little River	Approximately 0.65 miles east of the intersection of Mt. Lebanon Rd. and Sam Houston School Rd.	Potential culvert placement within channel	167 linear feet	Wet Weather Conveyance/ Unconfirmed
WWC-2 Unnamed tributary to Little River	Approximately 0.6 miles slightly north of the intersection of DeArmond Rd. and Sam Houston School Rd.	Fill	1,100 linear feet	Wet Weather Conveyance/ Unconfirmed
WWC-3 Unnamed tributary to Little River	Approximately 188 feet slightly north of the intersection of DeArmond Rd. and Sam Houston School Rd.	Potential culvert placement within channel	157 linear feet	Wet Weather Conveyance/ Unconfirmed
WWC-4 Unnamed tributary to Little River	Approximately 0.64 miles southeast of the intersection of Wildwood Rd. and Peppermint Rd.	No Impact; resource outside proposed ROW	0 linear feet	Wet Weather Conveyance/ Unconfirmed
PND-1	Approximately 0.65 miles west of the intersection of Mt. Lebanon Rd. and Sam Houston School Rd.	No Impact; resource outside proposed ROW.	0 acres	Freshwater Pond connected to STR-3/Confirmed
PND-2	Approximately 0.3 miles northwest of the intersection of US 321/SR 73 and Brookfield Rd.	Fill	0.1 acre	Isolated Freshwater Pond/ Confirmed

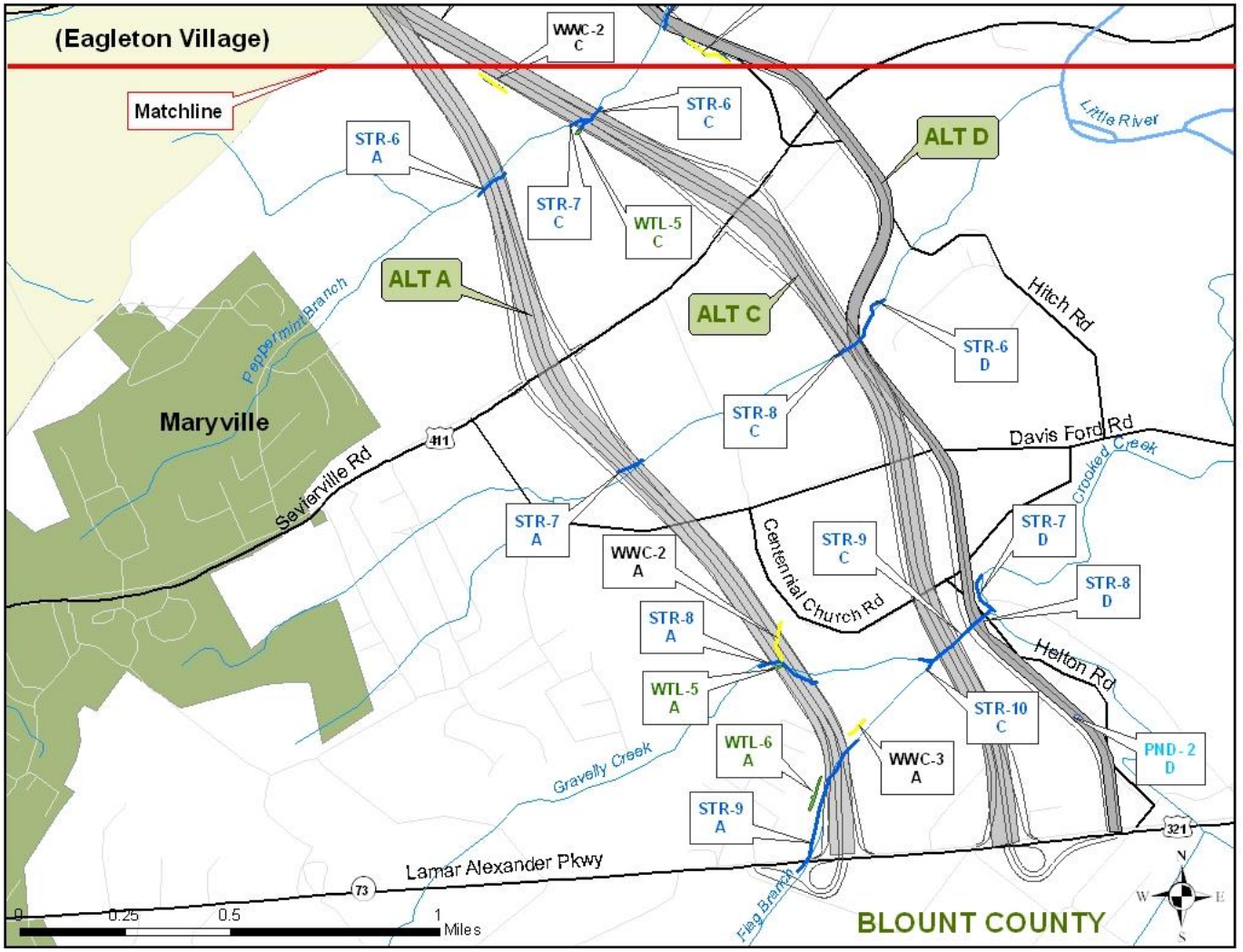
*See Figure 3-17 and Figure 3-18 for locations of resources listed.

Figure 3-17: Streams, Springs, Seeps, and Other Water Bodies, North Section



* Numbers correspond to water resources listed and described in Tables 3-27 through 3-29.

Figure 3-18: Streams, Springs, Seeps, and Other Water Bodies, South Section



* Numbers correspond to water resources listed and described in Tables 3-27 through 3-29.

Measures to Avoid or Minimize Impacts to Aquatic Resources

The impacts reported in Table 3-26 are based on preliminary designs of the proposed Build Alternatives. Therefore, the impacts may increase or decrease once the Preferred Alternative is selected and final design has begun.

The proposed project would be designed to avoid and minimize impacts to aquatic resources and water quality to the extent possible. Efforts to further minimize impacts would continue throughout the design, permitting and construction process.

The project is subject to the conditions of the National Pollution Discharge Elimination System (NPDES). Permit conditions require development and implementation of a Storm Water Pollution Prevention Plan (SWPPP) to help control erosion, sedimentation and other project-generated waste.

Periodic inspection is also required to ensure that the plan is implemented and effective. If inspection shows that the installed erosion and sediment controls are failing or inadequate, they would be immediately repaired or upgraded.

The failure of erosion and sediment controls that leads to an exceedance of turbidity standards in receiving waters would result in work being stopped until the problem is remedied. TDOT would also implement its *Standard Specifications for Road and Bridge Construction*, which includes erosion and sediment control standards for use during construction.

The contractor would identify and develop staging areas for equipment repair and maintenance away from all drainage courses. Fuel and chemical storage areas would be at least 300 feet away from open waters. The fording of streams by construction equipment at bridge locations would be prohibited.

Mitigation

Section 404(b)(1) of the Clean Water Act of 1972 requires that "*no discharge of dredged or fill material shall be permitted if there is a practicable alternative to the proposed discharge which would have less adverse impact on the aquatic ecosystem, so long as the alternative does not have other significant adverse environmental consequences*." This requirement includes taking all potential avoidance and minimization measures available to reduce impacts to waters of the US. The mitigation sequence of avoidance, minimization, and compensation for "unavoidable" impacts forms the basis for permit application evaluation by the USACE, and should be considered in project planning and development. The proposed project would be designed to avoid and minimize impacts to regulated waters of the US as per the Clean Water Act, TVA Act, and all other applicable laws and regulations. The avoidance and minimization measures may include: bridging, where possible, which could minimize construction impacts at major stream crossings; the use of bottomless "arch-span" culverts, where possible, that would allow for the natural streambed to be maintained; and the implementation of Best Management Practices (BMPs) that may include silt fencing, straw bales, and stabilization measures for exposed soil during construction.

In addition, bridges could be designed to span the entire stream channel and the construction of culverts could be staged during the drier times of the year when stream flows have been reduced. The culverts would not be constructed immediately following rain events. Locations of these structures would be determined during final design and prior to submission of federal and state permit applications. .

Furthermore, the rules of the Tennessee Water Quality Control Board state: "*if an applicant proposes an activity that would result in an appreciable permanent loss of resource value of a state water, the applicant must provide mitigation which results in no net loss of resource values*" (Rule 1200-4-7-.04(7)(a)). This rule prioritizes mitigation measures in the following order: restoration, enhancement, re-creation, and protection.

Additionally, the proposed project would take measures to avoid impacts to streams adjacent to the proposed ROW. Precautions would also be taken to prevent alterations to local and regional hydrologic and hydraulic characteristics such as frequency of flooding and ground water table elevations. The clearing of bank vegetation could be kept to a minimum with bioengineering techniques in lieu of rip-rap.

Unavoidable impacts to waters of the US may still occur after all of the appropriate avoidance and minimization measures have been taken. Therefore, compensatory mitigation is likely to be required to offset the unavoidable impacts to waters of the US.

Achieving Compensatory Mitigation

Compensatory mitigation can be achieved through :

- Restoration of a previously-existing wetland or other aquatic site;
- Enhancement of an existing aquatic site's functions
- Establishment (i.e., creation) of a new aquatic site ; and
- Preservation of an existing aquatic site.

Three mechanisms are available to carry out compensatory mitigation:

- Permittee-responsible compensatory mitigation;
- Use of mitigation banks, and
- Use of in-lieu fee mitigation.

The USACE and the EPA published the final rule in Part II of the April 10, 2008, issue of the *Federal Register*, which established a hierarchy for the compensatory mitigation options available. The options should be considered in the following order

1) Use of credits from a mitigation bank,

2) Use of credits from an in-lieu fee program,

3) Permittee-responsible compensatory mitigation developed using a watershed approach,

4) On-site/in-kind permittee-responsible mitigation, and

5) Off-site/out-of-kind permittee-responsible mitigation.

The new requirements also recommend that the compensatory mitigation should be carried out within the same watershed as the impact site and should be situated where it is most likely to succeed in replacing lost functions and services.

The proposed project would utilize the compensatory mitigation option that would achieve the required mitigation credits for impacts to waters of the US and waters of the State. The mitigation banking option would be given priority over the other available compensatory mitigation options; however, a mitigation bank may not be available within the proposed project's watershed and it may be necessary to select another compensatory mitigation option. The use of one or more of the available options may be needed to achieve the required mitigation credits. The option(s) would be incorporated into the compensatory mitigation plan that would be developed for the proposed project and the plan would be included with the submittal of the appropriate permit application(s).

3.14.2.2 Water Quality

Water quality can be affected by various sources such as surrounding land uses, point and non-point pollution sources, and the amount of impervious surfaces within an area. Currently, several factors are contributing to the degradation of water quality in the project area, including grazing livestock, agriculture, and increasing development. Municipal separate storm sewer systems in the area also contribute to degraded water quality; these systems include ditches, curbs, gutters, storm sewers, and similar means of collecting or conveying runoff that do not connect with a wastewater collection system or treatment plant. These activities and land uses have all contributed to increased amounts of sediments, pollutants, and increases in surface water temperature.

Section 303(d) of the Clean Water Act mandates each state to identify and develop a list of waters (i.e., rivers and lakes) that do not meet water quality standards. States are required to develop action plans to improve the water quality of these waters that are listed as impaired. Tennessee's 2008 303(d) list includes the Little River, Peppermint Branch, Crooked Creek, Gravelly Creek, and Flag Branch in the general study area. These rivers and streams have been degraded by siltation and habitat lost as a result of discharges from agricultural activities and nearby developments.

Impacts to Water Quality

Because of the topography of the area, all alternatives cross a number of streams that flow into Little River on the east side of the study area, as listed in Tables 3-27 through 3-29. Each of the Build Alternatives would cross impaired streams in the area. All alternatives would cross Peppermint Branch and Gravelly Creek. Alternatives A and C also would cross Flag Branch. Because of refinements in location requested during the agency field review in 2008, crossings of Crooked Creek by Alternatives C and D have been avoided by shifting these alternatives to the west in that area. None of the alternatives would cross Little River.

Water quality may be affected as a result of the Build Alternatives. The impacts to water quality from transportation projects are often associated with the land disturbances from construction activities and the addition of impervious surfaces. The land disturbing activities can contribute to the discharge of excessive amounts of sediment into surface waters (i.e., streams, wetlands, open waters); while the increase in impervious surfaces allows for the discharge of increased amounts of pollutants (e.g., oils, chemicals, polluted storm water, etc.) into the surface waters.

Mitigation

Some of the projected impacts to water quality would be offset by the roadway design and by the federal, state and local regulations that require erosion and sediment control plans,

the implementation of Best Management Practices (BMPs), and various water quality permits that require water quality monitoring.

3.14.2.3 Wetlands

Wetlands are defined by the USACE and the EPA as "those areas that are inundated or saturated by surface or groundwater at a frequency or duration to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands typically include swamps, marshes, bogs and similar areas" (33 CFR 328.3). The USACE, through Section 404 of the Clean Water Act, has regulatory authority over waters of the US, which includes wetlands.

Characteristics of Wetlands

In order to be considered a wetland, an area must have all of the following characteristics:

- Wetland vegetation;
- Wetland soil types; and
- Wetlands hydrology.

Studies to determine the impacts of the proposed alternative alignments on wetlands were conducted by biologists September through October 2008. Studies included literature and database surveys as well as field investigations. Wetlands were identified and delineated during field investigations according to the criteria set forth in the 1987 *Corps of Engineers Wetlands Delineation Manual*.

During the field surveys, two wetland community types (scrub-shrub and emergent), common in disturbed landscapes, were observed within the proposed alternatives. The scrub-shrub wetland reflects the disturbance history by the composition of the wetland vegetation that consisted of various tree and woody and herbaceous plant species. The emergent wetland community also reflects a disturbance history since much of this wetland type is located along abandoned livestock water ponds and within old drainage ditches. An emergent wetland community was also observed adjacent to some of the intermittent and perennial stream channels.

Scrub Shrub Wetland Community

Emergent Wetland Community

Impacts to Wetlands

Six wetland sites were identified within the Alternative A corridor and five wetland sites were identified within the Alternative C corridor (see Figure 3-17 and Figure 3-18). No wetland sites were identified within the Alternative D corridor. Four of the six wetland sites within the Alternative A corridor would be affected, while three of the five wetland sites within the Alternative C corridor would be affected. The total wetland acres affected by Alternatives A and C are similar at 1.0 acre and 0.9 acre, respectively. It is anticipated that these wetland acres would be filled as a result of construction of Alternatives A and C. Table 3-30 summarizes the wetland impacts.

Table 3-30: Wetlands Impacts

Wetland	Wetland Type	Location*	Likely Project Impact on Wetland	Wetland Size (acres-estimated)	
				Total	Likely Eliminated or Drained
WTL 1 A/C	Palustrine, Scrub/ Shrub, isolated	**Alt. A & C** 0.2 mile northeast of the intersection of SR-33 and Jackson Dr.	Fill	0.1	0.1
WTL 2 A/C	Palustrine, Emergent contiguous	**Alt. A & C** 0.4 mile north of Eagleton Village	Fill	0.2	0.2
WTL 3 A/C	Palustrine, Emergent, contiguous	**Alt. A & C** 0.57 mile southwest of intersection of Sam Houston School Rd. and Mt. Lebanon Rd.	Fill	0.6	0.6
WTL 4 A/C	Palustrine, Scrub/Shrub, contiguous	**Alt. A & C** 0.26 mile northwest of intersection of Melody Rd. & Mt. Lebanon Rd.	No Impact	0.3	0.0
WTL 5 A	Palustrine, Emergent, contiguous	**Alt. A** -0.41 mile south of intersection of Nina Delozier Rd. and Davis Ford Rd.	Fill	0.1	0.1
WTL 5 C	Palustrine, Emergent, contiguous	**Alt. C** 0.44 mile north of intersection of Nina Delozier Rd. and Sevierville Rd.	No Impact	0.1	0.0
WTL 6 A	Palustrine, Scrub/Shrub, isolated	**Alt. A** 0.34 mile south of Morning Star Church	No Impact	0.4	0.0

Source: PB Americas, Ecology Report, revised 2010.
* See Figure 3-17 and Figure 3-18 for locations of resources listed.

Measures to Avoid or Minimize Impacts to Wetlands

The impacts reported in Table 3-30 are based on preliminary designs of the proposed Build Alternatives. Therefore, the impacts may increase or decrease once the Preferred Alternative is selected and final design has begun.

The proposed project would be designed to avoid and minimize impacts to wetlands to the extent possible. Efforts to further minimize impacts would continue throughout the design, permitting, and construction process.

Mitigation

Mitigation is required for all wetland impacts that do not meet the requirements for the State of Tennessee's general Aquatic Resource Alteration Permits (ARAP) or for certain USACE Nationwide Section 404 permits. Rule 1200-4-7-.04(7)(b) requires the minimum replacement ratio for wetlands be 2:1, and it may be higher depending on hydrogeomorphic analyses or if optimum mitigation sites are unavailable.

Priority for Wetlands Mitigation Options

1. Restoration of a previously degraded or impacted wetland (with emphasis on prior converted areas) on-site or in the immediate project area;
2. Restoration, including mitigation banking, off-site but within the eight digit HUC in which the project is located;
3. Restoration, including mitigation banking, outside of the eight digit HUC in which the project is located;
4. Creation of wetlands on-site or in the immediate project area;
5. Creation of wetlands off-site;
6. Enhancement of existing wetlands;
7. Preservation of existing wetlands; or
8. A combination of any of the above activities.

Mitigation measures for unavoidable impacts to wetlands as per Section 404 of the Clean Water Act are prioritized in the same manner as impacts to non-wetland waters of the US (see Section 3.14.2.1, Streams, Springs, Seeps, and Other Water Bodies).

The appropriate BMPs will be implemented to avoid and minimize wetlands impacts. These may include: reduction of cut and fill limits where possible, installing silt fencing and placing straw bales over exposed soil.

The proposed project would utilize the compensatory mitigation option or options that would achieve the required mitigation credits. The mitigation banking option would be given priority over the other available compensatory mitigation options. The project is within the service area of the Shady Valley Wetland Mitigation Bank in Johnson County. If the mitigation bank is not available, it may be necessary to select another compensatory mitigation option. The use of one or more of the available compensatory mitigation options may be needed to achieve the required mitigation credits. The selected compensatory mitigation option(s) would be incorporated into the compensatory mitigation plan that would be developed for the proposed project. The compensatory mitigation plan would be included with the submittal of the appropriate permit application(s).

3.14.3 Threatened and Endangered Species

Threatened and endangered species are protected under federal law by the Endangered Species Act (ESA) of 1973. As defined by the ESA, an endangered species is any resident species in danger of extinction throughout all or a significant portion of its range. A threatened species is any resident species likely to become an endangered species within the foreseeable future throughout all or a significant portion of its range.

The US Fish and Wildlife Service (USFWS) is the federal agency responsible for determining whether a species should be listed. Once a species has been listed, it is protected until its population has recovered to the point it can be taken off the list (delisted). If a federally listed species is present in the project area, the federal agency responsible for the proposed project (in this case, FHWA) must consult with the USFWS. The USFWS determines whether the proposed project is likely to adversely affect the species or habitat.

3.14.3.1 Threatened or Endangered Species in the Project Area

Information from several sources, as well as prior experience with habitats in the area, was used to prepare for field surveys to locate protected species or habitats. These sources included database information provided by the Tennessee Department of Environment and Conservation (TDEC), the USFWS and books and/or databases of cave records, and the 2001 Biological Assessment prepared for the proposed project. A May 8, 2006 TDEC Division of Natural Heritage database review identified five federally listed species known to occur within one-mile of the proposed project. In addition, the Division of Natural Heritage database documented state rare species, species of concern, and federally threatened and endangered species within a four-mile radius of the proposed project. The threatened and endangered species that potentially occur in Blount County are listed in Table 3-31. A more detailed discussion of these species is included below.

Indiana Bat – State and Federally Endangered

The Indiana bat range includes the Midwest and the eastern US from the western edge of the Ozark Region in Oklahoma to southern Wisconsin, east to Vermont, and as far south as northern Florida. The Indiana bat is known to utilize two distinct habitat types through the course of a given year. During the winter months this species hibernates in limestone caves where temperatures average 37–43°F with relative humidities of 66 to 95 percent. Hibernation generally takes place from October to April, depending on climatic conditions. After emerging from hibernation, the bats disperse. The males apparently spend the summer months in the vicinity of the hibernacula with the location of their daytime whereabouts not known. Females form maternity colonies that are typically located under loose bark or in cavities of trees. These trees generally have a diameter at breast height of six inches or greater. Foraging habitat for this species is generally confined to air space six to 100 feet above the ground near foliage of riparian and floodplain trees. The Indiana bat will usually not fly over open country or open water when flying to a foraging area.

Snail Darter – State and Federally Threatened

The snail darter is generally thought to have inhabited the main channel of the upper Tennessee River and lower reaches of its major tributaries. This species was discovered in the lower Little Tennessee River in 1973. The preferred habitat of the snail darter consists of large free-flowing rivers with extensive areas of clean-swept gravel shoals.

Table 3-31: Protected Species Potentially Occurring in Blount County

Common Name	Scientific Binomial	State Status	Federal Status	Preferred Habitat	Habitat Present or Not Present
MAMMALS					
Indiana Bat	*Myotis sodalis*	Endangered	Endangered	During winter months, this species hibernates in limestone caves. During the summer months, males stay in the vicinity of the hibernacula with the location of their daytime whereabouts not known, while females roost in trees. Foraging areas include riparian and floodplain trees.	Summer Habitat Present within project corridor
FISH SPECIES					
Snail Darter	*Percina tanasi*	Threatened	Threatened	Large free-flowing rivers with extensive areas of clean-swept gravel shoals.	Habitat not present within ROW
Duskytail Darter	*Etheostoma percnurum*	Endangered	Endangered	Pools of larger streams with bedrock rubble substrate. These pools are typically one to three feet in depth and have gently flowing current and are for the most part silt-free.	Habitat not present within ROW
Ashy Darter	*Etheostoma cinereum*	Threatened	None	Small to medium upland rivers, occurring locally in areas of bedrock, gravel substrate with boulders, water willow, or other cover with minimal silt deposits.	Habitat not present within ROW
Longhead Darter	*Percina macrocephala*	Threatened	None	Upland creeks and small to medium sized rivers with good water quality, pools three feet or so deep, and gentle currents that provide silt free bottoms composed of bedrock, boulder, and gravel substrates	Habitat not present within ROW
INVERTEBRATES					
Fine-rayed Pigtoe	*Fusconaia cuneolus*	Endangered	Endangered	A lotic, riffle-dwelling species that usually inhabits fjord or shoal areas of rivers with moderate gradient.	Habitat not present within ROW
AMPHIBIANS					
Tennessee Cave Salamander	*Gyrinophilus palleucus*	Threatened	None	Streams in caves that contain amphipods and other aquatic organisms that can serve as a food source.	Habitat not present within ROW
PLANTS					
Appalachian Bugbane	*Actaea rubifolia*	Threatened	None	Rich soils on river bluffs, north-facing hillsides and talus slopes, moist dolomite ledges in ravines, as well as rocky shady woods below limestone bluffs.	Habitat not present within ROW

Source: PB Americas, Ecology Report, revised 2010.

Duskytail Darter – State and Federally Endangered

The preferred habitat of the duskytail darter is pools of larger streams with bedrock rubble substrate. These pools are typically one to three feet in depth and have gently flowing currents and are for the most part silt-free. The TDEC Division of Natural Heritage has documented records of the duskytail darter in Little River at four locations—all downstream from tributaries that would be crossed by the proposed alternatives.

Ashy Darter – State Threatened

The ashy darter typically inhabits small- to medium-sized upland rivers, occurring locally in areas of bedrock gravel substrate with boulders, water willow, or other cover with minimal silt deposits. The depths in these areas are generally 1.5 inches to 6.5 feet and have sluggish currents. Distribution of the ashy darter in Tennessee drainage includes the Buffalo, Duck, Emory, and Little Rivers. The healthiest known population for this species is located in Little River in Blount County, Tennessee. One of the most productive collection locations is downstream of the US 411/Sevierville Road bridge, approximately 1.6 miles downstream of where the proposed project would cross a small, unnamed tributary to Little River. The TDEC Division of Natural Heritage database has documented three other occurrences of the ashy darter from Little River—all downstream from the tributaries that would be crossed by the proposed alternatives.

Longhead Darter – State Threatened

The longhead darter prefers larger upland creeks and small- to medium-sized rivers with good water quality, pools about three feet deep, and gentle currents that provide silt free bottoms composed of bedrock, boulder, and gravel substrates. In some years, this species is common in portions of the Little River in Blount County, Tennessee. The TDEC Division of Natural Heritage database has documented occurrences of the longhead darter in the Little River at three locations—all of which are downstream of tributaries that would be crossed by the proposed alternatives.

Fine-rayed Pigtoe – State and Federally Endangered

The fine-rayed pigtoe mussel usually inhabits ford and shoal areas of rivers with moderate gradient. It is believed that this species is restricted to the Tennessee River drainage except for the Duck River. The fine-rayed pigtoe mussel has been wiped out throughout most of its former range, with the last remaining population in Tennessee occurring in the Clinch (Hancock County) and Powell (Hancock and Claiborne Counties) Rivers. The TDEC Division of Natural Heritage has documented occurrences of the fine-rayed pigtoe mussel in the Little River at LRM 9.7 and at Pistol Creek approximately one-half mile upstream of its confluence with the Little River at LRM 8.1.

Tennessee Cave Salamander – State Threatened

The Tennessee cave salamander prefers streams in caves that contain amphipods and other aquatic organisms that can serve as a food source. Individuals may be found in rimstone pools, stream runs and pools, and pools isolated by receding water. Typically, the water tends to be clear and free of sediment and substrate includes rock, gravel, sand and mud. Sinkholes are an important habitat component, allowing detritus inflow. This species occasionally occurs in surface environments, but it is most likely that these individuals have been washed out of caves. The range of the Tennessee cave salamander includes central and south-central Tennessee, northern Alabama, and northwestern Georgia. The largest population of this species known to occur in Tennessee is in Cave Cove Cave. The TDEC

Division of Natural Heritage has records of this species occurring approximately four miles from the proposed alternatives.

Appalachian Bugbane – State Threatened

The Appalachian bugbane (*Actaea rubifolia*) is typically found at or near the base of north-facing slopes on talus and rocky soils derived from dolomite. Occupied sites are typically cool, moist and occur within mixed mesophytic forests between 885 to 1,574 feet in elevation. Occupied habitat in Tennessee includes rich soil on river bluffs, north-facing hillsides and talus slopes, moist dolomite ledges in ravines, as well as rocky shady woods below limestone bluffs. The TDEC Division of Natural Heritage has records of this species occurring approximately four miles from the proposed alternatives.

3.14.3.2 Impacts to Threatened and Endangered Species

No recorded locations of protected species were noted within the proposed ROW of the project. Species records listed four species within a one-mile radius of the proposed project: duskytail darter, longhead darter, snail darter, and fine-rayed pigtoe mussel. No Indiana bat hibernaculum is known to occur within the proposed project corridor. All known Indian bat hibernacula are five miles or farther from the proposed project corridor.

In addition, the Appalachian bugbane and Tennessee cave salamander were listed as potentially occurring within four miles of the proposed project corridor. However, no habitat or individual species were observed within the proposed project corridor; therefore, the proposed project would have "no effect" on the Tennessee cave salamander or the Appalachian bugbane.

Record reviews and background research was conducted for the 1997, 2001, and 2008 field surveys and for the completion of the 2001 Biological Assessment. The reviews and background research included TDEC and USFWS databases and interviews with the US Geological Survey (USGS) and USFWS field supervisor. The TDEC and USFWS databases did not have any documented occurrences of any of the listed species in the streams and tributaries that would be crossed by the proposed project. The USGS stated that they have collected the snail darter and duskytail darter from the Little River, but not from any of the streams and tributaries, including Peppermint Branch, Gravelly Creek, and Flag Branch, that would be crossed by the proposed project. The USGS also stated that the snail darter and duskytail darter would not likely be present in the smaller tributaries and streams as they prefer larger stream habitats. The USGS is aware of the fine-rayed pigtoe being collected in the Little River, but is not aware of any collections from tributaries that may be crossed by the proposed project. The fine-rayed pigtoe prefers larger streams and would not likely be present in the smaller tributaries and streams crossed by the proposed project.

In a letter dated January 12, 2000 (see Appendix E), the USFWS indicated that the Indiana bat is known to occur in the vicinity of the proposed project. The USFWS stated that the Indiana bat uses trees with loose bark that are greater than six inches in diameter at breast height for maternity and roost sites. The USFWS stated that if the tree removal is done between October 15 and March 31 (outside of the summer roosting time) the proposed project is not likely to adversely affect the Indiana bat.

The primary impact that the proposed project could have on the listed protected aquatic species is the potential to increase silt and sediment within the crossed stream channels.

The primary impact the proposed project could have on the Indiana bat is the removal of trees that potentially provide summer roosting habitat. However, the 2001 Biological Assessment concluded that if stringent BMPs, including erosion and siltation control measures, are implemented and tree removal is done between October 15 and March 31, the proposed project is "not likely to adversely affect" the ashy darter, longhead darter, snail darter, duskytail darter, fine-rayed pigtoe mussel, and the Indiana bat. The USFWS concurred with the Biological Assessment for the determination of effects call for the Indiana bat in a letter dated February 5, 2002 (see Appendix E). The USFWS concurred with the Biological Assessment for the determination of effects call for the duskytail darter, snail darter, and fine-rayed pigtoe mussel in a letter dated April 16, 2002 (see Appendix E). A copy of the Biological Assessment is contained in Appendix E.

In summary, the Build Alternatives would have "no effect" on two species (Tennessee cave salamander and Appalachian bugbane), and are "not likely to adversely affect" six species (ashy darter, longhead darter, snail darter, duskytail darter, fine-rayed pigtoe mussel, and Indiana bat).

3.14.3.3 Potential Mitigation Measures

Removal of trees with loose bark and greater than six inches in diameter at breast height will be done between October 15 to March 31 in order to avoid the summer roosting of Indiana bats.

Stringent BMPs, including erosion and siltation control measures, will be implemented during construction.

3.14.4 Permits

The following permits would be required from the US Army Corps of Engineers (USACE), the Tennessee Valley Authority (TVA) and the Tennessee Department of Environment and Conservation (TDEC) for implementation of any of the Build Alternatives:

- Individual or general Aquatic Resource Alteration Permits (ARAP) from the State of Tennessee;
- Individual or Nationwide Permit for impacts to waters of the US (including wetlands and aquatic resources) from the USACE pursuant to Section 404 of the Clean Water Act. Other agencies such as the USFWS and the Environmental Protection Agency may be involved in the permitting process;
- TVA 26a permit for construction activities that occur in floodplains and perennial streams and rivers within the Tennessee River Watershed;
- National Pollutant Discharge Elimination System (NPDES) Stormwater General Permit for Construction Activities for construction projects disturbing one or more acres of land; and
- Class V Injection Well permit if water is flowing into an open sinkhole or cave, or for any impact that may affect the ground water via a sinkhole.

3.15 Construction Impacts

A roadway construction project, whether public or private, is likely to cause some level of inconvenience through disruption to residents, businesses, and travelers. Maintenance of traffic, access to properties adjoining the road, and utility relocations are particular construction-related issues that must be addressed with this project.

Without proper planning and implementation of controls, traffic disruption, loss of access, and utility relocation could adversely affect the comfort and daily life of residents and inconvenience or disrupt the flow of customers, employees, and material or supplies to and from businesses. Construction impact controls would be integrated into the project's contract specifications and traffic control plans.

The Build Alternatives would have physical construction-related impacts, but with implementation of appropriate controls, no cumulative or secondary construction impacts are expected.

3.15.1 Traffic and Circulation

Construction of the project may result in localized travel delays. Access to some residences, businesses and services may become slightly more difficult during construction. To reduce potential traffic impacts during construction, the contractor would be required to prepare and implement a Traffic Management Plan (TMP). If local streets must be temporarily closed during construction, detour routes would be provided and clearly marked with signs. The TMP would be implemented and coordinated with all emergency services organizations and school districts prior to construction. Access to all properties would be maintained during construction.

3.15.2 Business Disruption

Construction may result in some inconveniences due to localized travel delays, changes in some business access and possible parking reductions. The delays should be of short duration and should not adversely affect economic vitality within the project corridor. TDOT would coordinate with affected business owners to plan acceptable arrangements for temporary access and temporary signage during construction as needed. In addition, the construction contractor would be required to maintain access to businesses throughout the construction period. TDOT or the construction contractor would make provisions for posting appropriate signs to communicate the necessary information to potential customers.

3.15.3 Air Quality

Construction activities typical of roadway projects temporarily generate particulate matter (mostly dust) and small amounts of other pollutants. Emissions during construction activities would be temporary and limited to the immediate area surrounding the construction site. To reduce air quality impacts during construction, the construction contractor would be required to comply with all local, state and federal regulations concerning air pollution abatement related to construction activities. Mitigation measures normally used include applying water or suppressants during dry weather and taking other measures, such as covering loads to prevent the transport of dirt and dust from construction areas onto nearby roads.

3.15.4 Noise

There would be unavoidable, short-term noise impacts as a result of project construction. The primary source of noise would be from construction activities such as earth removal, hauling, grading and paving. The degree of construction noise impact would be a function of the number and types of equipment being used and the distances between the construction equipment and the noise-sensitive areas.

Construction procedures shall be governed by the Standard Specifications for Road and Bridge Construction (March 2006) as issued by TDOT and as amended by the most recent applicable supplements. The contractor will be bound by Section 107.01 of the Standard Specification to observe any noise ordinances in effect within the construction area so as to cause the least practicable noise impact upon residential and other noise-sensitive areas.

3.15.5 Soils and Geology

The contractor would be required to employ practices and procedures to minimize the impacts of point and non-point source pollution resulting from increased siltation and highway runoff. A comprehensive erosion and sediment control plan would be developed and implemented. The sediment control plan would be formulated in accordance with the TDOT *Standard Specifications for Road and Bridge Construction* and could include the following measures:

- Temporary erosion control devices such as silt fences, straw bales, burlap, jute matting, grading, seeding and sodding to minimize erosion and sedimentation;
- Minimal removal of vegetation;
- Establishment of non-invasive vegetation during the growing season to stabilize fill slopes.

3.15.6 Solid Waste and Hazardous Waste

Solid waste could be generated by project construction (e.g., through demolition and removal of structures). The quantity of disposed waste would represent a negligible proportion of the total land directed toward local landfills.

Any toxic and hazardous materials would be handled and used in accordance with package labels and manufacturer's directions. Wastes would be segregated, labeled, and stored in a manner that would prevent their release into the environment from an accident or spill. The contractor would dispose of these materials and their containers in accordance with applicable state and federal regulations.

Disposal of excess material would be the responsibility of the contractor who would be contractually required to handle and dispose of the material in accordance with TDOT's *Standard Specification for Road and Bridge Construction*.

3.15.7 Water Quality and Erosion Control

As noted in Section 3.14.2, Aquatic Resources and Water Quality, the project would be subject to the conditions of the NPDES. Permit conditions require development and implementation of a SWPPP to help control erosion, sedimentation and other project-

generated waste. Periodic inspection is also required to ensure that the plan is implemented and effective. If inspection shows that the installed erosion and sediment controls are failing or inadequate, they would be immediately repaired or upgraded. The failure of erosion and sediment controls that leads to exceedance of turbidity standards in receiving waters would result in work being stopped until the problem is remedied. TDOT would also implement its *Standard Specifications for Road and Bridge Construction*, which includes erosion and sediment control standards for use during construction.

The contractor would identify and develop staging areas for equipment repair and maintenance away from all drainage courses. Fuel and chemical storage areas would be at least 300 feet away from open waters. The fording of streams by construction equipment at bridge locations would be prohibited.

3.15.8 Wetlands

Construction activities would be confined within the permitted limits to prevent unnecessary disturbance of adjacent wetland areas. Potential temporary impacts to wetlands would be minimized by implementing sediment and erosion control measures, including seeding of side slopes, silt fences, and sediment basins, as appropriate.

3.15.9 Terrestrial and Aquatic Species

The contractor would be required to prepare and implement a revegetation plan that is approved by TDOT. If the contractor must permanently remove an area of mixed forest for temporary use (i.e., construction staging), it would be replaced with plantings of native tree species within the affected area. The contractor would adhere to project conditions identified in the Biological Assessment and agency concurrence letters (Appendix E).

3.16 Indirect and Cumulative Impacts

The National Environmental Policy Act (NEPA) and Council on Environmental Quality (CEQ) regulations require the indirect and cumulative effects of a project be analyzed in addition to direct impacts (40 CFR 1508.25 (c)). Indirect effects (sometimes referred to as secondary) and cumulative effects are analyzed to determine how each proposed alternative, if built, may affect the different resources in the project area. Each alternative being considered may have impacts of varying degrees. Differences in the degree of impacts are one of the measures that decision-makers use to help them evaluate and compare each alternative.

This indirect and cumulative effects (ICE) analysis presents a comprehensive, long-term look at how the construction of the Pellissippi Parkway Extension and other past, present and future planned development and transportation projects might result in additional resource impacts. In general, resources within the ICE boundaries have experienced negative cumulative effects during the ICE time frame primarily due to the pressures caused by the large population growth that the area has experienced. It is expected that these trends will continue with additional growth in the present/near future and future time frames although not always at the same rate or with the same patterns due to the current economic climate and current laws and regulations that could reduce the rate and extent to which resources are affected.

3.16.1 Definitions

3.16.1.1 Indirect Effects

Indirect impacts are defined as impacts that may be caused by a project, but would occur in the future or outside the project area and are reasonably foreseeable. Indirect impacts may include growth-inducing effects and other effects related to changes in the pattern of land use, population density or growth rate and related effects on air and water and other natural systems (40 CFR 1508.7). Reasonably foreseeable actions/projects include:

- A project identified in a local or regional comprehensive land use plan;
- A subdivision plat that has been filed with the local government, county or other plat-approving agency;
- Population/development trends that are identified in local or regional comprehensive land use plans;
- Planned transportation improvements by city or county governments; and
- Local or regional infrastructure projects that could impact resources (schools, hospitals, etc.).

Actions that are not usually considered reasonably foreseeable include:

- Possible, but not likely actions/projects; and
- Actions that have little or no influence on the transportation decision.

Reasonably Foreseeable

Courts have defined reasonably foreseeable as an action that is sufficiently likely to occur, that a person of ordinary prudence would take into account in making a decision.

Often, if a project does not have a direct effect on a resource, it will not have an indirect effect on that resource. Occasionally, however, a project may not have a direct effect but it will have an indirect effect. In general, highway projects most commonly result in indirect impacts to land use, community and economic resources, farmland, water resources, water quality, wetlands and terrestrial ecology.

3.16.1.2 Cumulative Effects

Cumulative impacts are the combined effects of all past, present and reasonably foreseeable projects (not just the current project and not just highway projects) on a given resource (e.g., wetlands); regardless of who has built the project (including developers, localities, etc., not just state departments of transportation or federal agencies). If a project will not cause direct or indirect impacts on a resource, it will not contribute to a cumulative impact on the resource.

3.16.2 Methodology

3.16.2.1 Indirect Effects

As mentioned above, indirect effects include impacts that are indirectly caused by the action (i.e., construction of one of the Build Alternatives) and are later in time, or farther removed in distance, but are still reasonably foreseeable. Indirect effects may include growth-inducing effects and other effects related to changes in the pattern of land use, population density or growth rate that may result from the project. The time frame used for the assessment of reasonably foreseeable indirect impacts was determined to be 2030, which is based primarily on the planning horizon for most of the land use planning documents.

The indirect impacts analysis involved assessing impacts with growth-inducing effects of the Pellissippi Parkway Extension project. Maps of socioeconomic, cultural and natural resources were overlaid on current and future land use maps to determine if indirect development would affect that resource.

3.16.2.2 Cumulative Effects

Cumulative environmental effects relate to the incremental impact of the Pellissippi Parkway Extension in the context of other past, present and reasonably foreseeable future actions whether they are public or private actions. Therefore, cumulative effects take into account all past impacts that have occurred within the project area, impacts associated with the Pellissippi Parkway Extension itself, impacts associated with present/near future pipeline projects, and impacts associated with longer-term anticipated (2030) projects.

Trend analyses, matrices and overlays comparing past conditions to existing conditions indicated probable future conditions within the ICE boundary and time frames. Maps prepared by the Blount County Planning Department showing residential growth in the county between 1950 and 1999 were utilized in this analysis.

More information regarding the methodology of the ICE analysis and the data that was available can be found in the *Pellissippi Parkway Extension Indirect and Cumulative Effects Methodology and Background Information Technical Memorandum* (on file with TDOT's Environmental Division).

3.16.3 Elements of Indirect and Cumulative Effects

The elements of indirect and cumulative effects are resources, geographic (spatial) boundaries, and timeframes (temporal boundaries).

3.16.3.1 Resources

Resources that would be directly affected by the proposed alternatives were first identified in order to determine environmental resources to be evaluated in the Indirect and Cumulative Effects Analysis. Table 3-32 lists those resources assessed for this analysis. Boundaries for these resources were used to create the overall ICE boundary.

3.16.3.2 Geographical Boundaries

The ICE boundaries cover sufficient area to allow for flexibility in encompassing all possible areas that may be directly affected. Indirect and cumulative effects are further removed

from the project alternatives than direct impacts; therefore, the geographic limits for the analysis of indirect and cumulative effects reach beyond the defined project study area.

Multiple resource boundaries were reviewed to determine appropriate ICE boundaries using the environmental resources that may be affected by direct or indirect impacts of the project as a guide.

Table 3-32: Indirect and Cumulative Effects Resources

Resource
Land Use
Socio-Economic Resources
Farmlands
Cultural Resources - Historic Resources - Archaeological Resources
Recreational Resources
Visual Resources
Air Quality
Climate Change
Physical Environment - Noise - Floodplains - Hazardous Materials
Natural Resources - Terrestrial Resources - Aquatic Resources - Wetlands - Threatened and Endangered Species

The boundaries identified for the ICE analysis are listed below and shown in Figure 3-19.

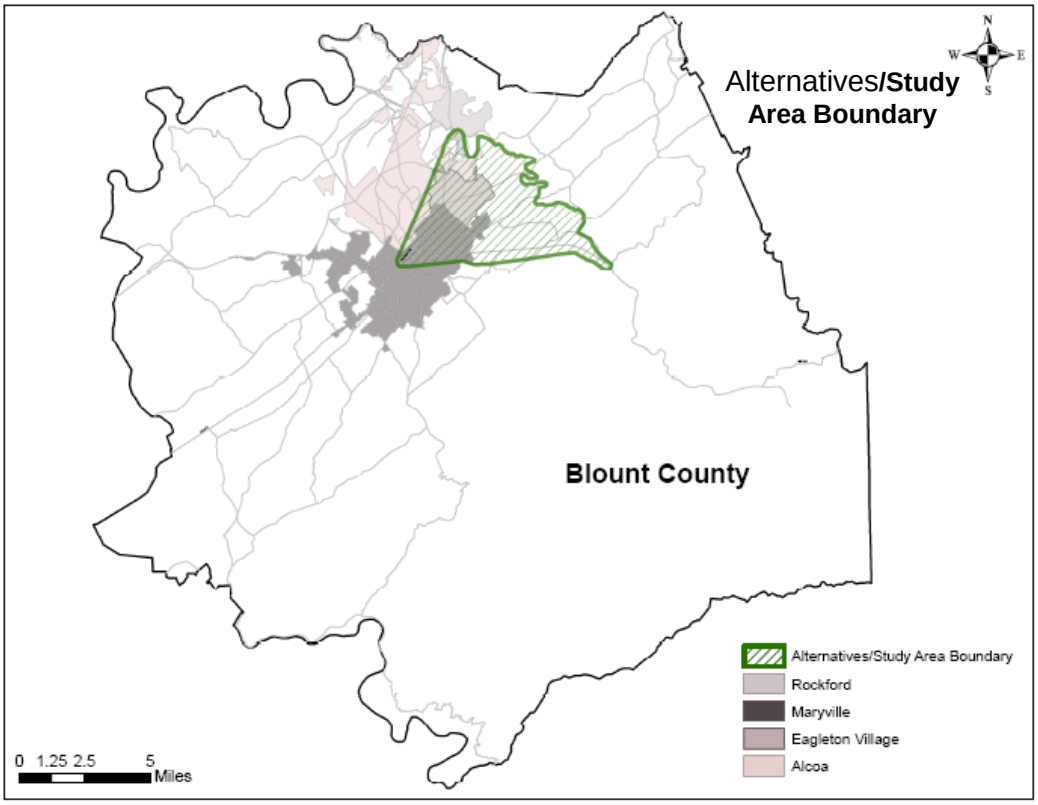
- Alternatives/Study Area Boundary
- Induced Development Boundary
- Natural Resources Boundary
- Visual Resources Boundary
- Air Quality Boundary

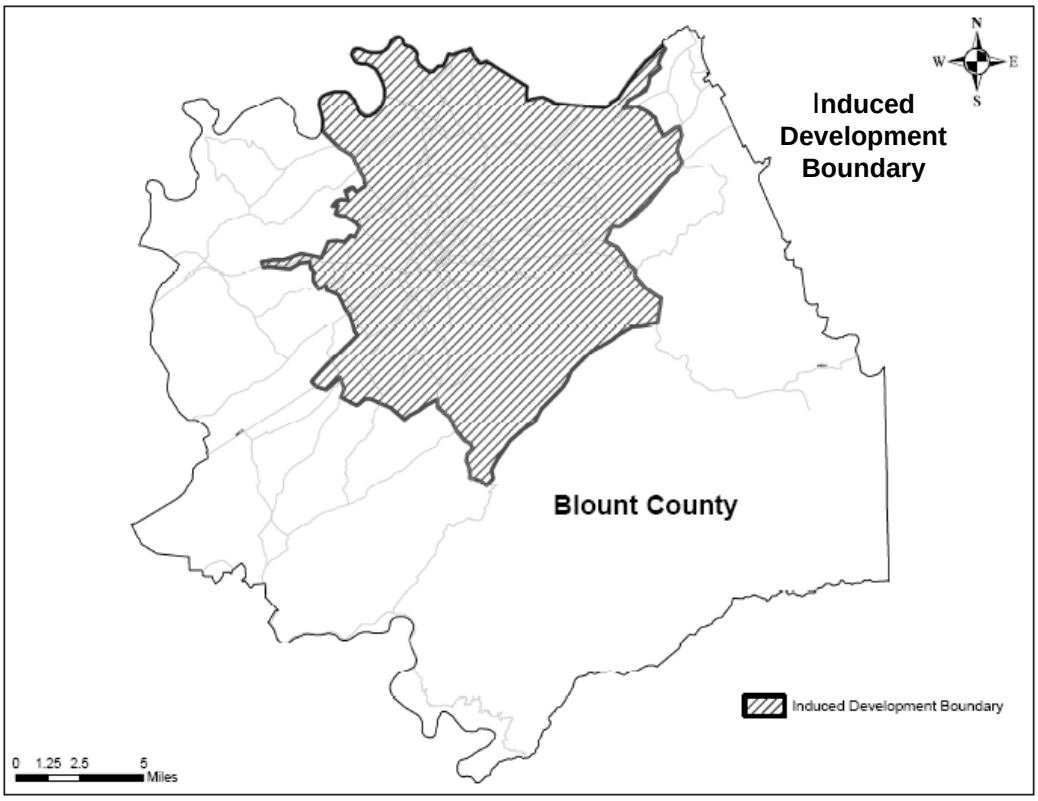
A description of the geographical boundaries can be found in the *Pellissippi Parkway Extension Indirect and Cumulative Effects Technical Memorandum* (on file with TDOT's Environmental Division).

3.16.3.3 Time Frames

The ICE analysis must consider past, present and reasonably foreseeable future actions. In order to determine the past time frame, data was collected about events in the historic context of the area that may have influenced population and land use. The historic timeline of significant events can be found in the *Pellissippi Parkway Extension Indirect and Cumulative Effects Technical Memorandum.*

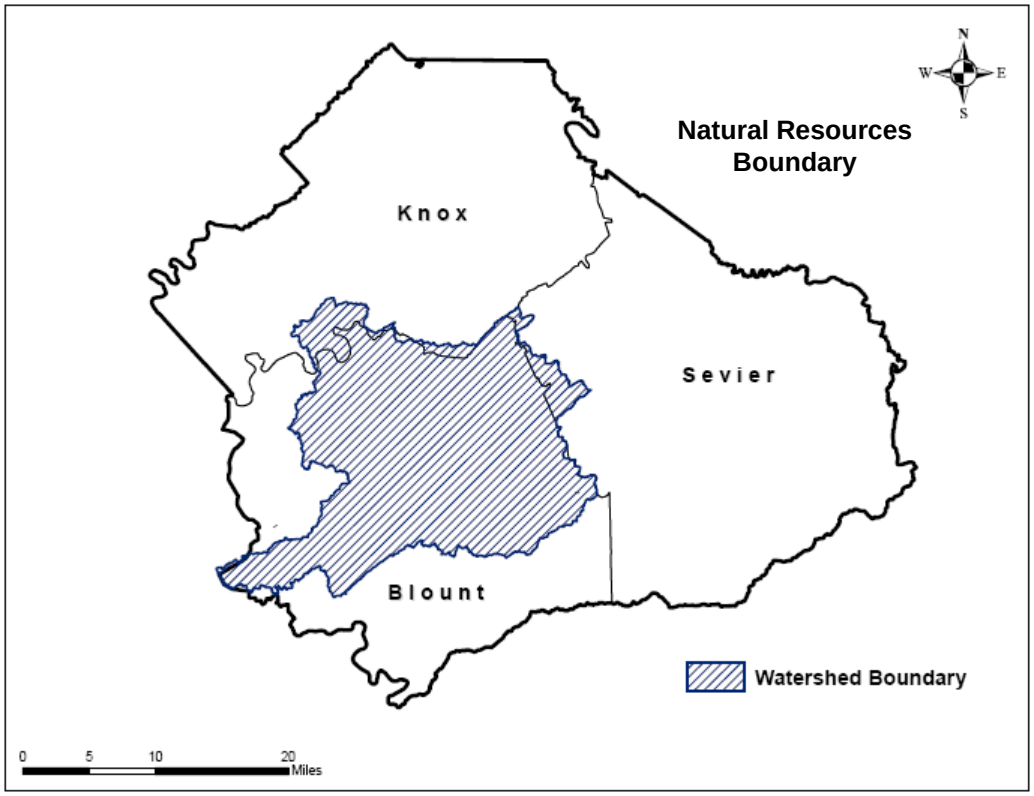
Figure 3-19: ICE Boundaries





PELLISSIPPI PARKWAY EXTENSION

Figure 3-19: ICE Boundaries (con't)



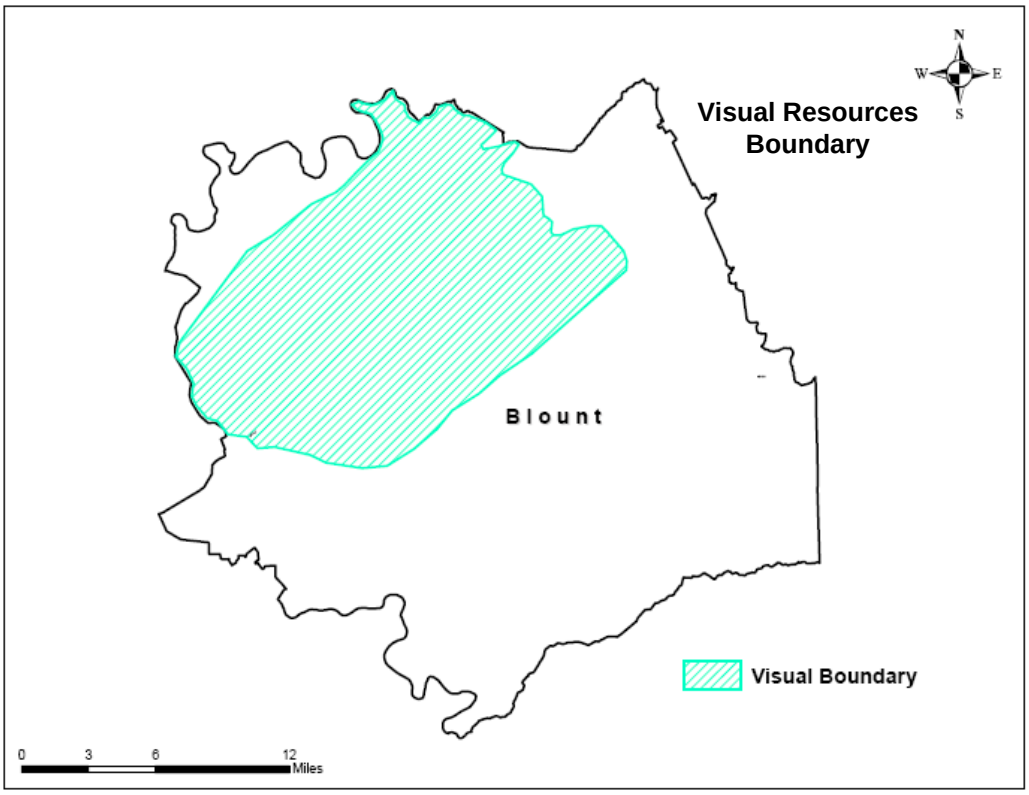
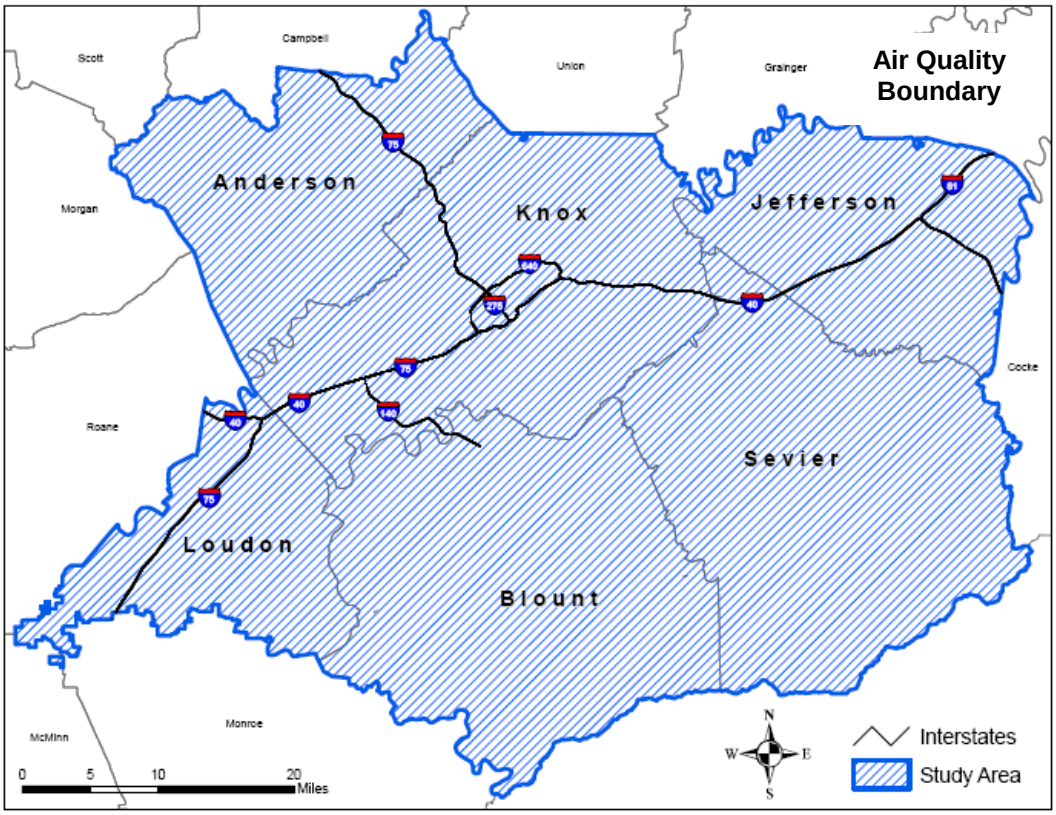


Figure 3-19: ICE Boundaries (con't)



Source: PB Americas, Indirect and Cumulative Effects Technical Memorandum, 2009.

Population data was also examined to assist with the determination of the past time frame. Population data from 1900 to 2000 for Blount County and from 1950 to present for Alcoa and Maryville (dates for which city/town level population data was available) was examined.

The 1970s time frame was evaluated since the population in Blount County grew significantly (22 percent). Growth in the county slowed to 10.5 percent between 1980 and 1990 and accelerated again between 1990 and 2000 (23 percent). Population in Maryville grew 199 percent between 1950 and 2000. Much of the growth between 1950 and 1990 was due in large part to annexation, which according to the Maryville 2010 Plan, reflects a significant trend toward urbanization.

The Plan also acknowledges that factors contributing to the increase include economic development and job growth and retirees moving into the area.

The 1977 time frame was chosen because of the population growth and because it marks the construction of the section of Pellissippi Parkway from Oak Ridge Highway (SR 162) to I-40/I-75, connecting Farragut to Knoxville via a four-lane divided highway to the interstate. The development of an improved system of roadways in the region helped improve accessibility and mobility throughout the region. As Pellissippi Parkway was developed, it linked Blount County to a larger regional economy.

As roadways were expanded in the area, such as US 411/Sevierville Road, sewers also were expanded, in turn stimulating development. An expansion of the tourism industry, driven in large part by the development of the GSMNP, also influenced land use in the region.

It was determined that three years from present (2012) would adequately assess the present/near future timeframe, particularly given the current economic downturn. The future time frame of 2030 was determined based primarily on the planning horizon for most of the local land use planning documents. In addition, population projections are available through 2030, allowing a more accurate depiction of future population within the ICE boundary.

3.16.4 Land Use Policies

The State of Tennessee, with its Public Chapter 1101 (PC 1101) growth policy legislation and Blount County and the cities of Alcoa and Maryville with their land use plans, policies and strategies, seek to channel growth into appropriate locations. These policies provide the basis for zoning, growth management and land use restrictions, and ensure a balance between land use and transportation.

3.16.4.1 Local Planning and Zoning

Public plans, policies and laws are critical in reviewing and analyzing potential future land use for each of the alternatives. One of the most important factors is the influence of state and local development policies. Blount County has had planning regulatory frameworks in place since 2000, with the adoption of the county zoning regulations, policies plan and the conceptual land use plan. The City of Alcoa has had an adopted zoning ordinance since 1952. The city's current comprehensive plan was adopted in 2006. The City of Maryville adopted its Comprehensive Plan in 1990, its Urban Growth Boundary Plan in 1999, and its zoning ordinance in 2006. The future land use maps, Urban Growth Boundary plans, policies plans and zoning ordinances are used as tools by the county and the two cities to guide development and land use.

In addition to the plans developed by Blount County, Alcoa and Maryville, the Knoxville Regional TPO is responsible for assuring that a continuing, cooperative, and comprehensive transportation planning process takes place that results in the development of plans, programs, and projects that consider all transportation modes and supports the goals of the community. The TPO covers the Knoxville Urban Area, which comprises the 2000 US Census-defined urbanized areas of Knox, Blount, Loudon, and Sevier counties. Specific planning activities and documents required of the TPO include: the Unified Planning Work Program (UPWP); the development of an intermodal transportation plan with at least a 20-year horizon (the Long Range Transportation Plan) that must be updated every four years; the Transportation Improvement Program (TIP) that documents the cooperatively developed program of projects selected by the Technical Committee to be implemented during the program period of four years; and the Congestion Management Process (CMP) that must include System Monitoring, Performance Measures, Congestion Identification, Mitigation Strategies, Implementation Strategy, and Monitoring of CMP Effectiveness.

For areas that are outside the Knoxville Urban Area (Anderson, Cocke, Jefferson, Monroe, and Roane counties and portions of Blount, Loudon, and Sevier counties), the South Rural Planning Organization (South RPO) is responsible for involving local stakeholders in the

transportation planning and the transportation decision-making process. The RPO considers multi modal transportation needs on a local and regional basis; reviews long-term needs and short-term funding priorities; and makes recommendations to TDOT.

3.16.4.2 State Growth Policy

In May 1998, the Tennessee General Assembly enacted Public Chapter 1101 (PC 1101), which provides a framework for growth policy development within each county. Under PC 1101, counties were required to develop a comprehensive growth policy that outlines anticipated development during the next 20 years. The growth plans were to be based on a 20-year projection of growth and land use and divide the county into three types of areas: 1) Urban Growth Boundaries (UGBs), 2) Planned Growth Areas (PGAs), and 3) Rural Areas (RAs). Municipalities are responsible for proposing UGBs and counties are responsible for proposing PGAs and RAs. UGBs in Blount County are illustrated on Figure 3-6.

3.16.5 Indirect Impacts

3.16.5.1 Existing and Projected Land Use Trends and Induced Development

Residential development has steadily increased within Blount County since the 1960s. This trend in increased residential development is similar to that experienced within the region over the past several decades, represented in Table 3-33. Appendix F contains a series of graphical representations prepared by the Blount County Planning Department to illustrate the county's residential development between 1950 and 2005.

Table 3-33: Number of Housing Units (1970–2000)

	1970	1980	1990	2000
Blount County	21,835	23,680	36,532	47,059
Percent Change		8.4%	54.3%	28.8%
Knox County	93,011	125,883	143,582	171,439
Percent Change		35.3%	14.1%	19.4%
Sevier County	10,268	unavailable	24,166	37,252
Percent Change				54.2%
Alcoa	2,520	unavailable	2,892	3,857
Percent Change				33.4%
Knoxville	61,064	73,263	76,453	84,981
Percent Change		20.0%	4.4%	11.2%
Maryville	4,976	7,156	8,280	9,795
Percent Change		43.8%	15.7%	18.3%

Source: US Census of Housing 1970, 1980, 1990, 2000.

According to the *Pellissippi Economic and Fiscal Impact Analysis*, the Knoxville Regional TPO's 2030 forecast predicts the households within the ICE-induced development boundary to grow by roughly 400 households per year based on the amount of undeveloped land in the area without the construction of the Pellissippi Parkway Extension. However, according to the study, this estimate could be conservative since other properties in the area that are currently developed could be redeveloped at a higher density to accommodate future residential development in the area.

The *Pellissippi Economic and Fiscal Impact Analysis* predicts that construction of Build Alternative A or C is likely to spur the development of a relatively modest number of new housing units (between 68 and 123 new units) by 2020, the year when full build-out of the area surrounding the proposed project is predicted. This is in addition to the 400 households per year that are expected even if the project is not constructed.

In addition to an increase in residential development, an increase in commercial development is also occurring within the ICE boundary. The TPO estimates that between 2005 and 2030, nearly 19,000 new jobs are expected to be added to the study area. Of these, the TPO estimates that roughly 50 percent or 9,500 of these jobs will be in commercial sectors (retail/finance, insurance, and real estate/service). Assuming an average 0.18 floor area ratio (FAR), these new jobs will result in roughly 336,000 square feet (approximately eight acres) of new commercially developed land whether or not the project is constructed.

The *Pellissippi Economic and Fiscal Impact Analysis* also predicts that construction of Build Alternative A or C is likely to spur the development of between 33,400 and 60,500 square feet of induced commercial space by 2020. More specifically, this would likely result in 19,800–36,000 square feet of induced office space, 11,000–19,800 square feet of induced retail space, and 2,600–4,700 square feet of induced hotel space. Currently, more than 400 acres (17.4 million square feet) of vacant commercial land exist in the study area.

The residential and commercial trends show that the Pellissippi Parkway Extension Build Alternatives would not encourage extensive growth that would be inconsistent with past growth trends or would substantially differ between the No-Build Alternative and the Build Alternatives.

Build Alternative D, with its more limited expansion, is likely to induce less residential and commercial growth than Build Alternatives A and C.

3.16.5.2 Potential Indirect Impacts

Land Use

Indirect impacts to land use involve the conversion of land from agricultural use to residential, commercial and industrial uses. Conversion of land from agricultural use to residential use has been occurring within the project area at a steady rate for the past 50 years. This is particularly noticeable when viewing the graphics in Appendix F. As mentioned in the previous section, this trend is anticipated to occur whether or not the project is constructed. The project's Build Alternatives pass through the designated UGBs of Alcoa and Maryville, where growth is targeted.

The TPO's 2030 forecast predicts the households within the area influenced by the project to grow by roughly 400 households per year based on the amount of undeveloped land in the area with the No-Build Alternative. Build Alternatives A or C are estimated to add 68-123 units by 2020. Build Alternative D would add fewer households than either Build Alternative A or C.

The TPO's 2030 forecasts predict that by 2030, nearly 19,000 new jobs (336,000 square feet of commercial development) are expected to be added to the study area with the No-Build Alternative. Findings of the *Pellissippi Economic and Fiscal Impact Analysis* indicate that construction of either Build Alternative A or C is expected to induce between 33,400–

60,500 square feet of additional commercial development. Build Alternative D would add fewer square feet of commercial development than either Build Alternative A or C.

Social Resources

Under the No-Build Alternative, the limited mobility options in Blount County and Maryville would continue to be an issue. The expanding residential development occurring east of Alcoa and Maryville and the growing number of trips between Maryville and Alcoa and the Knoxville area to the north would lack an efficient northwest/east connection. This could result in increased demand on other local roads as motorists attempt to find alternative routes to avoid the congested roadways. This could result in increased impacts to local neighborhoods and impacts to community cohesion. Increased congestion throughout the existing roadway network could also increase the potential for crashes and vehicle-pedestrian incidents.

The Build Alternatives would increase mobility options in Blount County and Maryville. Build Alternatives would improve travel times for vehicles traveling from the north and the west. Increased network efficiency and travel time savings could help to alleviate stress on some local roads and the neighborhoods and commercial areas served by them.

Economic Resources

Induced development in the study area is expected to generate new revenues, but there would be additional costs to serve this development. The costs would include, but would not be limited to, police services, local road and highway costs, and public education for K-12 students.

The residential development projected to be induced by the construction of the Build Alternatives would be relatively minor (between 68 and 123 new households by 2020), particularly when compared to the estimated 400 units per year anticipated even if the project is not constructed. The residential development projected to occur whether or not the project is constructed is likely to have a much greater impact on schools and other infrastructure requirements than the residential development induced by the project. If the county and the cities follow their growth policies and their urban growth plans, then the anticipated development would occur within areas that have been targeted for growth and have the ability to serve the anticipated growth.

The fiscal impact analysis conducted for the projects estimated the net positive or negative fiscal implications of induced growth forecast in the study area on the operating and capital budget of Blount County. The analysis examined the fiscal effects of two development scenarios:

- 2020 Business as Usual Case. This concept represents a “business as usual” future that would reasonably be expected to occur if a significant portion of the induced growth occurs outside designated growth areas. In the Business as Usual scenario, it is assumed that only 20 percent of development would take place inside the limits of designated growth areas (incorporated lands and lands within urban growth boundaries), and 80 percent of development would be concentrated outside of designated growth areas. This case is associated with a higher cost of county services for each new unit of residential development.
- 2020 Smart Growth Case. This concept represents a future where most new residential and nonresidential development would be focused inward towards

designated growth areas, generally reflecting the objectives and guidelines of the *Blount County Conceptual Land Use Plan*. In the Smart Growth scenario it is assumed that 80 percent of new residential development would take place in designated growth areas, and the remaining 20 percent of new development would occur outside of these areas. This scenario would decrease the costs associated with providing residential services.

The analysis focused on the county budget because it represents revenues and expenditures for the largest portion of the government services provided in Blount County. The study does not analyze services provided by the cities of Maryville and Alcoa.

The methodology used to estimate the fiscal implications of the two induced development scenarios followed three steps:

1. Gross operating revenues were forecast for the following major tax categories: real property, business tangible, sales, and hotel.
2. The amount of each gross revenue source needed to fund county services was estimated by applying the implied Cost of Community Service (COCS) ratios reported in the Blount County COCS report prepared by American Farmland Trust and findings from recent empirical studies on the cost implications of various Smart Growth practices.
3. Net fiscal effects were determined based on a comparison of the revenues that may be collected in connection with that new development and the costs of providing public services to the induced development program.

The results of the analysis are summarized below and shown in Table 3-34:

- At build out, both the Business as Usual and Smart Growth scenarios are projected to generate a positive fiscal benefit to the county, by generating more revenues than they demand in costs for operations and capital improvements.
- The disparity in net revenue (difference between total new revenue and cost of new public services) between the Business as Usual and Smart Growth scenarios occurs as a result of differences in the costs of providing services to residential development within and outside of designated growth areas (incorporated lands and lands within urban growth boundaries). In the Smart Growth scenario, the majority of development takes place within designated growth areas with a lower per-unit cost of services. The Business as Usual scenario places more development on parcels outside designated growth areas, which, based on recent empirical evidence, typically results in higher per-unit cost of services.

Table 3-34: Annual Fiscal Impact of Induced Development Program for Business as Usual and Smart Growth Scenarios

	Business As Usual Case	Smart Growth Case
New Annual Revenues		
Property Tax	$107,000	$172,000
Sales Tax	$29,000	$29,000
Hotel Tax	$8,000	$8,000
Total New Revenue	**$144,000**	**$209,000**
Cost of Public Services	**$91,400**	**$137,400**
Net Revenue Impact	**+$51,600**	**+$70,600**

Source: PB Americas, Pellissippi Parkway Extension (SR 162): Economic and Fiscal Impact Analysis. June 2009.

Farmlands

As discussed in Section 3.6, Farmlands, the project area includes lands that are currently used for farming and agricultural purposes; some of the farmland is considered prime farmland by the NRCS. The project area is contained entirely within the designated UGBs for Alcoa and Maryville.

The amount of farmland in Blount County has been declining since the 1980s. Since the 1990s, the project area has become part of the suburban growth area for Alcoa and Maryville. Much of this growth has taken place on former farmland. Potential indirect impacts of the project alternatives, including the No-Build Alternative, include further encroachment upon existing agricultural land since the economic forecasts indicate continued residential and commercial growth in the area.

As discussed in Section 3.6, this pattern of conversion of farmland within the UGBs is consistent with current growth policies. The *Economic and Fiscal Impact Analysis* indicated that the area of induced development from the Build Alternatives is contained within current UGBs. Therefore, additional loss of farmland outside of the UGBs is not anticipated to be different than the No-Build Alternative, particularly if Blount County, Alcoa and Maryville enforce their growth policies. Under the Build Alternatives, more farmlands within the UGBs would be converted to residential uses to accommodate the additional households expected under these alternatives.

Cultural Resources

Indirect impacts to cultural resources could result because of continued residential and commercial development. These impacts have the potential to occur whether the No-Build Alternative or a Build Alternative is selected, due to the anticipated continued growth of the area. Indirect impacts could be slightly greater for Build Alternatives A and C since they could result in slightly increased amounts of development. Indirect impacts to archaeological resources are anticipated to be minimized due to federal and state regulations that protect these resources. Indirect impacts to historic resources are only afforded federal protections with regard to impacts from projects with federal funding, such as federal-aid highways. Historic resources are not typically protected from private development unless local historic ordinances/overlay zones with specific provisions are in place.

Recreational Resources

No displacement of parkland is anticipated due to potential induced development. The increased efficiency of the transportation network may reduce travel times for visitors traveling to the GSMNP, Cades Cove and Foothills Parkway and provide a shorter route to these resources for some travelers. Reducing travel times may increase visitation to these places by making them somewhat faster to reach, although it may be more likely that the proposed project would provide a more attractive route over another route by persons already planning to visit these resources. The GSMNP, Cades Cove and Foothills Parkway are located outside of the immediate project area.

Visual Resources

Continued development is anticipated whether or not the project is constructed. The Knoxville Regional TPO 2030 forecast predicts an additional 400 households per year without the project being constructed. This development will result in changes to the visual landscape, converting more land from an agricultural setting to a rural suburban setting. The potential induced development from the proposed Build Alternatives would include an additional 68–123 housing units by 2020. This would result in changes to the visual landscape; however, the resultant change would be less than what is anticipated to occur without the project. Given the growth policies, urban growth boundaries and the development of a Blount County green infrastructure plan, this growth would occur in areas where the county and the cities are targeting growth.

Air Quality

The Pellissippi Parkway Extension would result in some induced residential and commercial development. The projected increase in regional traffic associated with this induced development has been accounted for in the regional analysis and VMT projections for the project area. The project would increase regional VMT when compared to the No-Build scenario. This VMT increase, along with a slight increase in regional speed, would cause an increase in regional pollutant levels ranging from four percent to zero percent. Alternatives A and C would have the largest impacts compared to the No-Build alternative. Alternative D would have lower regional emissions impacts than Alternatives A and C and more than the No-Build Alternative.

Noise

Increased development is predicted for the area whether or not the project is constructed. Increased development is likely to result in increased noise impacts due to increased activity and increased traffic volumes. Increased noise impacts would be slightly higher for Build Alternatives A and C than for the No-Build and Build Alternative D since those alternatives would induce slightly more growth.

Floodplains

The proposed Build Alternatives include the addition of paved travel lanes that would increase the amount of impervious surface area within the area of influence. This increase in impervious surface area could indirectly impact floodplains and flood-prone areas. The most notable effect would be the amount of storm water run-off and the increased velocity of the storm water run-off. To minimize these indirect effects to floodplains and flood-prone areas, the proposed alternatives would be designed to control the increase and velocity of storm water run-off. The design measures may include urban curb and gutters, minimization of storm water discharge locations, storm water run-off directed into the median, grassed ditches, and no direct storm water discharge into stream channels.

Continued development is expected with the area, which would also contribute to the increase in impervious surface area. However, impacts from the induced development would be minimized by federal, state, and local laws that have been established to control development within floodplain and flood-prone areas.

Hazardous Materials

Continued development is anticipated whether or not the project is constructed. Some of this development could occur in areas that might contain potential hazardous or special waste sites. In general, development in areas where hazardous materials are present would have a long-term beneficial impact due to the removal of the harmful materials. In most cases, clean up of these sites would involve the removal of old underground storage tanks (USTs) or above ground storage tanks (ASTs) or old equipment containing greases, oils, or other potential contaminants.

Terrestrial Ecology

Continued development is anticipated, whether or not the project is constructed. Therefore, forest communities and open spaces would likely be further reduced as these areas are converted to developed land uses. The loss of habitat would further displace animals from the area, forcing them to concentrate into a smaller area, which would cause over-utilization of the habitat. This would ultimately lower the carrying capacity of the remaining habitat and would be manifested in some species as becoming more susceptible to disease, predation, and starvation. The loss of habitat would likely to be slightly higher for Build Alternatives A and C than for the No-Build and Build Alternative D since those alternatives would induce slightly more growth.

Water Quality

The potential indirect impacts on water quality from the proposed alternatives would include water quality degradation from roadway-induced development. Construction of roads, buildings, and parking lots reduces the ability of land to absorb and filter rainwater, resulting in a higher potential for contaminated runoff to directly enter streams and other surface waters. New residential and other development would also result in additional discharges from sewer treatment facilities into surface water bodies. The contributing factors to water quality degradation include sediment runoff from precipitation events during construction, and the increased amounts of pollutants that could be introduced into the waters of the US as a result of the increased amount of impervious surfaces.

The application of erosion and sediment control plans and the implementation of BMPs during roadway and other construction could help to minimize impacts to water quality.

Wetlands

The proposed Build Alternatives would induce slightly more new development than the No-Build Alternative. Indirect impacts to wetlands could occur as undeveloped land is developed. Typically, as undeveloped land is required for development, wetlands are often filled and/or encroached upon to accommodate this development. However, a review of the National Wetland Inventory (NWI) maps indicate that the majority of the wetland habitats are primarily located along the Little River corridor with only small wetland seeps or man-made open water bodies occurring within the area that would likely be developed. It is probable that the past land uses have altered the local hydrology and caused the reduction in wetland communities. Therefore, indirect impacts to wetlands from the proposed project

would be minimal given the small number of existing wetland acres within the proposed project area.

In addition, federal, state, and local regulations, such as Section 404 of the Clean Water Act, would offset some of the anticipated indirect impacts associated with the proposed project. Section 404 of the Clean Water Act, a federal regulation, is administered and enforced by the USACE and would require entities seeking to impact jurisdictional waters of the US to obtain various permits prior to impacting these resources. These permits require the use of minimization measures and obtaining some form of mitigation for impacting jurisdictional waters of the US.

Threatened and Endangered Species

The primary indirect impact that the proposed project could have on the listed protected aquatic species is the potential to increase silt and sediment within stream channels. This introduction of silt and sediment to the Little River tributaries could migrate to the main channel of the Little River where there are known occurrences of the listed protected aquatic species.

Increased development could result in the removal of trees that potentially provide summer roosting habitat for the Indiana bat.

3.16.6 Cumulative Impacts

3.16.6.1 Reasonably Foreseeable Future Projects

Identified future land use within the area includes projects in the TPO's 2008–2011 Transportation Improvement Program (TIP), projects in the TPO's 2009–2034 Regional Mobility Plan, and other private and public projects. These projects are identified below:

Projects in the TPO's 2008 – 2011 Transportation Improvement Program (TIP)

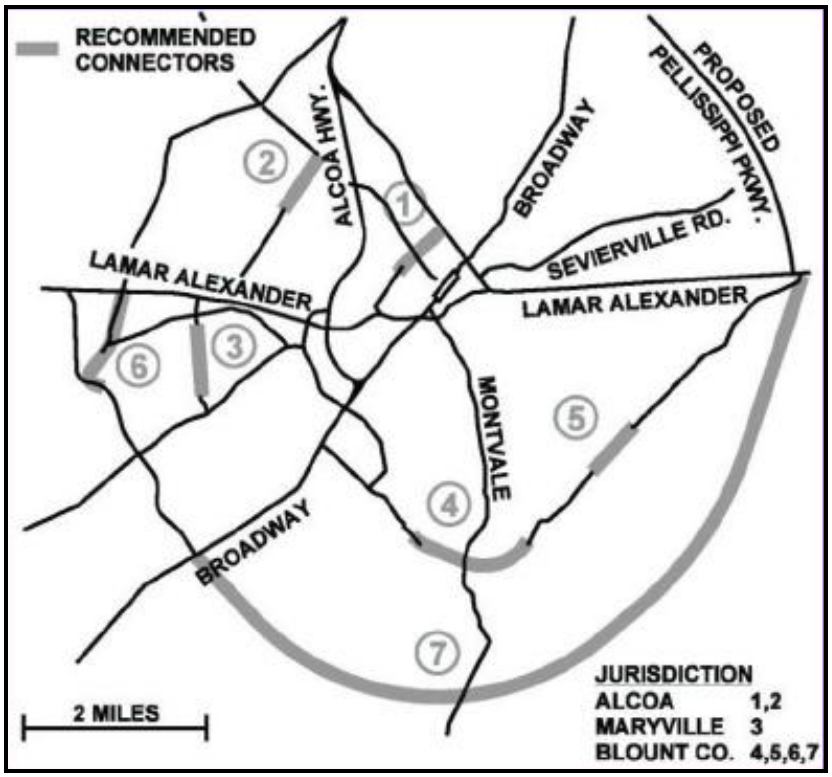
- Alcoa Highway Bypass (Relocated Alcoa Highway) – TDOT and the TPO are currently investigating the feasibility of constructing a bypass of Alcoa Highway (US 129/Alcoa Highway) from near Hall Road to South Singleton Station Road to allow through traffic to bypass the extensive commercial area known as the Motor Mile. This roadway is also referred to as Relocated Alcoa Highway. The existing road currently serves multiple purposes including providing local business access; carrying traffic to and from the McGhee Tyson Airport; serving as the primary commuting route to and from Knoxville; and providing access from the I-40/Knoxville area and points west to the southern end of the GSMNP and nearby recreational opportunities. As Blount and Knox counties have continued to grow, these contrasting priorities for the roadway have adversely affected safety and capacity on US 129/Alcoa Highway.
- Alcoa Highway Improvements – This project includes improving US 129/Alcoa Highway from I-140 to south of Little River from four lanes to six lanes. The TIP includes improvements to two other sections of US 129/Alcoa Highway – from Woodson Drive to the bridge over the Tennessee River, and from north of the bridge over Little River to Maloney.
- Foothills Parkway – This project would complete the construction of the 1.6-mile missing link in the 16-mile unopened section of the Foothills Parkway between US

321/SR 73 in Walland and US 321 in Wears Valley, described in Section 3.8.1. The unopened sections of the Parkway on either end of the missing link have been constructed and would only require paving and miscellaneous work to be open to traffic. If funding is available, the roadway could be opened to traffic by 2016. Figure 3-12 illustrates these sections.

Projects in the TPO's 2009 – 2034 Regional Mobility Plan:

- Peppermint Road from Wildwood Road to US 411/Sevierville Road – This project proposes to reconstruct this section of Peppermint Road. The timeframe for this project is 2015 to 2024.
- Corridors 1-7 – These projects were initially proposed in the 2005 *Blount County Growth Strategy* developed by Hunter Interests, Inc. Corridors 1-5 would create a series of circumferential roads to help improve circumferential connectivity around Maryville (Figure 3-20). Corridor 7 would create a two-lane southern loop that would serve as a bypass of Maryville for through traffic. This project would be approximately 13 miles long on new location. Corridors 1 and 6 propose to reconstruct existing two-lane sections of roadway. Corridor 2 proposes to construct a new five-lane road. Corridors 3, 4, and 5 propose to construct new two-lane roads. The proposed timeframe for Corridor 2 is 2009–2014. For Corridors 1, 3 and 5, the proposed timeframe is 2015–2024, and for Corridors 4, 6, and 7, the proposed timeframe is 2025–2034.

Figure 3-20: Proposed Circumferential Corridors



Source: 2005 Blount County Growth Strategy, Hunter Interests, Inc.

Other Projects

- Pellissippi Place Research and Technology Park – The cities of Alcoa and Maryville, and Blount and Knox counties have partnered to facilitate the development of the new 450-acre Pellissippi Place, a mixed-use development on the southeastern side of SR 33, immediately across from the current terminus of Pellissippi Parkway (I-140). Pellissippi Place is intended to complement the high-tech environment of the Oak Ridge National Laboratory in Knox County, providing space for high-tech business and research firms, as well as retail and residential uses. Groundbreaking for the park occurred in late 2008, and as of January 2010, most of the infrastructure was in place. The first phase of the project is 80 to 100 acres and will be almost exclusively research and technology enterprises.

  Employment in the Pellissippi Place complex is estimated to reach about 7,400 employees by 2030. Local officials see the extension of Pellissippi Parkway as an important component in the financial viability of the park. Preliminary plans for the development anticipate the completion of Pellissippi Parkway, as the Research Park was conceived during the preparation of Pellissippi Parkway Environmental Assessment in 2002.

3.16.6.2 Potential Cumulative Impacts

Land Use

Cumulative impacts on land use could vary significantly depending on whether the growth policies and strategies put in place by Blount County, Alcoa and Maryville are followed. If the policies are followed, most new residential and nonresidential development will be focused inward towards designated growth areas, thus reducing the amount of new development in the areas targeted for preservation and lower-density development. This is critical given the fact that the development of a series of circumferential roads on the south side of Maryville is proposed in the LRTP. If Smart Growth land use policies are not followed, then residential and commercial development could spread outside the areas targeted for growth. This is true regardless of whether the No-Build Alternative or one of the Build Alternatives is chosen.

Social and Economic Resources

As with land use, cumulative impacts on social and economic resources could vary substantially depending on whether the growth policies and strategies put in place by Blount County, Alcoa and Maryville are followed. If growth occurs outside the areas targeted for growth, the county could experience increased cost to maintain services.

Opportunities for potential social and economic growth of the area would be improved as the road network is improved, facilitating connections not only within the study area but regionally as well. The construction of the Pellissippi Parkway Extension, in combination with the other proposed transportation improvements, would help to make travel in the area more efficient, helping to reduce travel times and making it easier for tourists to navigate the area.

Farmlands

Cumulative impacts on farmland could be substantial, particularly if the local growth policies are not enforced. The proposed future transportation projects, coupled with completion of the Pellissippi Place Research and Technology Park, could spur a greater increase in

growth than currently anticipated, resulting in increased demand for developable land. This could accelerate the rate of decline in the amount of farmland within and outside the UGBs.

Cultural Resources

Adverse cumulative impacts on historic resources are likely, whether or not the Pellissippi Parkway Extension project is constructed. The number of documented potentially historic buildings in the project area has declined since 1982: over half of the buildings documented in 1982 were no longer standing in 2008. This is due in large part to increased development pressure and a lack of protection for historic resources when federal funding is not involved. While the proposed future roadway projects would be required to avoid or mitigate impacts to historic structures, the residential and commercial development likely to occur with these projects does not have these requirements.

Recreational Resources

The increased efficiency of the transportation network could reduce travel times for visitors traveling to the GSMNP, Cades Cove and Foothills Parkway. Reducing travel times could potentially increase visitation to these places by making them easier to access. Increased residential growth that is expected to occur in Blount County may also result in increased visitation by placing more people closer to these resources.

Visual Resources

Continued development is expected whether or not the project is constructed. The cumulative impact of development anticipated to occur whether or not the project is constructed, and the development anticipated to occur as an indirect result of any of the project Build Alternatives, will be the continued change of the visual landscape to more suburban scenery. Currently, Blount County, Alcoa and Maryville do not have ridgetop ordinances that would prevent development from occurring on the ridges. As a result, development could potentially spread to nearby mountaintops, resulting in visual interruptions of previously unbroken ridgelines. Ridges within the Great Smoky Mountain National Park to the south are protected from development since they are within the park.

Air Quality

The cumulative effect of the past, present and reasonably foreseeable actions described in this section should not adversely affect air quality in the region. The proposed project as well as other transportation projects is included in the *Regional Mobility Plan*. The conformity determination conducted for the *Regional Mobility Plan* has confirmed that the ozone-forming emissions from on-road mobile sources are projected to be less that the amount of allowable emissions though the study period.

Mobile Source Air Toxics (MSAT) emissions are expected to be lower than present levels by 2035 as a result of EPA's national control programs that are projected to reduce annual MSAT emissions by 72 percent from 1999 to 2050. Local conditions may differ from these national projections in terms of fleet mix and turnover, VMT growth rates, and local control measures. However, the magnitude of the EPA-projected reductions is so great (even after accounting for VMT growth) that MSAT emissions in the study area are likely to be lower in the future in virtually all locations regardless of whether the No-Build or Build alternatives are implemented.

Climate Change

Climate change, also referred to as global warming, is an increase in the overall average atmospheric temperature of the earth due to the trapping of heat in the atmosphere by greenhouse gases. The primary greenhouse gas emitted by human activities in the US is carbon dioxide (CO_2), which represents approximately 85 percent of total greenhouse gas emissions.

Transportation sources contribute to global warming through the burning of petroleum-based fuel. According to the FHWA, transportation sources are responsible for approximately one-quarter of the greenhouse gas emissions in the US. Automobiles and light-duty trucks account for almost two-thirds of emissions from the transportation sector and emissions have steadily grown since 1990.

Emissions from transportation sources depend on the number of trips or miles traveled by each type of vehicle each year, which are, in turn, influenced by larger economic trends and consumer behavior. Over the long term, changes in vehicle fuel efficiency, driving behavior, and fuel type will influence the level of emissions.

Under the Clean Air Act, the EPA has the authority to establish motor vehicle emissions standards for CO_2 and other greenhouse gases although such standards have not yet been established.

FHWA is actively involved in efforts to initiate, collect, and disseminate climate-change-related research and to provide technical assistance to stakeholders. The FHWA is also involved in climate change initiatives with the USDOT Center for Climate Change and Environmental Forecasting.

Climate change and related effects are complex and global in nature. As a result, the impacts of any single transportation project cannot be effectively estimated in terms of global warming effect. However, the emissions changes due to individual projects are very small compared to global emissions.

Once standards are established and guidance for assessing the potential greenhouse gas effects of transportation projects becomes available, a more in-depth assessment may be possible.

Noise

Implementation of the No-Build and Build Alternatives would result in potential cumulative noise impacts when combined with other potential development and transportation projects expected to occur in the reasonably foreseeable future. It is probable that new commercial and residential development would result in increased ambient noise levels. This development would likely result in increased traffic volumes in the area, which would likely increase noise levels in some areas.

Floodplains

The proposed project would likely contribute to the overall impacts to floodplains that have occurred and are occurring within the area. The impacts would result from additional roadway crossings and the increased development likely to occur. However, some of the projected impacts would be offset by the roadway design and by the federal, state, and local regulations that limit development within floodplain areas.

Hazardous Materials

Cumulative impacts related to hazardous materials are not expected to be adverse. Public and private developers are required to comply with all applicable laws and regulations concerning the removal of toxic or hazardous materials, including USTs. Construction contractors would be required to follow local, state, and federal requirements in the storage and handling of hazardous materials. More stringent environmental regulations placed on new developments, including new USTs would also help to reduce potential adverse impacts from hazardous materials.

Terrestrial Ecology

Forested acres in the area are minimal due to the historic and current agricultural and residential land uses. Residential and commercial development is anticipated to continue in the area, particularly as the future proposed projects are constructed. The greatest impact of this growth is the conversion of the agricultural fields and pastures to residential subdivisions and commercial strips. The cumulative effect on the terrestrial ecology is the continued overall loss of open spaces (i.e., agricultural fields and pastures) and forested acres that provide habitat for terrestrial species.

Water Quality

The cumulative impacts on water quality resulting from the indirect effects of the proposed alternatives, in combination with future land development and transportation projects, would have the potential to cause the additional degradation of water quality. Storm water runoff from new developments could contain oil, grease, pesticides, and other chemicals, which could be carried to water bodies. Poor water pollution abatement control measures during and after construction of developments could increase erosion, sedimentation, and total suspended solids. New residential and other development would also result in additional discharges from sewer treatment facilities into water bodies. However, some of the projected impacts would be offset by the roadway design and by the federal, state, and local regulations that require erosion and sediment control plans, the implementation of BMPs, and various water quality permits that require water quality monitoring.

Wetlands

Prior to 1972, there was no legislation regulating the filling of waters of the US; therefore, the nation experienced a massive reduction in wetland acres due to filling and draining of these natural resources. One of the most significant contributors to wetland loss was from the agricultural industry, where wetland areas were considered “useless,” and therefore, wetlands were drained, filled, and converted into a “useful” resource. The important role wetlands have in providing flood abatement, wildlife habitat, and improving water quality was finally recognized in 1972 by the amendment of the Clean Water Act.

As in most of the eastern US, the project area has experienced significant land use changes over the years, which has reduced and degraded wetland communities within the region. Agricultural land use within the project area has virtually eliminated large contiguous wetland communities that may have existed prior to the settlement of the area. Current development trends indicate that the area will continue to experience changes in land use as Maryville and Alcoa expand to accommodate growth. Therefore, the existing wetland acres within the proposed project area are likely to be affected by development facilitated by the proposed project and the development that currently exists, as well as developments that are underway and anticipated.

At this time it is difficult to predict the overall impact that the development facilitated by the proposed project and other developments may have on existing wetland communities. However, cumulative impacts to wetlands would be minimized given the numerous federal, state, and local regulations that would minimize or offset the overall cumulative impacts to wetlands within the region. These impacts would be offset by the required compensatory mitigation that would take place within or adjacent to the Watts Bar Lake watershed. The current NWI maps indicate that approximately 27.8 acres of wetland habitat occurs along the Little River corridor (adjacent to the proposed project area), which could be used as compensatory mitigation in the form of preservation, enhancement, restoration, or expansion of existing wetlands (i.e., creation). Therefore, given the required permits and the protective measures that must be adhered to, the cumulative impacts of the proposed project and the anticipated development would not significantly contribute to the loss of wetlands within the proposed project area.

Threatened and Endangered Species

Prior to the Endangered Species Act (ESA) of 1973, there was no legislation that gave federal protection to plant and animal species that were in danger of becoming extinct. Without this legislation, many plant and animal species with specific habitat requirements and/or are sensitive to various forms of disturbance became extinct or were significantly reduced in number. A major contributor to plant and animal extinction is loss of habitat, which is typically attributed to conversion of land use from its native state. Such land use conversions have taken place in this region of Tennessee with agriculture being the major land use type. However, current trends indicate a conversion of land use from agriculture to residential, commercial, and/or industrial as the region experiences an increase in population.

Development is predicted to continue in this area and would likely contribute to this trend of land use conversion. It is unlikely that the proposed project would have any cumulative effects on federal and state protected species. The proposed alternatives and area of influence does not represent suitable habitat for any of the listed federal and state protected species. Furthermore, field surveys resulted in a finding of “no effect” for the Tennessee cave salamander and the Appalachian bugbane. The 2001 Biological Assessment resulted in a “not likely to adversely affect” determination call for the ashy darter, longhead darter, snail darter, duskytail darter, fine-rayed pigtoe, and Indiana bat. The determination of effects decisions were based on lack of potentially suitable habitat, absence of individual federal or state protected species, and information provided by Dr. David Etnier and Mr. Steven Ahlstedt, USGS, and Mr. Lee Barclay, field supervisor (USFWS). In addition, federal, state, and local regulations would prevent any effects to federal and state protected species that could potentially result from the proposed project or development facilitated by the proposed project. Therefore, the proposed project would have no cumulative effects to federal or state protected species.

3.17 Summary of Environmental Consequences

Table 3-35 summarizes the potential impacts, adverse and beneficial, of the proposed project alternatives.

Table 3-35: Summary of Effects

Impact Category	No-Build Alternative	Build Alternative A	Build Alternative C	Build Alternative D
PROJECT FEATURES				
Total Project Length (Miles)	0.00	4.38	4.68	5.77
Estimated Cost	$0.00	$96,920,000	$104,550,000	$59,500,000
Estimated new ROW (acres)	None	172	187	120
TRANSPORTATION IMPACTS				
2035 Level-of-Service (LOS)	Several sections operate below LOS D	Several sections operate below LOS D	Several sections operate below LOS D	Several sections operate below LOS D
Travel Time Savings from North (minutes)	0	11	11	8
Travel Time Savings from West (minutes)	0	11	11	7
Transit	No effect	Project may have a positive impact on existing bus service and improve travel times for paratransit vans	Same as Alternative A	Same as Alternative A
Pedestrian and Bicycle Facilities	No effect	During design, TDOT will investigate the provision of bicycle and pedestrian facilities within the ROW, as part of a CSS design process.	Same as Alternative A	Widened shoulders could accommodate pedestrians/bicyclists
LAND USE				
Consistency with Local Plans	Not consistent with local/regional plans	Compatible with local and regional land use plans, transportation plans, growth plans, and other public objectives.	Same as Alternative A	Not incompatible with local and regional land use plans and transportation plans, but is not the level of roadway anticipated in local plans.

Table 3-35: Summary of Effects (cont'd)

Impact Category	No-Build Alternative	Build Alternative A	Build Alternative C	Build Alternative D
SOCIAL AND ECONOMIC				
Social/Community Cohesion	No effect	No adverse effects	No adverse effects	No adverse effects
Community Services	No effect	Improved response time for emergency vehicles and school buses	Improved response time for emergency vehicles and school buses. Substantial noise impacts to cemetery and church on Centennial Church Rd.	Improved response time for emergency vehicles and school buses. A minimal amount of ROW required from Eagleton Elementary School – no adverse impacts. Substantial noise impacts to cemetery and church on Centennial Church Rd.
Environmental Justice	No effect	No disproportionately high and adverse effect to low-income or minority persons	Same as Alternative A	Same as Alternative A
Residential Relocations	0	5	26	24
Business Displacements	0	1	2	0
Economic – new jobs created in Blount County/Statewide	0	816 / 1,392	854 / 1,457	307 / 524
FARMLAND				
Acres of Farmland in ROW	0	128	74	45
Farmland as percent of total land in ROW	0	74%	40%	38%
Acres of prime farmland in ROW	0	39	44	23
Total Corridor Assessment Score	0	134	122	127

Table 3-35: Summary of Effects (cont'd)

Impact Category	No-Build Alternative	Build Alternative A	Build Alternative C	Build Alternative D
CULTURAL RESOURCES				
Architectural/Historic	No effect	No effect on historic resources	No effect on historic resources	No adverse effect on NRCP-listed Sam Houston Schoolhouse
Archaeological	No effect	5 potentially eligible sites, requiring Phase II investigation	5 potentially eligible sites, requiring Phase II investigation	1 potentially eligible site, requiring Phase II investigation
Recreational Resources	No effect	No effect	No effect	No effect
Section 4(f) and Section 6(f) Resources	No effect	No effect	No effect	No effect
Aesthetics and Visual	No effect	Moderate effect	Moderate effect	Minimal to moderate effect
AIR QUALITY				
Vehicle Miles Travelled	4,119,455	4,226,278	4,226,278	4,139,386
% Change in Regional Pollutant Emissions Burden over No-Build	--	1 to 4%	1 to 4%	0 to 1%
Violations of NAAQS	none	none	none	none
TRAFFIC NOISE				
Receptors Approaching or Exceeding Noise Abatement Criteria	33	39	46	46
Receptors with Substantial Increase over Existing Levels	0	56	86	25
Total Receptors Affected	33	83	110	64

Table 3-35: Summary of Effects (cont'd)

Impact Category	No-Build Alternative	Build Alternative A	Build Alternative C	Build Alternative D
PHYSICAL ENVIRONMENT				
Geology	No effect	Sinkholes present – Subsurface investigation recommended	Same as Alternative A.	Same as Alternative A.
Hazardous Materials	No effect	Two potential contamination sites – one site would require Level 2 Contamination Assessment	Two potential contamination sites that would require a Level 2 Contamination Assessment	Three potential contamination sites – one site would require a Level 2 Contamination Assessment
Floodplains (acres)	No effect	6.9	9.0	8.1
Energy	No effect	No adverse effect	No adverse effect	No adverse effect
NATURAL RESOURCES				
Perennial Streams (Linear Feet)	0	1,760	1,520	506
Intermittent Streams (Linear Feet)	0	1,458	1,074	377
Wet Weather Conveyances (Linear Feet)	0	841	415	1,424
Ponds (Acres)	0	0.4	0.4	0.1
303(d) listed streams (number)	0	3	3	2
Wetlands (Acres)	0	1.0	0.9	0
Federally Threatened or Endangered Species and State-Listed Species	No effect	"Not likely to adversely affect" six species, "No effect" on two species	Same as Alternative A.	Same as Alternative A.
Construction	No effect	Minor and temporary construction related impacts include traffic detours, utility disruptions, and increased noise levels. Use of BMPs would avoid or minimize potential adverse impacts.	Same as Alternative A.	Same as Alternative A.
Permits	None required	NPDES, ARAP, Section 404, TVA 26a permit	Same as Alternative A.	Same as Alternative A.

4.0 PUBLIC INPUT AND AGENCY COORDINATION

The public, agencies, and other stakeholders have been given opportunities to provide input on the development of the Purpose and Need, Study Area, Alternatives to Be Evaluated, and Issues to be Considered in this DEIS. The efforts for public involvement and agency coordination are described in this chapter, as are the disposition of the comments received.

4.1 Project Initiation and Coordination

4.1.1 Project Initiation and Notice of Intent

On April 17, 2006, TDOT formally notified the FHWA in writing of its intent to initiate the NEPA EIS process for this project.

Following the project initiation, a *Notice of Intent (NOI) to Prepare an EIS*, as required by CEQ regulations 40 CFR 1501.7, was prepared. The NOI was published in the *Federal Register* on April 25, 2006. Notification of the preparation of the EIS was also published in project area newspapers (*Knoxville News Sentinel* and Maryville's *The Daily Times*), along with an announcement of two public Scoping Meetings.

4.1.2 Coordination Plan

A project-specific Coordination Plan (Plan) was developed to define the process by which information about the project would be communicated to the cooperating, participating and other agencies and to the public. The Plan also identified how input from agencies and the public would be solicited and considered.

The Plan has been reviewed and updated throughout the project to reflect changes and new information. The Plan has also been posted on the project website, **www.tdot.state.tn.us/pellissippi/involvement.htm**

4.1.3 Initial Coordination Packages

TDOT prepared an Initial Coordination Package that was distributed on May 1, 2006 to approximately 58 agencies, officials, and organizations. The coordination package was distributed to other agencies, officials and/or organizations beyond that date as they were identified. The packages included a transmittal letter, a project summary and a project vicinity map. The project summary identified the preliminary purpose and need for the project, potential alternatives to be considered, traffic counts on specified roadways and examples of environmental concerns that would be considered during the EIS process.

Agencies and organizations receiving the initial coordination packages are listed below. Those agencies that agreed to be a cooperating agency for this project have a "**C**" designation after their name, and those agencies with a "**P**" designation have agreed to be a participating agency.

- **Federal Agencies:**
  - Tennessee Valley Authority (TVA) (**C**) (**P**)
  - US Army Corps of Engineers (USACE) (**C**) (**P**)
  - Advisory Council on Historic Preservation
  - Appalachian Regional Commission
  - Federal Aviation Administration (FAA) – Memphis Airports District Office (**P**)
  - Federal Emergency Management Agency (FEMA)
  - Federal Energy Regulatory Commission (FERC) (**P**)
  - US Department of Agriculture (USDA) – Forest Service (**P**)
  - USDA– Cherokee National Forest
  - USDA – Natural Resources Conservation Service (NRCS) (**P**)
  - US Department of Housing and Urban Development (HUD) (**P**)
  - US Department of the Interior (USDOI) – US Fish and Wildlife Service (USFWS) (**P**)
  - USDOI – Great Smoky Mountains National Park (GSMNP) (**P**)
  - USDOI – Office of Environmental Policy and Compliance (**P**)
  - USDOI – US Geological Survey (USGS) (**P**)
  - USDOI – Office of Surface Mining
  - US Environmental Protection Agency (EPA) (**P**)
  - US Department of Commerce – National Oceanic and Atmospheric Administration
- **State Agencies:**
  - Tennessee Department of Environment & Conservation (TDEC) (**P**)
  - TDEC – Division of Air Pollution Control
  - TDEC – Division of Ground Water Protection
  - TDEC – Division of Solid and Hazardous Waste Management
  - TDEC – Division of Water Supply
  - TDEC – Tennessee Division of Natural Heritage
  - Tennessee Historical Commission/State Historic Preservation Office (SHPO)
  - Tennessee Department of Economic and Community Development

Cooperating and Participating Parties

Cooperating Agencies are those governmental agencies specifically requested by the lead agencies (FHWA and TDOT) to participate during the environmental evaluation process for the project because of their jurisdictional authority, special expertise, and/or statewide interest. Cooperating agencies for this project are identified with (**C**) in the list to the left.

Participating Agencies are federal, state and local governmental agencies that "may have an interest in the project." FHWA and TDOT invited agencies to participate in the project. Those that accepted the invitation to be a participating agency for this project are identified with a (**P**) in the list to the left.

- Tennessee Department of Agriculture
- Tennessee Department of Education
- Tennessee Department of State – Tennessee State Library and Archives
- Tennessee Wildlife Resources Agency (TWRA) (**P**)

- **Local Agencies:**
  - Knoxville Regional Transportation Planning Organization (TPO) (**P**)
  - City of Maryville Mayor
  - City of Alcoa Mayor
  - City of Rockford Mayor
  - Blount County Mayor
  - Blount County Planning Department
  - Knoxville Area Transit
  - East Tennessee Development District

- **Organizations:**
  - Blount County Genealogical and Historical Society
  - Blount County Historian
  - Blount County Public Library
  - Citizens Against Pellissippi Parkway Extension (CAPPE)
  - NAACP – Knoxville Chapter
  - Smoky Mountain Historical Society
  - Sierra Club
  - Tennessee Environmental Council
  - Tennessee Trails Association
  - Tennessee Wildlife Federation
  - The Nature Conservancy
  - World Wildlife Fund

- **Section 106 Consulting Parties:**
  Section 106 of the National Historic Preservation Act requires the federal agency or its designee (in this case TDOT) to identify the appropriate parties that need to be involved in the process of identifying effects of a proposed project on historic resources and working through the process with such parties. This "involvement" is referred to as "consultation." As a part of the consultation requirements for Section 106, a separate initial coordination package was sent to six parties with interests in historical and archaeological issues. The Blount County mayor was invited to request status as a Section 106 consulting party, as were five Native American Tribes:

- Cherokee Nation;
- Eastern Band of Cherokee Indians;
- Eastern Shawnee Tribe of Oklahoma;
- Shawnee Tribe; and
- United Keetoowah Band of Cherokee Indians.

4.2 Agency Input

4.2.1 Agency Coordination

Five participating agencies (including the two agencies identified as cooperating) and seven other agencies responded to the Initial Coordination Package. Table 4-1 summarizes the comments received and their responses during early coordination. In addition, copies of the agency responses are found in Appendix A.

Table 4-1: Agency Responses to Coordination

Agency	Date	Comment	Response
Federal Agencies			
TVA	5-18-2006	Several alternatives appear to require approvals under Section 26a of the TVA Act for Little River tributary streams. TVA is interested in potential impacts to the project on Little River.	TVA was invited to be a cooperating and a participating agency for this DEIS. Stream impacts were identified and addressed in the DEIS.
USACE	5-16-2006	Project would likely affect unnamed tributaries to Little River as well as their wetlands. Such areas are subject to Section 404 jurisdiction. Little River is also considered a navigable water and is subject to Section 10 of the Rivers and Harbors Act of 1989. Both qualitative and quantitative assessment of the aquatic resources potentially affected should be documented. DEIS should also include discussion of measures to avoid/minimize impacts to waters.	USACE was invited to be a cooperating and a participating agency for this environmental document. Stream impacts are identified and addressed in the DEIS, and the DEIS includes a measure to avoid and mitigate impacts to streams.
FAA	7-30-2008	If the chosen alternative is within six miles of a public use airport, the FAA should be informed of the nature of the construction, and submit FAA Form 7460-1.	The northern half of the project area is within six miles of the McGhee-Tyson Airport in Alcoa. Coordination with the FAA will occur during design of the Selected Alternative.

Table 4-1: Agency Responses to Coordination (cont'd)

Agency	Date	Comment	Response
Federal Agencies			
USDOI – Great Smoky Mountains National Park	3-11-2008	Most concerned with traffic and air quality impacts. Request that the traffic analysis for the proposed alternatives include the Foothills Parkway and the Park. Traffic analysis should look at whether the Pellissippi Parkway Extension will increase the number of visitors coming into the Park from that direction. Can the Park expect more entries through the Townsend Entrance versus the Gatlinburg Entrance? Air quality impacts to the Park and the Foothills Parkway should also be analyzed as part of this project.	The traffic analysis for the proposed project alternatives indicates that the Build Alternatives will not substantially increase the number of travelers accessing the GSMNP via the Townsend entrance. The analysis showed that with the project there would be about 12% higher volumes in 2015 on US 321/SR 73 east of Tuckaleechee Pike, and less than 4% higher volumes east of Foothills Parkway, compared with the No Build Alternative. The Air Quality analysis indicates that the project is not predicted to cause or exacerbate a violation of the NAAQS.
NRCS – Clinton Soil Survey	5-31-2006	There are no hydric soils in the proposed area. The proposed project crosses soil delineations that meet the criteria as prime farmland. Farmland Conversion Impact Rating (FCIR) assessment was attached.	On April 27, 2009, TDOT was advised by NRCS that the FPPA of 1981 does not apply to projects within urban growth boundaries. Farmlands in the project area do not fall under the FPPA requirements since the project alternatives are contained entirely within the designated urban growth boundary (UGB) for Maryville and Alcoa.
NRCS (State Conservationist)	6-13-2006	Project appears to have a negative impact on 56 acres of prime farmland. There are highly erodible soils along route so use proper care to stabilize cuts/grades to protect water quality. Construction in karst areas result in sinkhole collapses resulting in damage to groundwater aquifers.	Soils and ecological studies were conducted as part of the DEIS. Results of the studies have been used in the evaluation of alternatives and will be used in the design and construction of the Selected Alternative.
NRCS (Resource Soil Scientist)	1-9-09	Project alternatives will convert between 23 and 44 acres of prime farmland. The letter provided Form-NRCS-CPA-106 to document that determination. Project alternatives will cross several units of hydric soils, which may or may not meet all the requirements of wetlands.	The Form NRCS-CPA-106 has been completed and is included in Appendix A. The impacts to farmlands are discussed in the DEIS. Wetland impacts are addressed in the DEIS.

Table 4-1: Agency Responses to Initial Coordination (cont'd)

Agency	Date	Comment	Response
Federal Agencies continued			
NRCS (State Conservationist)	1-14-2009	NCRS has Wetlands Reserve Program (WRP) easements or agreements in the project corridor. Recommend an assessment of impacts associated with the loss of riparian habitat as part of the stream buffer assessment, whether there is a scenic landscape concern, and expansion of efforts to have potentially impacted low income residents involved as part of Environmental Justice.	Assessments of riparian habitat loss, impacts to scenic landscapes, and Environmental Justice communities are discussed in the DEIS.
State Agencies			
Tennessee Historical Commission	5-8-2006	Project may affect properties that are eligible for listing in the National Register of Historic Places.	Historic Architectural and Archaeological surveys have been conducted for the alternatives.
Tennessee Department of Economic & Community Development	6-9-2006	There is a project to purchase a 450-acre tract and develop it into a technology industrial park at the current end of the parkway at SR 53. Project goes thorough center of proposed park.	The Pellissippi Place development has been investigated and its potential impacts on this transportation project have been considered, as have the project's impact on the new development.
TDEC – Tennessee Division of Natural Heritage	5-8-2006	There are listed species within a mile of the project area and in Little River ½ mile east of the extension. Use Best Management Practices (BMPs) to protect sensitive areas.	BMPs will be required during construction of any project emerging from this study.
TDEC – Division of Ground Water Protection	5-5-2006	The project may affect existing subsurface sewage disposal systems located along the proposed route.	The design of the selected alternative will consider existing ground water systems.
TDEC – Division of Air Pollution Control	5-15-2006	Project is in non-attainment for ozone and $PM_{2.5}$ and is subject to Chapter 1200-3-34. Requirements of 1200-3-34 are met. Address the control of fugitive dust and equipment exhaust emissions during the construction phase and assure that any structures requiring demolition are asbestos free per requirements of Chapter 1200-3-11, Hazardous Materials.	An air quality study has been conducted for this project and is reported in this DEIS. The Knoxville Area Interagency Consultation (IAC) has confirmed that this is not a project of air quality concern. The requirements raised by the TDEC are standard air quality requirements and will be incorporated in construction contracts and plans.

Table 4-1: Agency Responses to Initial Coordination (cont'd)

Agency	Date	Comment	Response
State Agencies continued			
TDEC – Division of Water Pollution Control	6-8-2006	Several streams will be affected by the project. Some of these streams are on the state's 303(d) list. An assessment of all water resources must be made prior to construction. An ARAP* will be needed if any alteration to waters of the state are made. Coverage under TNCGP** will be needed for any land disturbance of one acre or more. Erosion and sediment control measures must be installed and maintained. Adherence to TDOT's Municipal Separate Storm Sewer System permit is expected.	TDOT will conduct an assessment of all water resources and will apply for all required permits. BMPs will be followed during construction.
TDEC – Division of Water Supply (*Ground Water Management section*)	5-15-2006	Project located in vicinity of two water supply intakes along Little River. Water systems should be notified a minimum of one week prior to construction in the area. Erosion controls must be installed. Construction and drainage around/through sinkholes must be addressed, which is regulated under Underground Injection Control (UIC) Program. Contractor must be aware of private wells in area to prevent contamination.	BMPs will be required during construction of any project emerging from this study.
TWRA	5-15-2006	Project could result in environmental impacts associated with stream and wetland impacts that may occur due to construction. Several state- and federal-listed species inhabit the Little River watershed.	Stream impacts are identified and addressed in the DEIS, and the DEIS includes measures to avoid and mitigate impacts to streams and the habitat of listed species.
Regional Agencies			
Knoxville Regional TPO	11-16-2006	TPO has an interest in multimodal transportation projects with a regional impact, and, therefore, would like to remain involved and aware of the project's progress.	The TPO is a participating agency and has been included in the Tennessee Environmental Streamlining Agreement (TESA) reviews of Purpose and Need, Alternatives and the Preliminary Draft document.

*ARAP - Aquatic Resources Alteration Permit
**TNCGP - Tennessee General NPDES Permit (TNR100000) for Storm Water Discharges Associated with Construction Activity.

4.2.2 Tennessee Environmental Streamlining Agreement

TDOT has developed the Tennessee Environmental Streamlining Agreement (TESA) for the Environmental and Regulatory Coordination of Major Transportation Projects. In addition to TDOT and the FHWA, signatories to the TESA include eight federal agencies and authorities, two state agencies, and 23 state Metropolitan Planning Organizations (MPOs) and Rural Planning Organizations (RPOs).

For this project, the following agencies are participating in the TESA review process:

- EPA
- Knoxville Regional TPO
- TDEC
- TVA
- TWRA
- USACE
- USDOI – Great Smoky Mountains National Park
- USFWS

At four specific concurrence points in the preparation of the DEIS, those agencies that have agreed to participate in the TESA review process are given the opportunity to review and provide comments on the following items:

- Purpose and Need and Study Area;
- Project Alternatives to be Evaluated in the Environmental Document;
- Preliminary Draft Environmental Document; and
- Preferred Alternative and Preliminary Mitigation.

The TESA participants are sent a detailed package of information for each concurrence point, and asked to provide comments within 45 days. The recipients are asked to sign a form at each point to signal their approval of the documentation in the package in order to move forward to the next project phase. Agencies that do not comment within the 45-day comment period are assumed to concur (pursuant to the conditions of TESA).

TDOT has included TESA participants at the required concurrence points to date, and their comments have been addressed in the DEIS.

4.2.2.1 Concurrence Point 1 - Purpose and Need and Study Area

The Concurrence Point 1 (Purpose and Need and Study Area) package was mailed to the participating agencies on December 19, 2007. The concurrence period ended on February 4, 2008, with all agencies concurring.

4.2.2.2 Concurrence Point 2 - Alternatives to be Evaluated in the DEIS

The Concurrence Point 2 (Alternatives to be Evaluated in the DEIS) package was mailed to the participating agencies on June 11, 2008. All agencies concurred by the end of the concurrence period, July 28, 2008.

4.2.2.3 Concurrence Point 3 - Preliminary DEIS

The Concurrence Point 3 (Preliminary DEIS) package was mailed to the participating agencies on November 6, 2009, with the 45-day period review period ending on December 22, 2009. Two agencies requested a 15-day extension. All agencies concurred by January 6, 2010.

4.2.2.4 Concurrence Point 4 – Preferred Alternative and Preliminary Mitigation

The Concurrence Point 4 (Preferred Alternative and Preliminary Mitigation) package will be submitted after the DEIS is circulated and comments have been received, prior to the approval of the FEIS.

4.2.3 Section 106 Coordination

During early coordination, consulting party invitations were sent by TDOT and the FHWA to the Blount County mayor and five Native American tribes. One tribe (Eastern Shawnee Tribe of Oklahoma) responded, but did not request to be a consulting party at this time. The representative did request that the tribe be notified if any items under the Native American Grave Protection and Repatriation Act (NAGPRA) were discovered during construction. A copy of this response is included in Appendix B.

The SHPO was provided a copy of the *Historical and Architectural Survey and Assessment of Effects Under 36 CFR 800* report to review. In a letter dated May 4, 2009, the SHPO concurred with the finding that the project alternatives would not adversely affect any National Register-listed or eligible properties. Copies of the *Historical and Architectural Survey and Assessment of Effects Under 36 CFR 800* report were also provided to nine local officials, agencies and organizations for consultation. No responses have been received.

The SHPO was also asked to review the *Phase 1 Archaeological Assessment*. In a letter dated, May 20, 2009, the SHPO concurred with the finding that the project area contains archaeological resources that may be potentially eligible for listing in the National Register of Historic Places and recommended avoidance or Phase II archaeological investigation. The *Phase I Archaeological Assessment* was also provided to the Eastern Shawnee Tribe of Oklahoma as part of the consultation process. No comments have been received.

4.3 Public Involvement

4.3.1 Scoping Meetings

Two public scoping workshops were held in Blount County on Tuesday, June 13, 2006, at separate locations within the project area. The purpose of the workshops was to solicit public input on the purpose and need for the project, alternatives to be considered, and community and environmental concerns.

The first public workshop was held at Eagleton Elementary School, located at 708 Sam Houston School Road from Noon to 2:00 P.M. Approximately 75 people attended.

The second public workshop was held at Heritage High School, located at 3741 East Lamar Alexander Parkway from 6:00 P.M. to 8:00 P.M. Approximately 95 people attended.

Both workshops followed the same format. Upon signing in, attendees received a handout providing details on the background of the project, initial purpose and need, alternatives to be considered, potential community and environmental concerns, and a map of the general project area. A narrated video ran continuously throughout each workshop to provide an

overview of the project and the EIS process. Attendees were encouraged to visit one of the setup tables to provide their input on the transportation needs in the area, potential alternatives they would like to see considered, and areas of community and environmental concerns.

Workshop attendees were also encouraged to record their comments with the court reporter present at each of the workshops, and/or to provide written comments using the comment form in the meeting handout.

4.3.2 Scoping Comments

A variety of options was available to encourage public input during the scoping process. The public provided input through the following means:

- Comments to a court reporter at the public workshops;
- Written Comments – comment forms, letters and e-mails; and
- Informal Comments made to TDOT representatives at the public workshops.

During the official scoping period (April 25 through July 5, 2006), 211 public comments were received through the various formats listed above. Because there were a variety of ways to respond, some individuals commented in multiple formats. When the duplicate responses were subtracted, comments were received from 198 different individuals. Of the 198 responses, 57 percent expressed support for a Build Alternative (the extension of Pellissippi Parkway from SR 33 to US 321), while 37 percent expressed opposition to a Build Alternative; six percent of the respondents did not specify their support or opposition to the project.

The scoping period was extended to December 31, 2006 to allow additional comments. Between July 6 and December 31, 2006, 103 public comments were received through the submission of comment forms, letters, and e-mails. Because there were a variety of ways to respond, some individuals commented in multiple formats. When the duplicate responses were subtracted, comments were received from 97 different individuals. Of the 97 responses, 85 percent expressed support for a Build Alternative (the extension of Pellissippi Parkway from SR 33 to US 321) while 10 percent expressed opposition to a Build Alternative; five percent of the respondents did not specify their support or opposition to the project.

Table 4-2 summarizes the transportation needs in the area according to the comment forms received during and after the scoping period.

Table 4-2: Public Input on Transportation Needs

Transportation Need	Number of Comments Received*
Less Congested Roadways	162
Safer Roadways	167
More Direct Routes	303
Other	49

* Comments received will not total to 100% because more than one option could be selected.

Table 4-3 summarizes the issues and concerns expressed on the comment forms received during and after the scoping period.

Table 4-3: Public Input on Issues and Concerns

Issues and Concerns	Number of Comments Received*
Impacts to Environment	80
Impacts to Homes and Businesses	69
Impacts to Agricultural Lands	75
Impacts to Historic/Archaeological Resources	53
Other	40

* Comments received will not total to 100% because more than one option could be selected.

Table 4-4 summarizes the alternatives the public wants TDOT to consider based on the comment forms received during and after the scoping period.

Table 4-4: Public Input on Alternatives to Consider

Alternative Preferred	Number of Comments Received*
No Build	54
Transportation Systems Management	51
Build Pellissippi Parkway	145
Typical Section Preference for a Build Alternative:	
2-lane	4
4-lane	98
5-lane	25
Other	26

* Comments received will not total to 100% because more than one option could be selected.

4.3.3 Alternatives Workshop

On October 25, 2007, from 5:00 P.M. to 8:00 P.M., a public alternatives workshop was held in the project area at the Heritage High School Auditorium. TDOT held this meeting to provide the public with an update on the project since the June 2006 public scoping meetings and to solicit input on the refined purpose and need for the project, as well as on potential project alternatives. The workshop included a formal presentation, breakout groups, and a wrap-up with the full group. Approximately 156 people attended.

The public provided input through comments made to a court reporter at the public workshops and through written comments (e.g., comment forms, letters and e-mails).

During the public comment period (October 25 through November 15, 2007), 234 public comments were received. Because there were a variety of ways to respond, some individuals commented in multiple formats. When the duplicate responses were subtracted, comments were received from 190 different individuals. Approximately 90 percent of respondents who indicated a county of residence stated that they lived in Blount County. Table 4-5 summarizes the comments received at the workshop.

Table 4-5: Summary of Comments Received at October 25, 2007 Alternatives Workshop

Question #1: Should any other transportation needs or purposes be considered; if so, explain?
• Complete the project as originally proposed. • Instead of building the Pellissippi Parkway Extension (PPE), make improvements to the existing roads: Sevierville Road (US 441), Alcoa Highway (US 129), and Broadway Avenue (SR 33). • Improve existing roads before building the PPE. • Consider mass transit as an alternative. • Build and utilize an interconnected system of Greenways and bike lanes.
Question #2: What do you like/dislike about a No-Build Alternative?
• The No-Build Alternative is the most preferred, along with spending the project money to improve existing roadways. • Maintains rural character, protect schools and the community from further overcrowding, and prevent environmental damage. • Not an option, finish what was started. • Dislike, it is important for our community to prosper. • Build an extension to improve traffic flow and safety.
Question #3: What do you like/dislike about Transportation System Management or TSM?
• TSM would lower cost and proven positive outcomes for traffic flow, safety, and reduce impact on quality of life. • SR 33, SR 35, US 411, Morgantown Road, Montvale Road and US 129 should all be wider. • Need to construct frontage roads. • Improve signal timing for SR 33, US 321, and SR 35. • Add traffic lights to SR 33/Sam Houston School Road and SR 162, at the proposed Pellissippi Place site, Dogwood/S. Dogwood, and US 129. • Improvements of Wildwood Road/SR 33/Lincoln Road intersection and we need the cloverleaf intersection where Pellissippi Parkway and Old Knoxville Highway meet. • Improve US 129 by adding service road, by-pass, or give speeding tickets. • Additional signals will slow traffic at SR 33, Dogwood Road, and US 129. • Yes, but complete the extension project in addition to TSM. • TSM would help with traffic flow and safety, but it is not the solution. • TSM would create traffic problems. • Waste of money, this would provide a short-term remedy to all traffic problems.
Question #4: What do you like/dislike about improving existing roadways as a connection between SR 33 and US 321?
• Yes, widen and straighten existing roadways; this would be cheaper and have fewer adverse impacts than the PPE. • Yes, along with completing the PPE. • Traffic signals would help at Sam Houston School Road and US 441. • Improve US 441 by widening roads, improving shoulders and adding turning lanes. • This alternative would help with traffic flow and preserve the rural character of Blount County. • If not PPE, then improve the existing roads. • No, this would send traffic into a heavily populated area and residential areas, and would increase traffic and worsen congestion. • Install red lights where the Pellissippi Parkway meets Old Knoxville Pike, at Davis Ford Road at 411, and at Sam Houston at SR 33. • Widen both Peppermint and Davis Ford Roads. • Wasted money and effort and not solving anything. • Good for local traffic but will not alleviate the overall problem.

Table 4-5: Summary of Comments Received at October 25, 2007 Alternatives Workshop (cont'd)

Question #5: What do you like/dislike about the Build Alternative (extend Pellissippi Parkway to US 321 in a new corridor between SR 33 and US 321)?
• Complete the original corridor as soon as possible, it is a more direct route and less expensive. • The project twill save travel time, gas money and car mileage. • Yes, this will help with traffic flow. • Yes, development will occur regardless of whether the project is built. • The project should end at the R & D Park to minimize impact on residential homes, farms, scenic countryside, historic sites, and schools. • No, any new corridor will lead to urban sprawl, development, more traffic and congestion, pollution, and environmental degradation. • No, our schools do not have room for more students and our water resources cannot handle more consumption. • Change scope of the project to improve existing roads. • No, the project is a short-term solution. • Do not want Maryville to become a bedroom community of Oak Ridge and Knoxville. • The project will cause little to no improvement in traffic flow and congestion. • The alternative (eastern) proposal is unacceptable, as it would take schools, an historic site and residential property, add 2 miles of distance to US 321, and add additional bridges. • The alternate would affect more of the natural and cultural environment. • Complete EIS first and an analysis of economic impacts.
Question #6: What other alternatives do you think would meet the purpose and need of the project?
• Use the Foothills Parkway to East at I-40 near Cosby, TN. • Make improvements to existing roadways instead of building the PPE. • Mass Transportation such as rail and bus systems would alleviate congestion. • Improve Hitch Road by aligning with Peppermint Road at Wildwood Road. • Put shoulders on US 411. • Make improvements to existing roadways along with constructing the PPE. • None, complete the project as planned. • Extend the project straight east from SR 33 to US 411 and then combine it going south to connect with US 321. • More bicycle paths. • Widen SR 33 from Knox County line to Maryville and SR 35 from Maryville to US 321. • Stop development long enough for schools and services to catch-up to the demand. • Need an overpass at US 129 and US 321. • Improve 411 and intersection at Broadway and Washington Street to increase flow into US 321.
Question #7: What other concerns do you have about the project?
• The project will take too long, wasting time and money. • Total commercialization of US 321. • Townsend and Maryville will become the blight that is Pigeon Forge. • What economic impact will the project place on the community? • The project will bring urban sprawl and overpopulation of the community and schools. • The project will destroy the rural character; will destroy families, homes, farmland, and open space. • The project will cause environmental degradation, an impact on wildlife, as well as noise, air and water pollution. • Increase taxes on infrastructure.

4.3.4 Public Information Meeting

A public information meeting was held on February 19, 2008, at the Heritage High School from 5:00 P.M. to 7:00 P.M. The purpose of the meeting was to gather public input on potential project corridors and alternatives. The meeting was also intended to provide the public with an overview of the status of the project and next steps in the environmental process. Local public officials were present to help address questions related to local issues discussed at the alternatives workshop in October 2007. Approximately 550 people attended.

The corridors and alternatives shown at the public information meeting were a result of the input received from the public on the draft purpose and need statement and alternatives to be considered during the June 13, 2006, public scoping meetings, the October 25, 2007, public alternatives workshop, and the comment period following these meetings.

Participants were encouraged to record their comments with the court reporter or to complete comment forms distributed at the meeting. Following the meeting, an electronic version of the comment form was posted on the project Web site.

During the comment period (February 19, 2008, to March 11, 2008), 124 TDOT comment forms were received. Approximately 125 people submitted comments using a comment card handed out by the Blount County Chamber of Commerce. In addition, 62 emails, 21 letters, and two resolutions (described in Section 4.2.5 below) were received. Because there were a variety of ways to respond, some individuals commented in multiple formats. Table 4-6 summarizes the comments received during the comment period.

Input from all the public meetings has been considered and used to refine the Pellissippi Parkway alternatives and to provide additional information for use in the evaluation of environmental impacts.

Table 4-6: Summary of Comments Received for the February 19, 2008 Public Meeting

Question #1: What do you like/dislike about a No-Build alternative?
Reasons for Liking No-Build Alternative: • Like No-Build, but there should be some improvements to existing roads. • Some existing roadways could be improved in the area at certain times of the day. This would be preferable to the Build Alternative, which would take away from farmland and beautiful scenery. • No-Build along with TSM will be the best option. • Prefer No-Build because it would hinder development until we find civic leaders who know what they are doing. I would like to preserve the beauty of the area. • Better alternative than Build Alternative Corridor B. • Yes, why spend millions that do not help out transportation needs. *Reasons for Disliking No-Build Alternative:* • This is not an alternative; the county is in gridlock now. • This option leaves many local citizens in a traffic jam that has long been ignored. If approved, then put up a barricade at Highway 129. • Would stop progress. • Would limit growth and would not help safety or traffic congestion.

Table 4-6: Summary of Comments Received for the February 19, 2008 Public Meeting (cont'd)

Question #2: What do you like/dislike about a Public Transit Alternative?

Reasons for Liking Transit Alternative:

- Yes! Would save fuel, relieve congestion, improve safety and improve environmental quality.
- Should be considered for future use and be incorporated into existing road improvements.
- Shuttle buses that use biofuels could be chartered by groups or put on bus routes that are strategically planned. This would be a more attractive option than adding more roads and attracting more cars.
- Needs to happen regardless of the project.

Reasons for Disliking Transit Alternative:

- Light rail into Knoxville would be worthwhile, as well as mass transit within the Alcoa and Maryville city limits. It will not solve problems with traffic into or out of Blount County cities or the National Park.
- Not feasible for scattered subdivision and rural areas.
- Too costly.

Question #3: What do you like/dislike about Transportation System Management or TSM?

Reasons for Liking TSM Alternative:

- Needed in addition to building the extension.
- This should be done immediately. Let's improve the routes we already have rather than destroy fields and riparian habitats. Add bicycle lanes and pedestrian paths too.
- This would improve traffic flow in an east/west direction. SR 35 would dump traffic on an already over-loaded Route 129, which would not be desirable.
- This will certainly help relieve traffic.

Reasons for Disliking TSM Alternative:

- Will not handle the new traffic loads generated by the growth we are seeing.
- Band Aid approach.
- Totally disruptive and a poor expenditure of public funds.
- Dislike. This would cause traffic to pool rather than flow. Although would be good along with the PPE.

Question #4: What do you like/dislike about upgrading a network of existing roadways as a connection between SR 33 and US 321?

Reasons for Liking Local Road Upgrade Alternative:

- Add Davis Ford Road. As the proposed extension is not to happen for quite some time, upgrades to existing roadways need to be done.
- This is better than new roads, but not sure we should direct more traffic in these residential areas.
- We desperately need improvements of the Hitch/Peppermint Road junction area on Sevierville Road.
- These are all needed, no matter what happens with the project.
- Great solution, this will avoid destroying the quality of life here in beautiful Maryville.

Reasons for Disliking Local Road Upgrade Alternative:

- Not realistic, too expensive.
- Would be nothing more than a temporary fix on a growing future problem.
- This would take county road funds, which are not available.

Table 4-6: Summary of Comments Received for the February 19, 2008 Public Meeting (cont'd)

Question #5: What do you like/dislike about the Extension of Pellissippi Parkway from SR 33 to SR 73/US 321 (Corridor A)?

Reasons for Liking Build Alternative A:

- Long overdue; build now.
- This will alleviate congestion.
- This extension seems the most logical, direct, least costly, and less disruptive.
- In favor of any project that removes congestion and spurs economic growth. Building roads creates jobs and increases tax revenues for the state. Please build.

Reasons for Disliking Build Alternative A:

- Would take farmland; the county needs to control growth and tax increases.
- Does not address or improve current traffic problems on existing routes.
- Would cause serious congestion on weekends at the intersection of 321 and will bring development in Townsend similar to Pigeon Forge.
- The expense, environmental impacts on Little River, and the possibility of disturbing Indian Burials and habitats are too risky for this alternative.

Question #6: What do you like/dislike about the Extension of Pellissippi Parkway from SR 33 to SR 73/US 321 (Corridor B)?

Reasons for Liking Build Alternative B:

- Would alleviate traffic problems.
- Use only if Corridor A cannot be feasibly used.

Reasons for Disliking Build Alternative B:

- This corridor is longer and would impact more farmlands and wetlands.
- This is the worst choice; requires too much disruption of residences and businesses.
- This is not a viable option. It is too dangerous to our schoolchildren, too disruptive to our neighborhoods, and too expensive to be worth it.
- Totally foolish.

Question #7: Are there other potential solutions or corridors that you think should be considered?

- Widen (no turn lanes) US 411 and Mint Road by adding shoulders. Add greenway corridor space to connect Maryville/Alcoa with Knoxville (west and downtown) and with Townsend so people can walk or ride a bicycle.
- Use the eastern portion of the Foothills Parkway to provide an eastern outlet to both the Pellissippi Parkway Extension and US 321.
- Go back to the drawing board and look at the wider range of transportation solutions – not just road building. Don't build any new four-lanes until we know how to manage growth to conserve the assets that make Blount County and East TN a good place to live.
- Engage the US 129 Re-Build.
- Widen SR 33.
- A cloverleaf at the end of the Parkway at Old Knoxville Highway (SR 33) would help fix traffic problems.
- Please do not complicate an already complicated situation by projecting the Southern Loop.
- Reconsider traffic signals at E. Broadway and Wildwood Road.
- Make Cusick Road at I-140 in Alcoa a full interchange, not just an east exit to Cusick.
- The money set aside for the project would be better used for road improvements outlined in the Hunter Interests Growth Study.
- Improving SR 33 and Sevierville Road should be priority #1, not spending millions of dollars on an unneeded project (extending Pellissippi Parkway) when Blount County's schools are in need of funds.
- Redo the traffic study without considering other local projects, which we do not want and cannot afford (Southern Loop).

4.3.5 Resolutions and Other Comments

During this comment period, the City of Rockford and the Blount County Chamber of Commerce each submitted resolutions relating to this project.

The City of Rockford's resolution stated opposition to widening SR 33 in the city limits of Rockford. The resolution urged all roadway planning around the Pellissippi Place development to utilize the Pellissippi Parkway to handle the expected increase in traffic.

The Blount County Chamber of Commerce resolution supported the completion of the project from SR 33 to US 321/SR 73 in Blount County. The resolution was accompanied by a set of comment forms distributed by the Chamber. In total, 125 comment forms were filled out by individuals and mailed in after the workshop. Approximately 85 percent of the comment forms received came from Blount County residents. The Chamber's comment form asked the respondents if they supported the project and to state why they supported or did not support the project. A total of 118 individuals stated they were in support of the project and eight stated they were not in support of the PPE.

4.3.6 Public Hearing

Following the approval of the DEIS for public circulation, TDOT will schedule and advertise a public hearing to solicit public comments. The public will be encouraged to review the document, attend the hearing, and provide input. The final selection of a Preferred Alternative will be made only after consideration of impacts and public hearing comments. A Final EIS will then be prepared.

5.0 LIST OF DEIS PREPARERS

The following persons have contributed substantially to preparation of this DEIS.

Tennessee Department of Transportation	
Michael Russell, P.E.	B.S. in Civil Engineering with 25 years of experience in Transportation including Design, Right of Way, Traffic, Construction, Materials & Test, and Construction prior to the last 8 years in the Project Management Division
Tom Love	B.S. in Agriculture with 36 years of experience in TDOT NEPA documentation
Federal Highway Administration	
Leigh Ann Tribble	B.S. in Civil Engineering with 12 years of experience in NEPA documentation
Parsons Brinckerhoff, Inc.	
Nancy T. Skinner, AICP Project Manager	Master of City and Regional Planning with 25 years of experience in land use planning and NEPA documentation
Valerie N. Birch, AICP Supervising Environmental Planner	Master of Urban and Regional Planning with 19 years of experience in Environmental Planning and NEPA documentation
Meridith C. Krebs Environmental Planner	B.S. in Plant and Soil Sciences/-Environmental Science with six years of experience in NEPA and Natural Resource documentation
Brian M. Reynolds, PE, AICP Traffic and Transportation Engineer	B.E. in Civil Engineering with nine years of experience in planning and design of both public and private transportation facilities
Lindsay Walker, P.E. PTOE Traffic Engineer	B.S. and M.S. in Civil Engineering with six years of experience in traffic and transportation engineering and planning
Alice J. Lovegrove Senior Air Quality Specialist	Master of Environmental and Waste Management with 19 years of experience in environmental engineering emphasizing Mobile Source Air Quality modeling
Edward Tadross Air Quality Specialist	B.A. in Earth Sciences and Environmental Studies with 12 years experience in environmental planning, specializing in air quality and noise studies
Byron Pirkle Noise Specialist	B.A. in Marketing with 17 years of experience in air quality analysis and highway-generated noise abatement procedures
Ira Hirschman, Ph.D. Senior Economist	Doctor of Urban and Regional Planning and Master of Economics with 27 years of experience in transportation economics and finance
David Greenblatt Economist	M.C.P. in International Development with nine years of experience in urban economics and financial analysis for real estate and transportation project development
Sonika Sethi Economist	Master of Transportation Systems and Analysis with four years of experience in financial and economic evaluation of infrastructure systems and their impacts
Robbie D. Jones Historic Preservation Specialist	Master of Historic Preservation with 17 years of experience in Architectural History and Historic Preservation
Jon Sell Ecologist and Contamination Specialist	B.S. in Environmental Science with 10 years of experience in environmental surveys, permitting, and NEPA documentation
Jennifer Dudley Environmental Planner	M.S. in Urban Policy Planning: Economic Planning and Development with eight years of experience in NEPA documentation.
Travis Garnto Ecological Planner & Graphics	B.S. in Biology with three years of experience in environmental surveys, permitting, and GIS

Parsons Brinckerhoff, Inc. (cont'd)	
M. Emery Hartz Environmental Planner	B.S. in Environmental Science/Geography with two years of experience in GIS
Michelle Kendall, AICP Senior Land Use Planner	Master of Urban Studies with 12 years of experience in land use planning and transportation planning
Matt Coffin GIS analyst	B.S. in Geography/Environmental Studies with eight years of experience in GIS and two years experience in noise abatement procedures
Panamerican Consulting	
Drew Buchner	Master of Mid South Cultural Resources Management (CRM) with 20 years of experience in all phases of CRM work (Phase I, II, and III)
Daniel Cane	Master of Anthropology with 14 years of experience in Cultural Resource Management in the Eastern United States

6.0 LIST OF DEIS RECIPIENTS

The following agencies and organizations will receive copies of the DEIS.

6.1. Federal Agencies

Appalachian Regional Commission

Federal Aviation Administration, Memphis Airport District Office

Federal Railroad Administration

National Oceanic and Atmospheric Administration

Tennessee Valley Authority, Environmental Policy and Planning

U.S. Army Corps of Engineers, Nashville District

U.S. Department of Agriculture, Natural Resources Conservation Service

U.S. Department of Housing and Urban Development

U.S. Department of the Interior:

- Office of Environmental Policy and Compliance
- National Park Service, Great Smoky Mountains National Park
- National Park Service, Planning and Compliance Division
- U.S. Fish and Wildlife Service

U.S. Environmental Protection Agency:

- Environmental Assessment Office
- Office of Federal Activities, EIS Filing Section

6.2. State Agencies

Tennessee Department of Agriculture

Tennessee Department of Economic and Community Development

Tennessee Department of Education

Tennessee Department of Environment and Conservation

Tennessee Historical Commission, State Historic Preservation Office

Tennessee Wildlife Resources Agency

Tennessee State Library and Archives

6.3. Local/Regional Government Agencies

Knoxville Transit Authority

Knoxville Regional Transportation Planning Organization

Blount County Planning Department

East Tennessee Development District

NAACP – Knoxville Chapter

James D. Hoskins Library, University of Tennessee

Blount County Public Library

6.4. Local Officials

Blount County Mayor

Mayor of City of Maryville

Mayor of City of Alcoa

Mayor of City of Rockford

Mayor of City of Townsend

6.5. Local/Regional Organizations

Tennessee Chapter of the Sierra Club

Sierra Club, Harvey Broome Group

Tennessee Trails Association

Tennessee Environmental Council

The Nature Conservancy

Tennessee Wildlife Federation

World Wildlife Fund, Southeast Rivers and Streams Project

Citizens Against Pellissippi Parkway Extension

Blount County Chamber of Commerce

7.0 SOURCES CITED

Blount County Regional Planning Commission. *Blount County Conceptual Land-use Plan* (2000).

Blount County Regional Planning Commission. *Blount County Growth Policies Plan*. 1999; revised 2008.

Blount County Regional Planning Commission. *Growth Plan* developed for Public Chapter 1101. August 2007.

Blount County. *Property Assessment* (2008).

Blount County. *Subdivision Regulations* (2006).

City of Alcoa. *2025 Comprehensive Plan*. May 2006.

City of Alcoa. *Subdivision Regulations* (1997).

City of Maryville. *Maryville 2010 Comprehensive Plan* (2005).

City of Maryville. *Subdivision Regulations* (2006).

City of Maryville. *Urban Growth Plan*. April 1999.

Hunter Interests, Inc. *Blount County Growth Strategy* (2005).

Hunter Interests, Inc. *Maryville Urban Growth Strategy* (2005).

Institute for Transportation Engineers (ITE). *A Toolbox for Alleviating Traffic Congestion* (1989).

Knoxville TPO. *Greenways of Blount County*.

Knoxville TPO. *Knoxville Regional Bicycle Plan*. May 2009.

Knoxville TPO. *Regional Mobility Plan, 2009-2034*. May 2009.

Knoxville TPO. *Regional Transportation Alternatives Plan* (RTAP) (2002).

Knoxville TPO. *Long Range Transportation Plan*. Updated 1999.

Knoxville Regional Transportation Planning Organization (TPO). *Transportation Improvement Program: Fiscal Years 2008-2011.* Knoxville, Tennessee. Adopted 2007; revised 2008.

National Park Service. *Sam Houston Schoolhouse, National Register of Historic Places Nomination*. 1972.

State of Tennessee. *Tennessee Better Roads Program*. 1986.

Tennessee Advisory Commission on Intergovernmental Relations (TACIR) and University of Tennessee Center for Business and Economic Research. *Population Projections for the State of Tennessee, 2010 to 2030*. June 2009.

Tennessee Historical Commission and University of Tennessee. *Blount County Architectural Survey*. 1982-1984.

U.S. Census Bureau. *Agriculture Study. Blount County, Tennessee*. 1982, 1992, 2002, 2007.

U.S. Census Bureau. *Housing Study. Blount County, Tennessee*. 1970, 1980, 1990, 2000.

U.S. Census Bureau. *Population Study, Blount County, Tennessee (*2000).

U.S. Department of Agriculture (USDA) in cooperation with the Tennessee Department of Agriculture. *Tennessee Farm Facts* (2008).

Technical Studies for the DEIS

Panamerican Consulting. *Phase 1 Archaeological Survey.* May 2009.

PB Americas, Inc. *Air Quality Report.* Revised February 2010.

PB Americas, Inc. *Conceptual Stage Relocation Plan*. March 2009.

PB Americas, Inc. *Crash Analysis Report Update.* May 2009.

PB Americas, Inc. *Ecology Report.* Revised January 2010.

PB Americas, Inc. *Economic and Fiscal Impacts Analysis.* June 2009.

PB Americas, Inc. *Historical and Architectural Survey and Assessment of Effects under 36 CFR 800.* April 2009.

PB Americas, Inc. *Indirect and Cumulative Effects Methodology and Background Information - Technical Memorandum*. August 2009.

PB Americas, Inc. *Indirect and Cumulative Impacts Analysis*, August 2009.

PB Americas, Inc. *Noise Report.* July 2009.

PB Americas, Inc. *Phase I Preliminary [Contamination] Assessment Study.* November 2008.

PB Americas, Inc. *Historical and Architectural Survey and Assessment of Effects under 36 CFR 800.* April 2009.

PB Americas, Inc. *Traffic Forecast Study*. October 2007.

PB Americas, Inc. *Traffic Operations Technical Report.* October 2008.

Sain and Associates, Inc. *Traffic Forecast Study: Pellissippi Parkway Extension from State Route 33 to State Route 73 (US 321), Blount County*. October 2007.

Tennessee Department of Transportation, *Preliminary Geological Report*. February 2009.

APPENDIX A

COORDINATION

May 8, 2006

TENNESSEE HISTORICAL COMMISSION
DEPARTMENT OF ENVIRONMENT AND CONSERVATION
2941 LEBANON ROAD
NASHVILLE, TN 37243-0442
(615) 532-1550

RECEIVED
MAY 10 2006
TDOT - NPDES
ENVIRONMENTAL PERMITS OFFICE

Mr. Charles Bush
Tennessee Dept. of Transportation
Suite 700/J. K. Polk Bldg.
Nashville, Tennessee, 37243-0349

RE: FHWA, PELLISSIPPI PARKWAY EXTENSION, UNINCORPORATED, BLOUNT COUNTY

Dear Mr. Bush:

In response to your request, received on Thursday, May 4, 2006, we have reviewed the documents you submitted regarding your proposed undertaking. Our review of and comment on your proposed undertaking are among the requirements of Section 106 of the National Historic Preservation Act. This Act requires federal agencies or applicant for federal assistance to consult with the appropriate State Historic Preservation Office before they carry out their proposed undertakings. The Advisory Council on Historic Preservation has codified procedures for carrying out Section 106 review in 36 CFR 800. You may wish to familiarize yourself with these procedures (Federal Register, December 12, 2000, pages 77698-77739) if you are unsure about the Section 106 process.

Considering available information, we find that the project as currently proposed MAY AFFECT PROPERTIES THAT ARE ELIGIBLE FOR LISTING IN THE NATIONAL REGISTER OF HISTORIC PLACES. You should continue consultation with our office, designated consulting parties and invite them to participate in consultation, and provide us with appropriate survey documentation for review and comment. Please direct questions and comments to Joe Garrison (615) 532-1550-103. We appreciate your cooperation.

Sincerely,

Herbert L. Harper

Herbert L. Harper
Executive Director and
Deputy State Historic
Preservation Officer

HLH/jyg

STATE OF TENNESSEE
DEPARTMENT OF ENVIRONMENT AND CONSERVATION

Division of Natural Heritage
7th Floor L&C Annex
401 Church Street
Nashville, Tennessee 37243
Phone 615/532-0431 Fax 615/532-0046

May 8, 2006

Charles Bush
State Department of Transportation
Environmental Division
Suite 900 - James K. Polk Building
505 Deaderick Street
Nashville, Tennessee 37243-0334

Subject: Pellissippi Parkway Extension (SR 162) from SR 33 to US 321 (SR 73), Blount County, Tennessee

Dear Mr. Bush:

Thank you for your letter and enclosures regarding the above proposed highway improvement. The Tennessee Department of Transportation (TDOT) proposes to extend and construct Pellissippi Parkway (SR 162) from SR 33 to SR 73. The total length of the proposed extension is approximately 4.4 miles. We have reviewed the project summary information and submit the following comments for consideration.

A review of our rare species database indicates that the following listed species have been documented within a 1-mile radius of the proposed project corridor. These species are listed below:

Scientific Name	Common Name	Federal Status	State Status	Global Rank	State Rank
Vertebrate Animal					
Etheostoma percnurum	Duskytail Darter	LE,XN	E	G1	S1
Percina aurantiaca	Tangerine Darter		D	G4	S3
Percina macrocephala	Longhead Darter		T	G3	S2
Percina tanasi	Snail Darter	LT	T	G2G3	S2S3
Invertebrate Animal					
Fusconaia cuneolus	Fine-rayed Pigtoe	LE	E	G1	S1

These Federal and State listed species have been documented from the Little River approximately a half-mile to the east of the proposed extension route. While the Division of Natural Heritage (DNH) does not anticipate adverse impacts to

1

these species as a result of the project, we do recommend adherence to stringent, site-specific Best Management Practices (BMPs) to protect sensitive aquatic environments from excessive erosion and stream sedimentation.

We have also attached a separate list of rare species that have been documented within a 4-mile radius of the proposed corridor. Consideration for these species should be given, if suitable habitat exists in the project area for these species. Please keep in mind that not all areas of Tennessee have been surveyed and that a lack of records for a particular site is not a statement that rare species or unique ecological features are absent from that area. For additional information regarding Tennessee's rare and endangered species or interpretation of Status or Ranks, please visit our website at http://www.state.tn.us/environment/nh/.

Thank you for the opportunity to comment on the subject proposal and for considering Tennessee's rare species throughout the planning of this project. Should you have any questions, please do not hesitate to contact me at (615) 532-0440.

Sincerely,

Kirstin Condict, Data Manager

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5/8/2006

Rare Species Documented Within 4-Mile Radius
Pellissippi Parkway Extension (SR 162)
Blount County, TN

Tennessee Division of Natural Heritage
www.state.tn.us/environment/nh/

		Federal Status	State Status	Global Rank	State Rank
Vascular Plant					
Cimicifuga rubifolia	Appalachian Bugbane		T	G3	S3
Draba ramosissima	Branching Whitlow-grass		S	G4	S2
Nonvascular Plant					
Radula voluta	A Liverwort		S	G3	S2
Vertebrate Animal					
Cryptobranchus alleganiensis	Hellbender	No Status	D	G3G4	S3
Etheostoma cinereum	Ashy Darter		T	G2G3	S2S3
Etheostoma percnurum	Duskytail Darter	LE,XN	E	G1	S1
Gyrinophilus palleucus	Tennessee Cave Salamander		T	G2G3	S2
Hemitremia flammea	Flame Chub		D	G3	S3
Ixobrychus exilis	Least Bittern		D	G5	S2B
Percina aurantiaca	Tangerine Darter		D	G4	S3
Percina burtoni	Blotchside Darter		D	G2	S2
Percina macrocephala	Longhead Darter		T	G3	S2
Percina tanasi	Snail Darter	LT	T	G2G3	S2S3
Rallus elegans	King Rail		D	G4	S2
Rallus limicola	Virginia Rail			G5	S1B,S3
Tyto alba	Common Barn-owl		D	G5	S3
Invertebrate Animal					
Fusconaia cuneolus	Fine-rayed Pigtoe	LE	E	G1	S1
Io fluvialis	Spiny Riversnail			G2	S2
Other (Ecological)					
Heron rookery	Heron Rookery			GNR	SNR

1

STATE OF TENNESSEE
DEPARTMENT OF ENVIRONMENT AND CONSERVATION
9th Floor L&C Annex, 401 Church Street
Nashville, Tennessee 37243-1531

May 15, 2006

Mr. Charles Bush
Department of Transportation
Environmental Division
Suite 900, James K. Polk Building
505 Deaderick Street
Nashville, TN 37243-0334

Subject: Pellissippi Parkway Extension (SR 162) from SR 33 to US 321 (SR 73), Blount County, Tennessee

Dear Mr. Bush:

The Division of Air Pollution Control has reviewed your project summary for the Pellissippi Parkway Extension in Blount County. As your letter indicates, this project is in both an ozone and fine particulate (PM2.5) nonattainment area and is therefore subject to Chapter 1200-3-34, Transportation Conformity. My staff has verified that the project is included in the Knoxville Regional Transportation Planning Organization's latest approved Long Range Transportation Plan, so the requirements of 1200-3-34 are met.

This agency's only other interest, above what would be addressed through the standard NEPA process, concerns the control of fugitive dust and equipment exhaust emissions during the construction phase, and the assurance that any structures requiring demolition are asbestos free, as per the requirements of Chapter 1200-3-11, Hazardous Materials.

We appreciate the opportunity to comment. If you have any questions or comments, please feel free to call me at (615) 532-0554.

Sincerely,

Barry R. Stephens, P.E.
Director

cc: Kim Glassman

RECEIVED
MAY 09 2006
TDOT - NPDES
ENVIRONMENTAL PERMITS OFFICE

STATE OF TENNESSEE
DEPARTMENT OF ENVIRONMENT AND CONSERVATION
Ground Water Protection
10th Floor, 401 Church Street
Nashville, Tennessee 37243

May 5, 2006

Mr. Charles E. Bush
Environmental Planning and Permits Division
Suite 900, James K. Polk Building
505 Deaderick Street
Nashville, Tennessee 37243-0334

Re: Pellissippi Parkway Extension (SR 162) from SR 33 to US 321 (SR 73), Blount County, Tennessee

Dear Mr. Bush:

The Division of Ground Water Protection regulates all aspects of the subsurface sewage disposal (SSD) program in the State of Tennessee. In this regard, Division staff has worked closely with TDOT on those construction projects where it is anticipated that the project will potentially impact existing SSD systems.

Regarding the above referenced project, the Division of Ground Water Protection anticipates that it is likely the project may impact existing SSD systems that are located along the route proposed for the above referenced project.

If you have any questions or think that assistance will be requested on this project, you should contact Mr. Gary Ferguson with the Blount County Environmental Department at (865) 681-9301.

Sincerely,

Kent D. Taylor
Director
Division of Ground Water Protection

KDT/deh

cc: Mr. Gary Ferguson

TDOTresponse73

STATE OF TENNESSEE
DEPARTMENT OF ENVIRONMENT AND CONSERVATION
DIVISION OF WATER SUPPLY
GROUND WATER MANAGEMENT SECTION
9th Floor, 401 Church Street
Nashville, Tennessee 37243-1539
Phone: (615) 532-0191; Fax: (615) 532-0503

May 15, 2006

Mr. Charles E. Bush
Environmental Division
Department of Transportation
Suite 900- James K Polk Building
505 Deaderick Street
Nashville, TN 37243-0334

RE: Pellissippi Parkway Extension from SR 33 to US 321
Blount County

Dear Mr. Bush:

The Division of Water Supply appreciates the opportunity to provide water supply information in the furtherance of Department of Transportation projects.

A review of the community water supplies in the area show that the proposed route will run in the vicinity of two water supply intakes along the Little River – one for the City of Maryville and one for the City of Alcoa (map attached – approximation of proposed route indicated in blue and intakes as red dots). The water systems should be notified a minimum of one week prior to construction in the area commencing. Erosion controls will obviously need to be strictly adhered to so as to prevent impacts on the intakes both from overland (surface) water flow and underground flow via the abundant sinkholes in the area. The sinkholes likely connect to the Little River and impacted sinkholes could potentially impact the water supply intakes. Construction and drainage around/through sinkholes will have to be addressed.

In Tennessee the modification of sinkholes is regulated under the Underground Injection Control (UIC) Program, which is housed in the Ground Water Management Section. Please be advised that the sinkhole is considered the entire closed depression whether there is an open throat or not and not just the area near an open throat.

If there is to be a modification of any sinkhole on this project it will be necessary for you to have a letter of authorization from the UIC program to proceed. You will need to contact Scotty Sorrells of my staff at (615) 532-9224 to file the application and obtain the authorization.

Our requirements for erosion control in the vicinity of sinkholes is basically the same as erosion control plan around streams required by, the Division of Water Pollution Control. The erosion control plan for sinkholes will need to show a similar workway corridor as for streams. The following are what we require for those entities we regulate:

1) If at any time during the clearing or construction of the property a karst feature is discovered then all work around the area is to stop. Erosion control devices straw bales and silt fence are to be placed and this Division is to be notified within twenty-four (24) hours of the discovery.

2) Install silt fence and straw bales along the entire edge of the sinkhole and around any potential conduit that the water may use to enter the ground water prior to any construction.

3) Note that silt fences are used as a temporary diversion features and generally have a life expectancy of three (3) months.

4) All straw bales shall be placed in a single row, with ends of adjacent bales tightly abutting on another. The barrier shall be entrenched and back filled. A trench shall be excavated the width of a bale and the length of the proposed barrier to a minimum depth of four (4) inches. After the bales are staked and chinked, the excavated soil shall conform to the ground level on the down gradient side and shall be built up to four (4) inches against the up gradient side of the barrier.

5) After every storm event the entire silt fence must be inspected and any needed repairs done at that time. Should any damage occur due to traffic or any other activity the fence must be repaired before the end of each work day.

6) Straw bale barriers shall be inspected immediately after each rainfall and at least daily during prolonged rainfall. Necessary repairs to barriers or replacement of bales shall be accomplished promptly. Sediment deposits must be removed when the level of deposition reaches approximately one-half the height of the barrier. Any sediment deposits remaining in place after the straw bale barrier is no longer required shall be dressed to conform to the existing grade, prepared and seeded.

7) The silt fence and straw bales must remain in place and in good working condition throughout the entire development of the property, and until the disturbed area has been stabilized.

Once the final route of the project has been determined, we will also need a map(s) showing the sinkholes identified before construction that will be modified. At the completion of construction we will also need a map with all the sinkholes that have been modified showing notations with latitudes and longitudes as to the modification performed on the sinkhole. Note that the sinkholes which show on a 7 ½ minute quadrangle topographic map are by no means a complete representation (they typically represent about 5 - 20% of the actual sinkholes).

If there is the potential for the highway to be put in areas that are on private wells and springs, the contractor needs to be vigilant in any storage and filling of diesel fuel, etc. during construction activities as spillage could result in contamination of nearby private wells and springs. Blasting and earth moving activities may also have an impact on wells and springs in the vicinity owing to the karstic nature of the geologic terrain.

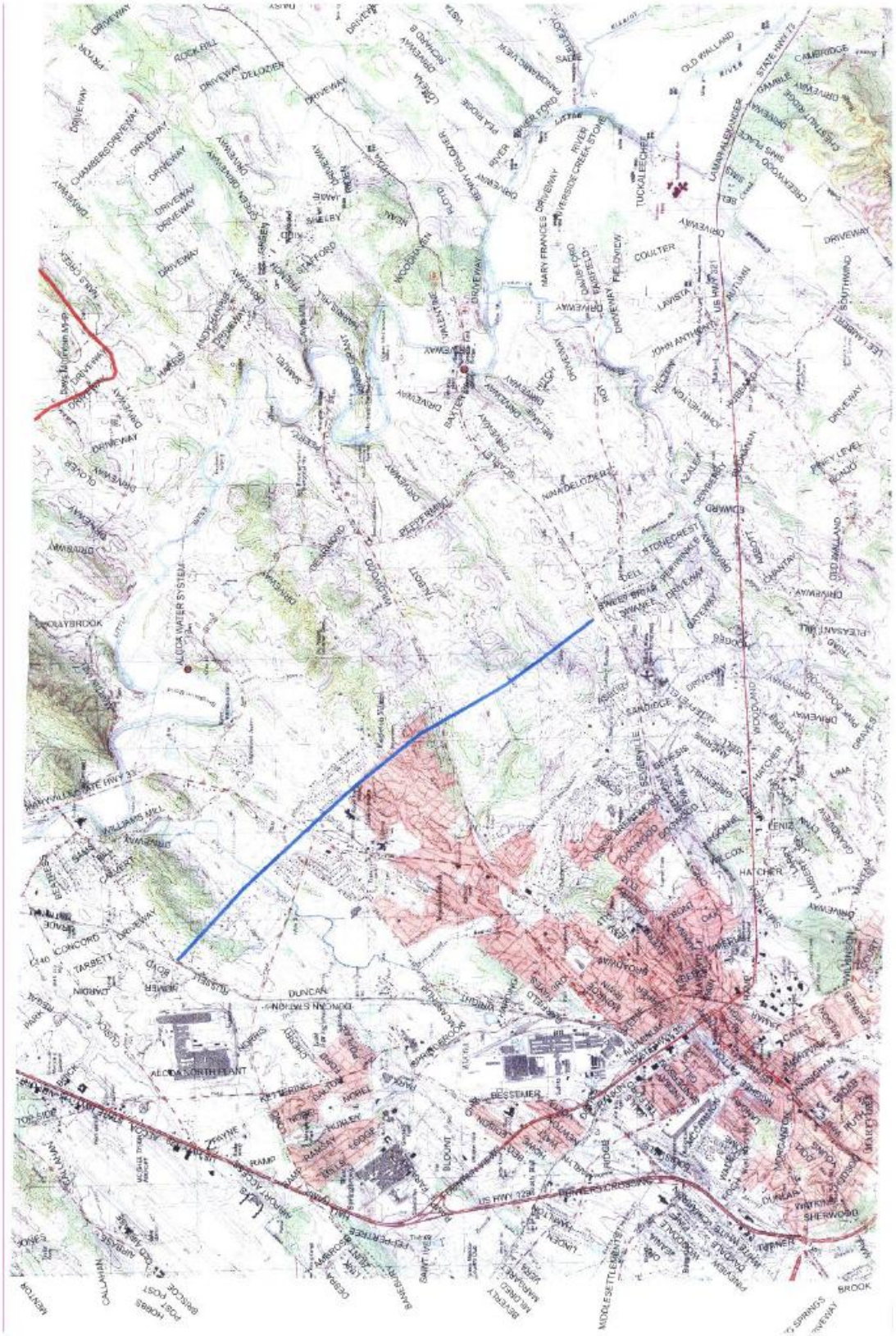
If you have any questions, feel free to call me at (615) 532-0170 or e-mail me at tom.moss@state.tn.us.

Sincerely,

Thomas A. Moss

Thomas A. Moss, P.G.
Source Water/Wellhead Protection Coordinator
Manager, Ground Water Management Section
Division of Water Supply

c: David Draughon, Director, TN Division of Water Supply
Robert Foster, Deputy Director, TN Division of Water Supply
Steve Roberts, DWS Manager, Knoxville Field Office


DUNCAN
DUNCAN STATION
ALCOA NORTH PLANT
BESSEMER
HATCHER
SHERWOOD
US HWY 78
ALCOA WATER SYSTEM
OLD RALLAND
DRIVEWAY

TENNESSEE WILDLIFE RESOURCES AGENCY

ELLINGTON AGRICULTURAL CENTER
P. O. BOX 40747
NASHVILLE, TENNESSEE 37204

May 15, 2006

Charles Bush
State of Tennessee
Department of Transportation
Environmental Division
Suite 900, James K. Polk Building
505 Deaderick Street
Nashville, TN 37243-0334

Re: Comments on Initial Coordination – Proposed Pellissippi Parkway Extension (State Route 162) from State Route 33 to US 321 (State Route 73) in Blount County.

Dear Mr. Bush:

The Tennessee Wildlife Resource Agency has received and reviewed the information your office provided to us regarding the proposed project listed above. We thank you for your invitation to participate with TDOT and FHWA in the development of the EIS for the subject project. Our current concerns are potential environmental impacts associated with potential stream and wetland impacts that may occur do to the construction of this project. Several Federal and State listed species inhabit the Little River Watershed. We encourage continued consultation with our agency in future phases of this project to further reduce impacts to fish and wildlife resources.

We thank you for the opportunity to comment during the initial coordination process and look forward to working with TDOT personnel in the future to reduce potential impacts to fish and wildlife resources associated with this project.

Sincerely,

Robert M. Todd

Robert M. Todd
Fish and Wildlife Environmentalist

cc: Rob Lindbom, Region IV Habitat Biologist
Bob Nichols, Region IV Manager
USFWS, EPA, WPC

The State of Tennessee

AN EQUAL OPPORTUNITY EMPLOYER

DEPARTMENT OF THE ARMY
NASHVILLE DISTRICT, CORPS OF ENGINEERS
3701 BELL ROAD
NASHVILLE, TENNESSEE 37214-2660

May 16, 2006

REPLY TO
ATTENTION OF:

Regulatory Branch

SUBJECT: File No. 990003730, Tennessee Department of Transportation; Proposed State Route 162 (Pellissippi Parkway) Extension in Blount County, Tennessee; Tributaries to Little River Mile 10.0 (TRM 635.6L)

Mr. Charles E. Bush
Tennessee Department of Transportation
Suite 900, James K. Polk Building
505 Deaderick Street
Nashville, Tennessee 37243-0334

Dear Mr. Bush:

This is in response to your May 1, 2006, letter inviting us to be a participating agency in the development of the Environmental Impact Statement for the subject project and your request that we participate as a cooperating agency in the preparation of the Draft Environmental Impact Statement (DEIS) and the Final Environmental Impact Statement (FEIS). We appreciate and accept the opportunity to be a participating agency and a cooperating agency during the preparation of the above documents.

We have regulatory responsibilities pursuant to Section 10 of the Rivers and Harbors Act of 1899 (33 U.S.C. 403) and Section 404 of the Clean Water Act (33 U.S.C. 1344). The Rivers and Harbors Act prohibits the obstruction or alteration of navigable water of the U.S. without a Department of the Army (DA) permit. The Clean Water Act prohibits the discharge of dredged or fill material into waters of the U.S. without a DA permit.

The potential route would include the likelihood of construction activities in numerous named and unnamed tributaries to the Little River as well as their adjacent wetlands. Such areas are subject to our Section 404 jurisdiction. Little River is also considered a navigable water from its mouth (Tennessee River) to Mile 50.5 (Elkmont, Tennessee).

Our concerns center on potential construction activities in waters of the U.S. Specific impacts to streams and wetlands as well as efforts to minimize such impacts need to be addressed in the document. Both qualitative and quantitative assessment of the aquatic resources potentially being impacted should be documented.

The document should also include a discussion of measures taken to avoid and minimize impacts or adverse modification to the waters to the extent practicable. Construction of bridges that span waters rather than culverts, limiting approach fills to areas above the ordinary high water mark, alignment alterations to avoid stream and wetland fills, etc. should be identified and addressed in the documents.

We are available to meet and discuss specific impacts, confirm waters, discuss permitting requirements, and help identify efforts to avoid or minimize aquatic resource impact from the project.

If the final proposed action includes work requiring a DA permit, an application, plans, proposed mitigation plans, and supporting environmental documentation should be submitted to this office in a timely manner.

If you have any questions or need to discuss our involvement in greater detail, you can contact me at the above address or at (615) 369-7514.

Sincerely,

Marty G. Tyree
Project Manager
Operations Division

Copy Furnished:

OP-F/E

Tennessee Valley Authority, 400 West Summit Hill Drive, Knoxville, Tennessee 37902-1499

May 18, 2006

RECEIVED
MAY 24 2006
TDOT - REGION
ENVIRONMENTAL PERMITS OFFICE

Mr. Charles Bush
Transportation Manager II
Environmental Planning and Permits Division
Department of Transportation
Suite 900, James K. Polk Building
505 Deaderick Street
Nashville, Tennessee 37243-0334

Dear Mr. Bush:

INVITATION TO BECOME A COOPERATING AGENCY AND A PARTICIPATING AGENCY FOR THE PELLISSIPPI PARKWAY EXTENSION (SR 162) FROM SR 33 TO US 321 (SR 73), BLOUNT COUNTY, TENNESSEE

In response to your letter of May 1, 2006, TVA is pleased to participate as a cooperating agency and participating agency for the proposed Pellissippi Parkway Extension project. We have also reviewed the Notice of Intent to prepare an Environmental Impact Statement published in the Federal Register on April 25, 2006. It is likely that several alternatives, including building a new roadway on a new location, and perhaps upgrading existing roadways, would require approvals under Section 26a of the TVA Act for Little River tributary streams.

As a participating agency under SAFETEA-LU, we would be pleased to work with you on defining the purpose and need, range of alternatives, and environmental analysis needs. If coordination meetings and field reviews are scheduled, please provide us with an opportunity to participate. As a cooperating agency, please provide preliminary draft copies of National Environmental Policy Act documents for us to review.

In addition to the usual environmental issues addressed in a NEPA document, TVA is especially interested in potential impacts of this project on the Little River. The study area includes reaches of the Little River, and alternative alignments that could be investigated may run adjacent to or cross reaches of the Little River.

Should you have any questions, please contact Harold M. Draper at (865) 632-6889 or hmdraper@tva.gov.

Sincerely,

Harold M. Draper

for Jon M. Loney, Manager
NEPA Policy
Environmental Stewardship and Policy

cc: Ms. Karen Brunelle
Federal Highway Administration
640 Grassmere Park Road, Suite 112
Nashville, Tennessee 37211

STATE OF TENNESSEE
DEPARTMENT OF ENVIRONMENT AND CONSERVATION
WATER POLLUTION CONTROL
401 CHURCH STREET
6TH FLOOR L&C ANNEX
NASHVILLE, TN 37243

RECEIVED
JUN 09 2006
TDOT - REGION
ENVIRONMENTAL PERMITS OFFICE

June 8, 2006

Mr. Charles E. Bush, Transportation Manager II
State of Tennessee Department of Transportation
Environmental Division
Suite 900, James K. Polk Building
505 Deaderick Street
Nashville, Tennessee 37243-0334

Re: Pellissipi Parkway Extension Project

Dear Mr. Bush:

This letter responds to your May 1, 2006, request for comments relative to any potential environmental impacts or concerns the Division of Water Pollution Control (Division) may have on the above referenced project.

According to the information that you submitted, it appears that several streams will be affected by this project, to include streams that require special consideration because they are streams impaired by siltation and/or habitat alteration. Those impaired streams are found on the state's 303(d) list. Identification and assessment of all water resources, including wetlands, must be made prior to construction. All "waters of the state" determinations will be evaluated during the permit review process.

An Aquatic Resource Alteration Permit will be needed if there are any alterations to waters of the state and coverage under the *Tennessee Construction General Permit for Storm Water Discharges from Construction Activities* (TNCGP) will be needed for any land disturbance of one acre or more. Appropriate erosion and sediment control measures must be installed and maintained throughout the construction process. Adherence to the requirements of the Tennessee Department of Transportation's Municipal Separate Storm Sewer System permit, which was effective on June 1, 2006, is also expected.

Please understand that there may be other regulatory programs applicable to this project that are administered by other divisions of the Department of Environment and Conservation. The applicant is responsible to determine all regulatory programs that are applicable to this project.

This letter is intended to give information on the Division's regulatory role in the process and to provide guidance on possible impacts to waters of the state. It is **not** a complete evaluation of all potential environmental impacts that this road project could have on the affected watersheds.

We appreciate your offer to address these issues through the environmental assessment process. If you have any questions regarding these comments, please contact Natalie Harris, in the Knoxville Environmental Field Office, at (865) 594-5525.

Sincerely,

Regan W McGahen

Regan W. McGahen
Environmental Specialist
Division of Water Pollution Control

cc: File
Robin Cathcart, Environmental Policy Analyst, TDEC
Natalie Harris, Water Pollution Control, Knoxville Environmental Field Office

STATE OF TENNESSEE
ECONOMIC & COMMUNITY DEVELOPMENT

BUSINESS DEVELOPMENT DIVISION

June 9, 2006

RECEIVED
JUN 12 2006
TDOT - REGION
ENVIRONMENTAL PERMITS OFFICE

Mr. Charles E Bush
Transportation Manager 2
TN Dept. of Transportation
Environmental Division
Suite 900, James K Polk Bldg.
505 Deaderick Street
Nashville, TN 37243-0334

SUBJECT: Pellissippi Parkway Extension (SR 162) from SR 33 to US 321 (SR73) - Blount County, TN

Dear Mr. Bush:

The Department of Economic & Community Development appreciates the opportunity to comment upon the above referenced project. I want to advise that a partnership of Blount County, Knox County, the Cities of Alcoa and Maryville and the Industrial Development Board of Blount County are engaged in a project to purchase a 450 acre tract and develop it into a Technology Industrial Park. Said park is located at the present end of the parkway at SR 33. The presently shown alignment goes through the center of the park. Present planning for said park assumes that this alignment will remain. The present Phase I cost of this industrial park project is about $22M and ultimate development will cost a total in the $51M range. Such a technology park in this proximity to Knoxville, McGhee Tyson Airport and the Pellissippi Parkway will have a very significant positive economic impact upon the region.

This letter comes to ask that TDOT closely coordinate its final design with the aforementioned partnership. Your essential contacts for said coordination are:

Bryan Daniels
Executive VP
Industrial Development Board of Blount County
201 S. Washington Street
Maryville, TN 37804-5128
Phone: 865-983-7715
Fax: 865-984-1386
Email: bdaniels@blountindustry.com

Christopher J. Soro, P.E.
C2RL, Inc., Engineers
3286 Northpark Blvd., Suite F
Alcoa, TN 37701
Phone: 865-980-3500
Fax: 865-980-3555
Email: Csoro@2RL.com

Your consideration of this request would be most appreciated. If you have any questions about this communication or issue, please do not hesitate to contact me or the two above listed gentlemen.

Sincerely,

Wilton Burnett, Jr.

Wilton Burnett, Jr. P.E.
Director of Special Projects

xc: Bryan Daniels
Chris Soro, P.E.

312 EIGHTH AVENUE NORTH, ELEVENTH FLOOR
NASHVILLE, TENNESSEE 37243
TELEPHONE: 615.741.3282 — FAX: 615.741.5829
HTTP://WWW.TNECD.GOV

United States Department of Agriculture

NRCS

Natural Resources Conservation Service
675 U.S. Courthouse
801 Broadway
Nashville, Tennessee 37203

June 13, 2006

Mr. Charles E. Bush
Transportation Manager II
Department of Transportation
Environmental Planning Permit Division
Suite 900, James K. Polk Building
505 Deaderick Street
Nashville, Tennessee 37243

Dear Mr. Bush:

In response to your request for comments on the Environmental Impact Statement (EIS) for Pellissippi Parkway, Blount County, Tennessee, the project data summary and map of the location under study was reviewed by NRCS. It appears there would be a negative impact on the 56 acres of prime farmland being converted. There are highly erodible soils along the route, but assuming that proper care will be taken to stabilize cuts and grades, this should pose no significant hazard to water quality.

There are always hazards that cutting and operating heavy machinery in karst limestone areas could cause sinkhole collapse, which could damage groundwater aquifers. Sinkhole collapse could result from operating heavy machinery in karst limestone areas, resulting in damage to ground water aquifers.

NRCS appreciates the opportunity to provide comments. If you have questions or need additional information, please contact Steven Dobbs, Resource Conservationist, at (615) 277-2587.

Sincerely,

JAMES W. FORD
State Conservationist

Enclosures

cc:
Vic Simpson, SRC, NRCS, Nashville, TN
Steven Dobbs, RC, NRCS, Nashville, TN

The Natural Resources Conservation Service provides leadership in a partnership effort to help people conserve, maintain, and improve our natural resources and environment.

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United States Department of Agriculture

NRCS

Natural Resources Conservation Service
675 US Courthouse
801 Broadway
Nashville, Tennessee 37203

January 14, 2009

Mr. Tom Love
Tennessee Department of Transportation
Suite 900, James K. Polk Bldg.
505 Deaderick Street
Nashville, Tennessee 37243-0334

Dear Mr. Love:

The Natural Resources Conservation Service (NRCS) has reviewed the proposed Pellissippi Parkway Extension (SR 162) project from SR 33 to US 321 (SR 73), Blount County, Tennessee, and is unaware of any impacts of the proposed project on any Agency programs being planned or executed. The Agency has no Wetlands Reserve Program (WRP) easements or agreements installed or planned within the proposed corridor. If any other cost share program contracts have been developed within the proposed alternative corridors, appropriate adjustments to those contracts can be made.

As provided by earlier correspondence an NRCS area resource soil scientist will provide the appropriate Farmland Conversion Impact Rating assessment in accordance with the Farmland Protection Policy Act. The Agency has no specific information available relative to other environmental databases other than the soils information which was provided earlier by means of online internet access. At this time the only clarification to the proposed environmental elements of review for the DEIS that the Agency would recommend would be an assessment of impacts associated with the loss of riparian habitat as part of the stream buffer assessment (part 5.2, Alternatives To Be Evaluated Package, June 2008), whether there is a scenic landscape concern, and expansion of efforts to have the potentially impacted low income residents involved as part of Environmental Justice. These considerations are typically addressed by NRCS under our federal actions.

Helping People Help the Land

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Thank you for the opportunity to comment at this time.

KEVIN BROWN
State Conservationist

cc:
Rick Livingston, ARSS, NRCS, Knoxville, TN
Terrance Rudolph, AC, NRCS, Knoxville, TN
Jeff Sanders, SRC, NRCS, Nashville, TN

United States Department of Agriculture

mailed Reply on Jan 9, 2009 RLL

NRCS

Natural Resources Conservation Service
9737 Cogdill Road; Suite 152C
Knoxville, TN 37932
Phone 865-671-3830 x. 112

January 9, 2009

Mr. Tom Love
Tennessee Department of Transportation
Suite 900, James K. Polk Building
505 Deaderick Street
Nashville, TN 37243-0334

Project: Pellissippi Parkway Extension (SR 162) from SR 33 to US 321 (SR 73) Blount County, TN

Dear Mr. Love,

The request for soils information that was sent to Mr. Kevin Brown forwarded to me. I will be addressing the portion of the request concerning the Farmland Protection Policy and hydric soils

This project will result in the conversion of about 39 acres of prime farmland for Alternative A, 44 acres of prime farmland for Alternative B, and 23 acres of prime farmland for Alternative C as defined in the Farmland Protection Policy Act. Form NRCS-CPA-106 is attached to this letter to document this determination. Prime farmland is land that has the best combination of physical and chemical characteristics, growing season, and moisture supply for producing agricultural crops. Generally, land may be pasture, forestland, or cropland but may not be urban built-up land or waterways. Additionally, construction within an existing right-of-way purchased on or before August 4, 1984 is not subject to the Farmland Protection Policy Act.

Concerning Hydric Soils, Alternative A crosses one map unit of Ma-Melvin silt loam, on the south end of the corridor and Alternative B crosses the same map unit of Melvin silt loam in the same area. Alternative C crosses one map unit of Pc-Prader silt loam in the north portion of the corridor on an unnamed tributary of the Little Tennessee River near Singleton Bend and one map unit of Ma-Melvin silt loam in the southern portion of the corridor. Hydric soil criteria is only one of the 3 factors used in determining a wetland. Areas of hydric soils may or may not meet all of the requirements of a wetland.

Much of our soils information is available on-line at http://websoilsurvey.nrcs.usda.gov/app/
Additional information on Prime Farmland may be obtained at our websites
www.tn.nrcs.usda.gov/technical/soils/fppa.html or www.nrcs.usda.gov/programs/fppa/ .

Feel free to contact me if I may be of further assistance.
Sincerely,

File Copy

Richard Livingston
Resource Soil Scientist

Enclosure

Helping People Help the Land

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U.S. DEPARTMENT OF AGRICULTURE
Natural Resources Conservation Service

NRCS-CPA-106
(Rev. 1-91)

FARMLAND CONVERSION IMPACT RATING FOR CORRIDOR TYPE PROJECTS

PART I *(To be completed by Federal Agency)*	3. Date of Land Evaluation Request **12/3/08**	4. Sheet 1 of **1**
1. Name of Project **Pellissippi Parkway Extension EIS**	5. Federal Agency Involved **Federal Highway Administration**	
2. Type of Project **Roadway**	6. County and State **Blount County, Tennessee**	
PART II *(To be completed by NRCS)*	1. Date Request Received by NRCS **12/22/08**	2. Person Completing Form **Richard Livingston**
3. Does the corridor contain prime, unique statewide or local important farmland? (If no, the FPPA does not apply - Do not complete additional parts of this form). YES ☑ NO ☐		4. Acres Irrigated / Average Farm Size **81 Acres**
5. Major Crop(s) **Corn (Indicator Crop)**	6. Farmable Land in Government Jurisdiction Acres: **152,600** % **42**	7. Amount of Farmland As Defined in FPPA Acres: **54050** % **15**
8. Name Of Land Evaluation System Used **LESA**	9. Name of Local Site Assessment System	10. Date Land Evaluation Returned by NRCS **1/9/09**

PART III *(To be completed by Federal Agency)*	Maximum Points	Alternative Site Ranking ALT A	ALT C	ALT D	
A. Total Acres To Be Converted Directly		**160**	**171**	**104**	
B. Total Acres To Be Converted Indirectly, Or To Receive Services					
C. Total Acres In Corridor		**160**	**171**	**104**	**0**
PART IV *(To be completed by NRCS) Land Evaluation Information*					
A. Total Acres Prime And Unique Farmland		**39**	**44**	**23**	
B. Total Acres Statewide And Local Important Farmland		**0**	**0**	**0**	
C. Percentage Of Farmland in County Or Local Govt. Unit To Be Converted		**0.01**	**0.01**	**0.01**	
D. Percentage Of Farmland in Govt. Jurisdiction With Same Or Higher Relative Value		**38**	**37**	**35**	
PART V *(To be completed by NRCS) Land Evaluation Information Criterion Relative value of Farmland to Be Serviced or Converted (Scale of 0 - 100 Points)*		59	61	65	
PART VI *(To be completed by Federal Agency) Corridor Assessment Criteria (These criteria are explained in 7 CFR 658.5(c))*	Maximum Points				
1. Area in Nonurban Use	15	**0**	**0**	**0**	
2. Perimeter in Nonurban Use	10	**5**	**3**	**2**	
3. Percent Of Corridor Being Farmed	20	**16**	**7**	**7**	
4. Protection Provided By State And Local Government	20	**0**	**0**	**0**	
5. Size of Present Farm Unit Compared To Average	10	**4**	**1**	**3**	
6. Creation Of Nonfarmable Farmland	25	**25**	**25**	**25**	
7. Availablility Of Farm Support Services	5	**3**	**3**	**3**	
8. On-Farm Investments	20	**0**	**0**	**0**	
9. Effects Of Conversion On Farm Support Services	25	**12**	**12**	**12**	
10. Compatibility With Existing Agricultural Use	10	**10**	**10**	**10**	
TOTAL CORRIDOR ASSESSMENT POINTS	160	**75**	**61**	**62**	**0**
PART VII *(To be completed by Federal Agency)*					
Relative Value Of Farmland (From Part V)	100	59	61	65	
Total Corridor Assessment (From Part VI above or a local site assessment)	160	**75**	**61**	**62**	**0**
TOTAL POINTS *(Total of above 2 lines)*	260	134	122	127	**0**

1. Corridor Selected:	2. Total Acres of Farmlands to be Converted by Project:	3. Date Of Selection:	4. Was A Local Site Assessment Used? YES ☐ NO ☐

5. Reason For Selection:

NOTE: The total acreage to be converted shown above may vary from what is shown in the DEIS. This is due to further design information being available after completion of this form by the NRCS.

Signature of Person Completing this Part: | DATE

NOTE: Complete a form for each segment with more than one Alternate Corridor

Clear Form

KNOXVILLE REGIONAL TPO TRANSPORTATION PLANNING ORGANIZATION

Suite 403 • City County Building • 400 Main Street • Knoxville, Tennessee 37902
Telephone: 865 215-2500 • Fax: 865 215-2068 • E-mail: transportation@knoxtrans.org
Web Site: www.knoxtrans.org

November 16, 2006

Charles E. Bush
Transportation Manager 2
TDOT Environmental Division
James K. Polk Bldg.
505 Deaderick St, Suite 900
Nashville, TN 37243

Dear Mr. Bush:

Subject: Pellissippi Parkway Extension (SR 162) from SR 33 to US 321 (SR 73), Blount County, Tennessee
Invitation to be a Participating Agency

I am writing to accept the invitation to become a participating agency with TDOT and FHWA in the development of the EIS for the Pellissippi Parkway Extension.

This agency has an interest in multimodal transportation projects with a regional impact, and therefore, would like to remain involved and aware of this proposal's progress.

I thank you for the suggestions regarding the TPO's role in the development of the Pellissippi Parkway Extension. Please contact me at 865-215-3790 or Katie Habgood of my staff at 865-215-3809 with any questions.

Sincerely,

Jeff Welch
Director
Knoxville Regional Transportation Planning Organization

The TPO coordinates a comprehensive, multi-modal transportation planning process for the Knoxville regional area.

D30

March 11, 2008

Project Meeting Comments
Tennessee Department of Transportation
Suite 700, James K. Polk Building
Nashville, TN 37243-0332

Dear Sir or Madam:

My staff attended the Tennessee Department of Transportation's (TDOT) February 19, 2008, public meeting for the Pellissippi Parkway Extension. We have also reviewed the informational handout that was provided at the public meeting. We understand that TDOT is looking at a variety of potential project corridors and alternatives based on the transportation needs of the region. Great Smoky Mountains National Park is interested in understanding the potential impacts that the proposed alternatives may have on the Park and the Foothills Parkway. The impacts we are most concerned with are traffic and air quality.

The section of Foothills Parkway between Walland and Wears Valley is currently anticipated to be completed and open to traffic in 2016. We request that traffic analysis for the proposed alternatives include the Foothills Parkway and the Park. Traffic analysis should look at whether the Pellissippi Parkway Extension will increase the number of visitors coming into the Park from that direction. Can the Park expect more entries through the Townsend Entrance versus the Gatlinburg Entrance?

The Park is included in the non-attainment area for Blount County so it is expected that air quality impacts to the Park and the Foothills Parkway will also be analyzed as part of this project.

We appreciate the opportunity to comment on this project. If you have any questions regarding our requests, please call Landscape Architect Imelda Wegwerth at 865-436-1302.

Sincerely,

Dale A. Ditmanson
Superintendent

bc:
RM&S, GRSM
FMD, GRSM
blue/green

IWegwerth:lc:Alternatives Comments 3-08.doc

U.S. Department
of Transportation
**Federal Aviation
Administration**

Memphis Airports District Office
2862 Business Park Dr, Bldg G
Memphis, TN 38118-1555

Phone: 901-322-8188

July 30, 2008

Tom Love, Transportation Manager 1
TDOT, Environmental Division
James K. Polk Building, Suite 900
505 Deaderick Street
Nashville, TN 37243

Dear Mr. Love:

This is in response to your letter to Mr. Phillip Braden with the FAA dated July 18, 2008 concerning the proposed Pellissippi Parkway Extension.

The FAA's concern is any impacts on public use airports. If the chosen alternative is within 6 miles of any public use airport, it is requested that this office be informed of the nature of the construction, including detailed layout drawings and elevations, but the submission of FAA Form 7460-1. I have attached a copy for you use.

Please contact me if I can be of assistance.

Sincerely,

Michael L. Thompson
Program Manager

attachment

NOTICE OF PROPOSED CONSTRUCTION OR ALTERATION

§77.13 Construction or alteration requiring notice.

(a) Except as provided in §77.15, each sponsor who proposes any of the following construction or alteration shall notify the Administrator in the form and manner prescribed in §77.17.

(1) Any construction or alteration of more than 200 feet in height above the ground level at its site.

(2) Any construction or alteration of greater height than imaginary surface extending outward and upward at one of the following slopes:

(i) 1 00 to 1 for horizontal distance of 20,000 feet from the nearest point of the nearest runway of each airport specified in paragraph (a)(5) or this section with at least one runway more than 3,200 feet in actual length, excluding heliports.

(ii) 50 to 1 for horizontal distance of 10,000 feet from the nearest point of the nearest runway of each airport specified in paragraph (a)(5) of this section with its longest runway no more than 3,200 feet in actual length, excluding heliports.

(iii) 25 to 1 for a horizontal distance of 5,000 feet from the nearest point of the nearest landing and takeoff area of each heliport specified in paragraph (a)(5) of this section.

(3) Any highway, railroad, or other traverse way for mobile objects, of a height which, if adjusted upward 17 feet for an Interstate Highway that is part of the National System of Military and Interstate Highways where overcrossings are designed for a minimum of 17 feet vertical distance, 16 feet for any other public roadway, 10 feet or the height of the highest mobile object that would normally traverse the road, whichever is greater, for a private road, 23 feet for a railroad, and for a waterway or any other traverse way not previously mentioned, an amount equal to the height of the highest mobile object that would normally traverse it, would exceed a standard of paragraph (a)(1) or (2) of this section.

(4) When requested by the FAA, any construction or alteration that would be in an instrument approach area (defined in the FAA standards governing instrument approach procedures) and available information indicates it might exceed a standard of Subpart C of this part.

(5) Any construction or alteration on any of the following airports (including heliports):

(i) An airport that is available for public use and is listed in the Airport Directory of the current Airman's Information Manual or in either the Alaska or Pacific Airman's Guide and Chart Supplement.

(ii) An airport under construction, that is the subject of a notice or proposal on file with the Federal Aviation Administration, and except for military airports, it is clearly indicated that airport will be available for public use.

(iii) An airport that is operated by an armed force of the United States.

(b) Each sponsor who proposes construction or alteration that is the subject of a notice under paragraph (a) of this section and is advised by an FAA regional office that a supplemental notice is required shall submit that notice on a prescribed form to be received by the FAA regional office at least 48 hours before the start of construction or alteration.

(c) Each sponsor who undertakes construction or alteration that is the subject of a notice under paragraph (a) of this section shall, within 5 days after that construction or alteration reaches its greatest height, submit a supplemental notice on a prescribed form to the FAA regional office having jurisdiction over the region involved, if –

(1) The construction or alteration is more than 200 feet above the surface level of its site; or

(2) An FAA regional office advises him that submission of the form is required.

§77.15 Construction or alteration not requiring notice.

No person is required to notify the Administrator for any of the following construction or alteration:

(a) Any object that would be shielded by existing structures of a permanent and substantial character or by natural terrain or topographic features of equal or greater height, and would be located in the congested area of a city, town, or settlement where it is evident beyond all reasonable doubt that the structure so shielded will not adversely affect safety in air navigation.

(b) Any antenna structure of 20 feet or less in height except one that would increase the height of another antenna structure.

(c) Any air navigation facility, airport visual approach or landing air, aircraft arresting device, or meteorological device, of a type approved by the Administrator, or an appropriate military service on military airports, the location and height of which is fixed by its functional purpose.

(d) Any construction or alteration for which notice is required by any other FAA regulation.

§77.17 Form and time of notice

(a) Each person who is required to notify the Administrator under §77.13 (a) shall send one executed form set of FAA Form 7460-1, Notice of Proposed Construction or Alteration, to the Manager, Air Traffic Division, FAA Regional Office having jurisdiction over the area within which the construction or alteration will be located. Copies of FAA Form 7460-1 may be obtained from the headquarters of the Federal Aviation Administration and the regional offices.

(b) The notice required under §77.13 (a)(1) through (4) must be submitted at least 30 days before the earlier of the following dates –

(1) The date the proposed construction or alteration is to begin.

(2) The date an application for a construction permit is to be filed.

However, a notice relating to proposed construction or alteration that is subject to the licensing requirements of the Federal Communications Act may be sent to the FAA at the same time the application for construction is filed with the Federal Communications Commission, or at any time before that filing.

(c) A proposed structure or an alteration to an existing structure that exceeds 2,000 feet in height above the ground will be presumed to be a hazard to air navigation and to result in an inefficient utilization of airspace and the applicant has the burden of overcoming that presumption. Each notice submitted under the pertinent provisions of this part 77 proposing a structure in excess of 2,000 feet above ground, or an alteration that will make an existing structure exceed that height, must contain a detailed showing, directed to meeting this burden. Only in exceptional cases, where the FAA concludes that a clear and compelling showing has been made that it would not result in an inefficient utilization of the airspace and would not result in a hazard to air navigation, will a determination of no hazard be issued.

(d) In the case of an emergency involving essential public services, public health, or public safety that required immediate construction or alteration, the 30 day requirement in paragraph (b) of this section does not apply and the notice may be sent by telephone, telegraph, or other expeditious means, with an executed FAA Form 7460-1 submitted within five (5) days thereafter. Outside normal business hours, emergency notices by telephone or telegraph may be submitted to the nearest FAA Flight Service Station.

(e) Each person who is required to notify the Administrator by paragraph (b) or (c) of §77.13, or both shall send an executed copy of FAA Form 7460-2, Notice of Actual Construction or Alteration, to the Manager, Air Traffic Division, FAA Regional Office having jurisdiction over the area involved.

ADDRESSES OF THE REGIONAL OFFICES

Alaska Region
AK
Alaskan Regional Office
Air Traffic Division, AAL-530
222 West An Avenue
Anchorage, AK 99513
Tel: 907-271-5893

Central Region
IA, KS, MO, NE
Central Regional Office
Air Traffic Division, ACE-520
60 East 12th Street
Kansas City, MO 64106
Tel: 816-426-3408 or 3409

Eastern Region
DC, DE, MD, NJ, NY, PA, VA, WV
Eastern Regional Office
Air Traffic Division, AEA-520
JFK International Airport
Fitzgerald Federal Building
Jamaica, NY 11430
Tel: 718-553-2616

Great Lakes Region
IL, IN, MI, MN, ND, OH, SD
Great Lakes Regional Office
Air Traffic Division, AGL-520
2300 East Devon Avenue
Des Plaines, IL 60018
Tel: 847-294-7568

New England Region
CT, MA, ME, NH, RI, VT
New England Regional Office
Air Traffic Division, ANE-520
12 New England Executive Park
Burlington, MA 01803-5299
Tel: 781-238-7520

Northwest Mountain Region
CO, ID, MT, OR, UT, WA, WY
Northwest Mountain Regional Office
Air Traffic Division, ANM-520
1601 Lind Avenue, SW
Renton, WA 98055-4056
Tel: 425-227-2520

Southern Region
AL, FL, GA, KY, MS, NC, PR
SC, TN, VI
Southern Regional Office
Air Traffic Division, ASO-520
1701 Columbia Avenue
College Park, GA 30337
Tel: 404-305-5685

Southwest Region
AR, LA, NM, OK, TX
Southwest Regional Office
Air Traffic Division, ASW-520
2601 Meacham Boulevard
Fort Worth, TX 76137-0520
Tel: 817-222-5531

Western Pacific Region
HI, CA, NV, AZ, GU
Western-Pacific Regional Office
Air Traffic Division, AWP-520
15000 Aviation Boulevard
Hawthorne, CA 90260
Tel: 310-725-6557

FAA Form 7460-1 (2-99) Superseded Previous Edition Electronic Version (Adobe) NSN: 0052-00-012-0009

INSTRUCTIONS FOR COMPLETING FAA FORM 7460-1

PLEASE TYPE or PRINT

ITEM #1. Please include the name, address and phone number of a personal contact point as well as the company name.

ITEM #2. Please include the name, address and phone number of a personal contact point as well as the company name.

ITEM #3. New Construction would be a structure that has not yet been built.

Alteration is a change to an existing structure such as the addition of a side mounted antenna, a change to the marking and lighting, a change to power and/or frequency, or a change to the height. The nature of the alteration shall be included in **ITEM #21** "Complete Description of Proposal".

Existing would be a correction to the latitude and/or longitude, a correction to the height, or if filing on an existing structure which has never been studied by the FAA. The reason for the notice shall be included in **ITEM #21** "Complete Description of Proposal".

ITEM #4. If Permanent, so indicate. If Temporary, such as a crane or drilling derrick, enter the estimated length of time the temporary structure will be up.

ITEM #5. Enter the date that construction is expected to start and the date that construction should be completed.

ITEM #6. Please indicate the type of structure. DO NOT LEAVE BLANK.

ITEM #7. In the event that obstruction marking and lighting is required, please indicate type desired. If no preference, check "other" and indicate "no preference" **DO NOT LEAVE BLANK. *NOTE:*** *High Intensity lighting shall be used only for structures over 500' AGL.* In the absence of high intensity lighting for structures over 500' AGL, marking is also required.

ITEM #8. If this is an existing tower that has been registered with the FCC, enter the FCC Antenna Structure Registration number here.

ITEM #9 and #10. Latitude and longitude must be geographic coordinates, accurate to within the nearest second or to the nearest hundredth of a second if known. Latitude and longitude derived solely from a **hand-held GPS instrument is NOT acceptable**. A hand-held GPS is only accurate to within 100 meters (328 *feet*) 95 percent of the time. This data, when plotted, should match the site depiction submitted under **ITEM #20**.

ITEM #11. NAD 83 is preferred; however, latitude and longitude may be submitted in NAD 27. Also, in some geographic areas where NAD 27 and NAD 83 are not available other datums may be used. It is important to know which datum is used. **DO NOT LEAVE BLANK.**

ITEM #12. Enter the name of the nearest city and state to the site. If the structure is or will be in a city, enter the name of that city and state.

ITEM #13. Enter the **full** name of the nearest public-use ***(not private-use)*** airport or heliport or military airport or heliport to the site.

ITEM #14. Enter the distance **from** the airport or heliport listed in **#13 to the structure.**

ITEM #15. Enter the direction **from** the airport or heliport listed in **#13 to the structure.**

ITEM #16. Enter the site elevation above mean sea level and expressed in whole feet rounded to the nearest foot (e.g. 17'3" rounds to 17', 17'6" rounds to 18'). This data should match the ground contour elevations for site depiction submitted under **ITEM #20.**

ITEM #17. Enter the total structure height **above ground level** in **whole feet** rounded to the **next highest foot** (e.g. 17'3" rounds to 18'). **The total structure height shall include anything mounted on top of the structure, such as antennas, obstruction lights, lightning rods, etc.**

ITEM #18. Enter the overall height above mean sea level and expressed in **whole feet.** This will be the total of **ITEM #16 + ITEM #17.**

ITEM #19. If an FAA aeronautical study was previously conducted, enter the previous study number.

ITEM #20. Enter the relationship of the structure to roads, airports, prominent terrain, existing structures, etc. Attach an 8-1/2" x 11" non-reduced copy of the appropriate 7.5 minute U.S. Geological Survey *(USGS)* Quadrangle Map MARKED WITH A PRECISE INDICATION OF THE SITE LOCATION. To obtain maps, contact USGC at 1-800-435-7627 or via internet at "http://mapping.usgs.gov". If available, attach a copy of a documented site survey with the surveyor's certification stating the amount of vertical and horizontal accuracy in feet.

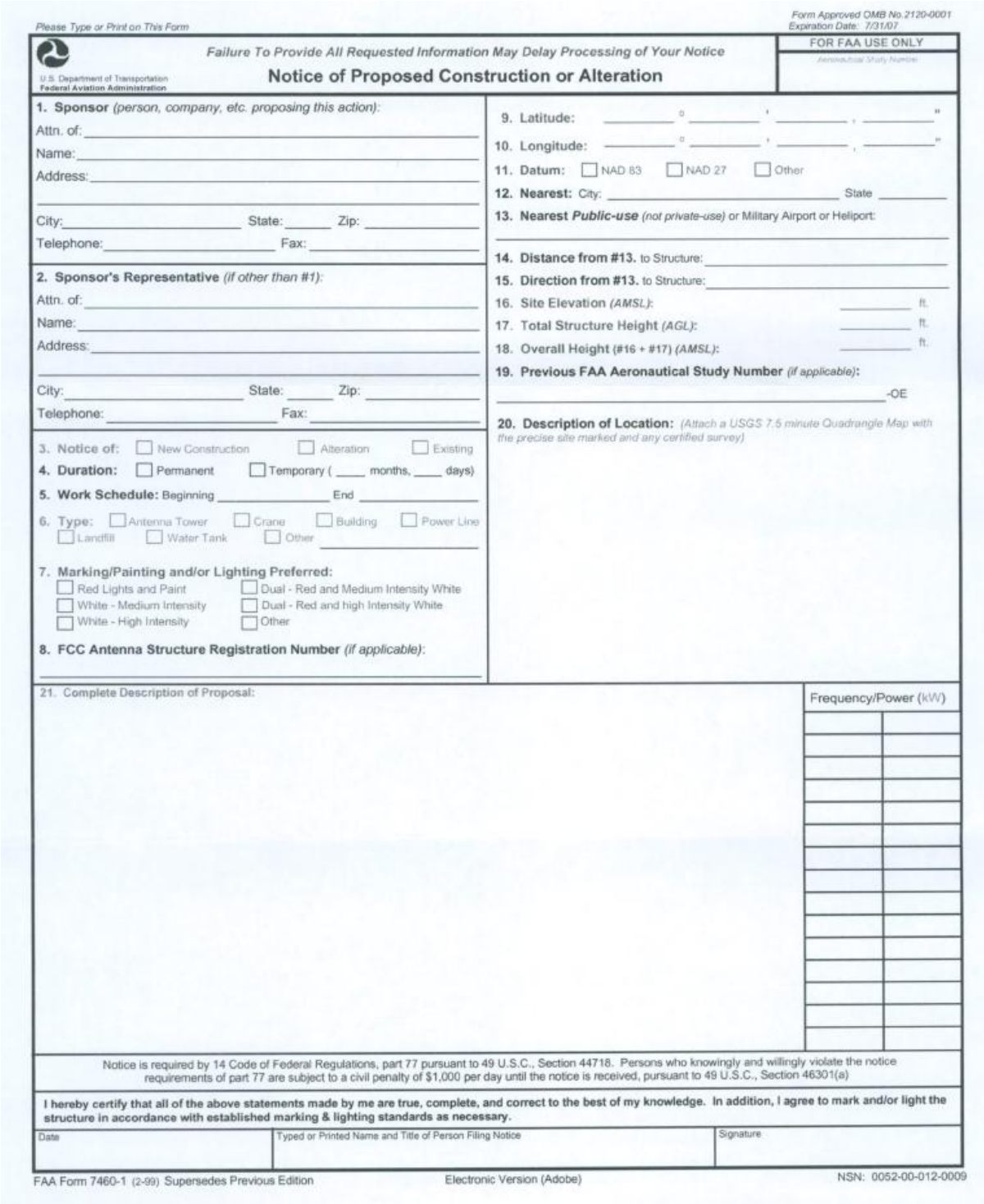
ITEM #21.

- For transmitting stations, include maximum effective radiated power *(ERP)* and all frequencies.
- For antennas, include the type of antenna and center of radiation *(Attach the antenna pattern, if available).*
- For microwave, include azimuth relative to true north.
- For overhead wires or transmission lines, include size and configuration of wires and their supporting structures *(Attach depiction).*
- For **each** pole/support, include coordinates, site elevation, and structure height above ground level or water.
- For buildings, include site orientation, coordinates of **each** corner, dimensions, and construction materials.
- For alterations, explain the alteration thoroughly.
- For existing structures, thoroughly explain the reason for notifying the FAA *(e.g. corrections, no record or previous study, etc.).*

Filing this information with the FAA does not relieve the sponsor of this construction or alteration from complying with any other federal, state or local rules or regulations. If you are not sure what other rules or regulations apply to your proposal, contact local/state aviations and zoning authorities.

Paperwork Reduction Work Act Statement: This information is collected to evaluate the effect of proposed construction or alteration on air navigation and is not confidential. Providing this information is mandatory for anyone proposing construction or alteration that meets or exceeds the criteria contained in 14 CFR, part 77. We estimate that the burden of this collection is an average 19 minutes per response. An agency may not conduct or sponsor, and a person is not required to respond to a collection of information unless it displays a currently valid OMB control number. The OMB control number for this collection is 2120-0001. Comments concerning the accuracy of this burden and suggestions for reducing the burden should be directed to the FAA at: 800 Independence Ave. SW, Washington, DC 20591, Attn: Information Collection Clearance Officer, ABA-20

FAA Form 7460-1 (2-99) Superseded Previous Edition Electronic Version (Adobe) NSN: 0052-00-012-0009



Please Type or Print on This Form

Form Approved OMB No.2120-0001
Expiration Date: 7/31/07

U.S. Department of Transportation
Federal Aviation Administration

Failure To Provide All Requested Information May Delay Processing of Your Notice

Notice of Proposed Construction or Alteration

FOR FAA USE ONLY
Aeronautical Study Number

1. Sponsor *(person, company, etc. proposing this action):*
Attn. of:
Name:
Address:
City: State: Zip:
Telephone: Fax:

2. Sponsor's Representative *(if other than #1):*
Attn. of:
Name:
Address:
City: State: Zip:
Telephone: Fax:

3. Notice of: ☐ New Construction ☐ Alteration ☐ Existing

4. Duration: ☐ Permanent ☐ Temporary (____ months, ____ days)

5. Work Schedule: Beginning End

6. Type: ☐ Antenna Tower ☐ Crane ☐ Building ☐ Power Line ☐ Landfill ☐ Water Tank ☐ Other

7. Marking/Painting and/or Lighting Preferred:
☐ Red Lights and Paint ☐ Dual - Red and Medium Intensity White
☐ White - Medium Intensity ☐ Dual - Red and high Intensity White
☐ White - High Intensity ☐ Other

8. FCC Antenna Structure Registration Number *(if applicable):*

9. Latitude: ____° ____' ____, ____"

10. Longitude: ____° ____' ____, ____"

11. Datum: ☐ NAD 83 ☐ NAD 27 ☐ Other

12. Nearest: City: State

13. Nearest *Public-use* *(not private-use)* or Military Airport or Heliport:

14. Distance from #13. to Structure:

15. Direction from #13. to Structure:

16. Site Elevation *(AMSL):* ft.

17. Total Structure Height *(AGL):* ft.

18. Overall Height (#16 + #17) *(AMSL):* ft.

19. Previous FAA Aeronautical Study Number *(if applicable):*
-OE

20. Description of Location: *(Attach a USGS 7.5 minute Quadrangle Map with the precise site marked and any certified survey)*

21. Complete Description of Proposal:

Frequency/Power (kW)	

Notice is required by 14 Code of Federal Regulations, part 77 pursuant to 49 U.S.C., Section 44718. Persons who knowingly and willingly violate the notice requirements of part 77 are subject to a civil penalty of $1,000 per day until the notice is received, pursuant to 49 U.S.C., Section 46301(a)

I hereby certify that all of the above statements made by me are true, complete, and correct to the best of my knowledge. In addition, I agree to mark and/or light the structure in accordance with established marking & lighting standards as necessary.

Date	Typed or Printed Name and Title of Person Filing Notice	Signature

FAA Form 7460-1 (2-99) Supersedes Previous Edition Electronic Version (Adobe) NSN: 0052-00-012-0009

APPENDIX B

SECTION 106 CONSULTATION AND COORDINATION

STATE OF TENNESSEE
DEPARTMENT OF TRANSPORTATION
ENVIRONMENTAL DIVISION
SUITE 900, JAMES K. POLK BUILDING
505 DEADERICK STREET
NASHVILLE, TENNESSEE 37243-0334

June 1, 2006

SUBJECT: Section 106 Initial Coordination for Proposed Pellissippi Parkway Extension, State Route 162 from State Route 33 to State Route 73 (U.S. 321), Blount County, Tennessee

To Whom It May Concern:

The Tennessee Department of Transportation (TDOT) in cooperation with the Federal Highway Administration is in the planning stages of evaluating the above-referenced project for possible implementation. The location of the proposed project is shown on the enclosed map.

The 2001 Advisory Council on Historic Preservation regulations, 36 CFR 800, stipulate that Indian tribes that attach religious and cultural significance to properties that may be affected by an undertaking be invited to participate in the project review process as consulting parties. TDOT would like to invite you to participate as a consulting party for the proposed project. This letter is also TDOT's request for comments on the identification of properties in the project's area of potential effect that may be of religious and cultural significance to your tribe.

If you choose to participate as a consulting party on the above-referenced project, you will receive copies of cultural assessment reports that identify Native American related properties. You will also be invited to attend project-related meetings with FHWA, TDOT and the Tennessee State Historic Preservation Office (TN-SHPO), if any are held. We respectfully request written responses to project reports and other materials within thirty (30) days of receipt.

If you would like to participate as a consulting party, please respond to me via letter, telephone (615-741-5257), fax (615-741-1098) or E-mail (Gerald.Kline@state.tn.us). To facilitate our planning process, please respond within 30 days of receipt of this letter. If you do not respond, you will not receive reports related to this project unless you specifically request them at a later date. Thank you for your assistance.

Sincerely,

Gerald Kline

Gerald Kline
Transportation Specialist I
Archaeology Program Manager

Enclosure

cc. Dr. Richard Allen, The Cherokee Nation
Tyler Howe, Eastern Band of Cherokee Indians
Charles D. Enyart, Eastern Shawnee Tribe of Oklahoma
Rebecca Hawkins, Shawnee Tribe
Lisa Stopp, United Keetoowah Band of Cherokee Indians

STATE OF TENNESSEE
DEPARTMENT OF TRANSPORTATION
ENVIRONMENTAL DIVISION
SUITE 900, JAMES K. POLK BUILDING
505 DEADERICK STREET
NASHVILLE, TENNESSEE 37243-0334

June 1, 2006

Robert Ramsey
Blount County Mayor
341 Court Street
Maryville, TN 37804

RE: Section 106 Initial Coordination for Proposed Pellissippi Parkway Extension, State Route 162 from State Route 33 to State Route 73 (U.S. 321), Blount County, TN

Dear Mr. Ramsey:

The Tennessee Department of Transportation (TDOT) in cooperation with the Federal Highway Administration is proposing to improve the above referenced project. Its location is shown on the enclosed map.

The 2001 Advisory Council on Historic Preservation regulations stipulate that TDOT invite local government representatives to participate in the historic review process as a consulting party. TDOT would like to invite you, as the local government official, to participate as a consulting party for the proposed project.

If you choose to participate as a consulting party, you will receive copies of TDOT's environmental reports and will be invited to attend project-related meetings between TDOT and the Tennessee State Historic Preservation Office (TN-SHPO), if any are held. As a consulting party, you should be prepared to attend any such meetings between TDOT and the TN-SHPO and provide a response to TDOT's reports in written form within 30 days upon receipt of the report. TDOT also wishes to seek your comments on the identification and evaluation of historic properties that the proposed project might impact.

If you would like to participate as a consulting party, please write to me at the above address. To facilitate our planning process, please respond within 30 days of receipt of this letter. Thank you for your assistance.

Sincerely,

Martha Carver

Martha Carver
Historic Preservation Program Manager

Enclosure
cc: Mr. Herbert Harper, TN-SHPO

From: Dorothy McCormick <dmccormick_esto@yahoo.com>
To: <gerald.kline@state.tn.us>
Date: 6/1/2006 2:08:59 PM
Subject: Section 106 Initial Coordination for Proposed Pellissippi Parkway Extension, State Route 162 from State Route 33 to State Route 73 (U.S. 321), Blount County, TN

June 1, 2006

To Whom It May Concern:

Thank you for notice of the referenced project(s). The Eastern Shawnee Tribe of Oklahoma is currently unaware of any documentation directly linking Indian Religious Sites to the proposed construction. In the event any items falling under the Native American Graves Protection and Repatriation Act (NAGPRA) are discovered during construction, the Eastern Shawnee Tribe request notification and further consultation.

The Eastern Shawnee Tribe has no objection to the proposed construction. At present, the Eastern Shawnee Tribe does not wish to participate as a consulting party on the above referenced project(s). However, if any human skeletal remains and/or any objects falling under NAGPRA are uncovered during construction, the construction should stop immediately, and the appropriate persons, including state and tribal NAGPRA representatives contacted.

Sincerely,

Dorothy W. McCormick, Administrative Assistant
Eastern Shawnee Tribe of Oklahoma
127 West Oneida
P.O. Box 350
Seneca, MO 64865
918-666-2435 Phone
918-666-2186 Fax

Feel free to call! Free PC-to-PC calls. Low rates on PC-to-Phone. Get Yahoo! Messenger with Voice

TENNESSEE HISTORICAL COMMISSION
DEPARTMENT OF ENVIRONMENT AND CONSERVATION
2941 LEBANON ROAD
NASHVILLE, TN 37243-0442
(615) 532-1550

May 4, 2009

Ms. Martha Carver
Tennessee Department of Transportation
505 Deaderick St/900
Nashville, Tennessee, 37243-0349

RE: FHWA, EFFECT DETERMINATION, SR-162 – PELLISSIPPI PARKWAY/SR-33 TO SR-73, UNINCORPORATED, BLOUNT COUNTY

Dear Ms. Carver:

Pursuant to your request, received on Tuesday, April 28, 2009, this office has reviewed documentation concerning the above-referenced undertaking. This review is a requirement of Section 106 of the National Historic Preservation Act for compliance by the participating federal agency or applicant for federal assistance. Procedures for implementing Section 106 of the Act are codified at 36 CFR 800 (Federal Register, December 12, 2000, 77698-77739)

Based on the information provided, we find that the project area contains a cultural resource eligible for listing in the National Register of Historic Places: the Sam Houston School. We further find that the project as currently proposed will not adversely affect this resource.

Unless project plans change, this office has no objection to the implementation of this project. Should project plans change, please contact this office to determine what additional action, if any, is necessary. Questions and comments may be directed to Joe Garrison (615) 532-1550-103. Your cooperation is appreciated.

Sincerely,

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

EPM/jyg

TENNESSEE HISTORICAL COMMISSION
DEPARTMENT OF ENVIRONMENT AND CONSERVATION
2941 LEBANON ROAD
NASHVILLE, TN 37243-0442
(615) 532-1550

May 20, 2009

Mr. Gerald Kline
Tennessee Department of Transportation
Environmental Division
Suite 900, James K. Polk Building
505 Deaderick Street
Nashville, Tennessee 37243-0334

RE: FHWA, PHASE I ARCHAEOLOGICAL ASSESSMENT, SR-162/PELLISSIPPI PKWY/ALTS A,C,D, UNINCORPORATED, BLOUNT COUNTY,

Dear Mr. Gerald Kline:

At your request, our office has reviewed the above-referenced archaeological survey report in accordance with regulations codified at 36 CFR 800 (Federal Register, December 12, 2000, 77698-77739). Based on the information provided, we concur that the project area contains archaeological resources potentially eligible for listing in the National Register of Historic Places. Sites 40BT100, 40BT122, 40BT125, 40BT202, 40BT203, 40BT205, 40BT207, and 40BT209 should be avoided by all ground-disturbing activities or subjected to Phase II archaeological evaluation. In addition, site 40BT214, a historic cemetery, should also be avoided by ground-disturbing activities.

Upon receipt of the Phase II testing report or avoidance strategy, we will complete our review of this undertaking as expeditiously as possible. Please submit a minimum of two copies of each final report to this office in accordance with the Tennessee Historical Commission Review and Compliance Section Reporting Standards and Guidelines. Complete and/or updated Tennessee Site Survey Forms should be submitted to the Tennessee Division of Archaeology. Until such time as this office has rendered a final comment on this project, your Section 106 obligation under federal law has not been met. Please inform this office if this project is canceled or not funded by the federal agency. Questions and comments may be directed to Jennifer M. Barnett (615) 741-1588, ext. 105.

Your cooperation is appreciated.

Sincerely,

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

EPM/jmb

From: Tom Love [Tom.Love@state.tn.us]
Sent: Thursday, March 05, 2009 9:08 AM
To: Skinner, Nancy T.
Cc: Martha Carver
Subject: Fwd: Pellissippi Parkway - State Route 162 - Pershing marker
Nancy
Add this to the Environmental Commitments. Thanks
Tom

>>> Martha Carver 3/5/2009 8:51 AM >>>
The SHPO has requested that this historical marker be preserved during this road project. While it is not eligible for the National Register, it is of local interest and should not be demolished. If the project involves relocating the marker, I would also suggest that it be re-erected in a pull-off (instead of just by the road), which is safer and makes the marker more accessible to the public.

Please add this information to your commitments tracking.

Martha Carver
TDOT Environmental Division
Historic Preservation Section
Suite 900 Polk Building
505 Deaderick Street
Nashville, TN 37243-0334
(phone) 615-253-2461
(fax) 615-741-1098

>>> Claudette Stager 3/5/2009 7:49 AM >>>
The THC requests that the Anne Elizabeth Thompson Pershing historic marker (BT.2361), erected in 1922 by the THC and located along Buchanan Road outside Maryville, be protected during any construction related to the Pellissippi Parkway Extension project at US 321 (Lamar Alexander Parkway). If the proposed highway project may impact the historic marker, the THC requests that it be removed and stored safely offsite during construction and then reinstalled after construction, perhaps in a more visible location along US 321. Please work with the property owner in this potential undertaking.

Claudette Stager
National Register
Tennessee Historical Commission
2941 Lebanon Road
Nashville TN 37214
615/532-1550, ext. 105
www.TDEC.net/hist

APPENDIX C

PM2.5 INTERAGENCY CONSULTATION

From: Marc Corrigan
To: McAdoo, Mark
Date: 1/9/2009 10:51 AM
Subject: Re: PM 2.5 Determination for Pellissippi Parkway Project (PIN# 101423.00)

Mark,

Based on the information provided, and no new information is provided from other IAC participants, I concur with TDOT's determination.

Marc

>>> Mark McAdoo 12:17 PM 1/8/09 >>>
Marc -
In response to your question, our consultant informs me "the rows in the table were shaded just to make the truck changes in volume stand out from the no-build to the build scenario. We thought that this important with regard to impacts as it shows that most of the volumes decrease in the build scenario."

TDOT requests your concurrence with our recommendation that this project be classified as NOT OF AIR QUALITY CONCERN. Please respond no later than close of business (4:30 central time) on**January 20, 2009**. If TDOT does not receive a response to the contrary within 10 business days of this email then TDOT will assume that you concur with our recommended determination.

Thanks,

Mark

TDOT - Environmental Division
615-741-6834

If you want your budget in the black - think green!

>>> Marc Corrigan 1/8/2009 8:28 AM >>>
Mark,

What is the significance of the of the shaded rows in the tables?

Marc

>>> Mark McAdoo 8:53 AM 1/7/09 >>>
Knoxville Area IAC -
This project was previously submitted to the IAC for concurrence. However, on December 19, 2008, Kelly Sheckler (EPA) left a voice message with me requesting us to revise the determination and resubmit. EPA requested truck numbers (not percentages) for the build and no build in the design year.

Our consultant for this project has made those revisions and TDOT is now resubmitting the determination that this project be classified as NOT OF AIR QUALITY CONCERN to the IAC for concurrence. Details are provided in the attached document.

TDOT requests your concurrence with our recommendation that this project be classified as NOT OF AIR QUALITY CONCERN. Please respond no later than close of business (4:30 central time) on January 20, 2009. If TDOT does not receive a response to the contrary within 10 business days of this email then TDOT will assume that you concur with our recommended determination.

Happy New Year,

Mark

TDOT - Environmental Division
615-741-6834

If you want your budget in the black - think green!

From: <Sheckler.Kelly@epamail.epa.gov>
To: "Mark McAdoo" <Mark.McAdoo@state.tn.us>
Date: 1/13/2009 11:48 AM
Subject: Re: PM 2.5 Determination for Pellissippi Parkway Project (PIN# 101423.00)- (1 project)
Attachments: PM2 5HotSpotDeterminationQA-Pellissippi- 1-6-08 final.doc

CC: <Smith.Dianna@epamail.epa.gov>
Mark- thank you for providing the updated material. Based upon what you have provided in the write-up, EPA concurs that this projects is not of air quality concern per the Transportation conformity provisions.

Kelly Sheckler
US Environmental Protection Agency- Region 4
Diesel Collaborative and Transportation Outreach Liaison
61 Foryths Street
Atlanta, Georgia 30303
(404) 562-9222
Sheckler.Kelly@epa.gov

"Mark McAdoo" <Mark.McAdoo@state.tn.us> 01/07/2009 09:53 AM

To <asmcdaniel@aqm.co.knox.tn.us>, <laliddington@aqm.co.knox.tn.us>, "Abigail Rivera" <Abigail.Rivera@dot.gov>, "Jeffery Anoka" <Jeffery.Anoka@dot.gov>, Lynorae Benjamin/R4/USEPA/US@EPA, Kelly Sheckler/R4/USEPA/US@EPA, Dianna Smith/R4/USEPA/US@EPA, Amanetta Wood/R4/USEPA/US@EPA, <Cecilia.Crenshaw@fhwa.dot.gov>, "Charles Oneill" <Charles.Oneill@fhwa.dot.gov>, <LeighAnn.Tribble@fhwa.dot.gov>, <Michael.Roberts@fhwa.dot.gov>, "Tameka Macon" <Tameka.Macon@fhwa.dot.gov>, "Vic Otero" <Victor.Otero@fhwa.dot.gov>, <Jeff.Welch@knoxtrans.org>, <Mike.Conger@knoxtrans.org>, <Shannon.Tolliver@knoxtrans.org>, <richd@mymorristown.com>, <jim_renfro@nps.gov>, <liana_reilly@nps.gov>, <teresa_cantrell@nps.gov>, "Alan Jones" <Alan.Jones@state.tn.us>, "Angela Midgett" <Angela.Midgett@state.tn.us>, "Marc Corrigan"

<Marc.Corrigan@state.tn.us>,
"Mark McAdoo"
<Mark.McAdoo@state.tn.us>,
"Robert Rock"
<Robert.Rock@state.tn.us>,
"Ronnie Porter"
<Ronnie.Porter@state.tn.us>
cc
"Nancy T. Skinner"
<SkinnerN@pbworld.com>, "Jim
Ozment" <Jim.Ozment@state.tn.us>,
"Tom Love" <Tom.Love@state.tn.us>
Subject
PM 2.5 Determination for
Pellissippi Parkway Project (PIN#
101423.00)

Knoxville Area IAC -
This project was previously submitted to the IAC for concurrence. However, on December 19, 2008, Kelly Sheckler (EPA) left a voice message with me requesting us to revise the determination and resubmit. EPA requested truck numbers (not percentages) for the build and no build in the design year.

Our consultant for this project has made those revisions and TDOT is now resubmitting the determination that this project be classified as NOT OF AIR QUALITY CONCERN to the IAC for concurrence. Details are provided in the attached document.

TDOT requests your concurrence with our recommendation that this project be classified as NOT OF AIR QUALITY CONCERN. Please respond no later than close of business (4:30 central time) on January 20, 2009. If TDOT does not receive a response to the contrary within 10 business days of this email then TDOT will assume that you concur with our recommended determination.

Happy New Year,

Mark

TDOT - Environmental Division
615-741-6834

If you want your budget in the black - think green!

From: <Victor.Otero@dot.gov>
To: <Mark.McAdoo@state.tn.us>, <asmcdaniel@aqm.co.knox.tn.us>, <laliddington...
Date: 1/13/2009 12:58 PM
Subject: RE: PM 2.5 Determination for Pellissippi Parkway Project (PIN#101423.00)- (1 project)

CC: <SkinnerN@pbworld.com>, <Jim.Ozment@state.tn.us>, <Tom.Love@state.tn.us>

FHWA concurs that the Pellissippi Parkway Project (PIN#101423.00)- (1 project is not of air quality concern. Should you require additional information, please contact me at 615.781.5761

Thank you

Victor Otero
FHWA TN DIVISION

-----Original Message-----
From: Mark McAdoo [mailto:Mark.McAdoo@state.tn.us]
Sent: Tuesday, January 13, 2009 12:11 PM
To: asmcdaniel@aqm.co.knox.tn.us; laliddington@aqm.co.knox.tn.us; Rivera, Abigail <FTA>; Anoka, Jeffery <FTA>; Benjamin.Lynorae@epa.gov; Sheckler.Kelly@epa.gov; smith.dianna@epa.gov; Wood.Amanetta@epa.gov; Crenshaw, Cecilia <FHWA>; Oneill, Charles <FHWA>; Tribble, Leigh Ann <FHWA>; Roberts, Michael <FHWA>; Macon, Tameka <FHWA>; Otero, Victor <FHWA>; Jeff.Welch@knoxtrans.org; Mike.Conger@knoxtrans.org; Shannon.Tolliver@knoxtrans.org; richd@mymorristown.com; jim_renfro@nps.gov; liana_reilly@nps.gov; teresa_cantrell@nps.gov; Alan Jones; Angela Midgett; Marc Corrigan; Mark McAdoo; Robert Rock; Ronnie Porter
Cc: Nancy T. Skinner; Jim Ozment; Tom Love
Subject: Re: PM 2.5 Determination for Pellissippi Parkway Project (PIN#101423.00)- (1 project)

Kelly -
Thank you for providing concurrence from EPA. I hope FHWA and the other IAC members can provide concurrence by January 20th.

Mark

TDOT - Environmental Division
615-741-6834

If you want your budget in the black - think green!

>>> <Sheckler.Kelly@epamail.epa.gov> 1/13/2009 11:48 AM >>>
Mark- thank you for providing the updated material. Based upon what you have provided in the write-up, EPA concurs that this projects is not of air quality concern per the Transportation conformity provisions.

Kelly Sheckler
US Environmental Protection Agency- Region 4

From: Mark McAdoo [Mark.McAdoo@state.tn.us]
Sent: Monday, December 01, 2008 10:22 AM
To: asmcdaniel@aqm.co.knox.tn.us; laliddington@aqm.co.knox.tn.us; Abigail Rivera; Jeffery Anoka; Benjamin.Lynorae@epa.gov; Sheckler.Kelly@epa.gov; smith.dianna@epa.gov; Wood.Amanetta@epa.gov; Cecilia.Crenshaw@fhwa.dot.gov; LeighAnn.Tribble@fhwa.dot.gov; Michael.Roberts@fhwa.dot.gov; Tameka Macon; tony.dittmeier@fta.dot.gov; Jeff.Welch@knoxtrans.org; Mike.Conger@knoxtrans.org; Shannon.Tolliver@knoxtrans.org; richd@mymorristown.com; jim_renfro@nps.gov; liana_reilly@nps.gov; teresa_cantrell@nps.gov; Alan Jones; Angela Midgett; Marc Corrigan; Robert Rock; Ronnie Porter
Cc: Skinner, Nancy T.; Tom Love
Subject: Pellissippi Parkway (PIN# 101423.00)

Attachments: PM2 5HotSpotDeterminationQA-Pellissippi-R.doc

Knoxville Area IAC -

TDOT recommends that the following project be classified as NOT OF AIR QUALITY CONCERN for PM 2.5 Transportation Conformity:

PIN# 101423.00 - Knox County Pellissippi Parkway

More details are provided in the attached document.

TDOT requests your concurrence with our recommendation that this project is NOT OF AIR QUALITY CONCERN. Please respond to this e-mail no later than close of business (4:30 central time) on December 15, 2008. If TDOT does not receive a response to the contrary by December 15, 2008 then TDOT will assume that you concur with our recommended determination.

Mark

TDOT - Environmental Division
615-741-6834

If you want your budget in the black - think green!

APPENDIX D

NOISE TABLES AND FIGURES

Table D-1: Summary of Existing Noise Measurements

Receptor ID	Alternate	Receptor Address	Land Use	Distance to Centerline (feet)	Date	Time	Measured	Measured	Modeled	Modeled Minus Measured
							Leq (1-hr)	Average Leq (1-hr)	Leq (1-hr)	
M1/Rec 7	A & C	213 Jackson Hills Dr.	Residential	210	10/28/08	8:10 AM	48	N/A	41	-7
M2/Rec 35	A & C	557 Jackson Hills Dr.	Residential	N/A	10/28/08	8:55 AM	43	N/A	38	-5
M3/Rec 51	A & C	3049 Wildwood Road	Residential	1070	10/28/08	9:30 AM	41	N/A	40	-1
M5/Rec 63	A & C	1785 E. Brown School Rd.	Residential	890	10/28/08	1:40 PM	43	N/A	40	-3
M7/Rec 76	A	3047 Davis Ford Rd.	Residential	106	10/28/08	2:30 PM	33	N/A	47	14
M8/Rec 84	A	626 Hepatica Dr.	Residential	N/A	10/28/08	3:25 PM	40	N/A	41	1
M9/Rec 93	A	3412 Lamar Alex. Pkwy.	Church	65	10/28/08	4:00 PM	67	N/A	70	3
M10/Rec 72	A	3115 Sevierville Rd.	Residential	78	10/30/08	4:15 PM	64	N/A	68	4
M4/Rec 66	C	1834 E. Brown School Rd.	Residential	500	10/28/08	10:45 AM	32	N/A	40	8
M17/Rec 133	C	1225 Hitch Rd.	Residential	N/A	10/29/08	2:20 PM	46	44	46	2
					10/30/08	3:10 PM	39			
M18/Rec 270	C	3307 Melanie Dr.	Residential	N/A	10/29/08	3:00 PM	47	45	40	-5
					10/30/08	3:45 PM	36			
M20/Rec 128	C	Cemetery	Cemetery	1070	10/29/08	4:10 PM	44	N/A	53	9
M23/Rec 123	C	225 John Helton Rd.	Residential	149	10/30/08	10:15 AM	40	N/A	44	4

Table D-1: Summary of Existing Noise Measurements, continued

M24/Rec 125	C	3330 Centennial Ch. Rd.	Residential	235	10/30/08	11:05 AM	39	N/A	42	3
M6/Rec 181	D	708 Sam Houston School Rd.	School	1040	10/28/08	1:00 PM	42	N/A	44	2
M11/Rec 167	D	229 Sam Houston School Rd.	Residential	105	10/29/08	8:30 AM	57	N/A	65	8
M12/Rec 177	D	436 Sam Houston School Rd.	Residential	167	10/29/08	9:10 AM	55	N/A	60	5
M13/Rec 198	D	909 Sam Houston School Rd.	Residential	103	10/29/08	9:55 AM	51	54	64	10
					10/29/08	5:00 PM	56			
M14/Rec 211	D	1036 Belfair Lane	Residential	123	10/29/08	10:35 AM	55	N/A	67	12
M15/Rec 227	D	1514 Peppermint Rd.	Residential	96	10/29/08	1:00 PM	53	N/A	62	9
M16/Rec 250	D	3324 Sevierville Rd.	Residential	86	10/29/08	1:40 PM	56	N/A	64	8
M19/Rec 272	D	839 Misty View Dr.	Residential	247	10/29/08	3:35 PM	48	N/A	42	-6
M21/Rec 298	D	3553 Lamar Alex. Pkwy.	Commercial	107	10/30/08	8:35 AM	63	N/A	68	5
M22/Rec 288	D	253 John Helton Rd.	Residential	46	10/30/08	9:15 AM	45	N/A	47	2
M25/Rec 240	D	2078 State Route 3	Residential	211	10/30/08	2:35 PM	42	N/A	55	13

Table D-2: 2008 Existing and 2035 Future Noise Levels, Alternative A

Noise Receptor Number Identification	FHWA LAND USE Activity Category	Land Use at Receptor Location	2008 EXISTING Leq(H) dBA	2035 NO BUILD Leq(H) dBA	ALTERNATIVE A 2035 BUILD Leq(H) dBA	IMPACT CRITERIA		
						BUILD MINUS EXISTING DELTA (dBA)	PREDICTED BUILD NOISE LEVELS vs. FHWA NAC	PREDICTED BUILD vs. EXISTING NOISE LEVELS
Rec 1	B	Residential	56	61	64	8	No Impact	No Impact
Rec 2	B	Residential	49	55	59	10	No Impact	Impact
Rec 3	B	Residential	47	52	58	11	No Impact	Impact
Rec 4	B	Residential	46	50	58	12	No Impact	Impact
Rec 5	B	Residential	46	49	57	11	No Impact	Impact
Rec 6	B	Residential	46	49	57	11	No Impact	Impact
Rec 7/M1	B	Residential	41	45	60	19	No Impact	Impact
Rec 8	B	Residential	40	45	59	19	No Impact	Impact
Rec 9	B	Residential	41	45	59	18	No Impact	Impact
Rec 10	B	Residential	41	45	59	18	No Impact	Impact
Rec 11	B	Residential	43	46	56	13	No Impact	No Impact
Rec 12	B	Residential	41	44	59	18	No Impact	Impact
Rec 13	B	Residential	41	44	58	17	No Impact	Impact
Rec 14	B	Residential	40	43	57	17	No Impact	Impact
Rec 15	B	Residential	40	43	57	17	No Impact	Impact
Rec 16	B	Residential	41	44	56	15	No Impact	No Impact
Rec 17	B	Residential	40	43	56	16	No Impact	No Impact
Rec 18	B	Residential	45	47	53	8	No Impact	No Impact
Rec 19	B	Residential	40	43	55	15	No Impact	No Impact
Rec 20	B	Residential	40	43	55	15	No Impact	No Impact
Rec 21	B	Residential	41	43	54	13	No Impact	No Impact
Rec 22	B	Residential	40	43	54	14	No Impact	No Impact
Rec 23	B	Residential	39	42	53	14	No Impact	No Impact
Rec 24	B	Residential	42	44	53	11	No Impact	No Impact

Table D-2: 2008 Existing and 2035 Future Noise Levels, Alternative A, continued

Noise Receptor Number Identification	FHWA LAND USE Activity Category	Land Use at Receptor Location	2008 EXISTING Leq(H) dBA	2035 NO BUILD Leq(H) dBA	ALTERNATIVE A 2035 BUILD Leq(H) dBA	IMPACT CRITERIA		
						BUILD MINUS EXISTING DELTA (dBA)	PREDICTED BUILD NOISE LEVELS vs. FHWA NAC	PREDICTED BUILD vs. EXISTING NOISE LEVELS
Rec 25	B	Residential	40	43	52	12	No Impact	No Impact
Rec 26	B	Residential	46	48	52	6	No Impact	No Impact
Rec 27	B	Residential	41	43	52	11	No Impact	No Impact
Rec 28	B	Residential	40	42	52	12	No Impact	No Impact
Rec 29	B	Residential	40	42	52	12	No Impact	No Impact
Rec 30	B	Residential	38	41	54	16	No Impact	No Impact
Rec 31	B	Residential	41	43	55	14	No Impact	No Impact
Rec 32	B	Residential	40	43	56	16	No Impact	No Impact
Rec 33	B	Residential	40	42	58	18	No Impact	**Impact**
Rec 34	B	Residential	38	40	70	32	**Impact**	**Impact**
Rec 35/M2	B	Residential	38	40	68	30	**Impact**	**Impact**
Rec 36	B	Residential	38	41	56	18	No Impact	No Impact
Rec 37	B	Residential	38	41	59	21	No Impact	**Impact**
Rec 38	B	Residential	39	41	57	18	No Impact	**Impact**
Rec 39	B	Residential	39	41	58	19	No Impact	**Impact**
Rec 40	B	Residential	39	41	58	19	No Impact	**Impact**
Rec 41	B	Residential	39	41	58	19	No Impact	**Impact**
Rec 42	B	Residential	39	41	62	23	No Impact	**Impact**
Rec 43	B	Residential	39	41	61	22	No Impact	**Impact**
Rec 44	B	Residential	39	41	59	20	No Impact	**Impact**
Rec 45	B	Residential	40	42	57	17	No Impact	**Impact**
Rec 46	B	Residential	40	42	59	19	No Impact	**Impact**
Rec 47	B	Residential	40	42	59	19	No Impact	**Impact**
Rec 48	B	Residential	40	42	65	25	No Impact	**Impact**
Rec 49	B	Residential	41	43	60	19	No Impact	**Impact**
Rec 50	B	Residential	43	44	58	15	No Impact	**Impact**

Table D-2: 2008 Existing and 2035 Future Noise Levels, Alternative A, continued

Noise Receptor Number Identification	FHWA LAND USE Activity Category	Land Use at Receptor Location	2008 EXISTING Leq(H) dBA	2035 NO BUILD Leq(H) dBA	ALTERNATIVE A 2035 BUILD Leq(H) dBA	IMPACT CRITERIA		
						BUILD MINUS EXISTING DELTA (dBA)	PREDICTED BUILD NOISE LEVELS vs. FHWA NAC	PREDICTED BUILD vs. EXISTING NOISE LEVELS
Rec 51/M3	B	Residential	40	42	65	25	No Impact	**Impact**
Rec 52	B	Residential	40	42	NA	NA	NA	NA
Rec 53	B	Residential	44	45	NA	NA	NA	NA
Rec 54	B	Residential	45	46	59	14	No Impact	**Impact**
Rec 55	B	Residential	49	51	59	10	No Impact	**Impact**
Rec 56	B	Residential	57	58	63	6	No Impact	No Impact
Rec 57	B	Residential	60	61	66	6	**Impact**	No Impact
Rec 58	B	Residential	56	57	65	9	No Impact	No Impact
Rec 59	B	Residential	49	50	64	15	No Impact	**Impact**
Rec 60	B	Residential	44	45	63	19	No Impact	**Impact**
Rec 61	B	Residential	46	47	NA	NA	NA	NA
Rec 62	B	Residential	45	47	66	21	**Impact**	**Impact**
Rec 63/M5	B	Residential	40	42	71	31	**Impact**	**Impact**
Rec 64	B	Residential	41	43	61	20	No Impact	**Impact**
Rec 65	B	Residential	41	43	59	18	No Impact	**Impact**
Rec 66/M4	B	Residential	40	42	60	20	No Impact	**Impact**
Rec 67	B	Residential	40	41	71	31	**Impact**	**Impact**
Rec 68	B	Residential	38	40	60	22	No Impact	**Impact**
Rec 69	B	Residential	38	40	61	23	No Impact	**Impact**
Rec 70	B	Residential	39	40	68	29	**Impact**	**Impact**
Rec 71	B	Residential	63	65	69	6	**Impact**	No Impact
Rec 72/M10	B	Residential	68	71	71	3	**Impact**	No Impact
Rec 73	B	Residential	63	65	NA	NA	NA	NA
Rec 74	B	Residential	62	64	67	5	**Impact**	No Impact
Rec 75	B	Residential	45	47	66	21	**Impact**	**Impact**
Rec 76/M7	B	Residential	47	49	72	25	**Impact**	**Impact**

Table D-2: 2008 Existing and 2035 Future Noise Levels, Alternative A, continued

						IMPACT CRITERIA		
Noise Receptor Number Identification	FHWA LAND USE Activity Category	Land Use at Receptor Location	2008 EXISTING Leq(H) dBA	2035 NO BUILD Leq(H) dBA	ALTERNATIVE A 2035 BUILD Leq(H) dBA	BUILD MINUS EXISTING DELTA (dBA)	PREDICTED BUILD NOISE LEVELS vs. FHWA NAC	PREDICTED BUILD vs. EXISTING NOISE LEVELS
Rec 77	B	Residential	41	43	59	18	No Impact	**Impact**
Rec 78	B	Residential	48	50	68	20	**Impact**	**Impact**
Rec 79	B	Residential	45	47	60	15	No Impact	**Impact**
Rec 80	B	Residential	50	52	63	13	No Impact	**Impact**
Rec 81	B	Residential	50	52	64	14	No Impact	**Impact**
Rec 82	B	Residential	45	47	63	18	No Impact	**Impact**
Rec 83	B	Residential	46	48	61	15	No Impact	**Impact**
Rec 84/M8	B	Trailer Park	41	44	65	24	No Impact	**Impact**
Rec 85	B	Trailer Park	43	46	72	29	**Impact**	**Impact**
Rec 86	B	Trailer Park	44	48	66	22	**Impact**	**Impact**
Rec 87	B	Trailer Park	47	50	66	19	**Impact**	**Impact**
Rec 88	B	Trailer Park	51	54	61	10	No Impact	**Impact**
Rec 89	B	Residential	64	68	68	4	**Impact**	No Impact
Rec 90	B	Residential	66	70	70	4	**Impact**	No Impact
Rec 91	B	Residential	68	72	NA	NA	NA	NA
Rec 92	B	Residential	69	72	71	2	**Impact**	No Impact
Rec 93/M9	B	Church	70	74	73	3	**Impact**	No Impact
Rec 94	C	Commercial	69	73	71	2	No Impact	No Impact
Rec 95	B	Residential	64	68	66	2	**Impact**	No Impact
Rec 96	B	Residential	65	68	66	1	**Impact**	No Impact
Rec 97	B	Residential	63	67	65	2	No Impact	No Impact
Rec 98	B	Residential	64	67	65	1	No Impact	No Impact
Rec 99	B	Residential	62	66	63	1	No Impact	No Impact
Rec 100	B	Residential	69	72	70	1	**Impact**	No Impact
Rec 101	B	Residential	60	64	62	2	No Impact	No Impact
Rec 102	B	Residential	62	66	63	1	No Impact	No Impact

Table D-2: 2008 Existing and 2035 Future Noise Levels, Alternative A, continued

						IMPACT CRITERIA		
Noise Receptor Number Identification	FHWA LAND USE Activity Category	Land Use at Receptor Location	2008 EXISTING Leq(H) dBA	2035 NO BUILD Leq(H) dBA	ALTERNATIVE A 2035 BUILD Leq(H) dBA	BUILD MINUS EXISTING DELTA (dBA)	PREDICTED BUILD NOISE LEVELS vs. FHWA NAC	PREDICTED BUILD vs. EXISTING NOISE LEVELS
Rec 103	B	Residential	56	59	57	1	No Impact	No Impact
Rec 104	B	Residential	58	62	60	2	No Impact	No Impact
Rec 105	C	Commercial	58	62	60	2	No Impact	No Impact
Rec 106	B	Residential	58	62	60	2	No Impact	No Impact
Rec 107	B	Residential	58	61	60	2	No Impact	No Impact
Rec 108	B	Residential	58	62	60	2	No Impact	No Impact
Rec 109	B	Residential	68	72	70	2	**Impact**	No Impact
Rec 110	C	Commercial	69	72	70	1	No Impact	No Impact
Rec 111	C	Commercial	71	75	73	2	**Impact**	No Impact
Rec 112	B	Residential	58	62	60	2	No Impact	No Impact
Rec 113	B	Residential	56	59	58	2	No Impact	No Impact
Rec 114	B	Residential	54	57	56	2	No Impact	No Impact
Rec 115	B	Residential	49	53	54	5	No Impact	No Impact
Rec 116	B	Residential	50	54	54	4	No Impact	No Impact
Rec 117	B	Residential	52	56	54	2	No Impact	No Impact
Rec 118	B	Residential	50	54	52	2	No Impact	No Impact
Rec 119	B	Residential	46	49	50	4	No Impact	No Impact
Rec 120	B	Residential	46	49	51	5	No Impact	No Impact
Rec 121	B	Residential	45	49	50	5	No Impact	No Impact
Rec 122	B	Residential	44	48	53	9	No Impact	No Impact
Rec 123/M23	B	Residential	44	48	49	5	No Impact	No Impact
Rec 124	B	Residential	42	45	52	10	No Impact	No Impact
Rec 125/M24	B	Residential	42	45	51	9	No Impact	No Impact
Rec 126	B	Residential	45	48	50	5	No Impact	No Impact
Rec 127	B	Church	54	56	58	4	No Impact	No Impact
Rec 128/M20	B	Cemetery	53	55	56	3	No Impact	No Impact

Table D-2: 2008 Existing and 2035 Future Noise Levels, Alternative A, continued

						IMPACT CRITERIA		
Noise Receptor Number Identification	FHWA LAND USE Activity Category	Land Use at Receptor Location	2008 EXISTING Leq(H) dBA	2035 NO BUILD Leq(H) dBA	ALTERNATIVE A 2035 BUILD Leq(H) dBA	BUILD MINUS EXISTING DELTA (dBA)	PREDICTED BUILD NOISE LEVELS vs. FHWA NAC	PREDICTED BUILD vs. EXISTING NOISE LEVELS
Rec 129	B	Residential	49	51	54	5	No Impact	No Impact
Rec 130	B	Residential	43	45	53	10	No Impact	No Impact
Rec 131	B	Residential	40	43	49	9	No Impact	No Impact
Rec 132	B	Residential	47	49	51	5	No Impact	No Impact
Rec 133/M17	B	Residential	46	48	50	4	No Impact	No Impact
Rec 134	B	Residential	49	51	52	3	No Impact	No Impact
Rec 135	B	Residential	48	50	51	3	No Impact	No Impact
Rec 136	B	Residential	49	51	52	3	No Impact	No Impact
Rec 137	B	Residential	47	49	51	4	No Impact	No Impact
Rec 138	B	Residential	49	51	52	3	No Impact	No Impact
Rec 139	B	Residential	53	55	55	2	No Impact	No Impact
Rec 140	B	Residential	59	61	61	2	No Impact	No Impact
Rec 141	B	Residential	58	60	60	2	No Impact	No Impact
Rec 142	B	Residential	59	61	61	2	No Impact	No Impact
Rec 143	B	Residential	60	62	62	2	No Impact	No Impact
Rec 144	B	Residential	54	56	56	2	No Impact	No Impact
Rec 145	B	Residential	52	54	54	2	No Impact	No Impact
Rec 146	B	Residential	62	65	64	2	No Impact	No Impact
Rec 147	B	Residential	64	66	66	2	**Impact**	No Impact
Rec 148	B	Residential	59	62	61	2	No Impact	No Impact
Rec 149	B	Residential	43	48	53	10	No Impact	No Impact
Rec 150	B	Residential	44	49	55	11	No Impact	No Impact
Rec 151	B	Residential	44	50	55	11	No Impact	No Impact
Rec 152	B	Residential	45	51	56	11	No Impact	No Impact
Rec 153	B	Residential	46	52	56	10	No Impact	No Impact
Rec 154	B	Residential	47	53	57	10	No Impact	**Impact**

Table D-2: 2008 Existing and 2035 Future Noise Levels, Alternative A, continued

						IMPACT CRITERIA		
Noise Receptor Number Identification	FHWA LAND USE Activity Category	Land Use at Receptor Location	2008 EXISTING Leq(H) dBA	2035 NO BUILD Leq(H) dBA	ALTERNATIVE A 2035 BUILD Leq(H) dBA	BUILD MINUS EXISTING DELTA (dBA)	PREDICTED BUILD NOISE LEVELS vs. FHWA NAC	PREDICTED BUILD vs. EXISTING NOISE LEVELS
Rec 155	B	Residential	49	55	58	9	No Impact	No Impact
Rec 156	B	Residential	51	57	60	9	No Impact	No Impact
Rec 157	B	Residential	56	62	63	7	No Impact	No Impact
Rec 158	B	Residential	60	62	63	2	No Impact	No Impact
Rec 159	B	Residential	61	63	64	3	No Impact	No Impact
Rec 160	B	Residential	55	58	60	5	No Impact	No Impact
Rec 161	B	Residential	53	55	56	3	No Impact	No Impact
Rec 162	B	Residential	61	63	63	2	No Impact	No Impact
Rec 163	B	Residential	64	65	65	1	No Impact	No Impact
Rec 164	B	Residential	58	60	60	2	No Impact	No Impact
Rec 165	B	Residential	68	69	70	2	**Impact**	No Impact
Rec 166	B	Residential	68	70	70	2	**Impact**	No Impact
Rec 167/M11	B	Residential	65	66	66	1	**Impact**	No Impact
Rec 168	B	Residential	65	66	67	2	**Impact**	No Impact
Rec 169	C	Water Treatment Plant	55	57	57	2	No Impact	No Impact
Rec 170	B	Residential	53	55	55	2	No Impact	No Impact
Rec 171	B	Residential	55	56	57	2	No Impact	No Impact
Rec 172	B	Residential	61	62	62	1	No Impact	No Impact
Rec 173	B	Residential	59	61	61	2	No Impact	No Impact
Rec 174	B	Residential	59	61	61	2	No Impact	No Impact
Rec 175	B	Residential	60	62	62	2	No Impact	No Impact
Rec 176	B	Residential	60	61	61	1	No Impact	No Impact
Rec 177/M12	B	Residential	60	61	61	1	No Impact	No Impact
Rec 178	B	Residential	58	59	59	1	No Impact	No Impact
Rec 179	B	Residential	63	65	65	2	No Impact	No Impact

Table D-2: 2008 Existing and 2035 Future Noise Levels, Alternative A, continued

						IMPACT CRITERIA		
Noise Receptor Number Identification	FHWA LAND USE Activity Category	Land Use at Receptor Location	2008 EXISTING Leq(H) dBA	2035 NO BUILD Leq(H) dBA	ALTERNATIVE A 2035 BUILD Leq(H) dBA	BUILD MINUS EXISTING DELTA (dBA)	PREDICTED BUILD NOISE LEVELS vs. FHWA NAC	PREDICTED BUILD vs. EXISTING NOISE LEVELS
Rec 180	B	Residential	46	47	49	3	No Impact	No Impact
Rec 181/M6	B	Elementary School	44	46	48	4	No Impact	No Impact
Rec 182	B	Residential	53	54	54	1	No Impact	No Impact
Rec 183	B	Residential	60	62	62	2	No Impact	No Impact
Rec 184	B	Residential	46	48	49	3	No Impact	No Impact
Rec 185	B	Residential	55	57	57	2	No Impact	No Impact
Rec 186	B	Residential	62	64	64	2	No Impact	No Impact
Rec 187	B	Residential	63	65	65	2	No Impact	No Impact
Rec 188	B	Residential	62	63	63	1	No Impact	No Impact
Rec 189	B	Residential	62	64	64	2	No Impact	No Impact
Rec 190	B	Residential	53	55	55	2	No Impact	No Impact
Rec 191	B	Residential	49	51	51	2	No Impact	No Impact
Rec 192	B	Residential	55	57	57	2	No Impact	No Impact
Rec 193	B	Residential	55	56	57	2	No Impact	No Impact
Rec 194	B	Residential	61	62	62	1	No Impact	No Impact
Rec 195	B	Residential	54	55	56	2	No Impact	No Impact
Rec 196	B	Residential	51	53	53	2	No Impact	No Impact
Rec 197	B	Residential	56	57	57	1	No Impact	No Impact
Rec 198/M13	B	Residential	64	66	66	2	**Impact**	No Impact
Rec 199	B	Residential	61	62	62	1	No Impact	No Impact
Rec 200	B	Residential	53	55	55	2	No Impact	No Impact
Rec 201	B	Residential	63	65	65	2	No Impact	No Impact
Rec 202	B	Residential	58	59	60	2	No Impact	No Impact
Rec 203	B	Residential	59	60	60	1	No Impact	No Impact
Rec 204	B	Residential	59	61	61	2	No Impact	No Impact

Table D-2: 2008 Existing and 2035 Future Noise Levels, Alternative A, continued

						IMPACT CRITERIA		
Noise Receptor Number Identification	FHWA LAND USE Activity Category	Land Use at Receptor Location	2008 EXISTING Leq(H) dBA	2035 NO BUILD Leq(H) dBA	ALTERNATIVE A 2035 BUILD Leq(H) dBA	BUILD MINUS EXISTING DELTA (dBA)	PREDICTED BUILD NOISE LEVELS vs. FHWA NAC	PREDICTED BUILD vs. EXISTING NOISE LEVELS
Rec 205	B	Residential	60	61	62	2	No Impact	No Impact
Rec 206	B	Town-homes	56	58	58	2	No Impact	No Impact
Rec 207	B	Town-homes	59	60	60	1	No Impact	No Impact
Rec 208	B	Town-homes	63	64	65	2	No Impact	No Impact
Rec 209	B	Town-homes	61	63	63	2	No Impact	No Impact
Rec 210	B	Town-homes	61	63	63	2	No Impact	No Impact
Rec 211/M14	B	Town-homes	67	69	69	2	**Impact**	No Impact
Rec 212	B	Cemetery	63	64	64	1	No Impact	No Impact
Rec 213	B	Church	60	61	61	1	No Impact	No Impact
Rec 214	B	Church Ball Field	51	52	53	2	No Impact	No Impact
Rec 215	B	Residential	64	66	66	1	**Impact**	No Impact
Rec 216	B	Residential	63	64	64	1	No Impact	No Impact
Rec 217	B	Residential	65	66	66	1	**Impact**	No Impact
Rec 218	B	Residential	62	63	63	1	No Impact	No Impact
Rec 219	B	Residential	65	66	66	1	**Impact**	No Impact
Rec 220	B	Residential	58	60	60	2	No Impact	No Impact
Rec 221	B	Residential	59	60	61	2	No Impact	No Impact
Rec 222	B	Residential	59	61	61	2	No Impact	No Impact
Rec 223	B	Residential	59	61	61	2	No Impact	No Impact
Rec 224	B	Residential	61	63	63	2	No Impact	No Impact
Rec 225	B	Residential	61	62	62	1	No Impact	No Impact
Rec 226	B	Residential	60	62	62	2	No Impact	No Impact
Rec 227/M15	B	Residential	62	64	64	2	No Impact	No Impact
Rec 228	B	Residential	52	54	55	3	No Impact	No Impact
Rec 229	B	Residential	59	61	61	2	No Impact	No Impact
Rec 230	B	Residential	60	61	62	2	No Impact	No Impact

Table D-2: 2008 Existing and 2035 Future Noise Levels, Alternative A, continued

						IMPACT CRITERIA		
Noise Receptor Number Identification	FHWA LAND USE Activity Category	Land Use at Receptor Location	2008 EXISTING Leq(H) dBA	2035 NO BUILD Leq(H) dBA	ALTERNATIVE A 2035 BUILD Leq(H) dBA	BUILD MINUS EXISTING DELTA (dBA)	PREDICTED BUILD NOISE LEVELS vs. FHWA NAC	PREDICTED BUILD vs. EXISTING NOISE LEVELS
Rec 231	B	Residential	61	63	63	2	No Impact	No Impact
Rec 232	B	Residential	60	62	62	2	No Impact	No Impact
Rec 233	B	Residential	52	54	55	3	No Impact	No Impact
Rec 234	B	Residential	59	61	61	2	No Impact	No Impact
Rec 235	B	Residential	51	53	54	3	No Impact	No Impact
Rec 236	B	Residential	61	62	62	1	No Impact	No Impact
Rec 237	B	Residential	54	56	56	2	No Impact	No Impact
Rec 238	B	Residential	52	54	55	3	No Impact	No Impact
Rec 239	B	Residential	61	63	63	2	No Impact	No Impact
Rec 240/M25	B	Residential	55	57	57	2	No Impact	No Impact
Rec 241	B	Residential	62	64	64	2	No Impact	No Impact
Rec 242	B	Residential	63	65	65	2	No Impact	No Impact
Rec 243	B	Residential	65	67	67	2	**Impact**	No Impact
Rec 244	B	Residential	53	56	56	3	No Impact	No Impact
Rec 245	B	Residential	55	57	57	2	No Impact	No Impact
Rec 246	B	Residential	64	67	66	2	**Impact**	No Impact
Rec 247	B	Residential	61	63	62	1	No Impact	No Impact
Rec 248	B	Residential	56	59	58	2	No Impact	No Impact
Rec 249	B	Residential	60	62	62	2	No Impact	No Impact
Rec 250/M16	B	Residential	64	67	66	2	**Impact**	No Impact
Rec 251	B	Residential	65	67	67	2	**Impact**	No Impact
Rec 252	B	Residential	56	58	58	2	No Impact	No Impact
Rec 253	B	Residential	62	64	64	2	No Impact	No Impact
Rec 254	B	Residential	58	60	60	2	No Impact	No Impact
Rec 255	B	Residential	58	60	60	2	No Impact	No Impact
Rec 256	B	Residential	60	62	62	2	No Impact	No Impact

Table D-2: 2008 Existing and 2035 Future Noise Levels, Alternative A, continued

						IMPACT CRITERIA		
Noise Receptor Number Identification	FHWA LAND USE Activity Category	Land Use at Receptor Location	2008 EXISTING Leq(H) dBA	2035 NO BUILD Leq(H) dBA	ALTERNATIVE A 2035 BUILD Leq(H) dBA	BUILD MINUS EXISTING DELTA (dBA)	PREDICTED BUILD NOISE LEVELS vs. FHWA NAC	PREDICTED BUILD vs. EXISTING NOISE LEVELS
Rec 257	B	Residential	63	65	65	2	No Impact	No Impact
Rec 258	B	Residential	55	57	57	2	No Impact	No Impact
Rec 259	B	Residential	59	61	61	2	No Impact	No Impact
Rec 260	B	Residential	54	56	56	2	No Impact	No Impact
Rec 261	B	Residential	50	52	52	2	No Impact	No Impact
Rec 262	B	Residential	50	52	52	2	No Impact	No Impact
Rec 263	B	Residential	53	55	56	3	No Impact	No Impact
Rec 264	B	Residential	49	52	52	3	No Impact	No Impact
Rec 265	B	Residential	45	47	48	3	No Impact	No Impact
Rec 266	B	Residential	40	42	46	6	No Impact	No Impact
Rec 267	B	Residential	40	43	47	7	No Impact	No Impact
Rec 268	B	Residential	40	42	47	7	No Impact	No Impact
Rec 269	B	Residential	40	42	47	7	No Impact	No Impact
Rec 270/M18	B	Residential	40	42	47	7	No Impact	No Impact
Rec 271	B	Residential	47	49	51	4	No Impact	No Impact
Rec 272/M19	B	Residential	42	45	48	6	No Impact	No Impact
Rec 273	B	Residential	42	44	48	6	No Impact	No Impact
Rec 274	B	Residential	42	44	48	6	No Impact	No Impact
Rec 275	B	Residential	42	45	48	6	No Impact	No Impact
Rec 276	B	Residential	42	45	48	6	No Impact	No Impact
Rec 277	B	Residential	42	44	48	6	No Impact	No Impact
Rec 278	B	Residential	42	45	48	6	No Impact	No Impact
Rec 279	B	Residential	44	46	49	5	No Impact	No Impact
Rec 280	B	Residential	51	53	54	3	No Impact	No Impact
Rec 281	B	Residential	59	61	61	2	No Impact	No Impact
Rec 282	B	Residential	42	45	47	5	No Impact	No Impact

Table D-2: 2008 Existing and 2035 Future Noise Levels, Alternative A, continued

						IMPACT CRITERIA		
Noise Receptor Number Identification	FHWA LAND USE Activity Category	Land Use at Receptor Location	2008 EXISTING Leq(H) dBA	2035 NO BUILD Leq(H) dBA	ALTERNATIVE A 2035 BUILD Leq(H) dBA	BUILD MINUS EXISTING DELTA (dBA)	PREDICTED BUILD NOISE LEVELS vs. FHWA NAC	PREDICTED BUILD vs. EXISTING NOISE LEVELS
Rec 283	B	Residential	54	56	57	3	No Impact	No Impact
Rec 284	B	Residential	51	54	54	3	No Impact	No Impact
Rec 285	B	Residential	50	53	53	3	No Impact	No Impact
Rec 286	B	Residential	53	55	55	2	No Impact	No Impact
Rec 287	B	Residential	55	57	57	2	No Impact	No Impact
Rec 288/M22	B	Residential	47	50	50	3	No Impact	No Impact
Rec 289	B	Residential	45	48	49	4	No Impact	No Impact
Rec 290	C	Commercial	44	47	49	5	No Impact	No Impact
Rec 291	B	Residential	46	49	49	3	No Impact	No Impact
Rec 292	B	Residential	51	53	53	2	No Impact	No Impact
Rec 293	B	Residential	44	48	48	4	No Impact	No Impact
Rec 294	B	Residential	45	49	49	4	No Impact	No Impact
Rec 295	B	Residential	49	52	51	3	No Impact	No Impact
Rec 296	B	Residential	61	64	62	1	No Impact	No Impact
Rec 297	B	Residential	63	66	65	2	No Impact	No Impact
Rec 298/M21	C	Commercial	68	71	69	1	No Impact	No Impact
Rec 299	B	Residential	46	48	49	3	No Impact	No Impact
Rec 300	B	Residential	47	49	50	3	No Impact	No Impact
Rec 301	B	Residential	46	48	48	2	No Impact	No Impact
Rec 302	B	Schoolhouse Museum	45	46	47	2	No Impact	No Impact
Rec 303	B	Schoolhouse Museum	44	45	46	2	No Impact	No Impact
Rec 304	B	Schoolhouse Museum	43	45	46	3	No Impact	No Impact
Rec 236-A	B	Residential	60	62	62	2	No Impact	No Impact
Rec 261-A	B	Residential	57	59	59	2	No Impact	No Impact

Table D-2: 2008 Existing and 2035 Future Noise Levels, Alternative A, concluded

						IMPACT CRITERIA		
Noise Receptor Number Identification	FHWA LAND USE Activity Category	Land Use at Receptor Location	2008 EXISTING Leq(H) dBA	2035 NO BUILD Leq(H) dBA	ALTERNATIVE A 2035 BUILD Leq(H) dBA	BUILD MINUS EXISTING DELTA (dBA)	PREDICTED BUILD NOISE LEVELS vs. FHWA NAC	PREDICTED BUILD vs. EXISTING NOISE LEVELS
Rec 90-A	C	Commercial	64	67	NA	NA	NA	NA
Rec 97-A	B	Residential	55	59	57	2	No Impact	No Impact
Rec 98-A	B	Residential	60	63	61	2	No Impact	No Impact
Rec 99-A	B	Residential	60	64	61	2	No Impact	No Impact
Rec 100-A	B	Residential	62	66	64	2	No Impact	No Impact

Table D-3: 2008 Existing and 2035 Future Noise Levels, Alternative C

						IMPACT CRITERIA		
Noise Receptor Number Identification	FHWA LAND USE Activity Category	Land Use at Receptor Location	2008 EXISTING Leq(H) dBA	2035 NO BUILD Leq(H) dBA	ALTERNATIVE C 2035 BUILD Leq(H) dBA	BUILD MINUS EXISTING DELTA (dBA)	PREDICTED BUILD NOISE LEVELS vs. FHWA NAC	PREDICTED BUILD vs. EXISTING NOISE LEVELS
Rec 1	B	Residential	56	61	64	8	No Impact	No Impact
Rec 2	B	Residential	49	55	59	10	No Impact	**Impact**
Rec 3	B	Residential	47	52	58	11	No Impact	**Impact**
Rec 4	B	Residential	46	50	58	12	No Impact	**Impact**
Rec 5	B	Residential	46	49	57	11	No Impact	**Impact**
Rec 6	B	Residential	46	49	57	11	No Impact	**Impact**
Rec 7/M1	B	Residential	41	45	60	19	No Impact	**Impact**
Rec 8	B	Residential	40	45	59	19	No Impact	**Impact**
Rec 9	B	Residential	41	45	59	18	No Impact	**Impact**
Rec 10	B	Residential	41	45	59	18	No Impact	**Impact**
Rec 11	B	Residential	43	46	56	13	No Impact	No Impact
Rec 12	B	Residential	41	44	59	18	No Impact	**Impact**
Rec 13	B	Residential	41	44	58	17	No Impact	**Impact**
Rec 14	B	Residential	40	43	57	17	No Impact	**Impact**
Rec 15	B	Residential	40	43	57	17	No Impact	**Impact**
Rec 16	B	Residential	41	44	56	15	No Impact	No Impact
Rec 17	B	Residential	40	43	56	16	No Impact	No Impact
Rec 18	B	Residential	45	47	53	8	No Impact	No Impact
Rec 19	B	Residential	40	43	55	15	No Impact	No Impact
Rec 20	B	Residential	40	43	55	15	No Impact	No Impact
Rec 21	B	Residential	41	43	54	13	No Impact	No Impact
Rec 22	B	Residential	40	43	54	14	No Impact	No Impact
Rec 23	B	Residential	39	42	53	14	No Impact	No Impact
Rec 24	B	Residential	42	44	53	11	No Impact	No Impact

Table D-3: 2008 Existing and 2035 Future Noise Levels, Alternative C, continued

						IMPACT CRITERIA		
Noise Receptor Number Identification	FHWA LAND USE Activity Category	Land Use at Receptor Location	2008 EXISTING Leq(H) dBA	2035 NO BUILD Leq(H) dBA	ALTERNATIVE C 2035 BUILD Leq(H) dBA	BUILD MINUS EXISTING DELTA (dBA)	PREDICTED BUILD NOISE LEVELS vs. FHWA NAC	PREDICTED BUILD vs. EXISTING NOISE LEVELS
Rec 25	B	Residential	40	43	52	12	No Impact	No Impact
Rec 26	B	Residential	46	48	52	6	No Impact	No Impact
Rec 27	B	Residential	41	43	52	11	No Impact	No Impact
Rec 28	B	Residential	40	42	52	12	No Impact	No Impact
Rec 29	B	Residential	40	42	52	12	No Impact	No Impact
Rec 30	B	Residential	38	41	54	16	No Impact	No Impact
Rec 31	B	Residential	41	43	55	14	No Impact	No Impact
Rec 32	B	Residential	40	43	56	16	No Impact	No Impact
Rec 33	B	Residential	40	42	58	18	No Impact	**Impact**
Rec 34	B	Residential	38	40	70	32	**Impact**	**Impact**
Rec 35/M2	B	Residential	38	40	68	30	**Impact**	**Impact**
Rec 36	B	Residential	38	41	56	18	No Impact	No Impact
Rec 37	B	Residential	38	41	59	21	No Impact	**Impact**
Rec 38	B	Residential	39	41	57	18	No Impact	**Impact**
Rec 39	B	Residential	39	41	58	19	No Impact	**Impact**
Rec 40	B	Residential	39	41	58	19	No Impact	**Impact**
Rec 41	B	Residential	39	41	58	19	No Impact	**Impact**
Rec 42	B	Residential	39	41	62	23	No Impact	**Impact**
Rec 43	B	Residential	39	41	61	22	No Impact	**Impact**
Rec 44	B	Residential	39	41	59	20	No Impact	**Impact**
Rec 45	B	Residential	40	42	57	17	No Impact	**Impact**
Rec 46	B	Residential	40	42	59	19	No Impact	**Impact**
Rec 47	B	Residential	40	42	59	19	No Impact	**Impact**
Rec 48	B	Residential	40	42	65	25	No Impact	**Impact**
Rec 49	B	Residential	41	43	60	19	No Impact	**Impact**
Rec 50	B	Residential	43	44	58	15	No Impact	**Impact**

Table D-3: 2008 Existing and 2035 Future Noise Levels, Alternative C, continued

						IMPACT CRITERIA		
Noise Receptor Number Identification	FHWA LAND USE Activity Category	Land Use at Receptor Location	2008 EXISTING Leq(H) dBA	2035 NO BUILD Leq(H) dBA	ALTERNATIVE C 2035 BUILD Leq(H) dBA	BUILD MINUS EXISTING DELTA (dBA)	PREDICTED BUILD NOISE LEVELS vs. FHWA NAC	PREDICTED BUILD vs. EXISTING NOISE LEVELS
Rec 51/M3	B	Residential	40	42	65	25	No Impact	**Impact**
Rec 52	B	Residential	40	42	NA	NA	NA	NA
Rec 53	B	Residential	44	45	NA	NA	NA	NA
Rec 54	B	Residential	45	46	59	14	No Impact	**Impact**
Rec 55	B	Residential	49	51	59	10	No Impact	**Impact**
Rec 56	B	Residential	57	58	63	6	No Impact	No Impact
Rec 57	B	Residential	60	61	66	6	**Impact**	No Impact
Rec 58	B	Residential	56	57	65	9	No Impact	No Impact
Rec 59	B	Residential	49	50	64	15	No Impact	**Impact**
Rec 60	B	Residential	44	45	63	19	No Impact	**Impact**
Rec 61	B	Residential	46	47	NA	NA	NA	NA
Rec 62	B	Residential	45	47	66	21	**Impact**	**Impact**
Rec 63/M5	B	Residential	40	42	71	31	**Impact**	**Impact**
Rec 64	B	Residential	41	43	62	21	No Impact	**Impact**
Rec 65	B	Residential	41	43	61	20	No Impact	**Impact**
Rec 66/M4	B	Residential	40	42	67	27	**Impact**	**Impact**
Rec 67	B	Residential	40	41	NA	NA	NA	NA
Rec 68	B	Residential	38	40	58	20	No Impact	**Impact**
Rec 69	B	Residential	38	40	58	20	No Impact	**Impact**
Rec 70	B	Residential	39	40	60	21	No Impact	**Impact**
Rec 71	B	Residential	63	65	65	2	No Impact	No Impact
Rec 72/M10	B	Residential	68	71	70	2	**Impact**	No Impact
Rec 73	B	Residential	63	65	65	2	No Impact	No Impact
Rec 74	B	Residential	62	64	64	2	No Impact	No Impact
Rec 75	B	Residential	45	47	50	5	No Impact	No Impact
Rec 76/M7	B	Residential	47	49	51	4	No Impact	No Impact

Table D-3: 2008 Existing and 2035 Future Noise Levels, Alternative C, continued

						IMPACT CRITERIA		
Noise Receptor Number Identification	FHWA LAND USE Activity Category	Land Use at Receptor Location	2008 EXISTING Leq(H) dBA	2035 NO BUILD Leq(H) dBA	ALTERNATIVE C 2035 BUILD Leq(H) dBA	BUILD MINUS EXISTING DELTA (dBA)	PREDICTED BUILD NOISE LEVELS vs. FHWA NAC	PREDICTED BUILD vs. EXISTING NOISE LEVELS
Rec 77	B	Residential	41	43	49	8	No Impact	No Impact
Rec 78	B	Residential	48	50	53	5	No Impact	No Impact
Rec 79	B	Residential	45	47	52	7	No Impact	No Impact
Rec 80	B	Residential	50	52	54	4	No Impact	No Impact
Rec 81	B	Residential	50	52	55	5	No Impact	No Impact
Rec 82	B	Residential	45	47	53	8	No Impact	No Impact
Rec 83	B	Residential	46	48	53	7	No Impact	No Impact
Rec 84/M8	B	Trailer Park	41	44	48	7	No Impact	No Impact
Rec 85	B	Trailer Park	43	46	49	6	No Impact	No Impact
Rec 86	B	Trailer Park	44	48	49	5	No Impact	No Impact
Rec 87	B	Trailer Park	47	50	50	3	No Impact	No Impact
Rec 88	B	Trailer Park	51	54	53	2	No Impact	No Impact
Rec 89	B	Residential	64	68	66	2	**Impact**	No Impact
Rec 90	B	Residential	66	70	68	2	**Impact**	No Impact
Rec 91	B	Residential	68	72	70	2	**Impact**	No Impact
Rec 92	B	Residential	69	72	70	1	**Impact**	No Impact
Rec 93/M9	B	Church	70	74	72	2	**Impact**	No Impact
Rec 94	C	Commercial	69	73	71	2	No Impact	No Impact
Rec 95	B	Residential	64	68	66	2	**Impact**	No Impact
Rec 96	B	Residential	65	68	68	3	**Impact**	No Impact
Rec 97	B	Residential	63	67	NA	NA	NA	NA
Rec 98	B	Residential	64	67	NA	NA	NA	NA
Rec 99	B	Residential	62	66	NA	NA	NA	NA
Rec 100	B	Residential	69	72	71	2	**Impact**	No Impact
Rec 101	B	Residential	60	64	64	4	No Impact	No Impact
Rec 102	B	Residential	62	66	66	4	**Impact**	No Impact

Table D-3: 2008 Existing and 2035 Future Noise Levels, Alternative C, continued

						IMPACT CRITERIA		
Noise Receptor Number Identification	FHWA LAND USE Activity Category	Land Use at Receptor Location	2008 EXISTING Leq(H) dBA	2035 NO BUILD Leq(H) dBA	ALTERNATIVE C 2035 BUILD Leq(H) dBA	BUILD MINUS EXISTING DELTA (dBA)	PREDICTED BUILD NOISE LEVELS vs. FHWA NAC	PREDICTED BUILD vs. EXISTING NOISE LEVELS
Rec 103	B	Residential	56	59	61	5	No Impact	No Impact
Rec 104	B	Residential	58	62	64	6	No Impact	No Impact
Rec 105	C	Commercial	58	62	67	9	No Impact	No Impact
Rec 106	B	Residential	58	62	NA	NA	NA	NA
Rec 107	B	Residential	58	61	NA	NA	NA	NA
Rec 108	B	Residential	58	62	71	13	**Impact**	**Impact**
Rec 109	B	Residential	68	72	NA	NA	NA	NA
Rec 110	C	Commercial	69	72	71	2	**Impact**	No Impact
Rec 111	C	Commercial	71	75	73	2	**Impact**	No Impact
Rec 112	B	Residential	58	62	62	4	No Impact	No Impact
Rec 113	B	Residential	56	59	63	7	No Impact	No Impact
Rec 114	B	Residential	54	57	64	10	No Impact	**Impact**
Rec 115	B	Residential	49	53	63	14	No Impact	**Impact**
Rec 116	B	Residential	50	54	70	20	**Impact**	**Impact**
Rec 117	B	Residential	52	56	66	14	**Impact**	**Impact**
Rec 118	B	Residential	50	54	65	15	No Impact	**Impact**
Rec 119	B	Residential	46	49	73	27	**Impact**	**Impact**
Rec 120	B	Residential	46	49	NA	NA	NA	NA
Rec 121	B	Residential	45	49	NA	NA	NA	NA
Rec 122	B	Residential	44	48	59	15	No Impact	**Impact**
Rec 123/M23	B	Residential	44	48	71	27	**Impact**	**Impact**
Rec 124	B	Residential	42	45	58	16	No Impact	**Impact**
Rec 125/M24	B	Residential	42	45	73	31	**Impact**	**Impact**
Rec 126	B	Residential	45	48	72	27	**Impact**	**Impact**
Rec 127	B	Church	54	56	66	12	**Impact**	**Impact**
Rec 128/M20	B	Cemetery	53	55	66	13	**Impact**	**Impact**

Table D-3: 2008 Existing and 2035 Future Noise Levels, Alternative C, continued

						IMPACT CRITERIA		
Noise Receptor Number Identification	FHWA LAND USE Activity Category	Land Use at Receptor Location	2008 EXISTING Leq(H) dBA	2035 NO BUILD Leq(H) dBA	ALTERNATIVE C 2035 BUILD Leq(H) dBA	BUILD MINUS EXISTING DELTA (dBA)	PREDICTED BUILD NOISE LEVELS vs. FHWA NAC	PREDICTED BUILD vs. EXISTING NOISE LEVELS
Rec 129	B	Residential	49	51	71	22	**Impact**	**Impact**
Rec 130	B	Residential	43	45	59	15	No Impact	**Impact**
Rec 131	B	Residential	40	43	NA	NA	NA	NA
Rec 132	B	Residential	47	49	NA	NA	NA	NA
Rec 133/M17	B	Residential	46	48	72	26	**Impact**	**Impact**
Rec 134	B	Residential	49	51	68	19	**Impact**	**Impact**
Rec 135	B	Residential	48	50	72	24	**Impact**	**Impact**
Rec 136	B	Residential	49	51	NA	NA	NA	NA
Rec 137	B	Residential	47	49	NA	NA	NA	NA
Rec 138	B	Residential	49	51	NA	NA	NA	NA
Rec 139	B	Residential	53	55	65	12	No Impact	**Impact**
Rec 140	B	Residential	59	61	NA	NA	NA	NA
Rec 141	B	Residential	58	60	NA	NA	NA	NA
Rec 142	B	Residential	59	61	NA	NA	NA	NA
Rec 143	B	Residential	60	62	NA	NA	NA	NA
Rec 144	B	Residential	54	56	NA	NA	NA	NA
Rec 145	B	Residential	52	54	67	15	**Impact**	**Impact**
Rec 146	B	Residential	62	65	67	5	**Impact**	No Impact
Rec 147	B	Residential	64	66	NA	NA	NA	NA
Rec 148	B	Residential	59	62	NA	NA	NA	NA
Rec 149	B	Residential	43	48	53	10	No Impact	No Impact
Rec 150	B	Residential	44	49	55	11	No Impact	No Impact
Rec 151	B	Residential	44	50	55	11	No Impact	No Impact
Rec 152	B	Residential	45	51	56	11	No Impact	No Impact
Rec 153	B	Residential	46	52	56	10	No Impact	No Impact
Rec 154	B	Residential	47	53	57	10	No Impact	**Impact**

Table D-3: 2008 Existing and 2035 Future Noise Levels, Alternative C, continued

						IMPACT CRITERIA		
Noise Receptor Number Identification	FHWA LAND USE Activity Category	Land Use at Receptor Location	2008 EXISTING Leq(H) dBA	2035 NO BUILD Leq(H) dBA	ALTERNATIVE C 2035 BUILD Leq(H) dBA	BUILD MINUS EXISTING DELTA (dBA)	PREDICTED BUILD NOISE LEVELS vs. FHWA NAC	PREDICTED BUILD vs. EXISTING NOISE LEVELS
Rec 155	B	Residential	49	55	58	9	No Impact	No Impact
Rec 156	B	Residential	51	57	60	9	No Impact	No Impact
Rec 157	B	Residential	56	62	63	7	No Impact	No Impact
Rec 158	B	Residential	60	62	63	3	No Impact	No Impact
Rec 159	B	Residential	61	63	64	3	No Impact	No Impact
Rec 160	B	Residential	55	58	60	5	No Impact	No Impact
Rec 161	B	Residential	53	55	56	3	No Impact	No Impact
Rec 162	B	Residential	61	63	63	2	No Impact	No Impact
Rec 163	B	Residential	64	65	65	1	No Impact	No Impact
Rec 164	B	Residential	58	60	60	2	No Impact	No Impact
Rec 165	B	Residential	68	69	70	2	**Impact**	No Impact
Rec 166	B	Residential	68	70	70	2	**Impact**	No Impact
Rec 167/M11	B	Residential	65	66	66	1	**Impact**	No Impact
Rec 168	B	Residential	65	66	67	2	**Impact**	No Impact
Rec 169	C	Water Treatment Plant	55	57	57	2	No Impact	No Impact
Rec 170	B	Residential	53	55	55	2	No Impact	No Impact
Rec 171	B	Residential	55	56	57	2	No Impact	No Impact
Rec 172	B	Residential	61	62	62	1	No Impact	No Impact
Rec 173	B	Residential	59	61	61	2	No Impact	No Impact
Rec 174	B	Residential	59	61	61	2	No Impact	No Impact
Rec 175	B	Residential	60	62	62	2	No Impact	No Impact
Rec 176	B	Residential	60	61	61	1	No Impact	No Impact
Rec 177/M12	B	Residential	60	61	61	1	No Impact	No Impact
Rec 178	B	Residential	58	59	59	1	No Impact	No Impact
Rec 179	B	Residential	63	65	65	2	No Impact	No Impact

Table D-3: 2008 Existing and 2035 Future Noise Levels, Alternative C, continued

						IMPACT CRITERIA		
Noise Receptor Number Identification	FHWA LAND USE Activity Category	Land Use at Receptor Location	2008 EXISTING Leq(H) dBA	2035 NO BUILD Leq(H) dBA	ALTERNATIVE C 2035 BUILD Leq(H) dBA	BUILD MINUS EXISTING DELTA (dBA)	PREDICTED BUILD NOISE LEVELS vs. FHWA NAC	PREDICTED BUILD vs. EXISTING NOISE LEVELS
Rec 180	B	Residential	46	47	49	3	No Impact	No Impact
Rec 181/M6	B	Elementary School	44	46	48	4	No Impact	No Impact
Rec 182	B	Residential	53	54	54	1	No Impact	No Impact
Rec 183	B	Residential	60	62	62	2	No Impact	No Impact
Rec 184	B	Residential	46	48	49	3	No Impact	No Impact
Rec 185	B	Residential	55	57	57	2	No Impact	No Impact
Rec 186	B	Residential	62	64	64	2	No Impact	No Impact
Rec 187	B	Residential	63	65	65	2	No Impact	No Impact
Rec 188	B	Residential	62	63	63	1	No Impact	No Impact
Rec 189	B	Residential	62	64	64	2	No Impact	No Impact
Rec 190	B	Residential	53	55	55	2	No Impact	No Impact
Rec 191	B	Residential	49	51	51	2	No Impact	No Impact
Rec 192	B	Residential	55	57	57	2	No Impact	No Impact
Rec 193	B	Residential	55	56	57	2	No Impact	No Impact
Rec 194	B	Residential	61	62	62	1	No Impact	No Impact
Rec 195	B	Residential	54	55	56	2	No Impact	No Impact
Rec 196	B	Residential	51	53	53	2	No Impact	No Impact
Rec 197	B	Residential	56	57	57	2	No Impact	No Impact
Rec 198/M13	B	Residential	64	66	66	2	**Impact**	No Impact
Rec 199	B	Residential	61	62	62	1	No Impact	No Impact
Rec 200	B	Residential	53	55	55	2	No Impact	No Impact
Rec 201	B	Residential	63	65	65	2	No Impact	No Impact
Rec 202	B	Residential	58	59	60	2	No Impact	No Impact
Rec 203	B	Residential	59	60	60	1	No Impact	No Impact
Rec 204	B	Residential	59	61	61	2	No Impact	No Impact

Table D-3: 2008 Existing and 2035 Future Noise Levels, Alternative C, continued

						IMPACT CRITERIA		
Noise Receptor Number Identification	FHWA LAND USE Activity Category	Land Use at Receptor Location	2008 EXISTING Leq(H) dBA	2035 NO BUILD Leq(H) dBA	ALTERNATIVE C 2035 BUILD Leq(H) dBA	BUILD MINUS EXISTING DELTA (dBA)	PREDICTED BUILD NOISE LEVELS vs. FHWA NAC	PREDICTED BUILD vs. EXISTING NOISE LEVELS
Rec 205	B	Residential	60	61	62	2	No Impact	No Impact
Rec 206	B	Town-homes	56	58	58	2	No Impact	No Impact
Rec 207	B	Town-homes	59	60	60	1	No Impact	No Impact
Rec 208	B	Town-homes	63	64	65	2	No Impact	No Impact
Rec 209	B	Town-homes	61	63	63	2	No Impact	No Impact
Rec 210	B	Town-homes	61	63	63	2	No Impact	No Impact
Rec 211/M14	B	Town-homes	67	69	69	2	**Impact**	No Impact
Rec 212	B	Cemetery	63	64	64	1	No Impact	No Impact
Rec 213	B	Church	60	61	61	1	No Impact	No Impact
Rec 214	B	Church Ball Field	51	52	53	2	No Impact	No Impact
Rec 215	B	Residential	64	66	66	2	**Impact**	No Impact
Rec 216	B	Residential	63	64	64	1	No Impact	No Impact
Rec 217	B	Residential	65	66	66	1	**Impact**	No Impact
Rec 218	B	Residential	62	63	63	1	No Impact	No Impact
Rec 219	B	Residential	65	66	67	2	**Impact**	No Impact
Rec 220	B	Residential	58	60	60	2	No Impact	No Impact
Rec 221	B	Residential	59	60	61	2	No Impact	No Impact
Rec 222	B	Residential	59	61	61	2	No Impact	No Impact
Rec 223	B	Residential	59	61	61	2	No Impact	No Impact
Rec 224	B	Residential	61	63	63	2	No Impact	No Impact
Rec 225	B	Residential	61	62	63	2	No Impact	No Impact
Rec 226	B	Residential	60	62	62	2	No Impact	No Impact
Rec 227/M15	B	Residential	62	64	64	2	No Impact	No Impact
Rec 228	B	Residential	52	54	56	4	No Impact	No Impact
Rec 229	B	Residential	59	61	61	2	No Impact	No Impact
Rec 230	B	Residential	60	61	62	2	No Impact	No Impact

Table D-3: 2008 Existing and 2035 Future Noise Levels, Alternative C, continued

						IMPACT CRITERIA		
Noise Receptor Number Identification	FHWA LAND USE Activity Category	Land Use at Receptor Location	2008 EXISTING Leq(H) dBA	2035 NO BUILD Leq(H) dBA	ALTERNATIVE C 2035 BUILD Leq(H) dBA	BUILD MINUS EXISTING DELTA (dBA)	PREDICTED BUILD NOISE LEVELS vs. FHWA NAC	PREDICTED BUILD vs. EXISTING NOISE LEVELS
Rec 231	B	Residential	61	63	63	2	No Impact	No Impact
Rec 232	B	Residential	60	62	63	3	No Impact	No Impact
Rec 233	B	Residential	52	54	58	6	No Impact	No Impact
Rec 234	B	Residential	59	61	62	3	No Impact	No Impact
Rec 235	B	Residential	51	53	58	7	No Impact	No Impact
Rec 236	B	Residential	61	62	63	2	No Impact	No Impact
Rec 237	B	Residential	54	56	58	4	No Impact	No Impact
Rec 238	B	Residential	52	54	58	6	No Impact	No Impact
Rec 239	B	Residential	61	63	63	2	No Impact	No Impact
Rec 240/M25	B	Residential	55	57	59	4	No Impact	No Impact
Rec 241	B	Residential	62	64	64	2	No Impact	No Impact
Rec 242	B	Residential	63	65	65	2	No Impact	No Impact
Rec 243	B	Residential	65	67	67	2	**Impact**	No Impact
Rec 244	B	Residential	53	56	58	5	No Impact	No Impact
Rec 245	B	Residential	55	57	59	4	No Impact	No Impact
Rec 246	B	Residential	64	67	66	2	**Impact**	No Impact
Rec 247	B	Residential	61	63	63	2	No Impact	No Impact
Rec 248	B	Residential	56	59	59	3	No Impact	No Impact
Rec 249	B	Residential	60	62	63	3	No Impact	No Impact
Rec 250/M16	B	Residential	64	67	66	2	**Impact**	No Impact
Rec 251	B	Residential	65	67	68	3	**Impact**	No Impact
Rec 252	B	Residential	56	58	60	4	No Impact	No Impact
Rec 253	B	Residential	62	64	64	2	No Impact	No Impact
Rec 254	B	Residential	58	60	60	2	No Impact	No Impact
Rec 255	B	Residential	58	60	60	2	No Impact	No Impact
Rec 256	B	Residential	60	62	62	2	No Impact	No Impact

Table D-3: 2008 Existing and 2035 Future Noise Levels, Alternative C, continued

						IMPACT CRITERIA		
Noise Receptor Number Identification	FHWA LAND USE Activity Category	Land Use at Receptor Location	2008 EXISTING Leq(H) dBA	2035 NO BUILD Leq(H) dBA	ALTERNATIVE C 2035 BUILD Leq(H) dBA	BUILD MINUS EXISTING DELTA (dBA)	PREDICTED BUILD NOISE LEVELS vs. FHWA NAC	PREDICTED BUILD vs. EXISTING NOISE LEVELS
Rec 257	B	Residential	63	65	65	2	No Impact	No Impact
Rec 258	B	Residential	55	57	59	5	No Impact	No Impact
Rec 259	B	Residential	59	61	61	2	No Impact	No Impact
Rec 260	B	Residential	54	56	58	4	No Impact	No Impact
Rec 261	B	Residential	50	52	57	7	No Impact	No Impact
Rec 262	B	Residential	50	52	57	7	No Impact	No Impact
Rec 263	B	Residential	53	55	58	5	No Impact	No Impact
Rec 264	B	Residential	49	52	54	5	No Impact	No Impact
Rec 265	B	Residential	45	47	54	9	No Impact	No Impact
Rec 266	B	Residential	40	42	57	17	No Impact	**Impact**
Rec 267	B	Residential	40	43	59	19	No Impact	**Impact**
Rec 268	B	Residential	40	42	61	21	No Impact	**Impact**
Rec 269	B	Residential	40	42	58	18	No Impact	**Impact**
Rec 270/M18	B	Residential	40	42	60	20	No Impact	**Impact**
Rec 271	B	Residential	47	49	60	13	No Impact	**Impact**
Rec 272/M19	B	Residential	42	45	62	20	No Impact	**Impact**
Rec 273	B	Residential	42	44	59	17	No Impact	**Impact**
Rec 274	B	Residential	42	44	59	17	No Impact	**Impact**
Rec 275	B	Residential	42	45	59	17	No Impact	**Impact**
Rec 276	B	Residential	42	45	59	17	No Impact	**Impact**
Rec 277	B	Residential	42	44	58	16	No Impact	**Impact**
Rec 278	B	Residential	42	45	58	16	No Impact	**Impact**
Rec 279	B	Residential	44	46	58	14	No Impact	**Impact**
Rec 280	B	Residential	51	53	58	7	No Impact	No Impact
Rec 281	B	Residential	59	61	62	3	No Impact	No Impact
Rec 282	B	Residential	42	45	53	11	No Impact	No Impact

Table D-3: 2008 Existing and 2035 Future Noise Levels, Alternative C, continued

						IMPACT CRITERIA		
Noise Receptor Number Identification	FHWA LAND USE Activity Category	Land Use at Receptor Location	2008 EXISTING Leq(H) dBA	2035 NO BUILD Leq(H) dBA	ALTERNATIVE C 2035 BUILD Leq(H) dBA	BUILD MINUS EXISTING DELTA (dBA)	PREDICTED BUILD NOISE LEVELS vs. FHWA NAC	PREDICTED BUILD vs. EXISTING NOISE LEVELS
Rec 283	B	Residential	54	56	61	7	No Impact	No Impact
Rec 284	B	Residential	51	54	57	6	No Impact	No Impact
Rec 285	B	Residential	50	53	57	7	No Impact	No Impact
Rec 286	B	Residential	53	55	58	5	No Impact	No Impact
Rec 287	B	Residential	55	57	59	3	No Impact	No Impact
Rec 288/M22	B	Residential	47	50	56	9	No Impact	No Impact
Rec 289	B	Residential	45	48	57	12	No Impact	**Impact**
Rec 290	C	Commercial	44	47	67	23	No Impact	**Impact**
Rec 291	B	Residential	46	49	56	10	No Impact	No Impact
Rec 292	B	Residential	51	53	56	5	No Impact	No Impact
Rec 293	B	Residential	44	48	61	16	No Impact	**Impact**
Rec 294	B	Residential	45	49	62	16	No Impact	**Impact**
Rec 295	B	Residential	49	52	56	7	No Impact	No Impact
Rec 296	B	Residential	61	64	63	2	No Impact	No Impact
Rec 297	B	Residential	63	66	65	2	No Impact	No Impact
Rec 298/M21	C	Commercial	68	71	69	2	No Impact	No Impact
Rec 299	B	Residential	46	48	49	3	No Impact	No Impact
Rec 300	B	Residential	47	49	50	2	No Impact	No Impact
Rec 301	B	Residential	46	48	48	3	No Impact	No Impact
Rec 302	B	Schoolhouse Museum	45	46	47	3	No Impact	No Impact
Rec 303	B	Schoolhouse Museum	44	45	46	2	No Impact	No Impact
Rec 304	B	Schoolhouse Museum	43	45	46	2	No Impact	No Impact
Rec 236-A	B	Residential	60	62	63	2	No Impact	No Impact
Rec 261-A	B	Residential	57	59	60	3	No Impact	No Impact

Table D-3: 2008 Existing and 2035 Future Noise Levels, Alternative C, concluded

						IMPACT CRITERIA		
Noise Receptor Number Identification	FHWA LAND USE Activity Category	Land Use at Receptor Location	2008 EXISTING Leq(H) dBA	2035 NO BUILD Leq(H) dBA	ALTERNATIVE C 2035 BUILD Leq(H) dBA	BUILD MINUS EXISTING DELTA (dBA)	PREDICTED BUILD NOISE LEVELS vs. FHWA NAC	PREDICTED BUILD vs. EXISTING NOISE LEVELS
Rec 90-A	C	Commercial	64	67	65	1	No Impact	No Impact
Rec 97-A	B	Residential	55	59	NA	NA	NA	NA
Rec 98-A	B	Residential	60	63	NA	NA	NA	NA
Rec 99-A	B	Residential	60	64	NA	NA	NA	NA
Rec 100-A	B	Residential	62	66	NA	NA	NA	NA

Table D-4: 2008 Existing and 2035 Future Noise Levels, Alternative D

						IMPACT CRITERIA		
Noise Receptor Number Identification	FHWA LAND USE Activity Category	Land Use at Receptor Location	2008 EXISTING Leq(H) dBA	2035 NO BUILD Leq(H) dBA	ALTERNATIVE D 2035 BUILD Leq(H) dBA	BUILD MINUS EXISTING DELTA (dBA)	PREDICTED BUILD NOISE LEVELS vs. FHWA NAC	PREDICTED BUILD vs. EXISTING NOISE LEVELS
Rec 1	B	Residential	56	61	63	7	No Impact	No Impact
Rec 2	B	Residential	49	55	56	7	No Impact	No Impact
Rec 3	B	Residential	47	52	53	6	No Impact	No Impact
Rec 4	B	Residential	46	50	51	5	No Impact	No Impact
Rec 5	B	Residential	46	49	50	4	No Impact	No Impact
Rec 6	B	Residential	46	49	50	4	No Impact	No Impact
Rec 7/M1	B	Residential	41	45	47	6	No Impact	No Impact
Rec 8	B	Residential	40	45	46	6	No Impact	No Impact
Rec 9	B	Residential	41	45	46	5	No Impact	No Impact
Rec 10	B	Residential	41	45	46	5	No Impact	No Impact
Rec 11	B	Residential	43	46	48	5	No Impact	No Impact
Rec 12	B	Residential	41	44	46	5	No Impact	No Impact
Rec 13	B	Residential	41	44	46	5	No Impact	No Impact
Rec 14	B	Residential	40	43	45	5	No Impact	No Impact
Rec 15	B	Residential	40	43	45	5	No Impact	No Impact
Rec 16	B	Residential	41	44	45	4	No Impact	No Impact
Rec 17	B	Residential	40	43	45	5	No Impact	No Impact
Rec 18	B	Residential	45	47	49	4	No Impact	No Impact
Rec 19	B	Residential	40	43	44	4	No Impact	No Impact
Rec 20	B	Residential	40	43	44	4	No Impact	No Impact
Rec 21	B	Residential	41	43	45	4	No Impact	No Impact
Rec 22	B	Residential	40	43	44	4	No Impact	No Impact
Rec 23	B	Residential	39	42	43	4	No Impact	No Impact
Rec 24	B	Residential	42	44	45	3	No Impact	No Impact

Table D-4: 2008 Existing and 2035 Future Noise Levels, Alternative D, continued

						IMPACT CRITERIA		
Noise Receptor Number Identification	FHWA LAND USE Activity Category	Land Use at Receptor Location	2008 EXISTING Leq(H) dBA	2035 NO BUILD Leq(H) dBA	ALTERNATIVE D 2035 BUILD Leq(H) dBA	BUILD MINUS EXISTING DELTA (dBA)	PREDICTED BUILD NOISE LEVELS vs. FHWA NAC	PREDICTED BUILD vs. EXISTING NOISE LEVELS
Rec 25	B	Residential	40	43	44	4	No Impact	No Impact
Rec 26	B	Residential	46	48	49	3	No Impact	No Impact
Rec 27	B	Residential	41	43	44	3	No Impact	No Impact
Rec 28	B	Residential	40	42	43	3	No Impact	No Impact
Rec 29	B	Residential	40	42	44	4	No Impact	No Impact
Rec 30	B	Residential	38	41	42	4	No Impact	No Impact
Rec 31	B	Residential	41	43	44	3	No Impact	No Impact
Rec 32	B	Residential	40	43	44	4	No Impact	No Impact
Rec 33	B	Residential	40	42	44	4	No Impact	No Impact
Rec 34	B	Residential	38	40	42	4	No Impact	No Impact
Rec 35/M2	B	Residential	38	40	42	4	No Impact	No Impact
Rec 36	B	Residential	38	41	43	5	No Impact	No Impact
Rec 37	B	Residential	38	41	42	4	No Impact	No Impact
Rec 38	B	Residential	39	41	43	4	No Impact	No Impact
Rec 39	B	Residential	39	41	43	4	No Impact	No Impact
Rec 40	B	Residential	39	41	43	4	No Impact	No Impact
Rec 41	B	Residential	39	41	44	5	No Impact	No Impact
Rec 42	B	Residential	39	41	43	4	No Impact	No Impact
Rec 43	B	Residential	39	41	43	4	No Impact	No Impact
Rec 44	B	Residential	39	41	44	5	No Impact	No Impact
Rec 45	B	Residential	40	42	44	4	No Impact	No Impact
Rec 46	B	Residential	40	42	44	4	No Impact	No Impact
Rec 47	B	Residential	40	42	44	4	No Impact	No Impact
Rec 48	B	Residential	40	42	43	3	No Impact	No Impact
Rec 49	B	Residential	41	43	44	3	No Impact	No Impact
Rec 50	B	Residential	43	44	45	2	No Impact	No Impact

Table D-4: 2008 Existing and 2035 Future Noise Levels, Alternative D, continued

						IMPACT CRITERIA		
Noise Receptor Number Identification	FHWA LAND USE Activity Category	Land Use at Receptor Location	2008 EXISTING Leq(H) dBA	2035 NO BUILD Leq(H) dBA	ALTERNATIVE D 2035 BUILD Leq(H) dBA	BUILD MINUS EXISTING DELTA (dBA)	PREDICTED BUILD NOISE LEVELS vs. FHWA NAC	PREDICTED BUILD vs. EXISTING NOISE LEVELS
Rec 51/M3	B	Residential	40	42	43	3	No Impact	No Impact
Rec 52	B	Residential	40	42	43	3	No Impact	No Impact
Rec 53	B	Residential	44	45	45	1	No Impact	No Impact
Rec 54	B	Residential	45	46	47	2	No Impact	No Impact
Rec 55	B	Residential	49	51	50	1	No Impact	No Impact
Rec 56	B	Residential	57	58	57	0	No Impact	No Impact
Rec 57	B	Residential	60	61	60	0	No Impact	No Impact
Rec 58	B	Residential	56	57	56	0	No Impact	No Impact
Rec 59	B	Residential	49	50	49	1	No Impact	No Impact
Rec 60	B	Residential	44	45	46	2	No Impact	No Impact
Rec 61	B	Residential	46	47	47	1	No Impact	No Impact
Rec 62	B	Residential	45	47	46	1	No Impact	No Impact
Rec 63/M5	B	Residential	40	42	43	3	No Impact	No Impact
Rec 64	B	Residential	41	43	44	3	No Impact	No Impact
Rec 65	B	Residential	41	43	45	4	No Impact	No Impact
Rec 66/M4	B	Residential	40	42	44	4	No Impact	No Impact
Rec 67	B	Residential	40	41	43	3	No Impact	No Impact
Rec 68	B	Residential	38	40	42	4	No Impact	No Impact
Rec 69	B	Residential	38	40	42	4	No Impact	No Impact
Rec 70	B	Residential	39	40	42	3	No Impact	No Impact
Rec 71	B	Residential	63	65	64	1	No Impact	No Impact
Rec 72/M10	B	Residential	68	71	70	2	**Impact**	No Impact
Rec 73	B	Residential	63	65	65	2	No Impact	No Impact
Rec 74	B	Residential	62	64	64	2	No Impact	No Impact
Rec 75	B	Residential	45	47	48	3	No Impact	No Impact
Rec 76/M7	B	Residential	47	49	50	3	No Impact	No Impact

Table D-4: 2008 Existing and 2035 Future Noise Levels, Alternative D, continued

						IMPACT CRITERIA		
Noise Receptor Number Identification	FHWA LAND USE Activity Category	Land Use at Receptor Location	2008 EXISTING Leq(H) dBA	2035 NO BUILD Leq(H) dBA	ALTERNATIVE D 2035 BUILD Leq(H) dBA	BUILD MINUS EXISTING DELTA (dBA)	PREDICTED BUILD NOISE LEVELS vs. FHWA NAC	PREDICTED BUILD vs. EXISTING NOISE LEVELS
Rec 77	B	Residential	41	43	45	4	No Impact	No Impact
Rec 78	B	Residential	48	50	52	4	No Impact	No Impact
Rec 79	B	Residential	45	47	52	7	No Impact	No Impact
Rec 80	B	Residential	50	52	58	8	No Impact	No Impact
Rec 81	B	Residential	50	52	59	9	No Impact	No Impact
Rec 82	B	Residential	45	47	54	9	No Impact	No Impact
Rec 83	B	Residential	46	48	54	8	No Impact	No Impact
Rec 84/M8	B	Trailer Park	41	44	44	3	No Impact	No Impact
Rec 85	B	Trailer Park	43	46	46	3	No Impact	No Impact
Rec 86	B	Trailer Park	44	48	47	3	No Impact	No Impact
Rec 87	B	Trailer Park	47	50	49	2	No Impact	No Impact
Rec 88	B	Trailer Park	51	54	53	2	No Impact	No Impact
Rec 89	B	Residential	64	68	66	2	**Impact**	No Impact
Rec 90	B	Residential	66	70	68	2	**Impact**	No Impact
Rec 91	B	Residential	68	72	69	1	**Impact**	No Impact
Rec 92	B	Residential	69	72	70	1	**Impact**	No Impact
Rec 93/M9	B	Church	70	74	72	2	**Impact**	No Impact
Rec 94	C	Commercial	69	73	70	1	No Impact	No Impact
Rec 95	B	Residential	64	68	66	2	**Impact**	No Impact
Rec 96	B	Residential	65	68	66	1	**Impact**	No Impact
Rec 97	B	Residential	63	67	65	2	No Impact	No Impact
Rec 98	B	Residential	64	67	65	1	No Impact	No Impact
Rec 99	B	Residential	62	66	63	1	No Impact	No Impact
Rec 100	B	Residential	69	72	70	1	**Impact**	No Impact
Rec 101	B	Residential	60	64	62	2	No Impact	No Impact
Rec 102	B	Residential	62	66	64	2	No Impact	No Impact

Table D-4: 2008 Existing and 2035 Future Noise Levels, Alternative D, continued

						IMPACT CRITERIA		
Noise Receptor Number Identification	FHWA LAND USE Activity Category	Land Use at Receptor Location	2008 EXISTING Leq(H) dBA	2035 NO BUILD Leq(H) dBA	ALTERNATIVE D 2035 BUILD Leq(H) dBA	BUILD MINUS EXISTING DELTA (dBA)	PREDICTED BUILD NOISE LEVELS vs. FHWA NAC	PREDICTED BUILD vs. EXISTING NOISE LEVELS
Rec 103	B	Residential	56	59	58	2	No Impact	No Impact
Rec 104	B	Residential	58	62	60	2	No Impact	No Impact
Rec 105	C	Commercial	58	62	60	2	No Impact	No Impact
Rec 106	B	Residential	58	62	60	2	No Impact	No Impact
Rec 107	B	Residential	58	61	59	1	No Impact	No Impact
Rec 108	B	Residential	58	62	60	2	No Impact	No Impact
Rec 109	B	Residential	68	72	70	2	**Impact**	No Impact
Rec 110	C	Commercial	69	72	70	1	No Impact	No Impact
Rec 111	C	Commercial	71	75	73	2	**Impact**	No Impact
Rec 112	B	Residential	58	62	60	2	No Impact	No Impact
Rec 113	B	Residential	56	59	57	1	No Impact	No Impact
Rec 114	B	Residential	54	57	55	1	No Impact	No Impact
Rec 115	B	Residential	49	53	52	3	No Impact	No Impact
Rec 116	B	Residential	50	54	53	3	No Impact	No Impact
Rec 117	B	Residential	52	56	55	3	No Impact	No Impact
Rec 118	B	Residential	50	54	54	4	No Impact	No Impact
Rec 119	B	Residential	46	49	52	6	No Impact	No Impact
Rec 120	B	Residential	46	49	51	5	No Impact	No Impact
Rec 121	B	Residential	45	49	52	7	No Impact	No Impact
Rec 122	B	Residential	44	48	49	5	No Impact	No Impact
Rec 123/M23	B	Residential	44	48	54	10	No Impact	No Impact
Rec 124	B	Residential	42	45	50	8	No Impact	No Impact
Rec 125/M24	B	Residential	42	45	54	12	No Impact	No Impact
Rec 126	B	Residential	45	48	62	17	No Impact	**Impact**
Rec 127	B	Church	54	56	66	12	**Impact**	**Impact**
Rec 128/M20	B	Cemetery	53	55	65	12	No Impact	**Impact**

Table D-4: 2008 Existing and 2035 Future Noise Levels, Alternative D, continued

						IMPACT CRITERIA		
Noise Receptor Number Identification	FHWA LAND USE Activity Category	Land Use at Receptor Location	2008 EXISTING Leq(H) dBA	2035 NO BUILD Leq(H) dBA	ALTERNATIVE D 2035 BUILD Leq(H) dBA	BUILD MINUS EXISTING DELTA (dBA)	PREDICTED BUILD NOISE LEVELS vs. FHWA NAC	PREDICTED BUILD vs. EXISTING NOISE LEVELS
Rec 129	B	Residential	49	51	58	9	No Impact	No Impact
Rec 130	B	Residential	43	45	50	7	No Impact	No Impact
Rec 131	B	Residential	40	43	65	25	No Impact	**Impact**
Rec 132	B	Residential	47	49	50	3	No Impact	No Impact
Rec 133/M17	B	Residential	46	48	51	5	No Impact	No Impact
Rec 134	B	Residential	49	51	53	4	No Impact	No Impact
Rec 135	B	Residential	48	50	52	4	No Impact	No Impact
Rec 136	B	Residential	49	51	53	4	No Impact	No Impact
Rec 137	B	Residential	47	49	51	4	No Impact	No Impact
Rec 138	B	Residential	49	51	52	3	No Impact	No Impact
Rec 139	B	Residential	53	55	55	2	No Impact	No Impact
Rec 140	B	Residential	59	61	61	2	No Impact	No Impact
Rec 141	B	Residential	58	60	60	2	No Impact	No Impact
Rec 142	B	Residential	59	61	61	2	No Impact	No Impact
Rec 143	B	Residential	60	62	62	2	No Impact	No Impact
Rec 144	B	Residential	54	56	56	2	No Impact	No Impact
Rec 145	B	Residential	52	54	55	3	No Impact	No Impact
Rec 146	B	Residential	62	65	64	2	No Impact	No Impact
Rec 147	B	Residential	64	66	66	2	**Impact**	No Impact
Rec 148	B	Residential	59	62	61	2	No Impact	No Impact
Rec 149	B	Residential	43	48	50	7	No Impact	No Impact
Rec 150	B	Residential	44	49	51	7	No Impact	No Impact
Rec 151	B	Residential	44	50	51	7	No Impact	No Impact
Rec 152	B	Residential	45	51	52	7	No Impact	No Impact
Rec 153	B	Residential	46	52	53	7	No Impact	No Impact
Rec 154	B	Residential	47	53	55	8	No Impact	No Impact

Table D-4: 2008 Existing and 2035 Future Noise Levels, Alternative D, continued

						IMPACT CRITERIA		
Noise Receptor Number Identification	FHWA LAND USE Activity Category	Land Use at Receptor Location	2008 EXISTING Leq(H) dBA	2035 NO BUILD Leq(H) dBA	ALTERNATIVE D 2035 BUILD Leq(H) dBA	BUILD MINUS EXISTING DELTA (dBA)	PREDICTED BUILD NOISE LEVELS vs. FHWA NAC	PREDICTED BUILD vs. EXISTING NOISE LEVELS
Rec 155	B	Residential	49	55	56	7	No Impact	No Impact
Rec 156	B	Residential	51	57	59	8	No Impact	No Impact
Rec 157	B	Residential	56	62	63	7	No Impact	No Impact
Rec 158	B	Residential	60	62	66	6	**Impact**	No Impact
Rec 159	B	Residential	61	63	67	6	**Impact**	No Impact
Rec 160	B	Residential	55	58	62	7	No Impact	No Impact
Rec 161	B	Residential	53	55	59	6	No Impact	No Impact
Rec 162	B	Residential	61	63	63	2	No Impact	No Impact
Rec 163	B	Residential	64	65	NA	NA	NA	NA
Rec 164	B	Residential	58	60	62	4	No Impact	No Impact
Rec 165	B	Residential	68	69	71	3	**Impact**	No Impact
Rec 166	B	Residential	68	70	71	3	**Impact**	No Impact
Rec 167/M11	B	Residential	65	66	69	4	**Impact**	No Impact
Rec 168	B	Residential	65	66	70	5	**Impact**	No Impact
Rec 169	C	Water Treatment Plant	55	57	60	5	No Impact	No Impact
Rec 170	B	Residential	53	55	59	6	No Impact	No Impact
Rec 171	B	Residential	55	56	61	6	No Impact	No Impact
Rec 172	B	Residential	61	62	66	5	**Impact**	No Impact
Rec 173	B	Residential	59	61	65	6	No Impact	No Impact
Rec 174	B	Residential	59	61	65	6	No Impact	No Impact
Rec 175	B	Residential	60	62	65	5	No Impact	No Impact
Rec 176	B	Residential	60	61	64	4	No Impact	No Impact
Rec 177/M12	B	Residential	60	61	63	3	No Impact	No Impact
Rec 178	B	Residential	58	59	62	4	No Impact	No Impact
Rec 179	B	Residential	63	65	68	5	**Impact**	No Impact

Table D-4: 2008 Existing and 2035 Future Noise Levels, Alternative D, continued

						IMPACT CRITERIA		
Noise Receptor Number Identification	FHWA LAND USE Activity Category	Land Use at Receptor Location	2008 EXISTING Leq(H) dBA	2035 NO BUILD Leq(H) dBA	ALTERNATIVE D 2035 BUILD Leq(H) dBA	BUILD MINUS EXISTING DELTA (dBA)	PREDICTED BUILD NOISE LEVELS vs. FHWA NAC	PREDICTED BUILD vs. EXISTING NOISE LEVELS
Rec 180	B	Residential	46	47	49	3	No Impact	No Impact
Rec 181/M6	B	Elementary School	44	46	47	3	No Impact	No Impact
Rec 182	B	Residential	53	54	57	4	No Impact	No Impact
Rec 183	B	Residential	60	62	NA	NA	NA	NA
Rec 184	B	Residential	46	48	50	4	No Impact	No Impact
Rec 185	B	Residential	55	57	57	2	No Impact	No Impact
Rec 186	B	Residential	62	64	NA	NA	NA	NA
Rec 187	B	Residential	63	65	67	4	**Impact**	No Impact
Rec 188	B	Residential	62	63	66	4	**Impact**	No Impact
Rec 189	B	Residential	62	64	67	5	**Impact**	No Impact
Rec 190	B	Residential	53	55	56	3	No Impact	No Impact
Rec 191	B	Residential	49	51	53	4	No Impact	No Impact
Rec 192	B	Residential	55	57	59	4	No Impact	No Impact
Rec 193	B	Residential	55	56	60	5	No Impact	No Impact
Rec 194	B	Residential	61	62	66	5	**Impact**	No Impact
Rec 195	B	Residential	54	55	56	2	No Impact	No Impact
Rec 196	B	Residential	51	53	54	3	No Impact	No Impact
Rec 197	B	Residential	56	57	59	3	No Impact	No Impact
Rec 198/M13	B	Residential	64	66	68	4	**Impact**	No Impact
Rec 199	B	Residential	61	62	63	2	No Impact	No Impact
Rec 200	B	Residential	53	55	56	3	No Impact	No Impact
Rec 201	B	Residential	63	65	NA	NA	NA	NA
Rec 202	B	Residential	58	59	62	4	No Impact	No Impact
Rec 203	B	Residential	59	60	64	5	No Impact	No Impact
Rec 204	B	Residential	59	61	64	5	No Impact	No Impact

Table D-4: 2008 Existing and 2035 Future Noise Levels, Alternative D, continued

						IMPACT CRITERIA		
Noise Receptor Number Identification	FHWA LAND USE Activity Category	Land Use at Receptor Location	2008 EXISTING Leq(H) dBA	2035 NO BUILD Leq(H) dBA	ALTERNATIVE D 2035 BUILD Leq(H) dBA	BUILD MINUS EXISTING DELTA (dBA)	PREDICTED BUILD NOISE LEVELS vs. FHWA NAC	PREDICTED BUILD vs. EXISTING NOISE LEVELS
Rec 205	B	Residential	60	61	64	4	No Impact	No Impact
Rec 206	B	Town-homes	56	58	61	5	No Impact	No Impact
Rec 207	B	Town-homes	59	60	63	4	No Impact	No Impact
Rec 208	B	Town-homes	63	64	NA	NA	NA	NA
Rec 209	B	Town-homes	61	63	66	5	**Impact**	No Impact
Rec 210	B	Town-homes	61	63	66	5	**Impact**	No Impact
Rec 211/M14	B	Town-homes	67	69	71	4	**Impact**	No Impact
Rec 212	B	Cemetery	63	64	67	4	**Impact**	No Impact
Rec 213	B	Church	60	61	60	0	No Impact	No Impact
Rec 214	B	Church Ball Field	51	52	61	10	No Impact	**Impact**
Rec 215	B	Residential	64	66	69	5	**Impact**	No Impact
Rec 216	B	Residential	63	64	65	2	No Impact	No Impact
Rec 217	B	Residential	65	66	67	2	**Impact**	No Impact
Rec 218	B	Residential	62	63	NA	NA	NA	NA
Rec 219	B	Residential	65	66	59	-6	No Impact	No Impact
Rec 220	B	Residential	58	60	68	10	**Impact**	**Impact**
Rec 221	B	Residential	59	60	NA	NA	NA	NA
Rec 222	B	Residential	59	61	60	1	No Impact	No Impact
Rec 223	B	Residential	59	61	61	2	No Impact	No Impact
Rec 224	B	Residential	61	63	65	4	No Impact	No Impact
Rec 225	B	Residential	61	62	68	7	**Impact**	No Impact
Rec 226	B	Residential	60	62	68	8	**Impact**	No Impact
Rec 227/M15	B	Residential	62	64	64	2	No Impact	No Impact
Rec 228	B	Residential	52	54	60	8	No Impact	No Impact
Rec 229	B	Residential	59	61	67	8	**Impact**	No Impact
Rec 230	B	Residential	60	61	68	8	**Impact**	No Impact

Table D-4: 2008 Existing and 2035 Future Noise Levels, Alternative D, continued

						IMPACT CRITERIA		
Noise Receptor Number Identification	FHWA LAND USE Activity Category	Land Use at Receptor Location	2008 EXISTING Leq(H) dBA	2035 NO BUILD Leq(H) dBA	ALTERNATIVE D 2035 BUILD Leq(H) dBA	BUILD MINUS EXISTING DELTA (dBA)	PREDICTED BUILD NOISE LEVELS vs. FHWA NAC	PREDICTED BUILD vs. EXISTING NOISE LEVELS
Rec 231	B	Residential	61	63	69	8	**Impact**	No Impact
Rec 232	B	Residential	60	62	69	9	**Impact**	No Impact
Rec 233	B	Residential	52	54	63	11	No Impact	**Impact**
Rec 234	B	Residential	59	61	69	10	**Impact**	**Impact**
Rec 235	B	Residential	51	53	64	13	No Impact	**Impact**
Rec 236	B	Residential	61	62	NA	NA	NA	NA
Rec 237	B	Residential	54	56	64	10	No Impact	**Impact**
Rec 238	B	Residential	52	54	NA	NA	NA	NA
Rec 239	B	Residential	61	63	NA	NA	NA	NA
Rec 240/M25	B	Residential	55	57	67	12	**Impact**	**Impact**
Rec 241	B	Residential	62	64	61	-1	No Impact	No Impact
Rec 242	B	Residential	63	65	61	-2	No Impact	No Impact
Rec 243	B	Residential	65	67	61	-4	No Impact	No Impact
Rec 244	B	Residential	53	56	NA	NA	NA	NA
Rec 245	B	Residential	55	57	NA	NA	NA	NA
Rec 246	B	Residential	64	67	67	3	**Impact**	No Impact
Rec 247	B	Residential	61	63	NA	NA	NA	NA
Rec 248	B	Residential	56	59	61	5	No Impact	No Impact
Rec 249	B	Residential	60	62	NA	NA	NA	NA
Rec 250/M16	B	Residential	64	67	68	4	**Impact**	No Impact
Rec 251	B	Residential	65	67	63	-2	No Impact	No Impact
Rec 252	B	Residential	56	58	63	7	No Impact	No Impact
Rec 253	B	Residential	62	64	NA	NA	NA	NA
Rec 254	B	Residential	58	60	NA	NA	NA	NA
Rec 255	B	Residential	58	60	NA	NA	NA	NA
Rec 256	B	Residential	60	62	NA	NA	NA	NA

Table D-4: 2008 Existing and 2035 Future Noise Levels, Alternative D, continued

						IMPACT CRITERIA		
Noise Receptor Number Identification	FHWA LAND USE Activity Category	Land Use at Receptor Location	2008 EXISTING Leq(H) dBA	2035 NO BUILD Leq(H) dBA	ALTERNATIVE D 2035 BUILD Leq(H) dBA	BUILD MINUS EXISTING DELTA (dBA)	PREDICTED BUILD NOISE LEVELS vs. FHWA NAC	PREDICTED BUILD vs. EXISTING NOISE LEVELS
Rec 257	B	Residential	63	65	NA	NA	NA	NA
Rec 258	B	Residential	55	57	64	9	No Impact	No Impact
Rec 259	B	Residential	59	61	NA	NA	NA	NA
Rec 260	B	Residential	54	56	63	9	No Impact	No Impact
Rec 261	B	Residential	50	52	60	10	No Impact	**Impact**
Rec 262	B	Residential	50	52	59	9	No Impact	No Impact
Rec 263	B	Residential	53	55	59	6	No Impact	No Impact
Rec 264	B	Residential	49	52	51	2	No Impact	No Impact
Rec 265	B	Residential	45	47	52	7	No Impact	No Impact
Rec 266	B	Residential	40	42	54	14	No Impact	No Impact
Rec 267	B	Residential	40	43	54	14	No Impact	No Impact
Rec 268	B	Residential	40	42	55	15	No Impact	No Impact
Rec 269	B	Residential	40	42	52	12	No Impact	No Impact
Rec 270/M18	B	Residential	40	42	54	14	No Impact	No Impact
Rec 271	B	Residential	47	49	62	15	No Impact	**Impact**
Rec 272/M19	B	Residential	42	45	69	27	**Impact**	**Impact**
Rec 273	B	Residential	42	44	62	20	No Impact	**Impact**
Rec 274	B	Residential	42	44	61	19	No Impact	**Impact**
Rec 275	B	Residential	42	45	60	18	No Impact	**Impact**
Rec 276	B	Residential	42	45	59	17	No Impact	**Impact**
Rec 277	B	Residential	42	44	58	16	No Impact	**Impact**
Rec 278	B	Residential	42	45	57	15	No Impact	**Impact**
Rec 279	B	Residential	44	46	56	12	No Impact	No Impact
Rec 280	B	Residential	51	53	57	6	No Impact	No Impact
Rec 281	B	Residential	59	61	62	3	No Impact	No Impact
Rec 282	B	Residential	42	45	51	9	No Impact	No Impact

Table D-4: 2008 Existing and 2035 Future Noise Levels, Alternative D, continued

						IMPACT CRITERIA		
Noise Receptor Number Identification	FHWA LAND USE Activity Category	Land Use at Receptor Location	2008 EXISTING Leq(H) dBA	2035 NO BUILD Leq(H) dBA	ALTERNATIVE D 2035 BUILD Leq(H) dBA	BUILD MINUS EXISTING DELTA (dBA)	PREDICTED BUILD NOISE LEVELS vs. FHWA NAC	PREDICTED BUILD vs. EXISTING NOISE LEVELS
Rec 283	B	Residential	54	56	67	13	**Impact**	**Impact**
Rec 284	B	Residential	51	54	60	9	No Impact	No Impact
Rec 285	B	Residential	50	53	59	9	No Impact	No Impact
Rec 286	B	Residential	53	55	59	6	No Impact	No Impact
Rec 287	B	Residential	55	57	59	4	No Impact	No Impact
Rec 288/M22	B	Residential	47	50	61	14	No Impact	**Impact**
Rec 289	B	Residential	45	48	NA	NA	NA	NA
Rec 290	C	Commercial	44	47	56	12	No Impact	No Impact
Rec 291	B	Residential	46	49	67	21	**Impact**	**Impact**
Rec 292	B	Residential	51	53	59	8	No Impact	No Impact
Rec 293	B	Residential	44	48	62	18	No Impact	**Impact**
Rec 294	B	Residential	45	49	61	16	No Impact	**Impact**
Rec 295	B	Residential	49	52	NA	NA	NA	NA
Rec 296	B	Residential	61	64	64	3	No Impact	No Impact
Rec 297	B	Residential	63	66	65	2	No Impact	No Impact
Rec 298/M21	C	Commercial	68	71	69	1	No Impact	No Impact
Rec 299	B	Residential	46	48	49	3	No Impact	No Impact
Rec 300	B	Residential	47	49	50	3	No Impact	No Impact
Rec 301	B	Residential	46	48	48	2	No Impact	No Impact
Rec 302	B	Schoolhouse Museum	45	46	47	3	No Impact	No Impact
Rec 303	B	Schoolhouse Museum	44	45	46	2	No Impact	No Impact
Rec 304	B	Schoolhouse Museum	43	45	46	3	No Impact	No Impact
Rec 236-A	B	Residential	60	62	NA	NA	NA	NA
Rec 261-A	B	Residential	57	59	NA	NA	NA	NA

Table D-4: 2008 Existing and 2035 Future Noise Levels, Alternative D, continued

						IMPACT CRITERIA		
Noise Receptor Number Identification	FHWA LAND USE Activity Category	Land Use at Receptor Location	2008 EXISTING Leq(H) dBA	2035 NO BUILD Leq(H) dBA	ALTERNATIVE D 2035 BUILD Leq(H) dBA	BUILD MINUS EXISTING DELTA (dBA)	PREDICTED BUILD NOISE LEVELS vs. FHWA NAC	PREDICTED BUILD vs. EXISTING NOISE LEVELS
Rec 90-A	C	Commercial	64	67	65	1	No Impact	No Impact
Rec 97-A	B	Residential	55	59	57	2	No Impact	No Impact
Rec 98-A	B	Residential	60	63	61	1	No Impact	No Impact
Rec 99-A	B	Residential	60	64	62	2	No Impact	No Impact
Rec 100-A	B	Residential	62	66	65	3	No Impact	No Impact

Figure 1: Location of Noise Receptors
Alternate A, northern section at SR 33

Figure 2: Location of Noise Receptors
Alternate A, middle section crossing Wildwood Rd.

Figure 3: Location of Noise Receptors
Alternate A, middle section crossing US 411

Figure 4: Location of Noise Receptors
Alternate A, southern section at US 321

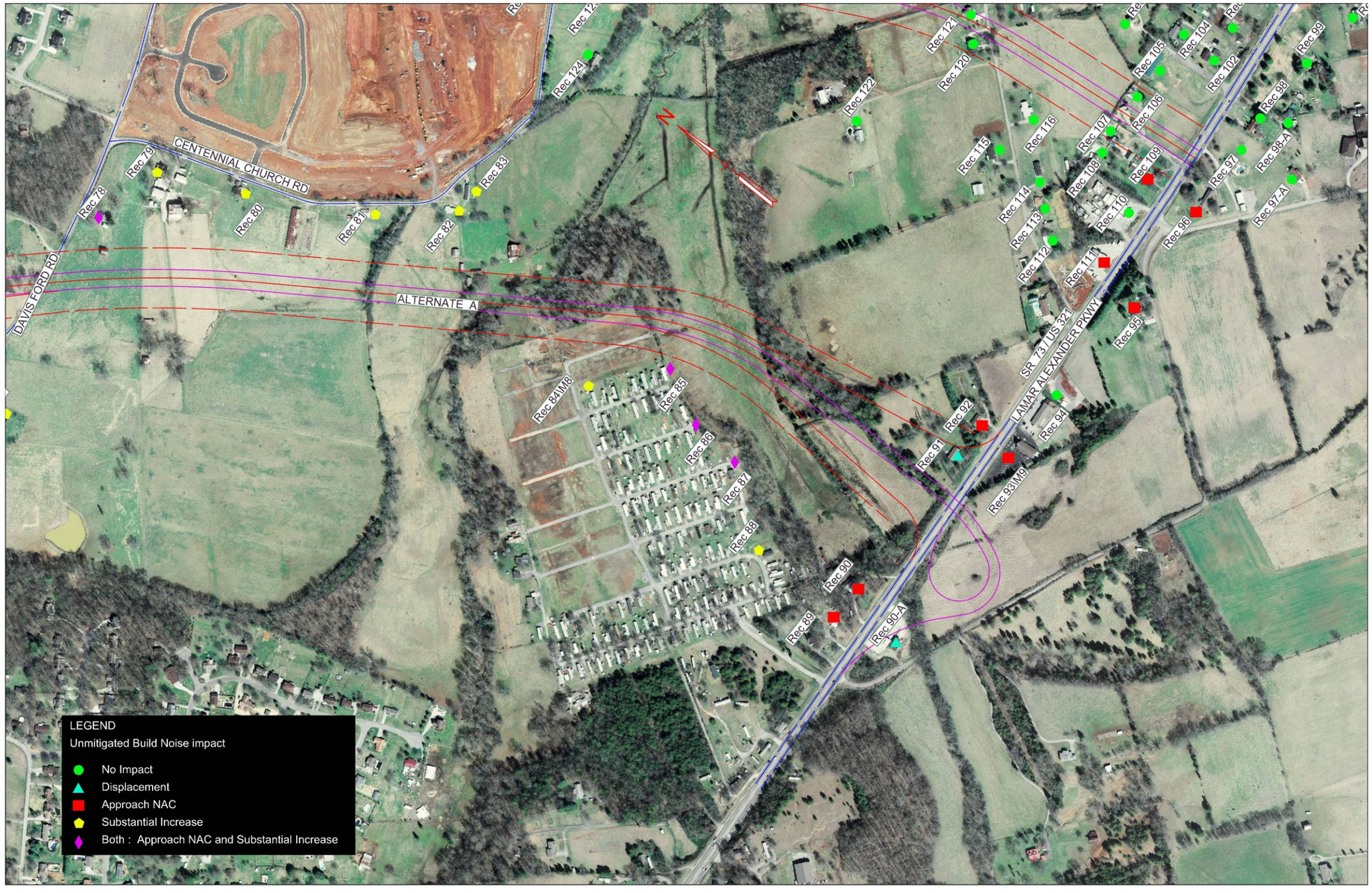


Figure 5: Location of Noise Receptors
Alternate C, northern section at SR 33

Figure 6: Location of Noise Receptors
Alternate C, middle section crossing Wildwood Rd.

Figure 7: Location of Noise Receptors
Alternate C, middle section crossing US 411

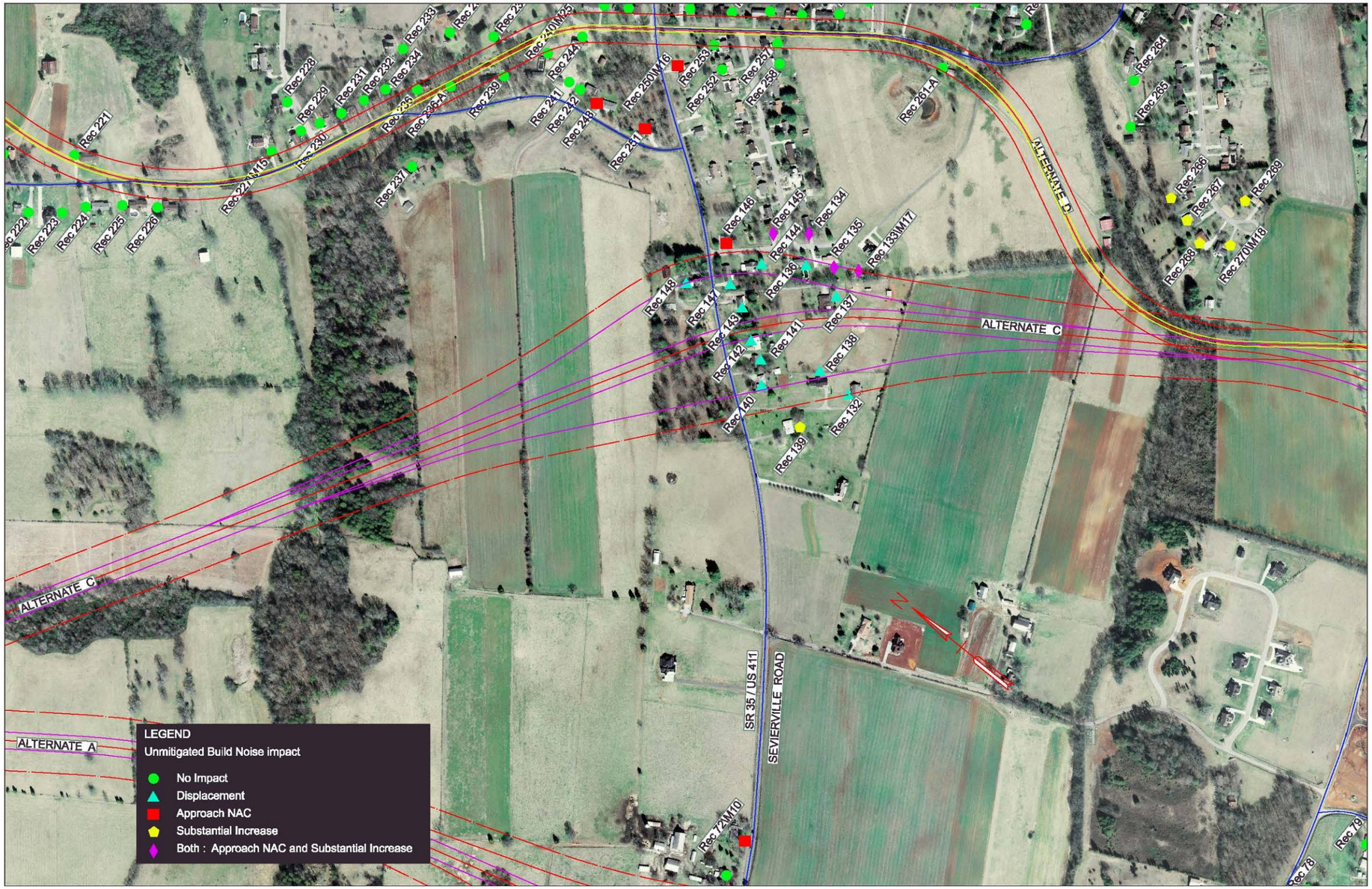


Figure 8: Location of Noise Receptors

Alternate C, southern section at US 321

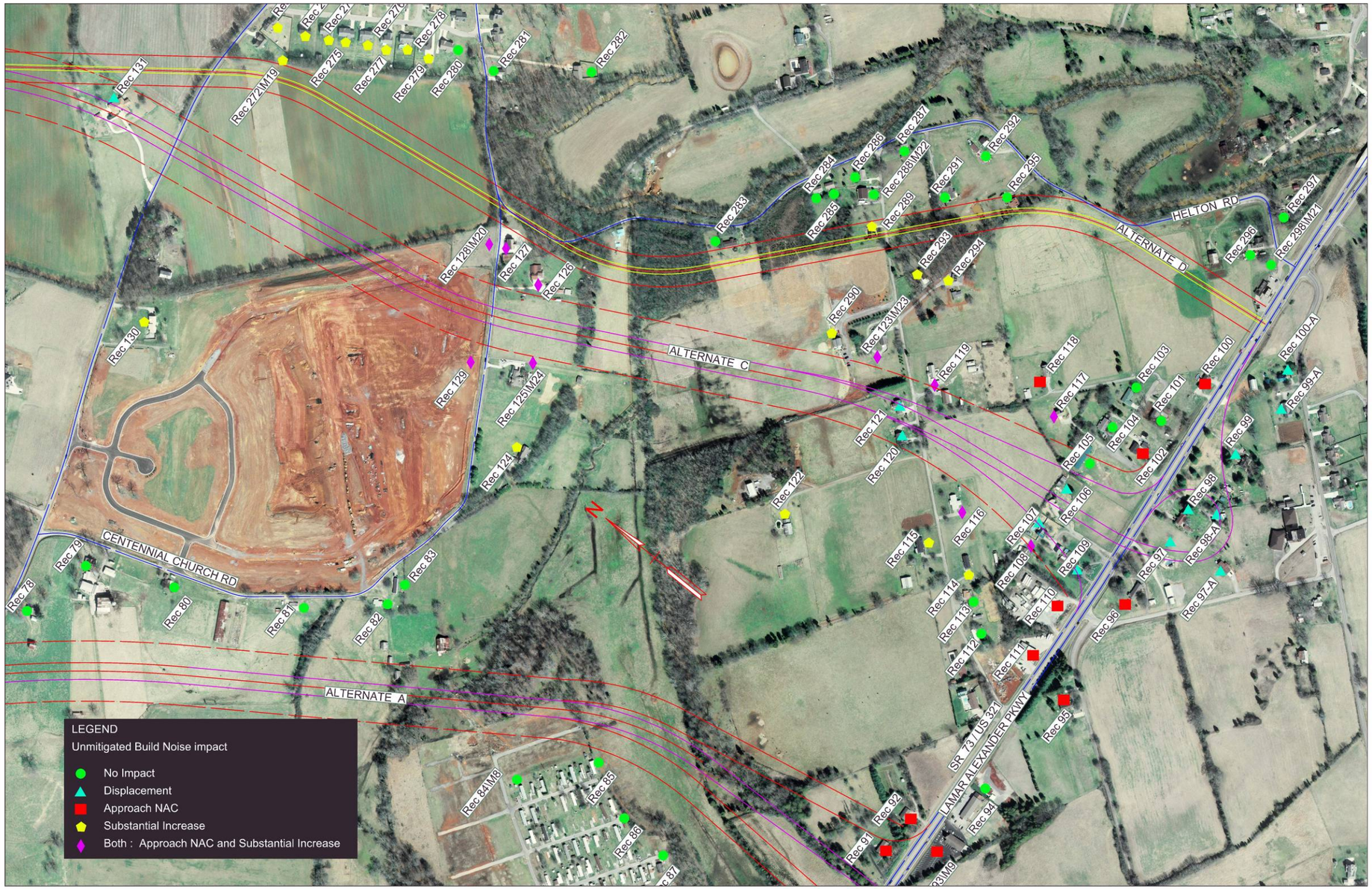


Figure 9: Location of Noise Receptors
Alternate D, northern section at SR 33

Figure 10: Location of Noise Receptors
Alternate D, middle section along Sam Houston School Rd.

Figure 11: Location of Noise Receptors

Alternate D, middle section along Peppermint Rd.

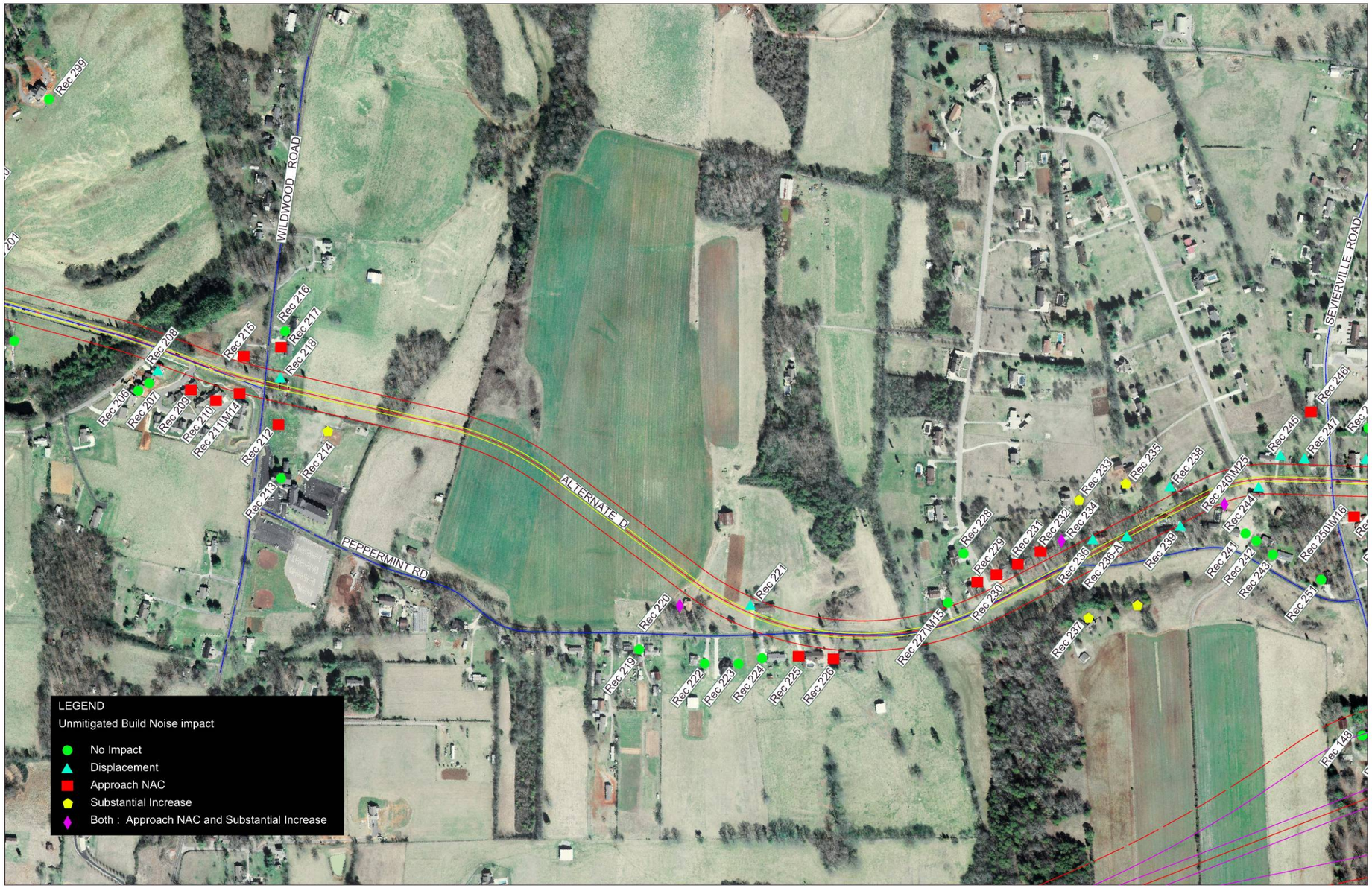
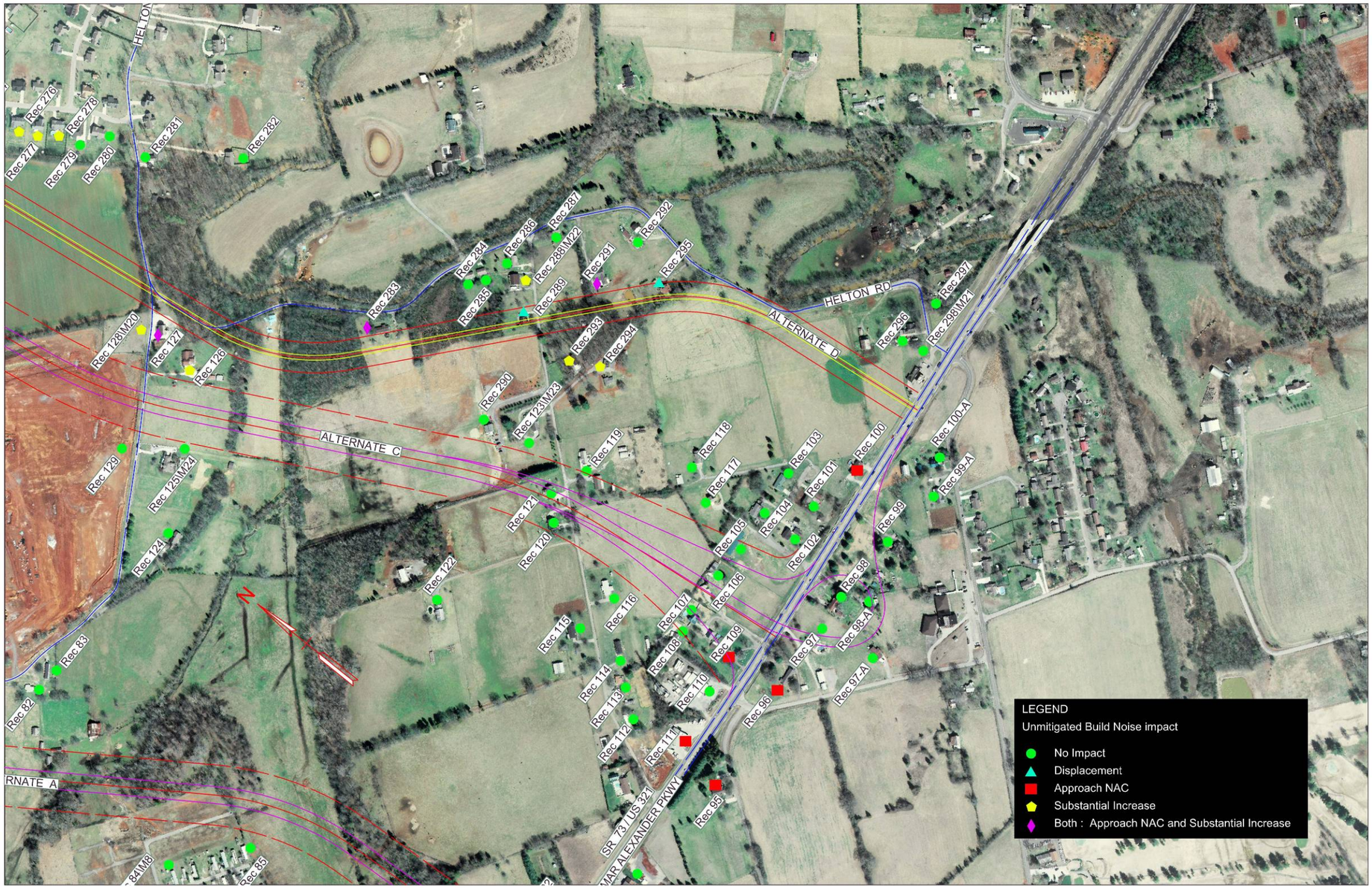


Figure 12: Location of Noise Receptors
Alternate D, crossing US 411 & Davis Ford Rd.

Figure 13: Location of Noise Receptors
Alternate D, southern section at US 321



APPENDIX E

BIOLOGICAL ASSESSMENT AND COORDINATION

CC: Tom Love

United States Department of the Interior

FISH AND WILDLIFE SERVICE
446 Neal Street
Cookeville, TN 38501

January 12. 2000

Mr. Keven Brown
Biologist
Tennessee Department of Transportation
Suite 900, James K. Polk Building
505 Deaderick Street
Nashville, Tennessee 37243-0334

Dear Mr. Brown:

Thank you for your facsimile transmission of December 29, 1999, regarding the proposed State Route 162 (Pellissippi Parkway) extension from State Route 33 to State Route 73 in Blount County, Tennessee. The Fish and Wildlife Service (Service) has reviewed the information submitted and offers the following comments.

Information available to the Service does not indicate that wetlands exist in the vicinity of the proposed project. However, our wetland determination has been made in the absence of a field inspection and does not constitute a wetland delineation for the purposes of Section 404 of the Clean Water Act. The Corps of Engineers should be contacted if other evidence, particularly that obtained during an on-site inspection, indicates the potential presence of wetlands.

We note that the proposed highway will require stream crossings. We recommend that silt barriers be put in place when working adjacent to all streams to prevent runoff of sediment. If a stream crossing is necessary, it should be accomplished during low flow periods and the streambanks reseeded with native vegetation beneficial to wildlife immediately following completion of the stream crossing.

According to our records, the federally endangered Indiana bat (*Myotis sodalis*) is known to occur in the vicinity of the project. This species normally uses exfoliating (i.e., with loose bark) trees greater than six inches in diameter at breast height as maternity and roost sites. If the construction of the highway involves the removal of any trees greater than six inches in diameter at breast height, and tree removal can be accomplished between October 15 and March 31, we believe that the project is not likely to adversely affect this species. If the above recommendation regarding tree size and removal dates is accepted as a project condition and is stringently enforced, then we believe that the requirements of Section 7 of the Endangered Species Act will be satisfied. However, obligations under Section 7 of the Act must be reconsidered if (1) new information reveals impacts of the

proposed action that may affect listed species or critical habitat in a manner not previously considered, (2) the proposed action is subsequently modified to include activities which were not considered during this consultation, or (3) new species are listed or critical habitat designated that might be affected by the proposed action. **If this recommendation is not acceptable, the project should be delayed and consultation with this office should continue**. Please provide us a written response relative to our recommendation.

Thank you for the opportunity to comment on this proposed action. If you have any questions regarding the information which we have provided, please contact Wally Brines of my staff at 931/528-6481, extension 222.

Sincerely,

Lee A. Barclay, Ph.D.
Field Supervisor

STATE ROUTE 162, PELISSIPPI PARKWAY, EXTENSION
FROM SR-33 TO SR-73 (US 321)
BLOUNT COUNTY, TENNESSEE

BIOLOGICAL ASSESSMENT
FOR

ASHY DARTER (*Etheostoma cinereum*)
LONGHEAD DARTER (*Percina macrocephala*)
SNAIL DARTER (*Percina tanasi*)
DUSKYTAIL DARTER (*Etheostoma percnurum*)
FINE-RAYED PIGTOE (*Fusconaia cuneolus*)
INDIANA BAT (*Myotis sodalis*)

U.S. FISH AND WILDLIFE SERVICE
LOG# 00-0663

November 14, 2001

Prepared Pursuant To
Section 7(c) of the Endangered Species Act of 1973
As Amended

Prepared By:
Keven Brown, Staff Biologist
Environmental Planning and Permits Division
Tennessee Department of Transportation

INTRODUCTION

The Tennessee Department of Transportation (TDOT) proposes to extend SR-62, Pellissippi Parkway, from SR-33 to SR-73 (U.S. 321) in Blount County, Tennessee (Figure 1). Both state and federal funds will be utilized on this project. Information received from the Tennessee Department of Environment and Conservation, Division of Natural Heritage (TDEC/DNH) database on September 14, 2001 indicated that the following species could be present in the project impact area:

Species	Status	
	State	Federal
Ashy darter (*Etheostoma cinereum*)	T	MC
Longhead darter (*Percina macrocephala*)	T	--
Snail darter (*Percina tanasi*)	T	LT
Duskytail darter (*Etheostoma percnurum*)	E	LE
Fine-rayed pigtoe (*Fusconaia cuneolus*)	E	LE

E – State endangered LE – Federally endangered MC – Candidate for federal listing
T – State threatened LT – Federally threatened

Response from the U. S. Fish and Wildlife Service on January 12, 2000 indicated that the federally endangered Indiana bat (*Myotis sodalis*) could possibly be present in the project impact area. Information from the Service was updated by email on September 27, 2001 and no changes from the January 12, 2000 coordination were indicated.

Due to the possible presence of the above species in the project impact area, informal consultation was initiated. Results of this coordination indicated that a biological assessment would be necessary to evaluate potential project impacts to these species.

PROJECT DESCRIPTION

The existing portion of Pellissippi Parkway (SR-162) has a cross-section consisting of 4 @ 12' traffic lanes, 2 @ 12' paved shoulders and a 48' depressed grass median, all within a minimum 250' right-of-way. The cross-section for the proposed SR-162 extension will be similar to that of the existing. The proposed project will be constructed on new alignment and will require acquisition of additional right-of-way. Total length of the proposed project will be 4.4 miles.

LITERATURE REVIEW

Ashy Darter – *Etheostoma cinereum*
State Threatened

Species Description – The ashy darter was first described from near Florence, Alabama in 1845, but has not been recorded from that state since (Clay 1975). Distribution for the ashy darter in the Tennessee River drainage includes the Buffalo, Duck, Emory, and Little rivers (Starnes and Etnier 1980). *Etheostoma cinereum* typically inhabits small to medium upland rivers, occurring locally in areas of bedrock or gravel substrate with boulders, water willow, or other cover with minimal silt deposits (Etnier and Starnes 1993). Depths in these areas are generally 0.5 m to 2.0 m and have sluggish currents (Etnier and Starnes 1993). Etnier and Starnes (1993) indicated that the healthiest known population for this species is located in the Little River, Blount County, Tennessee, from Melrose Mill Dam downstream to SR-33 in Rockford. One of the most productive collection locations described is just downstream of the US-411 bridge (Etnier and Starnes 1993) at Little River Mile (LRM) 17.3. This site is approximately 1.6

miles downstream of where the proposed project will cross a small, unnamed tributary to the Little River. Information from the TDEC/DNH database indicated records for the ashy darter from LRM 13.3 (1970), 14.2 (1968), 17.3 (1976), and 17.6 (1970). These records are all downstream from tributaries that will be crossed by the proposed project.

Longhead Darter – *Percina macrocephala*
State Threatened

Species Description – The longhead darter is widely recorded from the Ohio River drainage but is rare (Clay 1975; Starnes and Etnier 1980; Etnier and Starnes 1993). Starnes and Etnier (1993) indicated that in some years, this species is common in portions of the Little River, Blount County, Tennessee. Habitat for the longhead darter is generally described as larger upland creeks and small to medium sized rivers with good water quality, pools one meter or so deep, and gentle currents that provide silt free bottoms composed of bedrock, boulder, and gravel substrates (Clay 1975; Starnes and Etnier 1980; Etnier and Starnes 1993). Information from the TDEC/DNH database indicates records for *Percina macrocephala* from the Little River near LRM 8.5 (1985), 14.2 (1993), and 16.0 (1974). These records are all downstream of tributaries that will be crossed by the proposed project.

Snail Darter – *Percina tanasi*
Federally Threatened

Species Description – D.A. Etnier and R.A. Stiles discovered the snail darter in the lower Little Tennessee River in 1973 (Etnier 1976). This discovery set in motion an environmental controversy that ascended to the Supreme Court, and is still debated by many today. As a result, the term "snail darter types" has been used to describe "ultra liberal environmentalists". *Percina tanasi* is generally thought to have inhabited the main channel of the upper Tennessee River and lower reaches of its major tributaries (Starnes and Etnier 1980; Etnier and Starnes 1993). Preferred habitat is described by Starnes and Etnier (1980) as consisting of large free-flowing rivers with extensive areas of clean-swept gravel shoals. Impoundment of the Little Tennessee River by Tellico Dam in 1979 effectively eliminated critical habitat in this area (Starnes and Etnier 1980; Page 1983; Kuehne and Barbour 1983; Etnier and Starnes 1993). However, a transplant population was established in the Hiwassee River in 1976 by TVA biologists, which still persists. Other transplants were attempted in the Nolichucky River (1975), Holston River (1979), and Elk River (1980) but with little success (USFWS 1983). Additional populations of snail darters were discovered in South Chickamauga Creek in Chattanooga (1980) and in Big Sewee Creek in Meigs County, Tennessee (1981) by fisheries biologists (Etnier and Starnes 1993). Several other small populations, represented by only one or a few specimens of *Percina tanasi*, have been discovered in the Sequatchie River in Marion County, Little River in Blount County, lower French Broad River in Sevier County, and lower Paint Rock River in Madison County, Alabama (Etnier and

Starnes 1993). Although the snail darter was listed as federally endangered on October 9, 1975, it was reclassified as federally threatened on July 5, 1984 due to the discovery of additional populations outside the Little Tennessee River (USFWS 1984, 1992). Records from the TDEC/DNH database indicate records for the snail darter from the Little River from LRM 8.5 (1983), LRM 9.4 (2000), LRM 15.9 (2000), and LRM 17.3 (2000). These records are all downstream from tributaries that will be crossed by the proposed project.

Duskytail Darter – *Etheostoma percnurum*
Federally Endangered

Species Description – Etnier and Starnes (1993) list four known populations of duskytail darters - Little River, Blount County, Tenn., from the U.S.-411 bridge downstream to just below the SR-33 bridge; the lower several miles of Citico Creek, Monroe County, Tenn., where it is rare; Copper Creek, tributary to Clinch River, Scott Co., Va.; and in the Cumberland River Drainage from the Big South Fork near the mouth of Station Camp Creek, Scott County, Tenn. *Etheostoma percnurum* occurs in pools of larger streams with bedrock rubble substrates. These pools are typically one to three feet in depth and have gently flowing current and are for the most part silt-free (Etnier and Starnes 1993). Records from the TDEC/DNH database indicate records for the duskytail darter from LRM 8.5 (1992), LRM 9.4 (2000), and LRM 17.3 (1992). These records are all downstream from tributaries that will be crossed by the proposed project.

Fine-rayed Pigtoe – *Fusconaia cuneolus*
Federally Endangered

Species Description – The fine-rayed pigtoe is restricted to the Tennessee River drainage except for the Duck River (Bogan and Parmalee 1983). This species occurred in the Clinch River from the mouth upstream to Hancock County; in the Emory River, Roane County and Poplar Creek, Anderson County (both tributaries to the Clinch River); Powell River from Union to Hancock County; and in the Holston River from its mouth in Knox County up to the North Fork Holston River in Sullivan County (Bogan and Parmalee 1983). Bogan and Parmalee (1983) reported that *Fusconaia cuneolus* presently occurs in the upper Clinch, Powell, North Fork Holston and Holston Rivers. Records for this species are also reported from the North Fork Holston, Clinch, Powell, Sequatchie, Elk, and Little rivers in Tennessee by Neves (1991). The fine-rayed pigtoe has also been collected from the mouth of the Nolichucky River, tributary to the French Broad, and from Pistol Creek, a small tributary to Little River in Blount County (Bogan and Parmalee 1983). Information from the TEDC/DNH database indicated records for *Fusconaia cuneolus* from LRM 9.7 (1981) and Pistol Creek (1914) approximately 0.5 mile before its confluence with Little River at LRM 8.1. Neves (1991:274) described the fine-rayed pigtoe as being a "lotic, riffle-dwelling species that usually inhabits ford and shoal areas of rivers with moderate gradient". Collection of the fine-rayed pigtoe by Hickman (1937) and Ortmann (1925:330) both were from sandy substrates. The fine-rayed pigtoe has been extirpated throughout most of its former range, with the last remaining viable

population in Tennessee occurring in the Clinch (Hancock County) and Powell (Hancock and Claiborne counties) rivers (Parmalee and Bogan 1998).

Indiana Bat – *Myotis sodalis*
Federally Endangered

Species Description – The Indiana bat (*Myotis sodalis*) was placed on the federal endangered species list in 1973. This species occurs in the midwest and eastern United States from the western edge of the Ozark region in Oklahoma to southern Wisconsin, east to Vermont, and as far south as northern Florida (USFWS 1991). Typically, two distinct habitat types are utilized through the course of a given year. During the winter months this species hibernates in limestone caves where temperatures average 3-6 °C with relative humidities of 66-95% (Barbour and Davis 1969). Hibernation generally takes place from October to April, depending on climactic conditions (Harvey and Pride 1986). After emerging from hibernation, the bats disperse. Males apparently spend the summer months in the vicinity of the hibernacula with the location of their daytime whereabouts not known (Hall 1962; LaVal et al. 1977). Females form maternity colonies that are typically located under the loose bark or in cavities of trees (Humphrey et al. 1977; Kennedy and Harvey 1980). These trees generally have a diameter at breast height of six (6) inches or greater (USFWS, pers. comm.). Humphreys et al. (1977) found that foraging habitat for this species was confined to air space from 6'-100' near foliage of riparian and floodplain trees. Cope et al. (1978) indicated that Indiana bats would not fly over open country or open water when flying to a foraging area.

There are records for the Indiana bat from the TDEC/DNH database for Blount County, Tennessee. Coordination with the USFWS also indicated that there are records for this species from Blount County. Barr (1961) and Matthews (1971) recorded numerous caves in Blount County. Harvey and Pride (1986) listed three caves from Blount County that are utilized by *Myotis sodalis* as hibernacula. These are Bull Cave, Kelly Ridge Cave, and White Oak Blowhole Cave and are 9.2, 8.25, and 11.5 miles respectively southeast of the proposed project. All three lie within the Great Smoky Mountains National Park. White Oak Blowhole Cave is one of three caves listed as Critical Habitat for the Indiana bat in the Southeast (USFWS 1991). No known hibernacula for the Indiana bat are present within five (5) miles of the proposed project (Harvey and Pride 1986; Harvey 1992).

FIELD REVIEW

A field review of the proposed project was conducted in September 1997 and again in October 2001. Terrain along the project alignment ranges from somewhat level to quite hilly. Land use is varied in the project area, with the most common uses being pasture for livestock and hay. Cultivated fields of corn, tobacco, and soybeans are also present. Residential lots are prevalent throughout the project area. Wooded sites are scattered throughout the area, ranging from only a few clustered trees to several acres in size. The wooded sites are located either in upland areas too steep for cultivation or along stream drainages. The upland sites contain mixed hardwoods including southern red

oak, post oak, white oak, scarlet oak, blackgum, Virginia pine, loblolly pine, red cedar, dogwood, redbud, yellow poplar, red maple, sugar maple, black cherry, American elm, winged elm, beech, white ash, and persimmon. Wooded sites along area streams contain boxelder, green ash, black willow, sycamore, hackberry, and black walnut.

Several "blue-line" streams will be crossed by the proposed project. These range in size from small trickles to moderately sized flows. Substrates in these channels consist mainly of sand, gravel, and mud. Most of these streams lack canopy at the proposed crossing sites, as they are located in open fields. Livestock have access to a large percentage of these stream lengths. Where canopy is present, it is sparse for the most part, and limited to within a few feet of the top of the streambanks. Most of the proposed crossings will be accomplished as close to perpendicular as possible. However, channel changes will likely be required at three locations.

POTENTIAL IMPACTS

Several streams that are tributaries to the Little River will be crossed by the proposed project. No records for any of the listed species discussed in this assessment were found from these streams. However, the project crossings are only one to two miles upstream from their respective confluences with the Little River, where several listed species are recorded. Construction of the required drainage structures at these stream crossings, along with adjacent earthwork, has the potential to adversely affect the four darters and the mussel of concern.

Installation of drainage structures can result in direct disturbance of stream sediments. Although the proposed work will be accomplished "in the dry", any loose material in the affected channels at the work locations could be released once stream flows are returned to the finished structures. Some of these structures will be long (<200') which will result in a loss of "day-lighted" stream channel. These encapsulated stream sections may be rendered unusable for many aquatic species. These structures could also act as barriers for movement of aquatic organisms both upstream and downstream. Although these are viewed as negative impacts, one positive impact may also be realized. On streams where no canopy in present, especially in open pastures or hayfields, these long structures can provide a definite cooling effect that would not otherwise be available.

Material used to fill over the installed structures could be lost into a given stream unless protective measures are taken. Areas that are cleared and grubbed for the roadway itself can also be a significant source for silt, which could seriously affect the streams that flow through the project. Serious erosion problems could result unless these areas are stabilized in a timely and efficient manner. Any such impacts to these streams could potentially affect the aquatic species present in a negative manner.

Excessive siltation can clog the gills of both fish and aquatic invertebrates. In addition, eggs and larvae of many aquatic species could be smothered. Escape cover, foraging areas, and crucial spawning habitats can be significantly degraded or destroyed. High amounts of silt in the water column can significantly

affect the ability many aquatic species to forage effectively as well by reducing visibility.

While loose soil materials are of great concern, other materials such as mortar, concrete, or petroleum products could enter a stream at these locations and create additional problems. These pollutants could not only degrade crucial habitats, but can also be directly toxic to many aquatic species and their respective forages.

The primary impact that the proposed project could have on the Indiana bat would be cutting of trees suitable for summer roost habitat. Cutting of roost trees could not only affect adult bats, but also the young bats that may be present. This could lead to loss of vital individuals necessary for bolstering the population of this federally endangered species.

Several caves are located in Blount County, three of which are known to be hibernacula for the Indiana bat. However, the closest of these caves is approximately 8.25 miles from the proposed project, and lies inside the Great Smoky Mountains National Park. No known hibernacula for the Indiana bat are present within five miles of the proposed project (Harvey and Pride 1986; Harvey 1992). Therefore, this habitat type will not be affected by project construction.

MEASURES TO MINIMIZE HARM

Installation and maintenance of effective erosion control structures throughout the duration of the project will be essential in prevention of adverse impacts to the aquatic species discussed in this assessment. The use of silt

fence, hay bales, rock checkdams, detention ponds, slope drains, and erosion control blankets are just a few of the measures that can be utilized to reduce the amount of sediment that could enter streams in the project limits. However, these measures must be maintained on a regular basis if they become damaged or ineffective, and as work areas shift through the duration of the project.

Construction of drainage structures will be accomplished "in the dry" so that minimal material is allowed to enter the streams and thus affect aquatic species present. Streams can be temporarily routed through work areas using pipes or open channels with non-erodible liners until the respective structures are completed. Flows can then be returned to the natural channels with a minimum of sediment disturbance. Where stream crossings are required, these will be accomplished as close to perpendicular as feasible to minimize the stream lengths that will be encapsulated.

Equipment staging areas will be located a sufficient distance from streams such that no coolants, lubricants, fuels, or other petroleum products can enter the streams. Waste and borrow areas will be stabilized, seeded, and mulched once they have been completed. Provided these measures for erosion and siltation control are implemented and maintained, no adverse impacts to aquatic species downstream of the project are anticipated.

The most effective measure to avoid adversely impacting the Indiana bat will be to restrict any needed clearing to the months that are outside the known summer roosting period. Coordination with the U.S. Fish and Wildlife Service indicated that the time period between October 15 and March 31 is the optimal

time to accomplish this activity. Not only would this protect the adult bats, but also any young that might be present. Limiting tree removal to this time period should effectively minimize the likelihood of adversely affecting any Indiana bats that could be utilizing the project area.

CONCLUSIONS

There are records for the ashy darter (*Etheostoma cinereum*), longhead darter (*Percina macrocephala*), snail darter (*Percina tanasi*), duskytail darter (*Etheostoma percnurum*), and fine-rayed pigtoe (*Fusconaia cuneolus*) from the Little River, downstream of the proposed project. Although the project will not cross the Little River, it will cross several small tributary streams one to two miles upstream of their respective confluences with Little River. There are no records for any of the above darter species or the mussel species from these tributary streams. Project construction will cause some stream disturbances at the proposed crossing locations. However, installation and maintenance of effective erosion and siltation control measures throughout project construction should minimize the impacts to these streams. Provided the necessary precautions are taken, it is the opinion of TDOT that the proposed project is **NOT LIKELY TO ADVERSELY AFFECT** the ashy darter (*Etheostoma cinereum*), longhead darter (*Percina macrocephala*), snail darter (*Percina tanasi*), duskytail darter (*Etheostoma percnurum*), or the fine-rayed pigtoe (*Fusconaia cuneolus*)

Information from the U.S. Fish and Wildlife Service indicated that the Indiana bat (*Myotis sodalis*) could be present within the project impact area.

Review of available information indicated no records for this species from within five miles of the proposed project. In addition, no known hibernacula for the Indiana bat are present within five miles of the proposed project. Although some suitable summer roost habitat does appear to be present in the project area, very little will be affected by project construction. Even if a suitable tree is removed, there are sufficient trees left outside the project limits to accommodate any Indiana bats that may utilize this area. Therefore, it is the opinion of TDOT that the proposed project is **NOT LIKELY TO ADVERSELY AFFECT** the Indiana bat.

REFERENCES

Barbour, R. W., and W. H. Davis. 1969. Bats of America. University Press of Kentucky, Lexington. 286 pp.

Barr, T. C., Jr. 1961. Caves of Tennessee. Bulletin 64. State of Tennessee, Department of Conservation and Commerce, Division of Geology. Reprinted 1972. 567 pp.

Bogan, A. E. and P. W. Parmalee. 1983. Tennessee's rare wildlife. Volume II: The Mollusks. Tennessee Wildlife Resources Agency and Tennessee Dept. of Conservation. Nashvile, Tennessee. 123 pp.

Cope, J. B., A. R. Richter, and D. A. Seerley. 1978. A survey of the bats in the Big Blue Lake Project Area in Indiana. Unpubl. Rep. To U.S. Army Corps of Engineers.

Clay, W. M. 1975. The fishes of Kentucky. Kentucky Dept. Fish and Wildlife Resources, Frankfort. 416 pp.

Etnier, D. A. 1976. *Percina* (*Imostoma*) *tanasi*, a new percid fish from the Little Tennessee River, Tennessee. Proc. Biol. Soc. Wash. 88:469-488.

Etnier, D. A. and W. C. and Starnes. 1993. The fishes of Tennessee. The University of Tennessee Press, Knoxville. 681 pp.

Hall , J. S. 1962. A life history and taxonomic study of the Indiana bat, Myotis sodalis. Reading Public Mus. And Art Gallery, Sci. Publ. 12:1-68.

Harvey, M. J. 1992. Status of summer colonies of the endangered gray bat in Tennessee. Report to the U.S. Fish and Wildlife Service. 47 pp.

Harvey, M. J. and T. E. Pride. 1986. Distribution of and status of endangered bats in Tennessee. Tennessee Wildl. Resour. Agen. Tech. Rep. 88-3. 81 pp.

Hickman, M. E. 1937. A contribution to mollusca of east Tennessee. Unpublished master's thesis, Dept. of Zoology, University of Tennessee, Knoxville. 165 pp. 104 pl.

Humphrey, S. R., A. R. Richter, and J. B. Cope. 1977. Summer habitat and ecology of the endangered Indiana bat, Myotis sodalis. J. Mamm., 58:334-346.

Kennedy , M. L. and M. J. Harvey. 1980. Mammals. Pp. C1-C50 in Tennessee's rare wildlife.

Kuehne, R. A. and R. W. Barbour. 1983. The American darters. University Press of Kentucky. 177 pp.

LaVal, R. K., R. L. Clawson, M. L. LaVal, and W. Caire. 1977. Foraging behavior and nocturnal activity patterns of Missouri bats, with special emphasis on the endangered species Myotis grisescens and Myotis sodalis. J. Mamm., 58:592-599.

Matthews, Larry E. 1971. Description of Tennessee Caves. Bulletin 69. State of Tennessee, Department of Conservation, Division of Geology. 150 pp.

Neves, R. J. 1991. Mollusks. Pp. 251-320, *In*: K. Terwilliger, editor. Virginia's Endangered Species. Proceedings of a Symposium. Dept. of Game and Inland Fisheries, Commonwealth of Virginia. 672 pp.

Ortmann, A. E. 1925. The naiad-fauna of the Tennessee River system below Walden Gorge. Am. Midl. Nat., 9(7):321-372.

Page, L. M. 1983. Handbook of darters. Illinois Natural History Survey, Champaign. T. F. H. Publications, Inc. Ltd. 271 pp.

P. W. Parmalee and A. E. Bogan. 1998. The freshwater mussels of Tennessee. The University of Tennessee Press, Knoxville. 328 pp.

Starnes, W.C. and D. A. Etnier. 1980 (date not indicated on publication). Fishes, p B-1 – B-134, *In*: D. A. Eagar and R. M. Hatcher, eds. Tennessee's rare wildlife. Tenn. Dept. Cons., Nashville.

Tennessee Department of Environment and Conservation, Division of Natural Heritage. 2001. Rare Species Database.

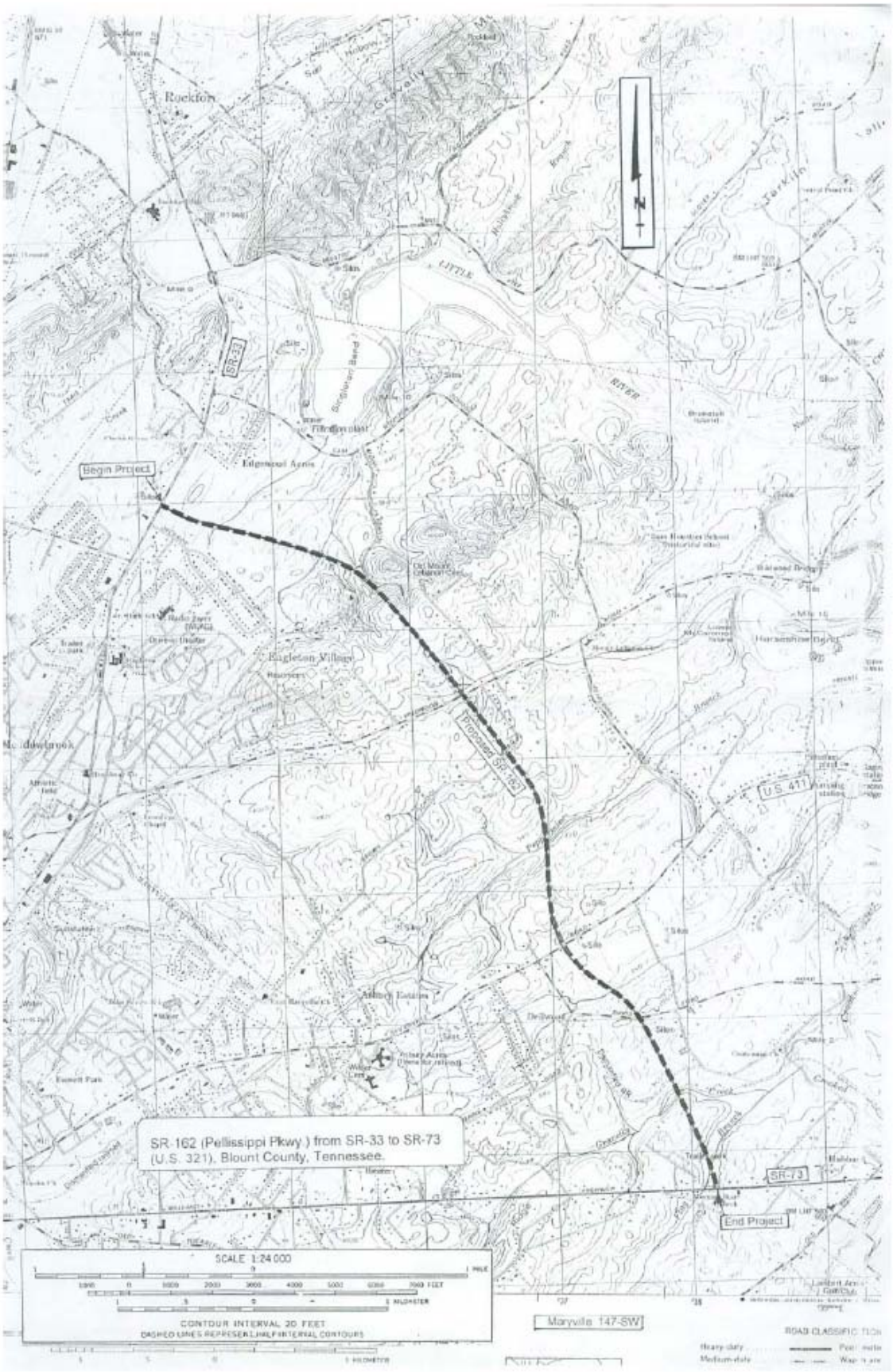
U. S. Fish and Wildlife Service. 1983. Snail darter recovery plan. U. S. Fish and Wildlife Service, Atlanta, Georgia. 46 pp.

_____. 1984. Endangered and threatened wildlife and plants; proposal to reclassify the snail darter (*Percina tanasi*) to a threatened species and rescind critical habitat designation. Federal Register. 49(35): 6388-6392.

_____. 1991. Endangered and Threatened Species of the Southeast United States (The Red Book). Ecological Services, Division of Endangered Species, Southeast Region. Government printing Office, Washington, D.C. 1070 pp.

_____. 1992. Endangered and Threatened Species of the Southeast United States (The Red Book). Ecological Services, Division of Endangered Species, Southeast Region. Government printing Office, Washington, D.C. 1070 pp.

_____. 2001. Personal communication. U. S. Fish and Wildlife Service, Cookeville Office. Cookeville, Tennessee 38501.


Begin Project
End Project
SR-162 (Pellissippi Pkwy) from SR-33 to SR-73
(U.S. 321), Blount County, Tennessee.
SR-33
SR-73
U.S. 411
Eagleton Village
Maryville 147-SW
SCALE 1:24 000
CONTOUR INTERVAL 20 FEET
DASHED LINES REPRESENT HALF-INTERVAL CONTOURS

United States Department of the Interior

FISH AND WILDLIFE SERVICE
446 Neal Street
Cookeville, TN 38501

February 5, 2002

DEPT. OF TRANSPORTATION
RECEIVED
FEB 2 8 2002
SURVEY & DESIGN OFFICE
KNOXVILLE

Ms. Leigh Ann Tribble
Area Engineer
Federal Highway Administration
640 Grassmere Business Park, Suite 112
Nashville, Tennessee 37211

Re: FWS# 00-0663

Dear Ms. Tribble:

Fish and Wildlife Service personnel have reviewed the biological assessment for four federally listed species and two federal "Species of Management Concern," submitted on December 5, 2001, for the proposed construction of the S.R. 162 extension (Pellissippi Parkway), in Blount County, Tennessee. We provide the following comments in accordance with Section 7 of the Endangered Species Act (as amended).

We concur with the biological assessment conclusion of "not likely to adversely affect" for the Indiana bat (*Myotis sodalis*), provided that no forested areas along the project corridor are cleared between October 15 and March 31. If this recommendation is acceptable and incorporated into the project contract, we believe that the requirements of Section 7 of the Endangered Species Act (Act) for the Indiana bat have been fulfilled. However, obligations under Section 7 of the Act must be reconsidered if: (1) new information reveals that the proposed action may affect this species in a manner or to an extent not previously considered or (2) the proposed action is subsequently modified to include activities which were not considered in this biological assessment. If the tree-clearing limitation is unacceptable, please notify us and Section 7 consultation on the Indiana bat will continue.

We are unable to occur with the assessment's determination of "not likely to adversely affect" for the snail darter (*Percina tanasi*), the fine-rayed pigtoe (*Fusconaia cuneolus*), or the duskytail darter (*Etheostoma percnurum*). While we agree that the Division of Natural Heritage has no records of these species from the proposed project corridor, we note that the Division's collection records may not be all-inclusive. The Heritage data are a compilation of collection records made available by various individuals and resource agencies. This information is seldom based on comprehensive surveys of all potential habitat and thus does not necessarily provide conclusive evidence that protected species are present or absent at a specific locality. Three of the larger Little River tributaries that would be crossed by the proposed project, Gravelly Branch, Peppermint Creek, and Flag Branch, may be of sufficient size and quality to contain these rare fishes and mussels.

We recommend that these streams be surveyed for suitable habitat for these species. The surveys should include color photographs of the stream reaches that are to be crossed by the S.R. 162 extension. If suitable habitat (clean swept gravel and sand, perennial flow, and low turbidity) is encountered, we recommend that you perform a fish and mussel survey to better determine the presence or absence of listed species. The results of the surveys should be transmitted to this office for review and concurrence.

We appreciate your attention to two federal "Species of Management Concern," the ashy darter (*Etheostoma cinereum*) and the longhead darter (*Percina macrocephala*). While these species are not federally protected, they are ostensibly rare and we appreciate any measures that you may take to avoid impacts to individuals and their habitat.

Your interest in the protection of endangered and threatened species is greatly appreciated. If you have questions or if we can be of further assistance, please contact Rob Tawes of my staff at 931/528-6481, ext.213.

Sincerely,

for Lee A. Barclay, Ph.D.
Field Supervisor

xc: Lilah Miller, TDOT, Nashville
Dan Sherry, TWRA, Nashville
Reggie Reeves, TDEC, Nashville

STATE OF TENNESSEE
DEPARTMENT OF TRANSPORTATION
ENVIRONMENTAL PLANNING & PERMITS DIVISION
SUITE 900, JAMES K. POLK BUILDING
505 DEADERICK STREET
NASHVILLE, TENNESSEE 37243-0334

February 27, 2002

Dr. Lee Barclay
U.S. Department of Interior
Fish and Wildlife Service
446 Neal Street
Cookeville, TN 38501

Re: State Route 162 (Pellissippi Parkway) from SR-33 to SR-73 (U.S. 321), Blount County, Tennessee
FWS# 00-0663

Dear Dr. Barclay:

Thank you for your February 5, 2002 response and comments to our Biological Assessment submitted December 5, 2001 for the subject project. Specifically, you expressed concern that the snail darter (*Percina tanasi*), duskytail darter (*Etheostoma percnurum*), and fine-rayed pigtoe (*Fusconaia cuneolus*) could be present in Peppermint Branch, Gravelly Creek, and Flag Branch. All three of these streams will be crossed by the proposed project. We will attempt to address this concern to your satisfaction.

Photos of Peppermint Branch, Gravelly Creek, and Flag Branch are attached for your use. These three streams typically range from three to six feet in width. Depths range from three to six inches in riffle areas and from six to twelve inches in pools. Riffle sections are typically composed of gravel or cobble mixed with sand and silt, while pool reaches are generally covered in a layer of silt mixed with sand. Flows are slow to moderate in each of these streams.

As seen in the attached photos, livestock have access to long reaches of these streams and have caused severe damage to stream banks. Groundcover adjacent to these streams has eliminated completely at several locations. The substrates have been altered in a large portion of these streams as well where livestock have trampled and disturbed them. Stream sections that may have at

one time consisted predominantly of gravel or sand/gravel mixtures have been covered by sediments from livestock walking directly in the streams and from storm runoff over disturbed areas adjacent to the streams. In addition, much of the canopy along these streams has been either removed completely or has been reduced to the point that it provides little benefit through either bank stabilization or shading. The portion of Flag Branch located within the project limits appears to have been channelized at some time as well.

The snail darter (*Percina tanasi*) and duskytail darter (*Etheostoma percnurum*) are known to occur in Little River. Several records are noted for these two species, with the most recent being in 2000. However, no records were noted from any of the tributary streams crossed by the project. Dr. David Etnier was contacted by phone on February 12, 2002, concerning the possibility of these two darter species occurring in the smaller tributary streams to Little River. Dr. Etnier indicated that he had collected the snail darter and duskytail darter from Little River, but not from the smaller tributaries, including Peppermint Branch, Gravelly Creek, and Flag Branch. Dr. Etnier also indicated that these two species are typically found in larger streams and would not likely be present in the smaller tributary streams crossed by this project. Available literature for *Percina tanasi* and *Etheostoma percnurum* also indicates these two species as occurring in major tributaries, not smaller type streams. Based on this information, it does not appear that either the snail darter or duskytail darter are likely to be present in Peppermint Branch, Gravelly Creek, and Flag Branch.

The fine-rayed pigtoe (*Fusconaia cuneolus*) is also known to occur in Little River, with collection records as recent as 1981 noted. However, no records for this species were noted from any of the tributary streams that will be crossed by the proposed project. Mr. Steven Ahlstedt (USGS) was contacted by phone on February 12, 2002, to discuss the possibility of this mussel species being present in the tributary streams crossed by the proposed project. Mr. Ahlstedt indicated that one individual of this species had been collected from Little River, but none from the smaller tributary streams. He also indicated that *Fusconaia cuneolus* is generally found in larger streams than those crossed by the proposed project. Based on this information, it does not appear likely that the fine-rayed pigtoe is present in Peppermint Branch, Gravelly Creek, and Flag Branch.

Available information indicates that neither the snail darter (*Percina tanasi*), duskytail darter (*Etheostoma percnurum*), nor fine-rayed pigtoe (*Fusconaia cuneolus*) are likely to be present in any of the smaller tributary streams crossed by the proposed project. This is due to both the small size of these streams and lack of suitable habitat in them. However, these three species do occur in Little River. These species are also highly sensitive to the effects of excess sedimentation that could result from poor erosion and siltation control during

project construction. Provided the necessary erosion and sediment control measures are implemented and maintained throughout project construction, it is the opinion of the Tennessee Department of Transportation that the snail darter (*Percina tanasi*), duskytail darter (*Etheostoma percnurum*), and fine-rayed pigtoe (*Fusconaia cuneolus*) are "not likely to be adversely affected".

Thank you for your assistance with this project. We hope the above information will be sufficient to address your concerns with the proposed project. If you have any questions, or need additional information, please contact Keven Brown at (865) 594-9395.

Sincerely,

Lilah Miller
Ecological Studies Section

LM:KB

Attachments

Xc: Mr. Jim Bryson
Mr. Tom Love
Mr. Keven Brown
Reading File

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Typical reach of Peppermint Branch downstream of project crossing. Banks are severely trampled and substrate heavily disturbed.

Typical reach of Peppermint Branch showing adverse effects of livestock access. Note degraded banks and open canopy.

4

Downstream view of Gravelly Creek at project crossing. Banks heavily trampled by livestock. Canopy also sparse except for larger trees.

Upstream view of Gravelly Creek at project crossing. Little to no groundcover adjacent to this section of stream due to livestock usage.

5

Flag Branch within limits of proposed project crossing. Mostly pool habitat with slows flow through this stream section. Heavy silt load present in substrate.

Flag Branch within limits of proposed project crossing. Mostly pool habitat with slow flows and high silt load through this stream section.

6

United States Department of the Interior

FISH AND WILDLIFE SERVICE
446 Neal Street
Cookeville, TN 38501

April 16, 2002

Ms. Leigh Ann Tribble
Area Engineer
Federal Highway Administration
640 Grassmere Business Park, Suite 112
Nashville, Tennessee 37211

Re: Construction of State Route 162 (Pellissippi Parkway) from State Route 33 to State Route 73 (US 321)

Dear Ms. Tribble:

Thank you for your letter and enclosure of March 7, 2002, transmitting additional information regarding the proposed construction of the Pellissippi Parkway from State Route 33 to State Route 73 in Blount County, Tennessee. Fish and Wildlife Service biologists have reviewed the information submitted and we offer the following comments.

Based on the information provided by Dr. David Etnier and Steven Ahlstedt about habitat conditions required by the snail darter (*Percina tanasi*), duskytail darter (*Etheostoma percnurum*), and fine-rayed pigtoe (*Fusconaia cuneolus*), we concur that the proposed crossings of Peppermint Branch, Gravelly Creek, and Flag Branch are not likely to adversely affect these listed species. In view of this, we believe that the requirements of Section 7 of the Endangered Species Act have been fulfilled. Obligations under Section 7 must be reconsidered, however, if: (1) new information reveals that the proposed action may affect listed species in a manner or to an extent not previously considered, (2) the proposed action is subsequently modified to include activities which were not considered during this consultation, or (3) new species are listed or critical habitat designated that might be affected by the proposed action.

Although it is likely that none of the three listed species considered in this consultation occur in the tributaries to be crossed by the proposed project, we concur that Best Management Practices for sediment control should be employed and strictly enforced during construction to prevent potential effects to these species in the Little River.

Thank you for providing additional information about the federally listed species addressed during planning of the proposed project. Your concern for the protection of listed species is greatly appreciated. If you have any questions, please contact Jim Widlak of my staff at 931/528-6481, ext. 202.

Sincerely,

Lee A. Barclay, Ph.D.
Field Supervisor

xc: Ms. Lilah Miller, TDOT, Nashville, TN

APPENDIX F

BLOUNT COUNTY RESIDENTIAL DEVELOPMENT TRENDS

APPENDIX F
BLOUNT COUNTY RESIDENTIAL DEVELOPMENT TRENDS

Blount County's Planning Department has tracked residential development in the County since the 1950's. The Planning Department has prepared graphical representations of the residential development between 1950 and 2005, which are provided in Figures F-1 through F-6.

Each dot on the figures represents a residential structure. For each decade represented by the individual maps, yellow dots represent homes that already existed, while the red dots represent new residential structures that were constructed during the decade. While growth is occurring throughout the counties, the majority of the growth is within the urban areas (i.e. cities of Alcoa and Maryville).

The following highlights the major growth locations during the last 50 years:

- 1950's (Figure F-1) – Residential growth is seen along the western side of SR 33/Old Knoxville Highway and along the eastern side of SR 33 towards Sevierville Road in Eagleton Village. Homes are also developing along the eastern side of Broadway/US 411 in Maryville.
- 1960's (Figure F-2) – Residential growth continues along the eastern side of SR 33 and north and south of Sevierville Road. Growth also continues south of Lamar Alexander Parkway along the eastern edge of Broadway and US 411 in Maryville.
- 1970's (Figure F-3) – Residential growth continues to move in an easterly direction from SR 33 along the north and south sides of Sevierville Road. Strong growth can also be seen continuing south along US 411. A pocket of homes are developed to the west of US 411, just south of the Alcoa Bypass and homes continue to develop east of US 411 moving farther east towards Montvale Road. During this time, a pocket of homes also begins to appear towards the Knox County border between I-140 and US 129.
- 1980's (Figure F-4) – Residences continue to be constructed east of SR 33, primarily between Sevierville Road and Lamar Alexander Parkway. Homes also continue to develop in Maryville east along US 411. During this decade, a cluster of homes is built near Montvale Station Road and Montvale Road.
- 1990's (Figure F-5) – Residential growth continues east along Sevierville Road and south along US 411.
- 2000 to 2005 (Figure F-6) – Residential growth continues to extend along major corridors.

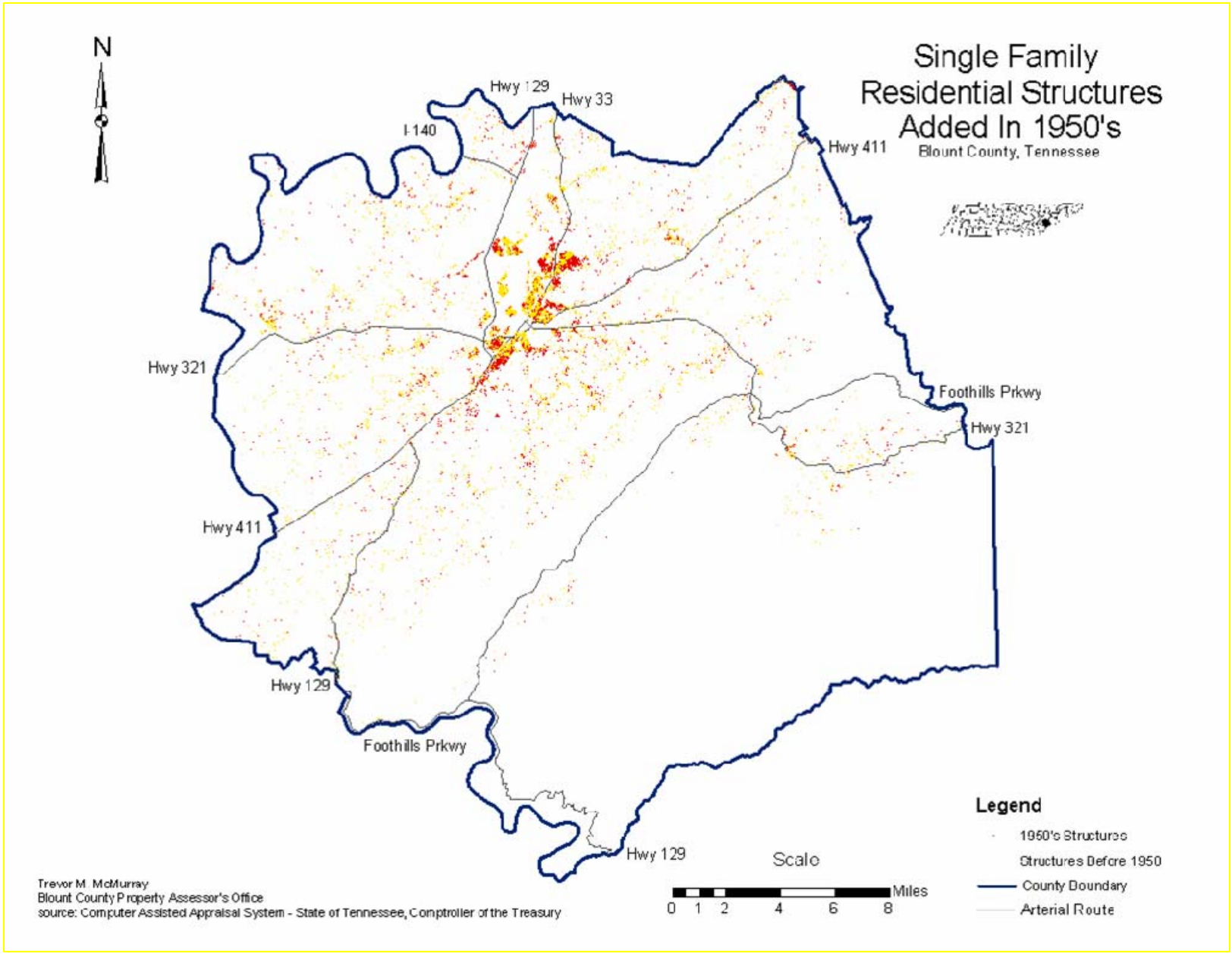

Figure F-1: Single-Family Residential Structures Added in 1950's

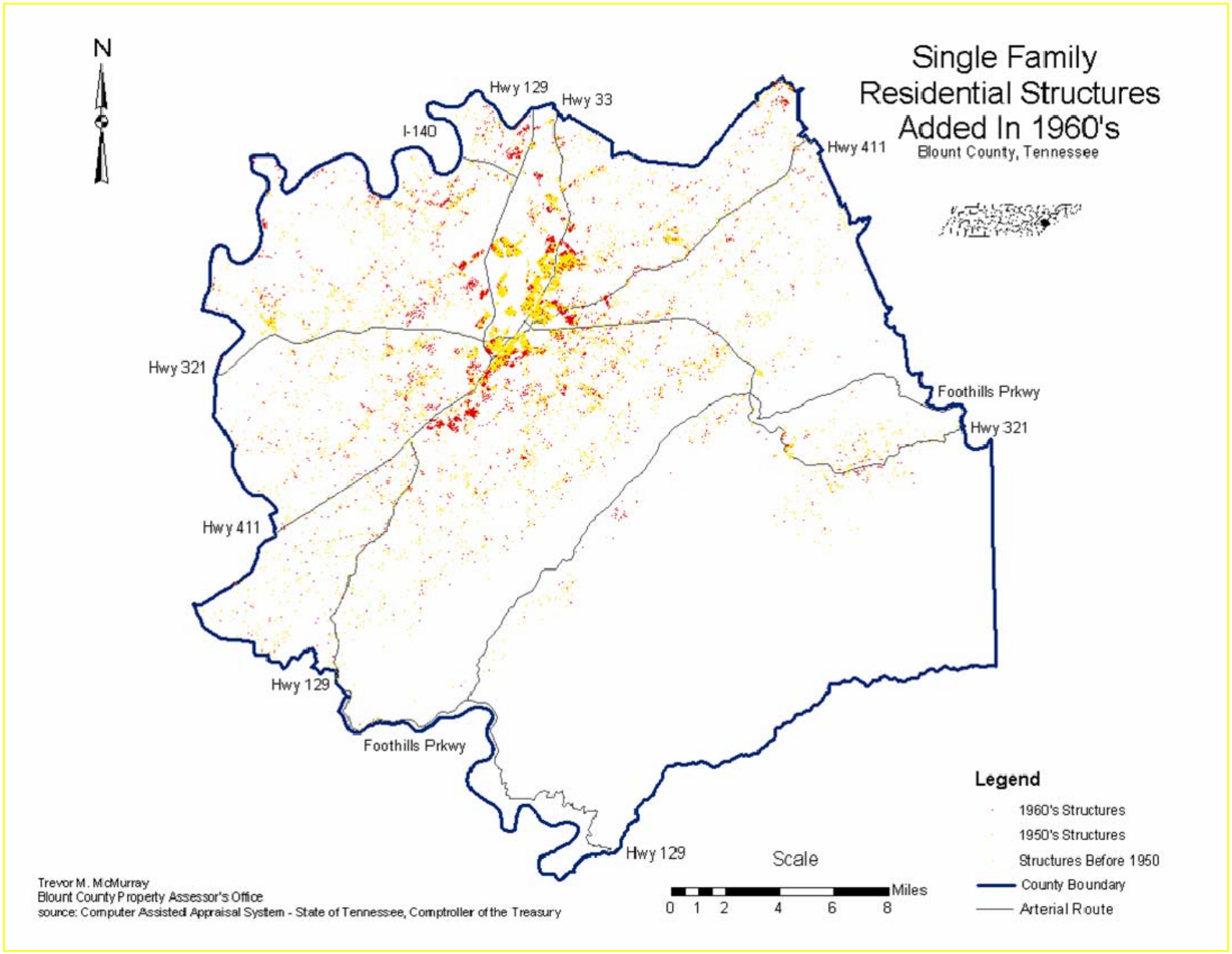

Figure F-2: Single-Family Residential Structures Added in 1960's

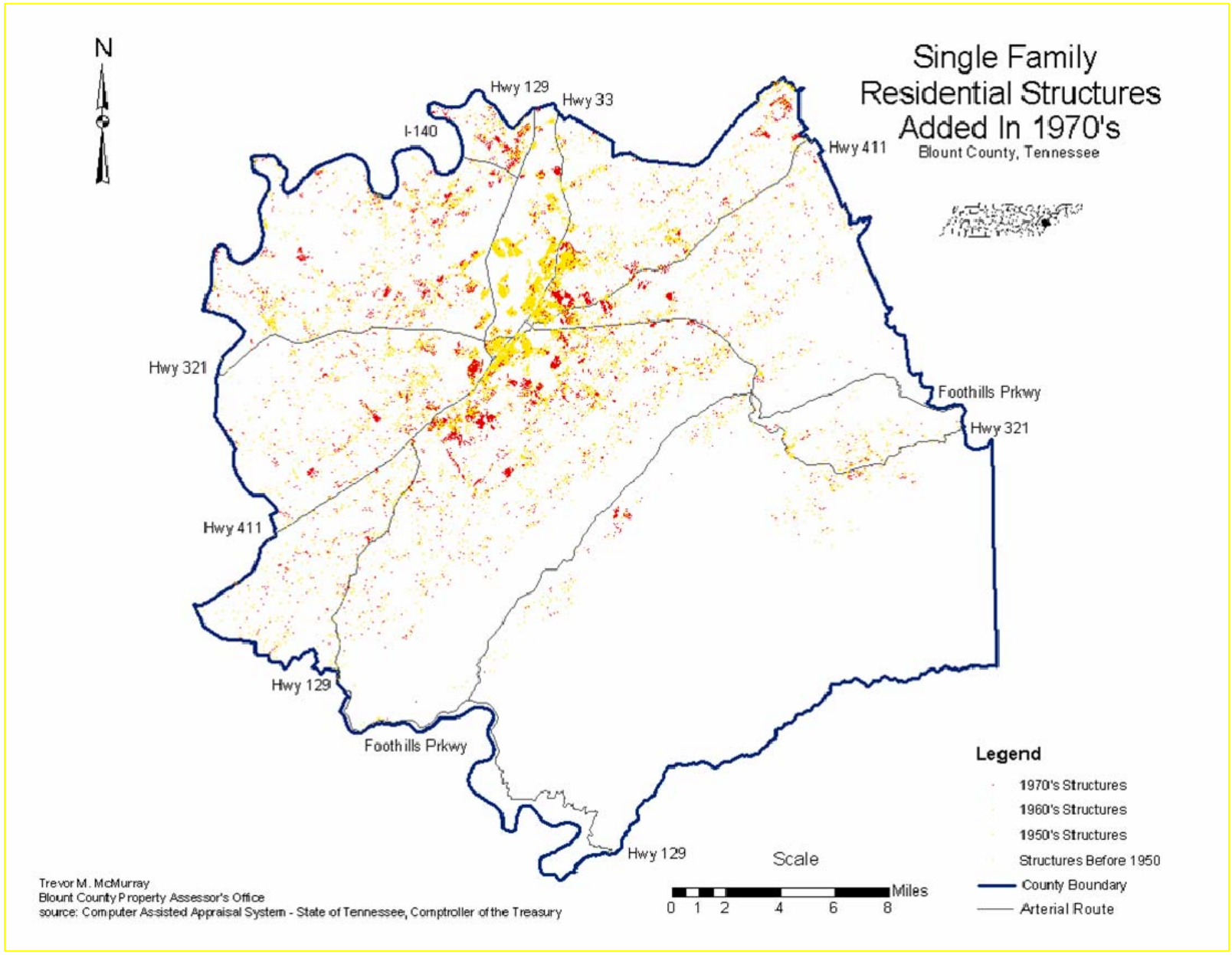

Figure F-3: Single-Family Residential Structures Added in 1970's

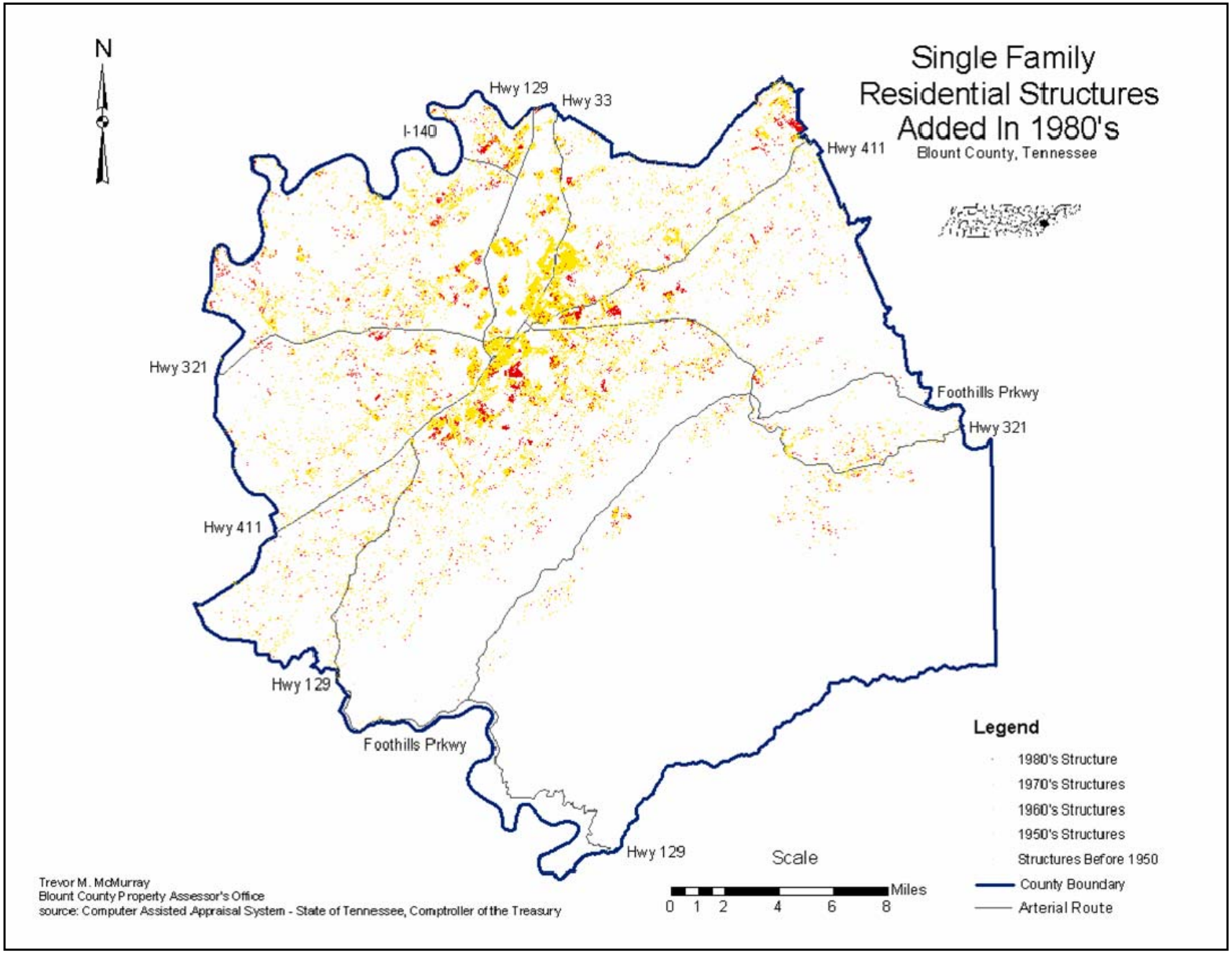

Figure F-4: Single-Family Residential Structures Added in 1980's

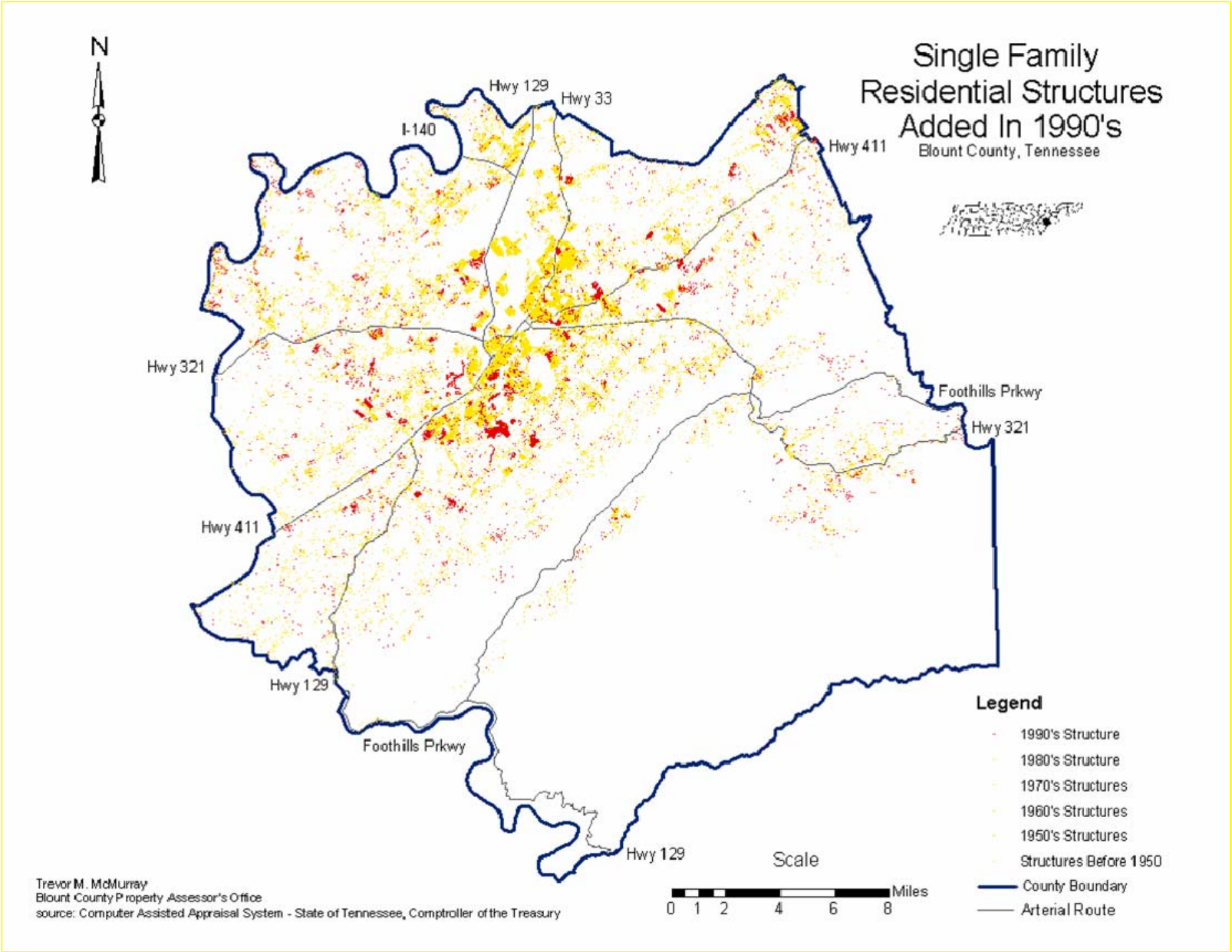

Figure F-5: Single-Family Residential Structures Added in 1990's

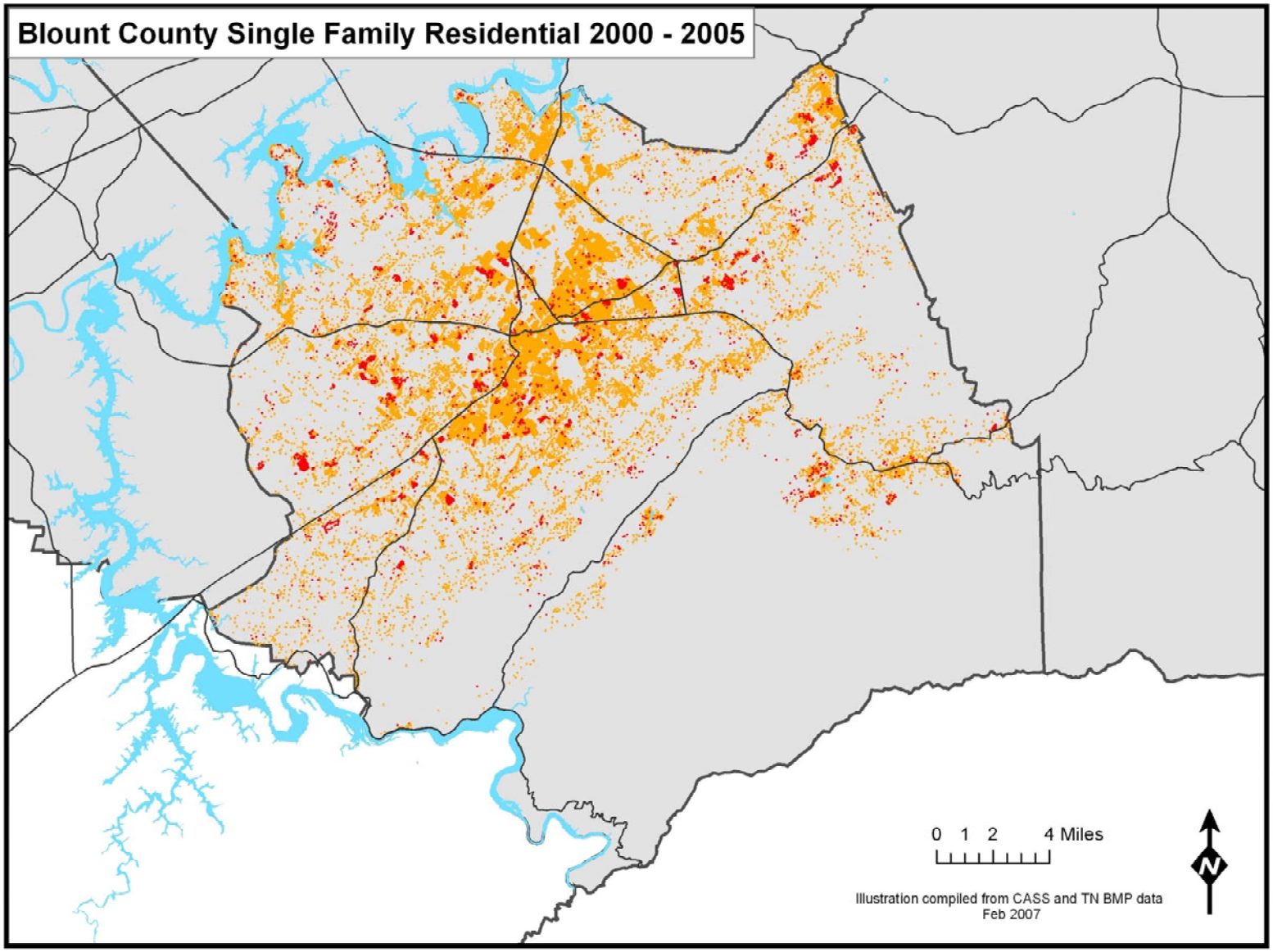

Figure F-6 Blount County Single-Family Residential 2000-2005

APPENDIX G

MOBILE SOURCE AIR TOXICS:

APPENDIX C- PROTOTYPE LANGUAGE FOR COMPLIANCE

WITH 40 CFR 1502.22

U.S. Department of Transportation
Federal Highway Administration

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Environment

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APPENDIX C-Prototype Language for Compliance with 40 CFR 1502.22

Sec. 1502.22 INCOMPETE OR UNAVAILABLE INFORMATION

When an agency is evaluating reasonably foreseeable significant adverse effects on the human environment in an environmental impact statement and there is incomplete or unavailable information, the agency shall always make clear that such information is lacking.

a. If the incomplete information relevant to reasonably foreseeable significant adverse impacts is essential to a reasoned choice among alternatives and the overall costs of obtaining it are not exorbitant, the agency shall include the information in the environmental impact statement.
b. If the information relevant to reasonably foreseeable significant adverse impacts cannot be obtained because the overall costs of obtaining it are exorbitant or the means to obtain it are not known, the agency shall include within the environmental impact statement:
    1. a statement that such information is incomplete or unavailable;
    2. a statement of the relevance of the incomplete or unavailable information to evaluating reasonably foreseeable significant adverse impacts on the human environment;
    3. a summary of existing credible scientific evidence which is relevant to evaluating the reasonably foreseeable significant adverse impacts on the human environment; and
    4. the agency's evaluation of such impacts based upon theoretical approaches or research methods generally accepted in the scientific community. For the purposes of this section, "reasonably foreseeable" includes impacts that have catastrophic consequences, even if their probability of occurrence is low, provided that the analysis of the impacts is supported by credible scientific evidence, is not based on pure conjecture, and is within the rule of reason.
c. The amended regulation will be applicable to all environmental impact statements for which a Notice to Intent (40 CFR 1508.22) is published in the Federal Register on or after May 27, 1986. For environmental impact statements in progress, agencies may choose to comply with the requirements of either the original or amended regulation.

INCOMPLETE OR UNAVAILABLE INFORMATION FOR PROJECT-SPECIFIC MSAT HEALTH IMPACTS ANALYSIS

In FHWA's view, information is incomplete or unavailable to credibly predict the project-specific health impacts due to changes in MSAT emissions associated with a proposed set of highway alternatives. The outcome of such an assessment, adverse or not, would be influenced more by the uncertainty introduced into the process through assumption and speculation rather than any genuine insight into the actual health impacts directly attributable to MSAT exposure associated with a proposed action.

The U.S. Environmental Protection Agency (EPA) is responsible for protecting the public health and welfare from any known or anticipated effect of an air pollutant. They are the lead authority for administering the Clean Air Act and its amendments and have specific statutory obligations with respect to hazardous air pollutants and MSAT. The EPA is in the continual process of assessing human health effects, exposures, and risks posed by air pollutants. They maintain the Integrated Risk Information System (IRIS), which is "a compilation of electronic reports on specific substances found in the environment and their potential to cause human health effects" (EPA, http://www.epa.gov/ncea/iris/index.html). Each report contains assessments of non-cancerous and cancerous effects for individual compounds and quantitative estimates of risk levels from lifetime oral and inhalation exposures with uncertainty spanning perhaps an order of magnitude.

Other organizations are also active in the research and analyses of the human health effects of MSAT, including the Health Effects Institute (HEI). Two HEI studies are summarized in Appendix D of FHWA's Interim Guidance Update on Mobile source Air Toxic Analysis in NEPA Documents. Among the adverse health effects linked to MSAT compounds at high exposures are cancer in humans in occupational settings; cancer in animals; and irritation to the respiratory tract, including the exacerbation of asthma. Less obvious is the adverse human health effects of MSAT compounds at current environmental concentrations (HEI, http://pubs.healtheffects.org/view.php?id=282) or in the future as vehicle emissions substantially decrease (HEI, http://pubs.healtheffects.org/view.php?id=306).

The methodologies for forecasting health impacts include emissions modeling; dispersion modeling; exposure modeling; and then final determination of health impacts - each step in the process building on the model predictions obtained in the previous step. All are encumbered by technical shortcomings or uncertain science that prevents a more complete differentiation of the MSAT health impacts among a set of project alternatives. These difficulties are magnified for lifetime (i.e., 70 year) assessments, particularly because unsupportable assumptions would have to be made regarding changes in travel patterns and vehicle technology (which affects emissions rates) over that time frame, since such information is

unavailable. The results produced by the EPA's MOBILE6.2 model, the California EPA's Emfac2007 model, and the EPA's DraftMOVES2009 model in forecasting MSAT emissions are highly inconsistent. Indications from the development of the MOVES model are that MOBILE6.2 significantly underestimates diesel particulate matter (PM) emissions and significantly overestimates benzene emissions.

Regarding air dispersion modeling, an extensive evaluation of EPA's guideline CAL3QHC model was conducted in an NCHRP study (http://www.epa.gov/scram001/dispersion_alt.htm#hyroad), which documents poor model performance at ten sites across the country - three where intensive monitoring was conducted plus an additional seven with less intensive monitoring. The study indicates a bias of the CAL3QHC model to overestimate concentrations near highly congested intersections and underestimate concentrations near uncongested intersections. The consequence of this is a tendency to overstate the air quality benefits of mitigating congestion at intersections. Such poor model performance is less difficult to manage for demonstrating compliance with National Ambient Air Quality Standards for relatively short time frames than it is for forecasting individual exposure over an entire lifetime, especially given that some information needed for estimating 70-year lifetime exposure is unavailable. It is particularly difficult to reliably forecast MSAT exposure near roadways, and to determine the portion of time that people are actually exposed at a specific location.

There are considerable uncertainties associated with the existing estimates of toxicity of the various MSAT, because of factors such as low-dose extrapolation and translation of occupational exposure data to the general population, a concern expressed by HEI (http://pubs.healtheffects.org/view.php?id=282). As a result, there is no national consensus on air dose-response values assumed to protect the public health and welfare for MSAT compounds, and in particular for diesel PM. The EPA (http://www.epa.gov/risk/basicinformation.htm#q) and the HEI (http://pubs.healtheffects.org/getfile.php?u=395) have not established a basis for quantitative risk assessment of diesel PM in ambient settings.

There is also the lack of a national consensus on an acceptable level of risk. The current context is the process used by the EPA as provided by the Clean Air Act to determine whether more stringent controls are required in order to provide an ample margin of safety to protect public health or to prevent an adverse environmental effect for industrial sources subject to the maximum achievable control technology standards, such as benzene emissions from refineries. The decision framework is a two-step process. The first step requires EPA to determine a "safe" or "acceptable" level of risk due to emissions from a source, which is generally no greater than approximately 100 in a million. Additional factors are considered in the second step, the goal of which is to maximize the number of people with risks less than 1 in a million due to emissions from a source. The results of this statutory two-step process do not guarantee that cancer risks from exposure to air toxics are less than 1 in a million;in some cases, the residual risk determination could result in maximum individual cancer risks that are as high as approximately 100 in a million. In a June 2008 decision, the U.S. Court of Appeals for the District of Columbia Circuit upheld EPA's approach to addressing risk in its two step decision framework. Information is incomplete or unavailable to establish that even the largest of highway projects would result in levels of risk greater than safe or acceptable.

Because of the limitations in the methodologies for forecasting health impacts described, any predicted difference in health impacts between alternatives is likely to be much smaller than the uncertainties associated with predicting the impacts. Consequently, the results of such assessments would not be useful to decision makers, who would need to weigh this information against project benefits, such as reducing traffic congestion, accident rates, and fatalities plus improved access for emergency response, that are better suited for quantitative analysis.

Due to the limitations cited, a discussion such as the example provided in this Appendix (reflecting any local and project-specific circumstances), should be included regarding incomplete or unavailable information in accordance with Council on Environmental Quality (CEQ) regulations [40 CFR 1502.22(b)]. The FHWA Headquarters and Resource Center staff Victoria Martinez (787) 766-5600 X231, Shari Schaftlein (202) 366-5570, and Michael Claggett (505) 820-2047, are available to provide guidance and technical assistance and support.

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