FINAL ENVIRONMENTAL IMPACT STATEMENT

PELLISSIPPI PARKWAY EXTENSION (State Route 162)

from State Route 33 (Old Knoxville Highway) to US 321/State Route 73/Lamar Alexander Parkway

BLOUNT COUNTY, TENNESSEE

Submitted Pursuant to 42 USC 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

September 2015

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

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

9/10/15
Date

Federal Highway Administration, Tennessee Division
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Date

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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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Attachments

A—Transportation Planning
1. Knoxville TPO TIP 2014-2017 - Project Sheet
2. *Regional Mobility Plan 2040* – Project Page
3. Summary of Changes to the 2013 Regional Travel Demand Model, June 9, 2014
4. Blount County Projects in *Regional Mobility Plan 2040*
5. Parsons Brinckerhoff Memorandum, Update to 2009 Travel Trends Evaluation between Blount and Knox County Update, February 25, 2015

B—Blount County Residential Development Trends
C—Agency Coordination Since DEIS
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Attachment C-2 – Other Agency Correspondence Since the DEIS
Attachment C-3 – Interagency Coordination
D—Conceptual Stage Relocation Plan 2014
E—Environmental Justice Analysis June 2014 (with minor correction March 3, 2015)
F—Section 106 Consultation and Coordination
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A—Traffic Forecast Study 2013
B—Addendum to Traffic Technical Report 2014
C—Crash Analysis Report Update 2014
D—Addendum to 2009 Economic Fiscal Impacts Analysis 2015
E—Air Quality Technical Report Update 2014
F—Noise Technical Report 2014
G— Addendum to 2009 Ecology Report 2013
H—Phase II Contamination Report 2013
I—Ecology Technical Report for Alternatives C and D 2014
J—Indirect and Cumulative Effects: Updated Methodology and Background Information 2015
K—2010 Draft Environmental Impact Statement
L—2014 Approved Reevaluation of Draft Environmental Impact Statement
M—Conceptual Layouts
N—Website Materials Cited in FEIS

Acronyms

AADT	Average annual daily traffic
AASHTO	American Association of State Highway and Transportation Officials
AC	Ratio of A (section crash rate) to C (statewide critical crash rate)
ACHP	Advisory Council on Historic Preservation
ADA	Americans with Disabilities Act
ADT	Average daily traffic
APE	Area of potential effect
ARAP	Aquatic Resources Alteration Permit
BG	Block Group
BMP	Best management practice(s)
BRT	Bus rapid transit
CAAA	Clean Air Acts Amendments
CAPPE	Citizens Against Pellissippi Parkway Extension
CEQ	Council on Environmental Quality
CFR	Code of Federal Regulations
CH_4	Methane
CIA	Community impact assessment
CO	Carbon monoxide
CO_2	Carbon dioxide
COCS	Cost of community service
cpmvm	Crashes per million vehicle miles
CP	Concurrence points
CSS	Context sensitive solutions
CT	Census Tract
dB	Decibel
dBA	A-weighted decibel
DEIS	Draft Environmental Impact Statement
DOA	Department of the Army
EA	Environmental Assessment
EIS	Environmental Impact Statement
EJ	Environmental Justice
EPA	U.S. Environmental Protection Agency
ESA	Endangered Species Act
ETHRA	East Tennessee Human Resources Agency
FAA	Federal Aviation Administration
FAQ	Frequently Asked Questions
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
GHG	Greenhouse gas
GIS	Geographic Information Systems
GSMNP	Great Smoky Mountains National Park
HCM	Highway Capacity Model
HCS	Highway Capacity Software
HPP	High priority project
HUD	U.S. Housing and Urban Development
I	Interstate
IAC	Interagency Consultation (for $PM_{2.5}$)
ICE	Indirect and Cumulative Effects
ITE	Institute of Transportation Engineers
L&WCF	Land and Water Conservation Fund
L_{eq}	Equivalent Continuous Noise Level
LOS	Level of Service
LRT	Light Rail Transit
LRTP	Long-Range Transportation Plan
MAP21	Moving Ahead for Progress in the 21st Century
MOA	Memorandum of Agreement
MOVES	EPA's Motor Vehicle Emissions Simulator
mph	miles per hour
MPO	Metropolitan Planning Organization
MSAT	Mobile Source Air Toxics
N_2O	nitrous oxide
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
NOA	Notice of Availability
NOI	Notice of Intent
NPDES	National Pollutant Discharge Elimination System
NPS	National Park Service
NRCS	Natural Resources Conservation Service
NRHP	National Register of Historic Places
NWI	National Wetland Inventory
PC	Public Chapter
PM	Particulate Matter
PPE	Pellissippi Parkway Extension (proposed project)
ppm	parts per million
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
SIP	State Implementation Plan
SR	State Route
STR	Stream
SWPPP	Storm Water Pollution Prevention Plan
TCA	Tennessee Code Annotated
TDEC	Tennessee Department of Environment and 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
TIP	Transportation Improvement Program
TMP	Traffic Management Plan
TNCGP	Tennessee Construction General Permit
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
U.S.	United States
UGB	Urban Growth Boundary
UIC	Underground Injection Control Program (TDEC)
USACE	U.S. Army Corps of Engineers
USC	United States Code
USDA	U.S. Department of Agriculture
USDOD	U.S. Department of Defense
USDOI	U.S. Department of Interior
USDOT	U.S. Department of Transportation
USFWS	U.S. Fish & Wildlife Service
USGS	U.S. Geological Survey
UST	Underground Storage Tanks
VMT	Vehicle Miles Traveled
VOC	Volatile Organic Compounds
vpd	Vehicles per day
WWC	Wet weather conveyance

Summary

The Tennessee Department of Transportation (TDOT), in cooperation with the Federal Highway Administration (FHWA), proposes to extend and construct Pellissippi Parkway (State Route [SR] 162) from the current terminus of Pellissippi Parkway/Interstate 140 (I-140) at SR 33 (Old Knoxville Highway) to US 321/SR 73 (Lamar Alexander Parkway) in Blount County.

This Final Environmental Impact Statement (FEIS), prepared in accordance with the *National Environmental Policy Act* (NEPA) and the Council on Environmental Quality (CEQ) guidelines, identifies and explains why the Preferred Alternative was selected, evaluates the environmental effects of the Preferred Alternative, and identifies 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 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 extension of Pellissippi Parkway was one of six Bicentennial Parkways included in the 1986 *Tennessee 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 proposed parkway extension from SR 33 to US 321/SR 73 is the final leg of this transportation link. It has been included in the Knoxville region's long range transportation plans since 1995, including the current *Long Range Regional Mobility Plan 2040* (TPO 2012).

TDOT previously conducted an Environmental Assessment (EA) for this project and FHWA issued a Finding of No Significant Impact (FONSI) in 2002. In June 2002, the group, Citizens Against Pellissippi Parkway Extension (CAPPE), filed a lawsuit in federal court, alleging that FHWA should have prepared an Environmental Impact Statement (EIS) in compliance with NEPA, and that FHWA failed to document properly the decision not to prepare an EIS. A U.S. District Court judge imposed a preliminary injunction on planning, financing, contracting, land acquisition, and construction of the project. In August 2004, the U.S. District Court issued an order modifying its previous injunction, thus allowing 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. The Draft EIS (DEIS) was completed and circulated for public comment in May 2010, and a public hearing was held in July 2010. In 2012, following consideration of the potential environmental consequences and public and agency comments received, TDOT selected the Preferred Alternative and initiated preparation of the FEIS.

The Preferred Alternative was modified in 2013 by a minor west alignment shift to avoid a National Register of Historic Properties (NRHP)-eligible archaeological site. A more detailed discussion of the modification of the Preferred Alternative is in Section 2.3.2 of this FEIS.

Because more than 3 years had passed since the circulation of the DEIS, and because the new regional travel demand model (adopted in June 2013) resulted in substantial reductions in the forecasted travel volumes for the project, TDOT prepared a reevaluation of the DEIS in accordance with 23 *Code of Federal Regulations* (CFR) 771.129. The reevaluation also addressed the changes in the Preferred Alternative by the west alignment shift in comparison with the other alternatives considered. The reevaluation serves as a technical document and includes updated impact analyses for potentially affected resources including displacements, Environmental Justice communities, noise, floodplains,

streams, and wetlands. FHWA approved the reevaluation on July 17, 2014 and TDOT posted it on the project website on July 23, 2014. The FEIS has been prepared accordingly.

Agency coordination and public involvement have occurred throughout the NEPA process. The U.S. Army Corps of Engineers (USACE) and the Tennessee Valley Authority (TVA) are cooperating agencies for this project.

Purpose of the Proposed Action and Transportation Needs

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 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
  - Demand for trips between Maryville and Alcoa and the Knoxville area to the north as shown by current high traffic volumes between the areas on US 129 (approximately 40,090 vehicles per day) and SR 33 (approximately 6,230 vehicles per day).[1]
- 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 reported due to high volumes of traffic and lack of access management along the roadways.
- Traffic congestion and poor levels of traffic operation on major arterial roads (in particular US 129, SR 33, and US 411) and intersections in the study area.[2]

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

- 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.
- Assist in achieving acceptable traffic operations on the transportation network or avoid adversely affecting traffic operations on the existing transportation network.

[1] Traffic information for the proposed project was updated as part of the reevaluation that was approved on July 17, 2014, thus changing the traffic numbers that were presented in the approved DEIS.
[2] The traffic study conducted for the DEIS addressed level of service and operations for roadway segments, but not for intersections. As a result of comments received on the DEIS, TDOT determined that an analysis of the level of service and delay for intersections would help in better understanding the current and future operations of roadways in the project area.

Other objectives include:

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

Alternatives Considered

DEIS Alternatives

The DEIS considered the No-Build Alternative and three Build Alternatives (A, C, and D), shown in Figure S-1.

- 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. Alternatives A and C shared a common alignment from SR 33 to the vicinity of Brown School Road south of Wildwood Road, at which point Alternative C diverges to the east of Alternative A. Alternative A is 4.4 miles in length, while Alternative C is 4.7 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 (mph).
- **Build Alternative D** would use portions of existing Sam Houston School Road, Peppermint Road, Hitch Road, and Helton Road to construct an improved two-lane roadway. The 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 mph design speed. The length of this corridor is 5.8 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.

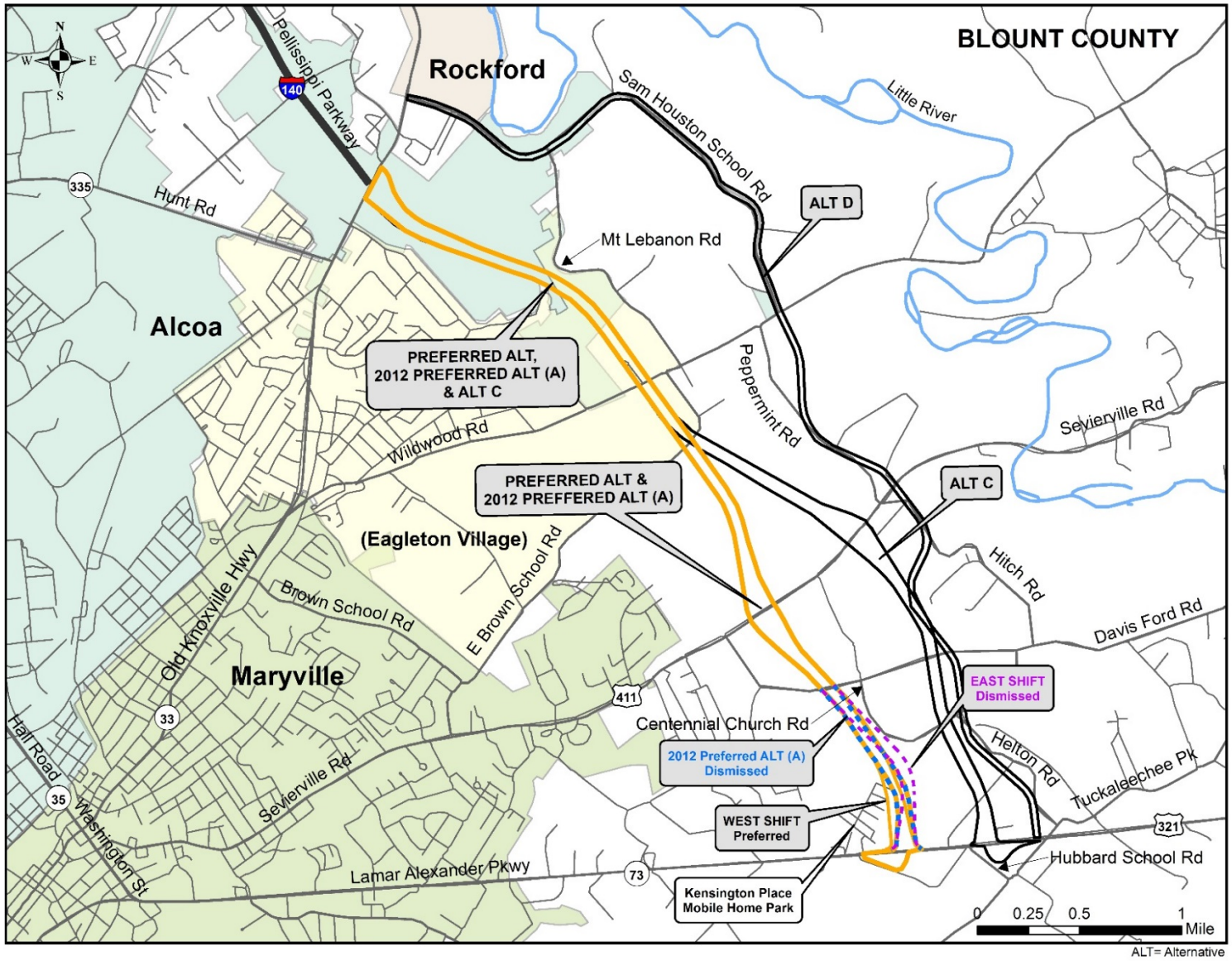
2012 Preferred Alternative (A)

Following the circulation of the DEIS and the July 2010 public hearing, TDOT selected Alternative A as the Preferred Alternative in 2012. The determination was made after weighing the impacts of the project alternatives on the human and natural environment as well as giving careful consideration of input from the public, local officials, and local, state, and federal agencies.

The 2012 Preferred Alternative (A) was selected because it:

- Displaces the least number of residences in comparison to Alternatives C and D.
- Has the greatest physical distance/separation from Little River, a designated Exceptional Tennessee Water, when compared to Alternatives C and D.
- Has the support of local officials. Resolutions were received in 2011 from the legislative bodies of the cities of Maryville and Alcoa and Blount County, each stating support for the selection of Alternative A as the Preferred Alternative. See Attachment C for copies of the resolutions.

Figure S-1. Preferred Alternative and DEIS Alternatives



Source: Parsons Brinckerhoff, 2013.

2013 Modification of the Preferred Alternative

During preparation of the technical studies for the FEIS, a NRHP-eligible archaeological site was identified within the footprint of the Preferred Alternative selected in 2012, hereafter referred to as the 2012 Preferred Alternative (A). TDOT identified and evaluated two minor modifications (East Shift and West Shift) of the preferred alignment between Davis Ford Road and US 321/SR 73 to avoid the sensitive archaeological site. TDOT held a Community Briefing on May 30, 2013, to discuss the proposed modifications and impacts and to receive public input. In July 2013, based on the environmental studies and public input, TDOT announced that the 2012 Preferred Alternative (A) had been modified to incorporate the West Shift (hereafter referred to as the Preferred Alternative).

The two alignment shifts that were identified and investigated are described below and illustrated in Figure S-2**.**

- The **East Shift** would move the ROW about 300 feet eastward, away from the Kensington Place mobile home community and toward the developing Sweetgrass Plantation subdivision.
- The **West Shift** would move the ROW about 150 feet to the west, encroaching farther into the northeastern corner of the Kensington Place mobile home community.

The typical section of each alignment shift would be the same as defined for the Preferred Alternative (A)—a four-lane divided roadway with a 48-foot depressed median. The avoidance shifts would each be about 1.4 miles in length.

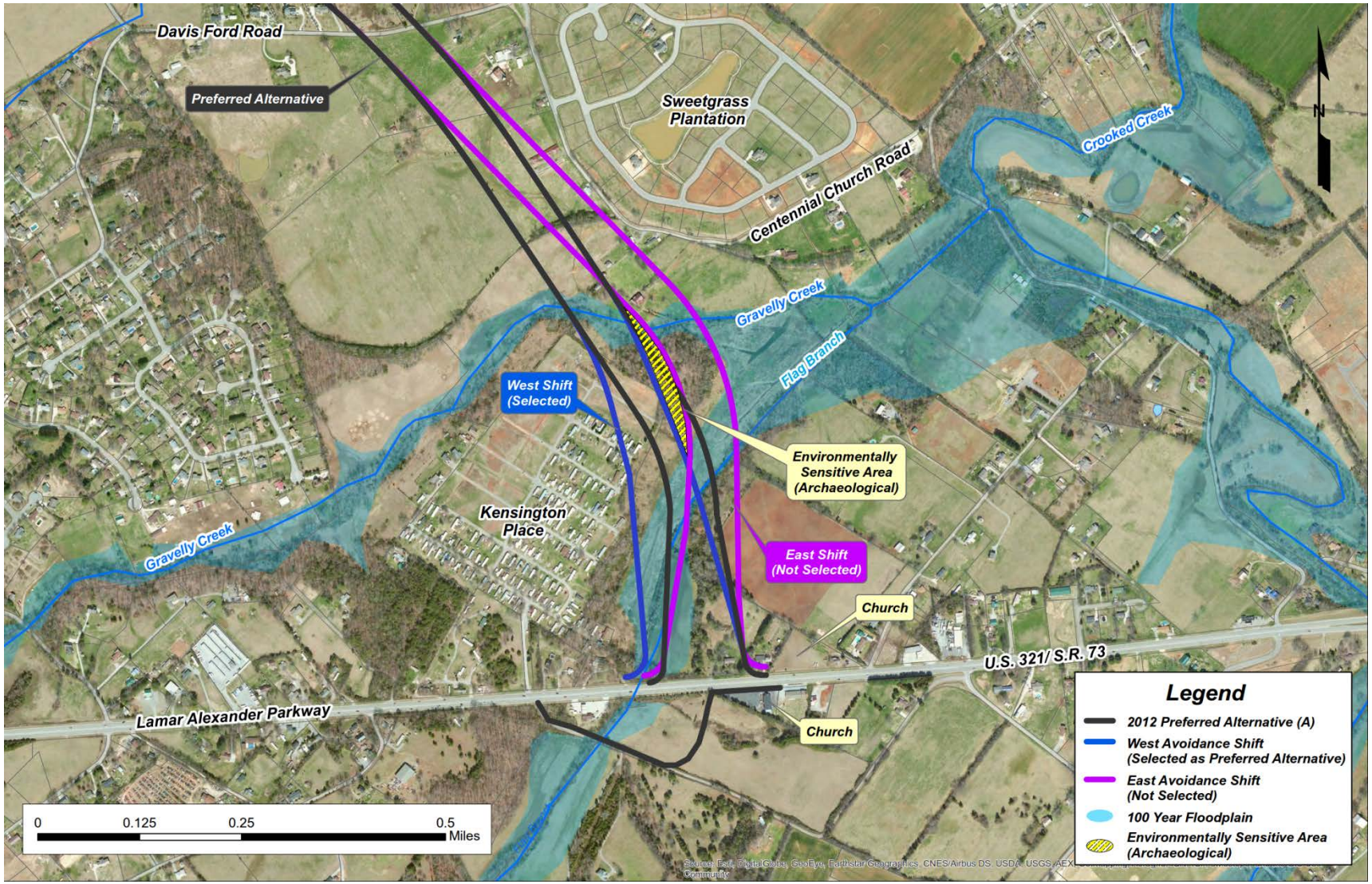
TDOT investigated potential archaeology, noise, ecology, farmland, relocations, and environmental justice impacts for each shift. The two potential alignment shifts and the impacts of these shifts were presented to the public at the May 30, 2013 Community Briefing held in the project area.

In making the determination of the alignment shift, TDOT considered the amount and type of impacts of each shift and the potential to mitigate adverse effects. TDOT also gave consideration to public input received during the May 30, 2013 Community Briefing and the associated comment period.

TDOT determined that the alignment of the Preferred Alternative is best modified by the west shift (as shown in Figure S-2) for the following reasons:

- The West Shift minimizes impacts to the operations of two active farms.
- The West Shift is farther away from a recently constructed church, thus minimizing potential access impacts.
- With either alignment shift, Kensington Place residents would experience increased noise levels. With the eastern shift, the mobile home community would not be eligible for a noise barrier. With the western shift, the predicted noise levels make the Kensington Place mobile home community potentially eligible for a noise barrier that will minimize both noise and visual impacts. TDOT is committed to building a noise barrier for this community, provided that the majority of affected property owners and residents want the noise barrier, and to allowing the Kensington Place residences to have input into the landscaping and color/patterns for the barrier.
- Though the west shift increases impacts to streams, wetlands, and floodplains, these will be minimized during the design and permitting process of the project.
- Since the mobile home community is not completely occupied, any displaced resident who wants to stay within their existing community may be able to relocate to one of the numerous site pads available, if they so choose.

Figure S-2. Alignment Shifts of Preferred Alternative



Source: Parsons Brinckerhoff, 2013.

- While there would be adverse impacts within Kensington Place with the West Shift, TDOT and FHWA have determined through an environmental justice analysis that these impacts would not change the finding of the approved DEIS, and that the project would have no disproportionately high and adverse impacts to minority and low-income populations compared with the rest of the corridor pursuant to Title VI of the 1964 Civil Rights Act and Executive Order 12898.

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
- Address traffic congestion within the existing local transportation network by providing other travel options

The primary benefits of the Preferred and other alternatives considered 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
- 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
- Creation of jobs related to the construction of the proposed project

The primary adverse impacts of the Preferred Alternative and other alternatives considered are:

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

Summary of Impacts

Table S-1 presents a summary of the characteristics and impacts of the Preferred Alternative and other alternatives considered in the DEIS and subsequent analysis of the Preferred Alternatives.

Table S-1. Characteristics and Impacts of the Preferred Alternative and Other Alternatives Considered*

Impact Category	Preferred Alternative	Preferred Alternative with East Shift	2012 Preferred Alternative (A)	Alternative C	Alternative D
Total project length	4.38 miles	4.43 miles	4.38 miles	4.68 miles	5.77 miles
Estimated cost (2014 dollars)	$165,709,000	$166,857,000	$166,040,000	$174,608,000	$70,813,000
Estimated new ROW required	200 acres	198 acres	197 acres	209 acres	104 acres
2040 level-of-service (LOS)	Pellissippi Parkway Extension will operate at an acceptable level (LOS D or higher) through the design year 2040.				Traffic volumes would exceed the carrying capacity of a two-lane road; the route would operate at LOS E or F.
Intersection delay	Substantial reduction in delay in most of the intersections in the Alcoa/Maryville core.				Poor corridor LOS and volumes expected to exceed capacity indicate that intersections would perform poorly.
Environmental justice	Residents of the Kensington Place community will experience adverse impacts due to increased noise, changes in the views, and displacements. TDOT has committed to construct a noise wall to minimize noise and visual impacts.	No effect	Residents of the Kensington Place community will experience some adverse impacts due to increased noise and changes in the views.	No Effect	No Effect
Residential/business relocations	11 residences, including 6 mobile homes in Kensington Place/1 business	6 residences/1 business	5 residences /1 business	27 residences (affecting Tara Estates subdivision and Hubbard community)/ 1 business	41 residences (affecting Peppermint Hills community)/2 businesses
Total farmland in new ROW/prime farmland in new ROW	110 acres/34 acres	107 acres /30 acres	107 acres/31 acres	74 acres/44 acres	45 acres/23 acres

Table S-1. Characteristics and Impacts of the Preferred Alternative and Other Alternatives Considered (continued)

Impact Category	Preferred Alternative	Preferred Alternative with East Shift	2012 Preferred Alternative (A)	Alternative C	Alternative D
Archaeological resources	1 eligible site identified by Phase II investigation has been avoided	No eligible sites identified during additional investigations	1 eligible site identified by Phase II investigation cannot be avoided	5 potentially eligible sites identified in Phase I investigation; no additional investigations conducted	1 potentially eligible site identified in Phase I investigation; no additional investigations conducted
Noise sensitive receptors affected	103	80	81	64	85
Noise barrier eligibility	Yes (in Kensington Place)	No	No	No	No
Hazardous materials	Phase 2 contamination assessment on 1 site; no further investigation is warranted.	Phase 2 contamination assessment on 1 site; no further investigation is warranted.	Phase 2 contamination assessment on 1 site; no further investigation is warranted.	2 sites identified in Phase I assessment; no Phase II has been conducted.	1 site identified in Phase I assessment; no Phase II has been conducted.
Floodplains crossed	11.0 acres	7.4 acres	8.1 acres	9.0 acres	8.1 acres
Streams crossed	4,962 linear feet	3,755 linear feet	4,525 linear feet	2,622 linear feet	1,695 linear feet
Wetlands affected	8.72 acres (due to beaver activity	6.99 acres (due to beaver activity	5.01 acres (due to beaver activity	0.60 acre	0.03 acre

* Since the DEIS was prepared in 2009-2010 and the Preferred Alternative was selected, several technical studies have been updated and additional analyzes have been conducted for the Preferred Alternative. More detailed Archaeological and Hazardous Materials investigations were conducted for the Preferred Alternative, which were unresolved issues in the DEIS. In addition, the following technical studies were updated for the Preferred Alternative and the other alternatives considered -- Traffic Forecasts, Traffic Operations, Crash, Conceptual Stage Relocation Plan, Environmental Justice, Air Quality, Noise, Ecology and Economic and Fiscal Impacts.

Unresolved Issues

Assuming approval of the Record of Decision (ROD) by FHWA, the present pending legal injunction must be dissolved prior to the beginning of final design, ROW acquisition, and construction.

There are no other unresolved issues related to this project.

Major Actions in the Project Vicinity

The cities of Alcoa and Maryville and Blount and Knox counties have been working together to facilitate a major mixed-use development, Pellissippi Place, at the northwest terminus of the proposed project. The development is on a 450-acre tract of land where I-140 (Pellissippi Parkway) currently terminate at SR 33. The first phase of Pellissippi Place broke ground in November 2008 with the basic infrastructure completed in 2010. Pellissippi Place is designed for technology and entrepreneurial businesses, but many of the targeted technology businesses did not pursue expansion in the wake of the economic downturn of the late 2000s. In February 2013, the anchor tenant, a healthcare technology company, was announced. In June 2015, the company held a grand opening for its first phase of operation with 55,000 square feet of research, development, testing, manufacturing and office space and 120 employees. Local officials see the extension of Pellissippi Parkway as an important component in the financial viability of Pellissippi Place.

A bypass of Alcoa Highway (US 129/SR 115) from near Hall Road to South Singleton Station Road is planned to allow through-traffic to bypass the extensive commercial area along US 129, often called the "Motor Mile." This proposed new roadway is referred to as Relocated Alcoa Highway. The FHWA issued the FONSI in August 2011. The new roadway will intersect Pellissippi Parkway/I-140 east of US 129. The completion year for the portion of the Relocated Alcoa Highway project south of Pellissippi Parkway/I-140 is 2019.

Permits

The following permits will be required from USACE, TVA, and the Tennessee Department of Environment and Conservation (TDEC) to implement the Preferred Alternative:

- Individual or general Aquatic Resource Alteration Permits (ARAP) from the State of Tennessee
- Individual or Nationwide Permit for impacts to waters of the U.S. (including wetlands and aquatic resources) from USACE pursuant to Section 404 of the Clean Water Act. Other agencies, such as the U.S. Fish and Wildlife Service (USFWS) and the Environmental Protection Agency (EPA), 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
- Underground Injection Control (UIC) permit if water is flowing into an open sinkhole or cave or for any impact that may affect the ground water via a sinkhole

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 that were considered in the DEIS. A Notice of Intent (NOI) 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 in the project area 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, alternatives to be considered in the DEIS, and issues of concern.

The DEIS comment period began on May 7, 2010, when EPA published a Notice of Availability (NOA) of the DEIS in the *Federal Register*. Copies of the approved DEIS were mailed to 29 federal, state, regional, and local agencies. Nine agencies provided written responses to the DEIS—Federal Aviation Administration, US Environmental Protection Agency (EPA), USACE, US Fish and Wildlife Service (USFWS), Tennessee Wildlife Resources Agency (TWRA), City of Alcoa, City of Maryville, and Blount County. TDOT mailed copies of the DEIS to approximately 40 agencies, organizations, and individuals. TDOT held a public hearing on July 20, 2010 to solicit public comments and input on the DEIS. Approximately 400 people attended the public hearing. During the DEIS comment period (May 7, 2010, to August 30, 2010), TDOT received comments from 561 individuals and organizations.

TDOT held a public meeting on May 30, 2013 to discuss with the public two potential minor shifts in the route of the Preferred Alternative and the possible impacts of those shifts. In addition to providing updated project information, TDOT sought comments, interests, and concerns from those potentially affected by the shifts.

TDOT developed the Tennessee Environmental Streamlining Agreement (TESA) for the environmental and regulatory coordination of major transportation projects, which applies to this project. The TESA signatory agencies who participated in this project were EPA, USACE, USFWS, TVA, and TDEC. These agencies concurred with TESA's Concurrence Point (CP) 1 (Purpose and Need of the Project and Study Area), CP 2 (Alternatives to be Evaluated in the DEIS), CP 3 (Preliminary DEIS), and CP 4 (Preferred Alternative and Preliminary Mitigation). Their comments were incorporated into the DEIS and have been incorporated into the DEIS. Other agencies that participated in the reviews during the TESA concurrence points were the Great Smoky Mountains National Park (GSMNP), the Knoxville Regional Transportation Planning Organization (Knoxville Regional TPO), and the Tennessee State Historic Preservation Officer (SHPO).

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

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 150 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[3]:

- **Environmental Justice**—TDOT will build a noise barrier for the Kensington Place mobile home community to mitigate the predicted noise impacts, provided that the majority of benefited residents and property owner(s) give their approval. TDOT also will seek input from community residents regarding the landscaping and color/pattern of the barrier in order to minimize possible visual impacts to the community as a result of the barrier and the new roadway.
- **Noise**— To minimize adverse impacts to Area 4 (Kensington Place mobile home community), TDOT has committed to build a noise barrier for the community with the Preferred Alternative. TDOT will conclude that a community desires the construction of a noise barrier unless a majority (at least 51 percent) of the benefited property owners and residents indicate that they do not want the proposed noise barrier.
- **Threatened and Endangered Species**—TDOT will coordinate with the Tennessee Wildlife Resources Agency (TWRA) regarding methods to minimize potential impacts to terrestrial and aquatic species under TWRA's authority in the event species of concern are discovered during TWRA's future aquatic species surveys near proposed stream crossings. TDOT will protect groundwater resources if previously unknown species are identified by TWRA or other resources agencies.
  - Where possible, removal of trees with loose bark and greater than 6 inches in diameter at breast height will occur only between October 15 and March 31 to further minimize potential for impacts to the Indiana bat (*Myotis sodalis*).
  - Erosion and siltation control best management practices (BMPs) will be stringently adhered to since several of the threatened or endangered species noted in this reevaluation 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 requirements identified in the 2013 Biological Assessment and the USFWS letter dated July 26, 2013 (Attachment I).
  - TDOT will re-coordinate with the USFWS for potential impacts to listed or proposed species prior to the construction of the project.
- **Invasive Species**—During construction of the proposed project, TDOT will follow the guidelines of *Executive Order 13112* to control and prevent the spread of these invasive exotic pest plant

[3] The July 2014 reevaluation contained an environmental commitment for Design Features. The commitment stated: *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*. This commitment has been vacated for the following reasons. First, it is TDOT's standard practice to incorporate the CSS approach in all of its projects. Second, because the new four-lane roadway will be designed to interstate standards, bicycles and pedestrians will be prohibited from using the roadway.

species. The use of native trees, shrubs, and warm season grasses, where practicable, will be implemented for the stabilization of disturbed areas and to prevent revegetation of disturbed areas by harmful exotic plants. Disturbed areas will not be revegetated with plants listed by the Tennessee Exotic Pest Plant Council as harmful exotic plants.

- **Wetland and Streams**—TDOT will provide USACE with copies of the Environmental Boundaries Study and Mitigation Memorandum prior to submitting the permit application. TDOT will invite USACE to participate in a field review to make a jurisdiction determination for any of the streams and wetlands that will be impacted by the project, at USACE's discretion. TDOT will carry out any required mitigation for jurisdictional stream and wetland impacts, which is a condition of the permit.
- **Karst Topography**—During final design and construction, TDOT will take special care to minimize unnecessary impacts to the habitat of the numerous karst features (specifically sinkholes) in the study area. TDOT will abide by all permit terms, including those through the UIC program.
- **Farmlands**—During final design of the project, TDOT will work with the farming community, either through individual meetings or through community meetings, to reduce the impact on farmlands as much as possible based on available design solutions.
- **Historic Resources**—If the project involves relocating the Anne Elizabeth Thompson Pershing historic marker along Buchanan Road, which was identified by the Tennessee Historical Commission as Blount (BT).2361, the marker will be re-erected in a pull-off area, 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, representatives of Native American tribes will be notified in the event they wish to be present.
- **Airport Coordination**—Since the northern half of the project area is within 6 miles of the McGhee Tyson Airport, once the selected alternative is under design, TDOT will inform the Federal Aviation Administration (FAA) Memphis Airports District Office of the nature of construction. TDOT will provide detailed layout drawings and elevations to the FAA along with the completed FAA Form 7460-1, Notice of Proposed Construction or Alteration.
- **Construction Impacts**—Construction activities will be confined within the permitted limits to prevent unnecessary disturbance of adjacent wetland areas.

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, FHWA and TDOT have prepared an environmental impact statement (EIS) in accordance with the *National Environmental Policy Act* (NEPA) (42 *United States Code* [USC] 4321) 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 FHWA.

Environmental Impact Statement (EIS)

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

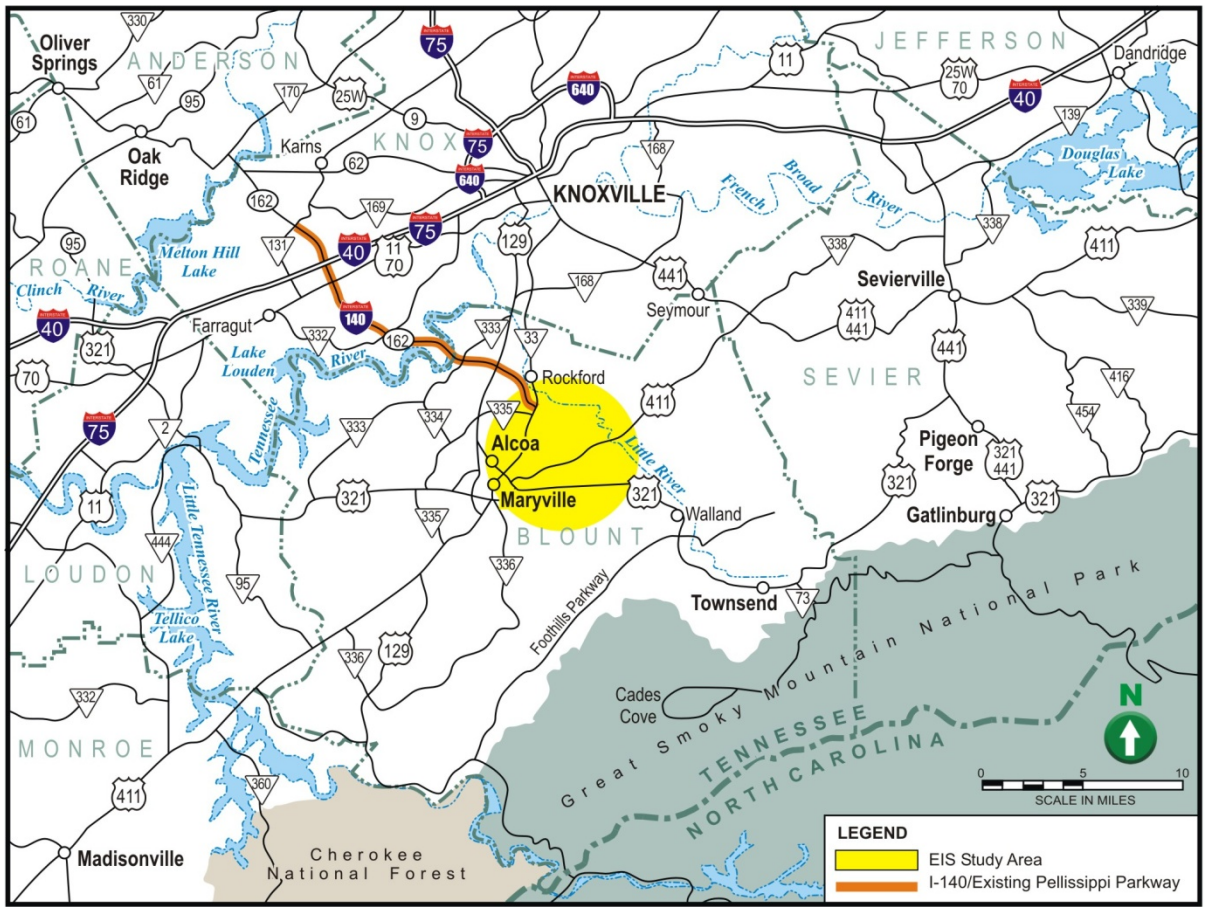
- Identifies alternative solutions that meet the project's purpose and need.
- Provides an assessment of the effects of the alternatives on the natural and built environment.
- Identifies measures to avoid, minimize, or mitigate negative effects.

The Draft Environmental Impact Statement (DEIS) for the project was initiated in April 2006 and was approved for public circulation in April 2010 (see Technical Appendix K). TDOT held a public hearing on the DEIS on July 20, 2010. Following consideration of comments received and the environmental analysis of the alternatives considered, TDOT selected the Preferred Alternative in 2012. Subsequent technical studies for the Preferred Alternative resulted in a minor alignment shift of the Preferred Alternative in 2013 (see Chapter 2, section 2.3.2).

Because more than three years had passed since the DEIS was circulated, a reevaluation of the 2010 DEIS was prepared pursuant to 23 *Code of Federal Regulations* (CFR) 771, FHWA's NEPA implementing regulations. The purpose of the reevaluation was to determine whether updated information and the modification of the Preferred Alternative would result in significant adverse impacts not identified in the approved DEIS and require the preparation of a Supplemental DEIS (SDEIS). The reevaluation, approved by FHWA on July 17, 2014, found that the updated information and the modification of the Preferred Alternative would not result in significant environmental impacts that were not evaluated in the approved DEIS. Therefore, a SDEIS was not prepared.

This Final Environmental Impact Statement (FEIS) identifies the project's Preferred Alternative, explains the basis of its selection, and documents the environmental effects (adverse and beneficial) of the Preferred Alternative and other previously considered alternatives. This document also identifies measures to avoid, minimize, or mitigate negative effects of the Preferred Alternative.

Figure 1-1: Regional Location Map



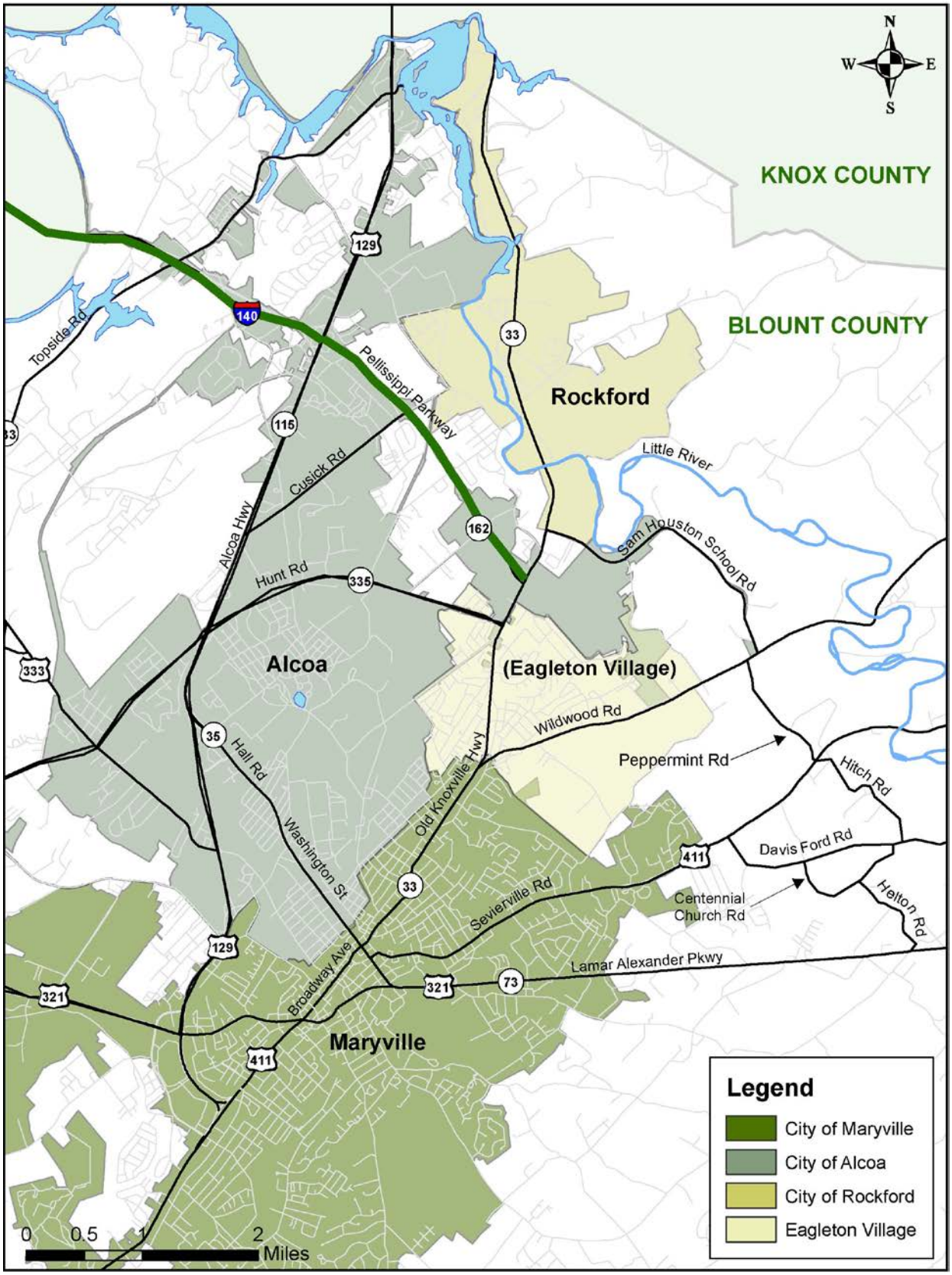
1.1 Context of the Project

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

Knox County, home to the majority of employment in the East Tennessee region, borders Blount County on the north by. Interstate 40 (I-40) runs through Knox County. 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.

A chain of lakes along the Tennessee River that was created by the Tennessee Valley Authority (TVA) borders Blount County on the west. 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 western 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.

Figure 1-2: Study Area



Source: Blount County GIS, 2009.

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 includes portions of the cities of Maryville, Alcoa, and Rockford. This portion of the study area is almost completely built-out with the following uses:

- 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)
- 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 newer low-density residential subdivisions and scattered older residential development on larger lots as well as 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 the number of 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 of a reasonable range of alternatives including: No-Build; Transportation System Management (TSM), which are generally lower cost actions to improve the efficiency of the existing roadway; 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 the Solway community 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). The Pellissippi Parkway extension was one of six Bicentennial Parkways included in the 1986 *Tennessee 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 1986 Urgent Highway Needs Plan.

Figure 1-3 illustrates the completed sections of Pellissippi Parkway as well as the remaining section envisioned in the 1986 Urgent Highway Needs 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 (Knoxville Regional 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 #09-232 in the current *Long Range Regional Mobility Plan 2040* (TPO 2012), hereafter referred to as the *Regional Mobility Plan 2040*.

The 6-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 1601, Subtitle F). TEA-21 authorized $8.85 million for fiscal years 1998 through 2003 to implement the project.

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, FHWA issued a Finding of No Significant Impact (FONSI), and property acquisition was to have begun in June 2002.

In June 2002, Citizens Against Pellissippi Parkway Extension (CAPPE), filed suit against the U.S. Department of Transportation (USDOT), FHWA, and TDOT in the U.S. District Court for the Middle District of Tennessee. The lawsuit alleged that FHWA should have prepared an EIS in compliance with NEPA and that FHWA failed to document properly the decision not to prepare an EIS. In July 2002, the District Court imposed a preliminary injunction on further 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 FHWA to the US Court of Appeals for the Sixth Circuit, in August 2004, the District Court issued an order modifying its previous injunction. That order allowed FHWA and TDOT to reconsider and reissue the relevant environmental documents. In September 2004, TDOT announced plans to begin the next phase of development for the proposed Pellissippi Parkway Extension project with preparation of an EIS.

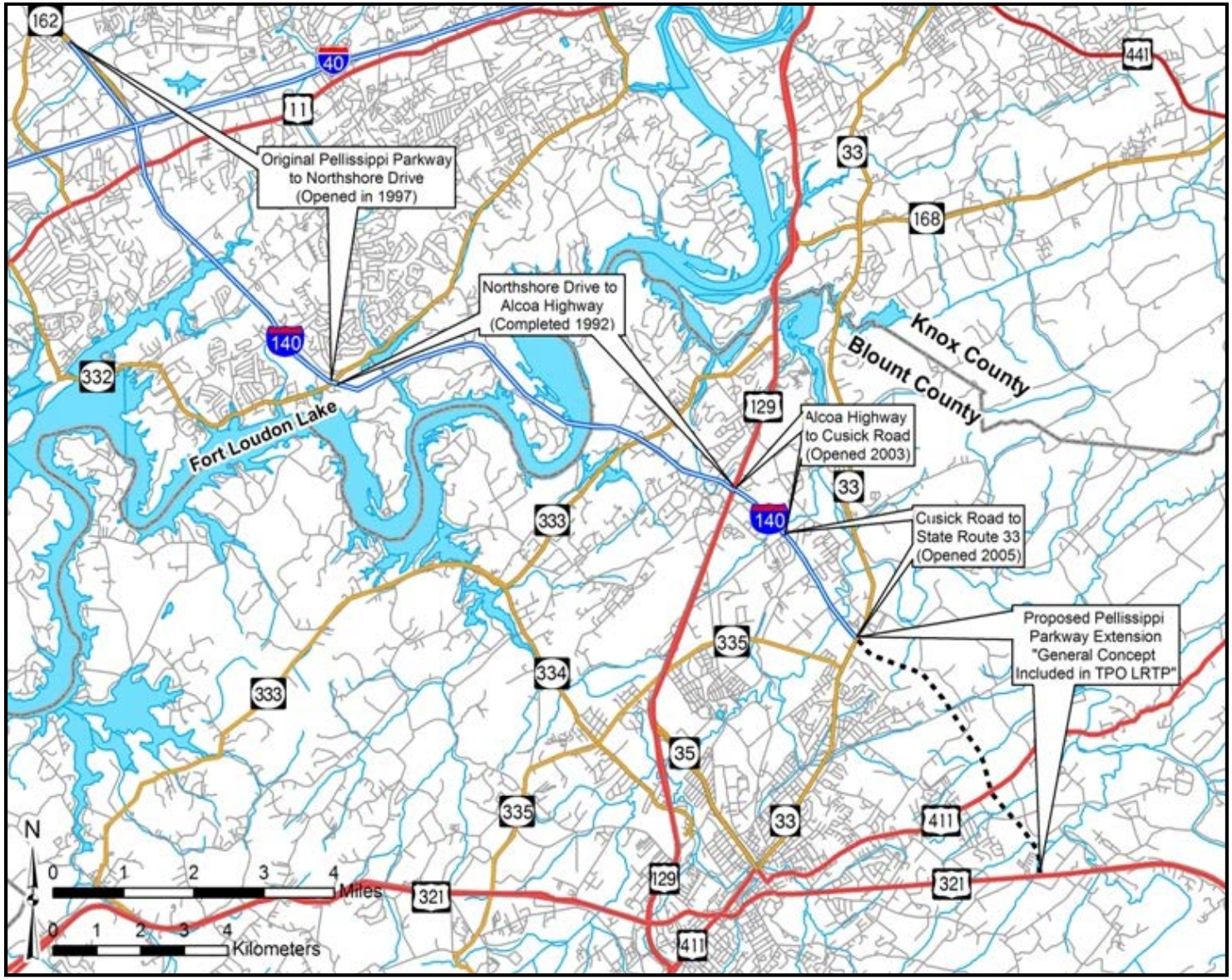
1.2.3 Current NEPA Evaluation

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 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 to update the public on the status of the project since the November 2001 public hearing on the EA. The public was encouraged 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 EIS.

Figure 1-3: Sections of Pellissippi Parkway Completed



Source: Blount County GIS, 2009.

During the course of the study, TDOT held two additional public information meetings in the study area, one on October 25, 2007 and one on February 19, 2008. At the October 25, 2007 meeting, TDOT provided an update of the EIS study, presented the revised Purpose and Need Statement for public comment, and sought public input on the alternatives to be studied in the DEIS. At the second public meeting on February 19, 2008, TDOT solicited additional comments on alternatives to be evaluated in the DEIS.

The FHWA approved the DEIS for circulation on April 14, 2010. TDOT held a public hearing to solicit public comment on the DEIS on July 20, 2010. In 2012, following the analysis of public, agency, and local official comments and review of the environmental analysis, TDOT and FHWA selected DEIS Build Alternative A as the Preferred Alternative.

During preparation of the technical studies for the FEIS, an archaeological site that is eligible for the National Register of Historic Places (NRHP) was identified within the footprint of the Preferred Alternative (Alternative A), hereafter referred to as Preferred Alternative (A). TDOT identified and evaluated two minor modifications (East Shift and West Shift) of the Preferred Alternative (A) alignment between Davis Ford Road and US 321/SR 73 to avoid the sensitive archaeological site. TDOT held a Community Briefing on May 30, 2013, to discuss the proposed modifications and impacts and to receive public input. In July 2013, TDOT determined that the 2012 Preferred Alternative (A) was best modified by the West Shift. Thus, the Preferred Alternative discussed in this FEIS incorporates the West Shift from Davis Ford Road to US 321/SR 73 (see Section 2.3.2).

Because more than three years had passed since the DEIS was circulated for public comment, in accordance with 23 CFR 771.129(a), TDOT conducted a reevaluation of the DEIS. FHWA approved the reevaluation of the DEIS on July 17, 2014. The findings of the reevaluation were:

- The changes to the alternatives considered in the DEIS, as well as the modification of the 2012 Preferred Alternative (A) with the West Shift, would not result in significant environmental impacts that were not evaluated in the DEIS.
- New information or circumstances identified in the reevaluation would not result in significant environmental impacts that were not identified in the DEIS.

An approved FEIS and a signed ROD are required prior to development of final design, right-of-way acquisition, purchase of construction materials, and the beginning of project construction. In addition, FHWA must request the dissolution of the present pending legal injunction prior to the beginning of the next phases of project development.

1.3 Purpose of the Project

The proposed project addresses the transportation needs in the study area that 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. The transportation needs include:

- 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 current (2013) high-traffic volumes on US 129 (approximately 40,090 vehicles per day) and on SR 33 (approximately 6,230 vehicles per day).[1]
- 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 traffic operation on major arterial roads (in particular US 129, SR 33, and US 411) and intersections in the study area.[2]

Based on input received from local officials and the public and reviews of previous planning studies and current plans, TDOT developed the following objectives 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 operations on the transportation network or avoid adversely affecting traffic operations 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 from the Maryville core. 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), or Hall Road (SR 35)/

[1] Traffic information for the proposed project was updated as part of the reevaluation that was approved on July 17, 2014 (see Technical Appendix K). These traffic numbers represent the updated traffic numbers, which are different from those presented in the approved DEIS.
[2] The traffic study conducted for the DEIS only addressed level of service and operations for roadway segments, not intersections. Because of comments received on the DEIS, it was determined to conduct an analysis of the level of service and delay for intersections.

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

In 2011, TDOT prepared an addendum to the original *Traffic Operations Technical Report* (PB 2008a) to address updates resulting from public and agency comments provided during the DEIS review period. The purpose of the updates was to clarify the traffic volumes used in the analysis and identify more specific levels of improvement resulting from the Build Alternatives. The analysis was conducted and reported in the updated traffic report, *SR 162 (Pellissippi Parkway Extension) Addendum to the Traffic Operations Technical Report* (June 30, 2011, with minor corrections September 7, 2011), which is on file with the TDOT Environmental Division office and on the project website.

In June 2013, the Knoxville Regional TPO adopted a major update of the regional travel demand model, which was the first major update since the initial traffic study for this project in 2007. TDOT and the TPO compared the updated Knoxville model to the model outputs used in the previous traffic forecasting efforts to determine if the new travel demand model had produced any meaningful changes to the traffic forecasts for the Pellissippi Parkway Extension project. That assessment revealed that future travel volumes for the project would be substantially lower under the new model than they were under the previous model. Among the reasons for the lower forecasts for the project was the lowered expectation for overall growth in population and employment in the region since the 2007–2009 economic recession. The travel demand model update, which was based on a modeling process that was reviewed and approved by the Knoxville TPO, included extensive revisions to the model's structure, network, socio-economic assumptions, and calibration aimed at improving the accuracy of the model's forecasts. The changes in the model resulted in lower forecasted traffic volumes for the project. The changes to the model are summarized in a memo dated June 9, 2014, which is included in Attachment A.

In August 2013, based on the availability of the new TPO travel demand model and the age of the original traffic forecasts for the project (prepared in 2006 with minor updates in 2011), TDOT decided to update the traffic forecasts and analysis for the project.

To assist in the development of the updated traffic volume forecasts, TDOT conducted new ground counts for turning movements at key intersections in the corridor in late October and early November 2013. Forecasts for future traffic volumes were prepared for a new base year of 2020 and a new design year of 2040 traffic (by comparison, the base and design years presented in the DEIS were 2015 and 2035.) The traffic forecasts are documented in the December 2013 *Traffic Forecast Study: Pellissippi Parkway Extension from State Route 33 to State Route 73 (US 321), Blount County* (Sain 2013), which is contained in Technical Appendix A.

Base Year versus Design Year

The **Base Year** of a project is generally one year after the roadway opens. The base year for this project is **2020**.

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 **2040**.

A comparison of traffic forecasts for the DEIS base and design years (2015 and 2035) and the current base and design years (2020 and 2040) is provided in the July 2014 reevaluation of the DEIS, which is contained in Technical Appendix L to this FEIS.

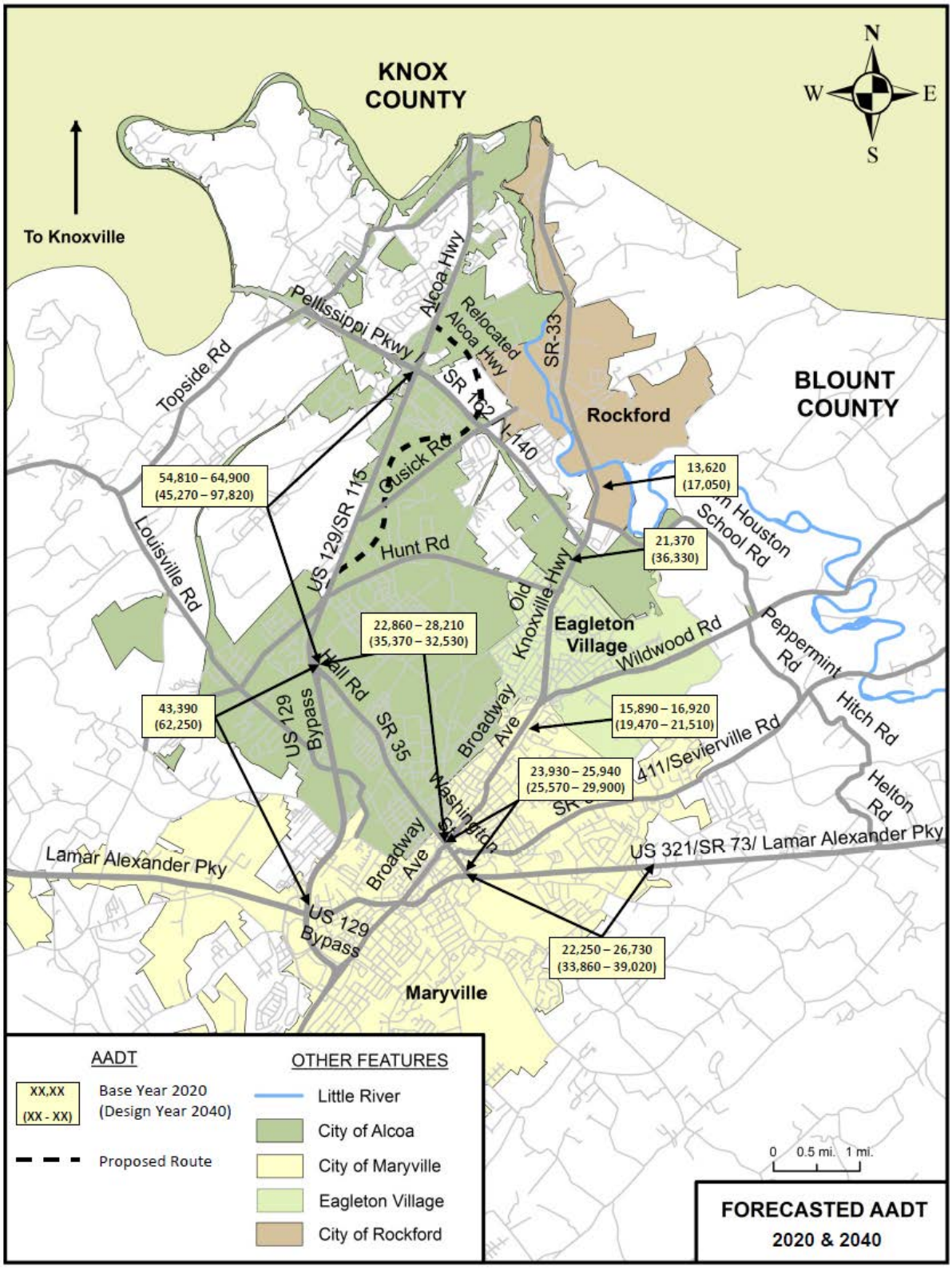
Figure 1-4 illustrates the average annual daily traffic (AADT) forecasts for the updated base and design years (2020 and 2040, respectively) without the proposed project. The findings are summarized below.

- Alcoa Highway (US 129) between Pellissippi Parkway (I-140) and SR 35 (Hall Road) forecasts range between 54,810 and 64,900 AADT in 2020, with the heavier traffic occurring around Hunt Road (SR 335). By 2040, with the Relocated Alcoa Highway assumed to be in place, the forecasted AADTs range between 45,270 and 97,820, with the heavier traffic occurring south of the Relocated Alcoa Highway. These AADTs represent a 51-percent traffic volume increase north of SR 35 and south of the Relocated Alcoa Highway. Traffic volumes decrease by 17 percent between the Relocated Alcoa Highway and Pellissippi Parkway (I-140).
- Alcoa Highway Bypass (US 129) between SR 35 and US 321/SR 73 forecast volumes are 43,390 AADT in 2020 to 62,250 AADT in 2040, representing a 43-percent increase in AADTs.
- Hall Road (SR 35) has base year AADTs of 22,860 near the intersection with US 129 and 28,210 near the intersection with Broadway. By 2040, these volumes increase to 35,370 near the intersection with US 129 and 32,530 near the intersection with Broadway. This corresponds to increases in AADT of 55 percent and 15 percent, respectively. The higher growth rate occurs along SR 35 closer to the intersection with US 129.
- Washington Street (SR 35) between SR 33 and US 321/SR 73 has forecasted AADTs in the base year of 23,930 west of US 411 (Sevierville Road) to 25,940 near the intersection with US 321/SR 73. By 2040, the forecasted traffic volumes are 25,570 AADT west of US 411 (Sevierville Road), and 29,900 near US 321/SR 73. The rate for traffic increase for the segment west of US 411 is 7 percent while the traffic growth for the segment near US 321/SR 73 is 15 percent.
- Lamar Alexander Parkway/US 321/SR 73 has forecast base year AADTs ranging from 22,250 to 26,730. By 2040, the AADTs range from 33,860 to 39,020 (increases of 46 to 52 percent over 2020 volumes).
- Broadway Avenue (SR 33) between Hunt Road (SR 335) and Washington Street (SR 35) has forecast AADTs between 15,890 and 16,920. By 2040, the forecast AADTs range between 19,470 and 21,510, experiencing growth between 23 and 27 percent.
- Old Knoxville Highway (SR 33) north of Hunt Road (SR 335) has traffic volumes that range from 21,370 south of Pellissippi Parkway (I-140) to 13,620 north of Pellissippi Parkway. The AADTs increase to 36,330 and 17,050, respectively, in 2040 (which corresponds to an increase of 70 percent south of Pellissippi Parkway and 25 percent north of Pellissippi Parkway).

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 opportunities in these areas. For the DEIS, in 2009 TDOT evaluated the travel trends between the Maryville/Alcoa area and Knoxville/Oak Ridge, Tennessee; of particular interest was whether there were substantial travel volumes between eastern Blount County and Knox County that would demonstrate a user base for the extension of Pellissippi Parkway.

Figure 1-4: Average Annual Daily Traffic Forecasts (2020 and 2040)—No-Build Scenario



Source: Traffic Forecast Study: Pellissippi Parkway Extension from State Route 33 to State Route 73 (US 321), Blount County (Sain 2013).

The 2009 analysis used a license plate survey conducted in 2006 to assist in the calibration of the original traffic forecast for this study. To determine the actual traffic volumes on roadways connecting the Maryville / Alcoa and the Knoxville area, historic traffic counts for the period 1998 to 2008 were obtained through the TDOT Project Planning Division. Since US 129 / SR 115 and SR 33 are the major north / south routes that connect these two areas, the evaluation focused on these two routes. Traffic volumes were obtained for four count stations along US 129 / SR 115 and SR 33:

- Just south of the intersection of both roadways with Pellissippi Parkway
- Between Pellissippi Parkway and the Blount / Knox County Line
- Just north of the Blount / Knox County Line
- Closer to the Knoxville area

The results of the 2006 license plate survey indicated that of the traffic originating in eastern Blount County, approximately 4 to 6 percent used US 129 / SR 115 and approximately 2 percent used SR 33 to reach Knox County. The results were reported in a memorandum dated May 14, 2009, which is on file with the TDOT Environmental Division.

Based on the age of the data used in the 2009 evaluation and the 2013 Knoxville Regional travel demand model, TDOT determined the need to update the travel trend analysis. The current update adds the most recent years available (2009 – 2012) for the overall traffic count review. Counts for the years 1998 through 2012 were plotted by year and count station to determine the relative changes in traffic volume traveling between Maryville / Alcoa and Knoxville as well as the average volume of traffic. There has generally been little fluctuation year-to-year for traffic volumes at each count station (i.e. no major increases or decreases).

- Along US 129/SR 115, the overall range of traffic volumes based on the most recent count (2012) is 41,100 to 58,900 ADT. In general, volumes level off to around 50,000 vehicles per day between Maryville / Alcoa and the Knoxville region.
- Along SR 33, the overall range of traffic volumes based on the most recent count (2012) is 5,400 to 15,400 ADT. The station between Pellissippi Parkway (I-140) and Hunt Road (SR 335) reports the highest volume along this route of the stations evaluated.

To analyze the extent to which travel between the eastern portion of Blount County and Knox County/Oak Ridge occurs, instead of conducting a new license plate survey, TDOT prepared a select link analysis using the current Knoxville Regional TPO's travel demand model. A select link analysis shows where the traffic is coming from and where it is going to along a specific roadway link.

Select link analyses were conducted along SR 33 and US 129 for the 2040 existing plus committed projects network. This includes projects in the *Regional Mobility Plan 2040* minus the Pellissippi Parkway Extension. Based on the output of the current travel demand model, the following interpretations are made relative to identifying the origins and destinations of the trips (or users) that use the current road network:

- 4.7 percent of trips have an origin / destination between Knox County and Wildwood Road via SR 33.
- 3.6 percent of trips have an origin/destination between Knox County and US 411 via SR 33.
- 3.0 percent of trips have an origin/destination between Knox County and US 321 via SR 33.

- Very little traffic (1.7 percent) utilizes US 129 to travel between Knox County and areas east of Maryville and Alcoa.
- The remaining trips (88.7 percent) are either local in nature or have a different origin / destination than those identified above.

Table 1-1 shows the predicted 2040 volumes and percentages of traffic using the selected links. A memorandum dated February 25, 2015, documents the results of the select link analysis; the memo is included in Attachment A to this FEIS.

Table 1-1: Travel between the Project Area and Knox County (2040)

	US 129		SR 33	
	Total Volume	%	Total Volume	%
Select Link	82,769		10,955	
Wildwood	163	0.3%	276	4.7%
US 411	271	0.6%	213	3.6%
US 321	395	0.8%	176	3.0%

Source: Parsons Brinckerhoff, February 25, 2015.

1.4.1.2 Note on Recent Trends in Vehicle Miles Traveled

According to FHWA data (*Historical Monthly VMT Report*), vehicle miles traveled (VMT) began to decline nationally from 2007 to 2008; this trend continued through 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. The reduction in VMT per year for the U.S. was 54,596 million miles between 2007 and 2008 but only 19,766 million miles between 2008 and 2009. Data from 2009 to 2013 shows a steady number with minor fluctuations. Between 2009 and 2013, VMT for the U.S. has ranged from 2,966,963 to 2,966,834 miles. Given the fluctuating state of the current economy, this reduction in the national VMT will likely change prior to the ultimate construction of the proposed project.

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

The Knoxville regional travel demand model provides VMT for the model years 2010 and 2040. The model is based on census data as well as household travel surveys conducted in the region. To determine VMT for the year 2020, a growth percentage based on the model's 2010 to 2040 trend was determined and then applied to the 2010 number to project growth to the year 2020. Table 1-2 shows the VMT increases for this study area and Pellissippi Parkway.

Table 1-2: Vehicle Miles Traveled (2010, 2020, and 2040)

Route	Existing VMT (2010)	2020 VMT No-Build	2040 VMT No-Build
All facilities in study area	2,283,967	2,672,936	3,562,808
Pellissippi Parkway	131,063	157,552	227,752

Source: Knoxville Regional TPO, 2014.

The general trend is that people are staying closer to home for vacation trips. With a major recreational area (GSMNP) near Maryville/Alcoa, travel demand 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. While the output from the model may be in contrast to national trends, the region-specific data is a more accurate representation of future trends as it is based on regional trends and data.

1.4.2 Level of Service

The *SR 162 (Pellissippi Parkway Extension) Addendum to the Traffic Operations Technical Report* (PB 2014c) contains a detailed description and supporting analysis of traffic operations for the study area based on the 2013 updated travel demand model. This report is contained in Technical Appendix B. The findings of the roadway and intersection analyses are summarized in the following sections.

The LOS is a qualitative measure describing operational conditions within a traffic stream in terms of speed and travel time, the freedom to maneuver, traffic interruptions, driver discomfort, and congestion. LOS measurements are expressed using a letter grading system of A through F. LOS A represents the least delayed conditions while LOS F represents the most delayed or congested conditions. Each LOS represents a range of operating conditions and the driver's perception of them. According to the American Association of State Highway and Transportation Officials (AASHTO) *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 the undesirable levels of traffic operations in those areas. Figure 1-5 illustrates what traffic would look like at each level of service category.

1.4.2.1- Corridor Level of Service

A level of service (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 2020 and 2040 if Pellissippi Parkway were not extended through this portion of Blount County (that is, under the No-Build Alternative).Table 1-3 summarizes the results of this analysis for each roadway segment, and Figure 1-6 through Figure 1-8 illustrate the results. (A comparison of LOS for the DEIS horizon year (2035) under the old model and the current horizon year (2040) under the new model is provided in the July 2014 reevaluation of the DEIS, which is included as Technical Appendix L in this FEIS.

Figure 1-5: Illustration of Corridor Level of Service

LOS	Vehicular Operations Definition	Representative Photo
A	Free flow operations. Vehicles are almost completely unimpeded in their ability to maneuver with the traffic stream. The general level of physical and psychological comfort provided to the driver is high.	
B	Reasonable free flow operations. The ability to maneuver within the traffic stream is only slightly restricted and the general level of physical and psychological comfort provided to the driver is still high.	
C	Flow with speeds at or near free flow speeds. Freedom to maneuver within the traffic stream is noticeably restricted and lane changes require more vigilance on the part of the driver. The driver notices an increase in tension.	
D	Speeds decline with increasing traffic. Freedom to maneuver within the traffic stream is more noticeably limited. The driver experiences reduced physical and psychological comfort levels.	
E	At lower boundary; the facility is at capacity. Operations are volatile because there are virtually no gaps in the traffic stream. There is little room to maneuver. The driver experiences poor levels of physical and psychological comfort.	
F	Breakdowns in traffic flow. The number of vehicles entering the highway section exceeds the ability of the highway to accommodate that number of vehicles. There is no room to maneuver. The driver experiences poor levels of physical and psychological comfort.	

Table 1-3: Roadway Level of Service (2013, 2020, and 2040)

Route	Section	Begin	End	Existing (2013)	2020 No-Build	2040 No-Build
Wildwood Road	1	Broadway/SR 33	Reservoir Road	B	C	C
	2	Reservoir Road	Sam Houston School Rd	B	C	**E**
	3	Sam Houston School Rd	End of Study Area	A	C	**C**
Pellissippi Parkway/ I-140/SR 162	1	Topside Road	Alcoa Highway/US 129	C	D	**F**
	2	Alcoa Highway /US 129/SR 115	Relocated Alcoa Highway (proposed)	A	B	C
	3	Relocated Alcoa Highway (proposed)	Old Knoxville Highway/SR 33	A	B	C
Lamar Alexander Parkway (US 321/SR 73)	3	Broadway/SR 33	Jones Avenue			
	4	Jones Avenue	Merritt Road	B	C	D
	5	Merritt Road	Tuckaleechee Pike	B	B	C
	6	Tuckaleechee Pike	Tuckaleechee Pike	*	B	C
	7	Tuckaleechee Pike	Melrose Station Road	A	A	B
	8	Melrose Station Road	Foothills Parkway	A	A	A
Hall Road (SR 35)	1	Alcoa Highway/US 129	Bessemer Street	B	B	D
	2	Bessemer Street	Broadway/SR 33			
Washington Street (SR 35)	1	Broadway/SR 33	US 411 (SR 35)			
	2	US 411 (SR 35)	US 321/SR 73			
US 411 (SR 35)	1	Washington St(SR 35)	S. Everett High Road			
	2	S. Everett High Road	Westfield Drive	**E**	**E**	**E**
	3	Westfield Drive	Hitch Road	**E**	**E**	**E**
	4	Hitch Road	End of Study Area	**E**	**E**	**E**
E. Broadway/Old Knoxville Highway (SR 33)	3	Hall Road	Wildwood Road			
	4	Wildwood Road	Hunt Road			
	5	Hunt Road	Pellissippi Parkway			
	6	Pellissippi Parkway	Sam Houston School Rd			
	7	Sam Houston School Rd	Knox County Line	**E**	**E**	**E**
Alcoa Highway (SR 115/US 129)	3	Louisville Road	Hall Road	D	D	**F**
	4	Hall Road	Hunt Road	**E**	**F**	**F**
	5	Hunt Road	Cusick Road/Relocated Alcoa Hwy.	**F**	**F**	**F**
	6	Cusick Road/Relocated Alcoa Hwy.	Pellissippi Parkway	**F**	**F**	**E**
	7	Pellissippi Parkway	County Line	D	D	C
Sam Houston School Road	1	SR 33	Wildwood Road	C	C	C
Peppermint Road	1	Wildwood Road	Sevierville Road	C	C	D
Hitch Road	1	Sevierville Road	Davis Ford Road	B	B	C
Helton Road	1	Davis Ford Road	US 321/SR 73	A	A	A
Proposed Relocated Alcoa Highway	1	Alcoa Highway /US 129/SR 115	Pellissippi Pkwy	N/A**	B	B
	2	Pellissippi Parkway	Alcoa Highway/US 129/ SR 115	N/A**	B	B

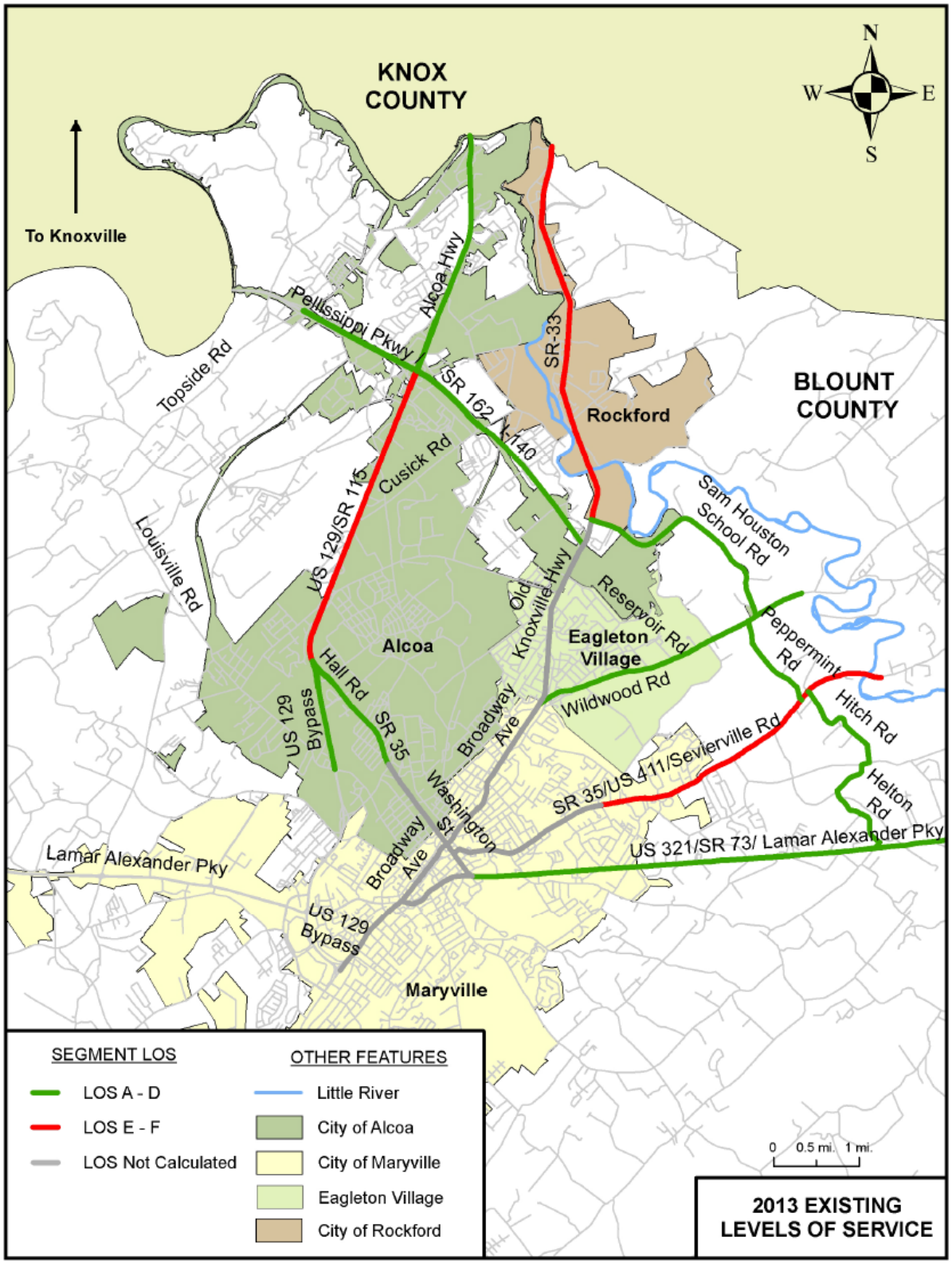
Sources: Addendum to the Traffic Operations Technical Report (PB 2014c). Updated Traffic Analysis for DEIS Alternative D, Memorandum dated May 14, 2014.

LOS E-F **LOS A-D**

Speed < 45 mph, Not Analyzed - The grey shading could not be analyzed because of the inability of the software modules to determine the corridor LOS of urban streets with speeds less than 45 mph.

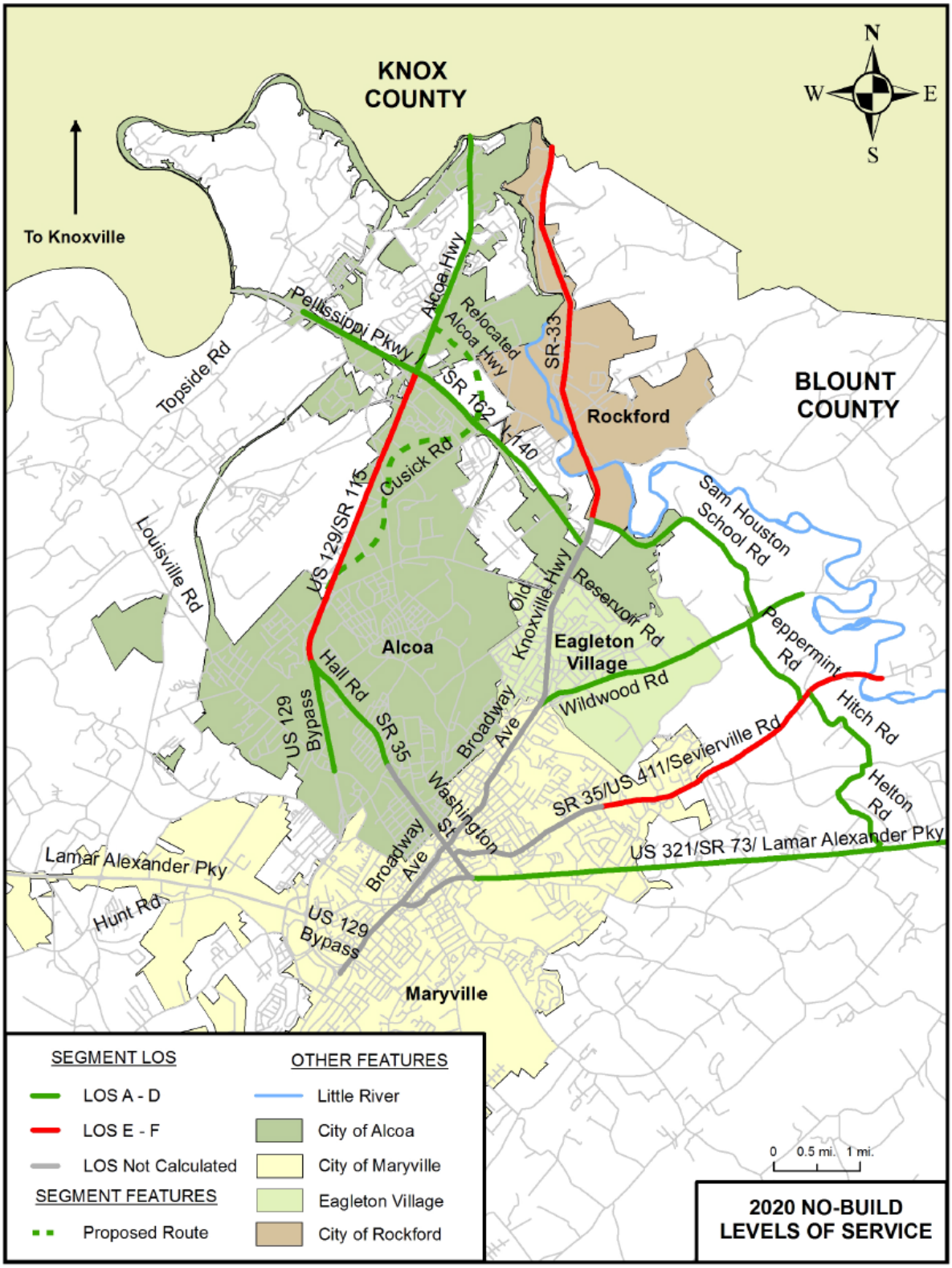
* - The short segment of US 129/SR 73 between the north and south legs of Tuckaleechee Pike was not analyzed in 2013.
N/A** - Proposed Relocated Alcoa Highway is still in the planning phase, thus no existing LOS could be determined.

Figure 1-6: Existing Levels of Service (2013)



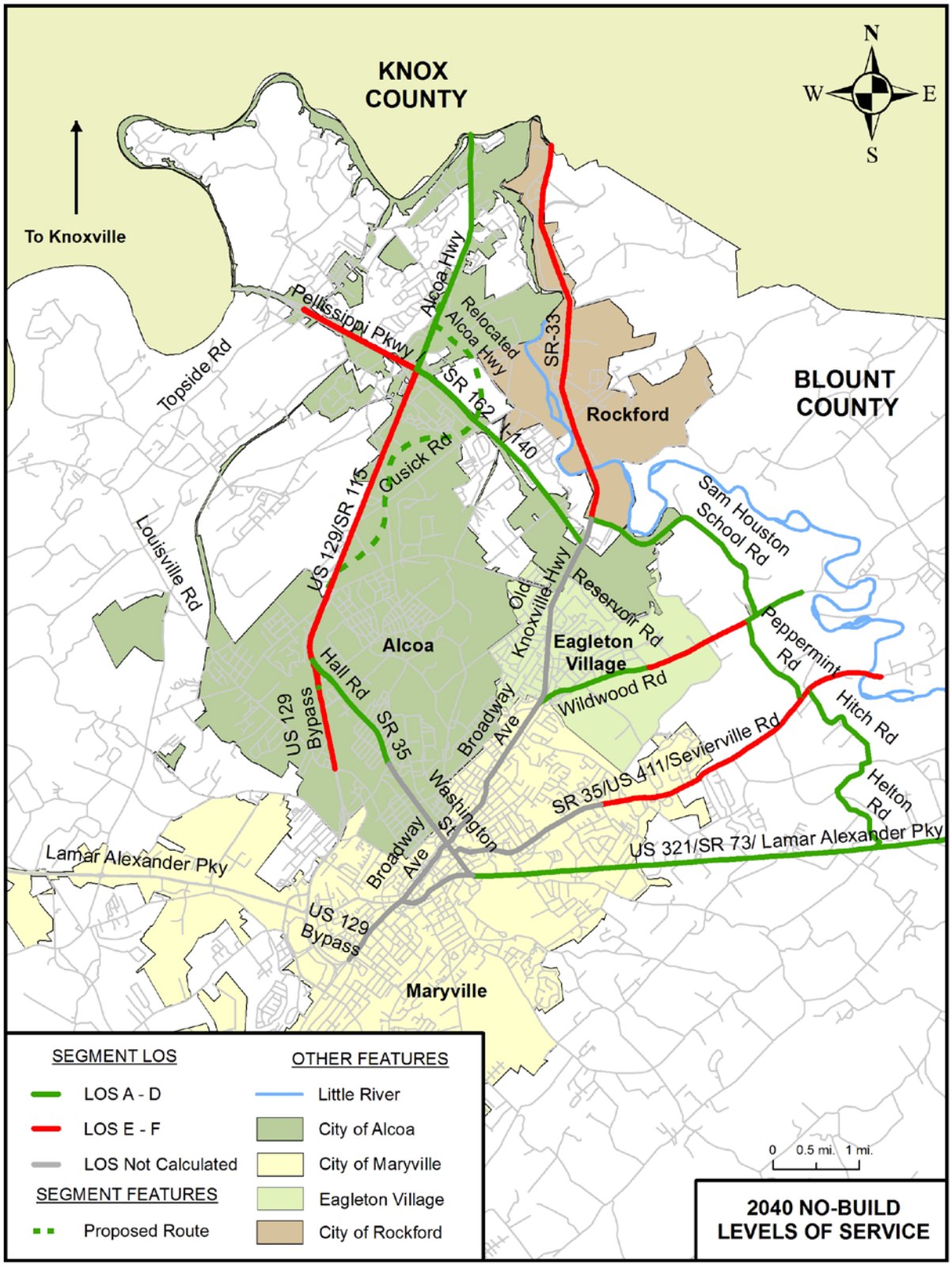
Source: Addendum to the Traffic Operations Technical Report (PB 2014c).

Figure 1-7: No-Build Levels of Service (2020)



Source: Addendum to the Traffic Operations Technical Report (PB 2014c).

Figure 1-8: No-Build Levels of Service (2040)



Source: Addendum to the Traffic Operations Technical Report (PB 2014c).

In summary, for the No-Build Alternative:

- Wildwood Road between Reservoir Road and Sam Houston School Road declines to LOS E (poor) by 2040.
- Traffic operations on existing Pellissippi Parkway west of Alcoa Highway declines to LOS F by year 2040, but the sections east of Alcoa Highway (US 129) remain at an acceptable LOS (C) through 2040.
- Traffic operations on Lamar Alexander Parkway (US 321/SR 73) remain at an acceptable LOS (LOS D or better) through 2040.
- Alcoa Highway (SR 115/US 129) south of Pellissippi Parkway operates at poor traffic conditions (LOS E or F) through 2040.
- Proposed Relocated Highway operates at acceptable traffic levels (LOS B) through 2040.
- US 411/Sevierville Road remains at LOS E throughout the period.

1.4.2.2 Intersection Level of Service

An intersection LOS analysis was prepared for the existing (2013), 2020 and 2040 No-Build Alternative. The results are shown in Table 1-4.

Most intersections operated at LOS D or better in 2013 during the morning and afternoon peak travel periods. The LOS gradually declines through 2020 and 2040 to where 9 out of 15 intersections operate at LOS F during the morning peak period and 11 out of 15 intersections operate at LOS E or F during the afternoon peak period in 2040.

Table 1-4: Intersection Level of Service (2013, 2020, and 2040)

Intersection	Type	Existing (2013)		2020		2040	
		AM	PM	AM	PM	AM	PM
SR 33 @ I-140 Off-Ramp	Signalized	C	**F**	**E**	**F**	**F**	**F**
SR 33 @ I-140 On-Ramp	STOP Controlled	**F**	C	**F**	**E**	**F**	**F**
SR 33 @ Wildwood Road	STOP Controlled	D	**F**	**F**	**F**	**F**	**F**
SR 33/SR 35/Washington Street	Signal	C	**E**	D	**F**	D	**F**
SR 35/Washington Street @ US 411/Sevierville Road	Signal	B	C	B	C	B	D
Washington Street/SR 35 @ High Street/SR 35	Signal	C	C	C	D	D	**E**
Washington Street @ US 321/SR 73	Signal	**F**	**F**	**F**	**F**	**F**	**F**
SR 33 @ Sam Houston School Road	Signal	B	B	B	B	C	B
Sam Houston School Road @ Wildwood Road	STOP Controlled	B	B	C	C	**F**	**F**
Peppermint Road @ Wildwood Road	STOP Controlled	B	B	**F**	**F**	**F**	**F**
SR 35/US 411/Sevierville Road @ Peppermint Road	STOP Controlled	C	C	**F**	**F**	**F**	**F**
SR 35/US 411/Sevierville Road @ Hitch Road/Peppermint Hills Drive	STOP Controlled	C	C	D	**F**	**F**	**F**
Davis Ford Road @ Hitch Road	STOP Controlled	B	A	B	B	B	B
David Ford Road @ Helton Road	STOP Controlled	A	A	A	A	A	A
SR 73/US 321 @Helton Road/Tuckaleechee Pike	STOP Controlled	**F**	D	**F**	**F**	**F**	**F**

Source: Addendum to Traffic Operations Technical Report (PB 2014c).

LOS E-F

LOS A-D

1.4.3 Traffic Safety

Safety 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 conducted to identify any areas within the project corridor with a history of crashes or safety issues. The analysis examined the reported accidents from January 1, 2010, through December 31, 2012, the most recent reporting period for which data are available. During this period, 1,916 crashes occurred within the project limits; of those crashes, 386 resulted in a non-incapacitating injury, 77 resulted in an incapacitating injury, and 11 resulted in a fatality. The *Crash Analysis Report Update* (PB 2014b) is in Technical Appendix C.

Crash Rate

A section crash rate 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 statewide crashes for a specific highway type, such as urban divided highways, urban roadways with turn lanes, urban freeways, and rural divided highways.

The analysis examined the information on crashes for roadway segments along the existing road network and developed crash rates based on the following factors:

- Number of crashes along a specific segment
- Average daily traffic on the roadway
- Length of the segment
- Period of the analysis

Crash rates are expressed in 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. Most of the roadways in this study are classified as urban, and the average statewide crash rates range from 1.77 cpmvm (for an urban divided roadway) to 2.33 cpmvm (for an urban roadway with a turn lane). For urban freeways, which include the existing Pellissippi Parkway between US 129/SR 115 and SR 33, the statewide average rate is 0.981 cpmvm. The section of US 321/SR 73 east of Maryville is a rural divided roadway, and the statewide average rate for this type of road is 0.733 cpmvm.

Critical Crash Rate Factor

Critical crash rate factor is the threshold above which it can be statistically certain (at a 99-percent 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 1 can be statistically certain that the crash rate for that section exceeds the statewide average rate.

The formula used to calculate a critical crash rate factor (A/C) is shown below. The A/C ratio provides a scale to determine the relative safety impact on each section.

$$AC = \frac{A}{C}$$

where: A = section crash rate
C = statewide critical crash rate

Table 1-5 identifies the calculated crash rates for roadway sections in the project area. Ten roadway sections have a higher than average number of crashes (critical crash rate factors greater than 1). These sections are highlighted in Table 1-5.

For the entire project area, rear-end and angle crashes are the most frequent type of crashes. The following conditions in the study area contribute to these types of crashes:

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

Table 1-5: Crash Rate Analysis, 2010 - 2012

Route	Segment Beginning	Segment Ending	Total Crashes 2010-2012	Statewide Average Crash Rate	Section Crash Rate (A)	Statewide Critical Crash Rate (C)	Section Critical Crash Rate Factor (A/C)
Cusick Road	US 129/SR 115	Pellissippi Parkway	10	2.895	1.271	4.370	0.291
Wildwood Road	Broadway/ SR 33	Little River Bridge	27	2.895	1.931	3.990	0.484
Pellissippi Parkway	US 129/SR 115	SR 33	4	0.981	0.132	1.416	0.093
Lamar Alexander Parkway (SR 73/US 321)	US 129 Bypass	Broadway/SR 33	96	1.777	3.580	2.394	**1.495**
	Broadway/SR 33	Montvale Road	27	1.777	5.964	3.345	**1.783**
	Montvale Road	Washington Street (SR 73)	59	1.777	3.860	2.603	**1.483**
	Washington Street (SR 73)	Knoxville Urban Boundary	170	1.777	1.649	2.087	0.790
	Knoxville Urban Boundary	Foothills Parkway	46	0.733	0.577	0.963	0.600
Hall Road (SR 35)	US 129 Bypass	Lincoln Road	189	1.777	4.244	2.253	**1.884**
	Lincoln Road	Sevierville Road/US 411	110	2.466	4.755	3.247	**1.464**
	Sevierville Road/US 411	Little River Bridge	88	2.334	1.660	2.832	0.586
Washington Street (SR 35)	Lincoln Road	Lamar Alexander Parkway/ US 321/SR 73	15	2.466	4.254	4.554	0.934
Broadway/ SR 33	US 129/SR 115	Just north of Henry Street	12	1.777	2.191	3.193	0.686
	Just north of Henry Street	Washington Street/Hall Road/SR 35	96	2.334	3.062	2.985	**1.026**
	Washington Street/Hall Road/SR 35	Everett High Road	34	2.334	3.794	3.578	**1.061**
	Everett High Road	Wildwood Road	55	2.334	3.733	3.295	**1.133**
	Wildwood Road	Hunt Road/ SR 335	70	2.334	3.465	3.150	**1.100**
	Hunt Road SR 335	Pellissippi Parkway	35	2.334	5.417	3.810	**1.422**
	Pellissippi Parkway	Caney Branch Road	62	2.334	3.099	3.154	0.983
	Caney Branch Road	Knox County Line	22	2.334	2.128	3.488	0.610
US 129 Bypass	Broadway/SR 33	Knox County Line	672	1.777	1.424	1.921	0.742
Lincoln Road	Hall Road (SR 35)	Wright Road	4	2.895	1.087	5.095	0.213
	Wright Road	Harding Street	7	2.404	1.427	4.135	0.345
	Harding Street	Wildwood Road	6	2.895	0.951	4.551	0.209

Source: Crash Analysis Report Update (PB 2014b).

Roadways sections with a higher than average number of crashes (critical crash rate factors greater than 1).

These factors are especially prevalent along US 129, US 321/SR 73, SR 33, Hall Road (SR 35), and Washington Street (SR 35).

The existing transportation system requires travelers between the northwestern and eastern portions of Blount County to use a route that includes portions of US 321/SR 73, Hall Road, 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 Maryville core could help to reduce the number of crashes. Another opportunity to lower the crash rates would be to improve 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.

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 qualifies for HESP funding since the A/C ratio for all sections is less than 3.5. None of the section crash rates has an A/C ratio exceeding 2.0.

1.5 Ongoing Residential Development

Since the 1970s, Blount County has been one of the fastest growing counties in the Knoxville region (Figure 1-9). The county has experienced double-digit population growth over each 10-year census period. Between 1990 and 2000, it grew by 23 percent. In 2010, the county was home to 123,000 people (an increase of about 16 percent since 2000). In the region, Blount County's growth is surpassed only by that of its neighbor to the east, Sevier County, which grew by more than 25 percent between 2000 and 2010.

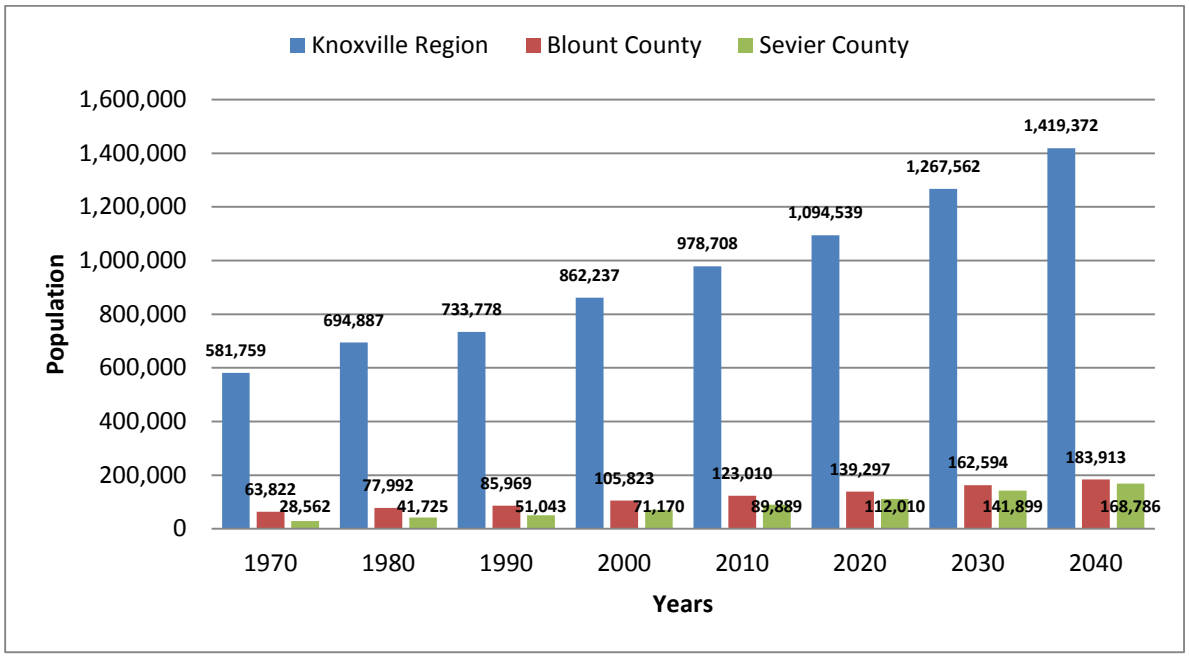
Blount County's double-digit growth is expected to continue through 2040; by 2040, Blount County is predicted to have about 184,000 residents. Figure 1-9 and Figure 1-10 illustrate the growth in the region and in Blount and Sevier Counties in terms of population and percentage growth.

As Blount County becomes more populated, the land is expected to become more densely settled, and the overall population in the urban areas will increase. An urban area is generally defined as one with urban services such as sewer systems and public water.

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 2010, there were more than 55,266 housing units in the county (a 151-percent increase over the nearly 22,000 housing units that existed in 1970). Figure 1-11 illustrates the growth in housing over the last four decades.

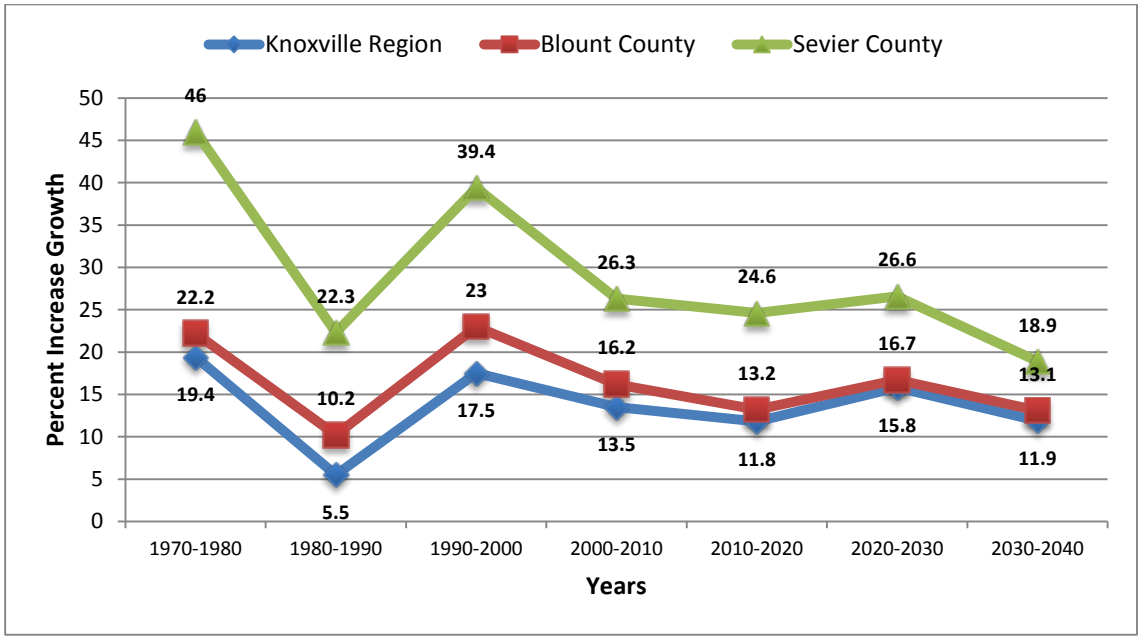
The Blount County Planning Department has tracked residential development in the county since the 1950s. Since then, a substantial amount of growth can be seen moving east from US 129 (Alcoa Parkway) to the east of SR 33 and moving south from Wildwood Road toward the southern city limits of Maryville. The county's Planning Department prepared locational graphical representations of county residential development (generally by decade) between 1950 and 2009. The figures (included in Attachment B) differentiate between existing residences and new residential structures constructed during each decade.

Figure 1-9: Historical Population and Projections (1970 to 2040)



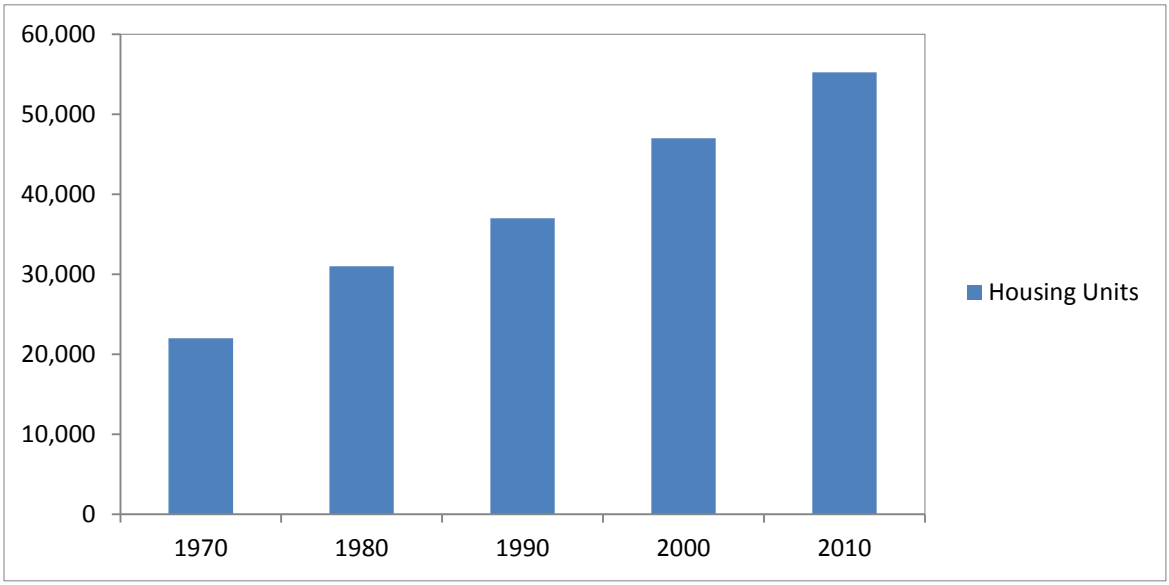
Source: Knoxville Regional TPO Mobility Plan 2040, Appendix G: Socioeconomic Control Total Projections Report. Note: For this analysis, the Knoxville Region includes the following counties: Anderson, Blount, Grainger, Hamblen, Jefferson, Knox, Loudon, Roane, Sevier, and Union counties.

Figure 1-10: Average Population Growth by Decade (1970 to 2040)



Source: Knoxville Regional TPO Mobility Plan 2040, Appendix G.

Figure 1-11: Blount County Housing Units (1970 to 2010)



Source: U.S. Census of Population, 2010.

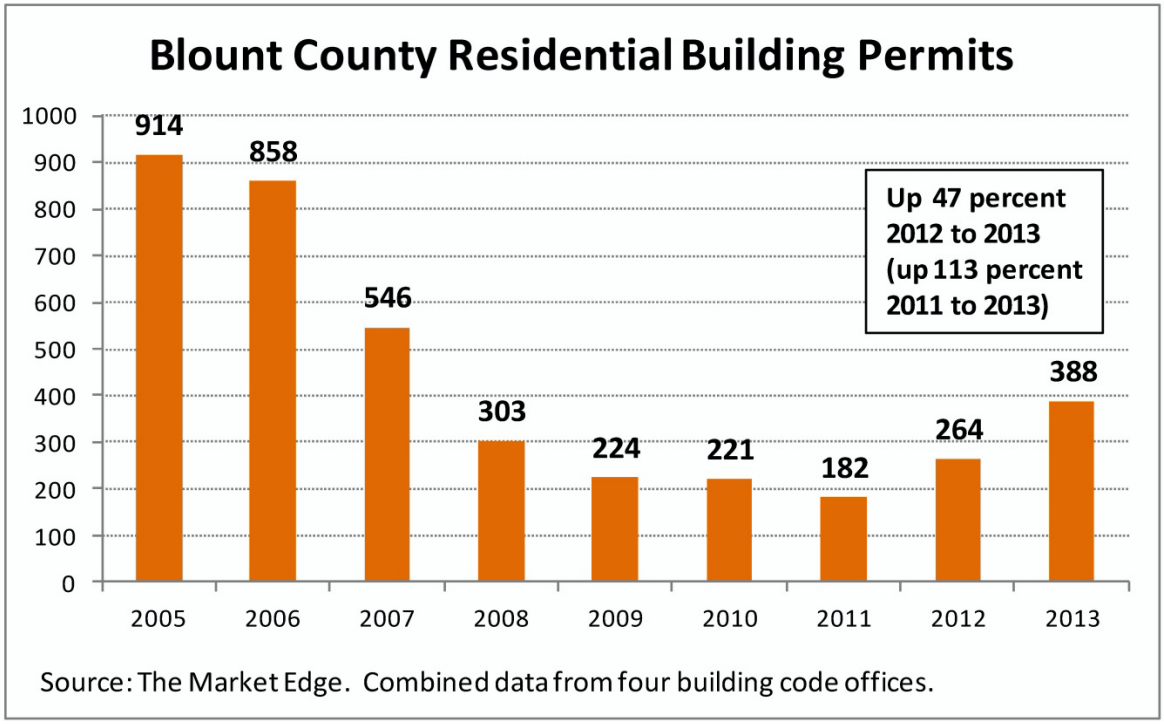
The following points highlight the major growth locations in eastern Blount County during the last 60 years.

- 1950s—Residential growth is seen along the western side of SR 33/Old Knoxville Highway and along the eastern side of SR 33 toward US 411 (Sevierville Road) in unincorporated Eagleton Village. Homes are also developing along the eastern side of Broadway/US 411 in Maryville.
- 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 has 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 toward Montvale Road. A pocket of homes also begins to appear toward 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. A cluster of homes is built near Montvale Station Road and Montvale Road.
- 1990s and 2000s—The growth of primarily single-family developments continues eastward along US 411. The area between SR 33 and US 321 east of downtown Maryville continues to infill and expand eastward.

Based on data provided by the Blount County Planning Department, residential building permits demonstrated considerable decline after 2005, as the national economy began to slow (Figure 1-12). The low watermark came in 2011, when the number of residential permits issued was 80 percent lower than in 2005. In 2012, the number of permits rebounded 45 percent from 2011.

Increases in construction costs and gas prices could affect construction of new residential development, and the long-term patterns described above may not continue.

Figure 1-12: Annual Blount County Residential Building Permits (2005 to 2013)



Source: Blount County Planning Department, 2014.

1.6 Consistency with Plans

The proposed project is consistent with the following local and regional planning efforts:

- **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.
- **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 TPO *Mobility Plan 2040***—Blount County is a part of the Knoxville Regional TPO. The proposed extension of Pellissippi Parkway from SR 33 to US 321/SR 73 has been included in the region's LRTPs since 1995. In the current plan, *Regional Mobility Plan 2040* (TPO 2012), it is listed as Project #09-232, described as "construct new 4-lane." The project is included in the current TPO's *2014-2017 Transportation Improvement Program* (TIP) (TPO 2013a) as project 2014-025, also described as "construct new 4-lane freeway." The TIP and *Regional Mobility Plan 2040* project sheets are included in Attachment A.

- **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.

– *Blount County Growth Strategy* (Hunter 2005a)

– *Maryville Urban Growth Strategy* (Hunter 2005b)

The City of Maryville's *Urban Growth Strategy* 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 provided] by the Knoxville Regional TPO. This link will improve Maryville traffic congestion by allowing many tourists visiting the GSMNP 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* (Hunter 2005a) builds on five guiding policies recommended in the *Blount County Policies Plan* adopted in June 1999 by the Blount County Planning Commission:

1. The rural, small town and natural character of the county should be preserved.
2. Land use and development should be managed and regulated in order to preserve the quality of our growing county.
3. The guiding policy in any government actions in relation to the use and development of land should be to limit regulations to specific public health, safety, and welfare objectives balanced with responsible freedom in the use of land.
4. County roads should be improved and maintained to a level consistent with present development and expected future development.
5. Growth and development should be appropriately matched with provision of adequate infrastructure, such as utilities, roads, and schools.

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 the City of 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.

In 2008, Blount County reviewed and updated the 1999 *Policies Plan*. The first four guiding policies were retained from the 1999 *Policies Plan* while #5 was revised in the 2008 *Policies Plan* to reflect

concern with a wider range of public infrastructure. Goal #5 now reads, "Growth and development should be balanced with provision of adequate public infrastructure." One of the objectives of Goal #4 (4C) is to "Prepare for future increases in traffic demands as the County grows." An implementation strategy for this objective is to "Build arterial and collector road segments that will create a circumferential system, and collaborate with Maryville and Alcoa on this. Utilize Blount County Growth Strategy Technical Memorandum #9 for proposed circumferential system."

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

- **Relocated Alcoa Highway (Alcoa Highway Bypass)**—TDOT and the TPO have investigated 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 referred to as the "Motor Mile." This proposed roadway is also referred to as Relocated Alcoa Highway. The existing road 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. TDOT prepared an EA for the project and FHWA issued the FONSI in August 2011.

- **Pellissippi Place Research and Technology Park**—The Cities of Alcoa and Maryville and Blount and Knox Counties have collaborated to develop the 450-acre Pellissippi Place, which is 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. As reported in the DEIS, Pellissippi Place was expected to open in 2010 and 2011. The first phase of Pellissippi Place broke ground in November 2008 and the basic infrastructure was completed in 2010, but many of the targeted technology businesses did not pursue expansion in the aftermath of the economic downturn of the late 2000s. In February 2013, Blount County announced the anchor tenant, a healthcare technology firm. The company opened its first phase of operations in early June 2015, with 55,000 square feet of research, development, testing, manufacturing and office space and 120 employees. Company officials indicated their intention to construct their project in five phases over the next several years, with an end goal of 200,000 square feet at full build-out.

  Local officials see the extension of Pellissippi Parkway as an important component of 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.

- **SR 33 at Pellissippi Parkway Interchange**—Since the DEIS was approved, TDOT initiated and completed improvements to SR 33 on the western border of the Pellissippi Place site. One project was the widening of State Route 33 by the Blount Partnership for Pellissippi Place, near the intersection with Clayton Road. SR 33 through the I-140 interchange area was widened from two lanes with a turn lane to a five-lane section. A second project was the installation of a new traffic signal at the realigned intersection of Pellissippi Place with Clayton Road. These improvements were complete and operational in early 2015. In November 2014, TDOT completed a signal project at SR 33 and Williams Mill Road in Rockford, north of the interchange area.

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 would be 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 does not depend on the implementation of any other transportation projects. The project would not restrict consideration of alternatives of other reasonably foreseeable transportation improvements (with the exception of funding issues), such as Relocated Alcoa Highway or improvements to other state or local roads.

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

2.0 Alternatives

This chapter summarizes the alternatives considered in the DEIS, identifies the Preferred Alternative, and explains why the Preferred Alternative was selected.

The DEIS evaluated four alternatives—the No-Build Alternative, two four-lane Build Alternatives (A and C), and one enhanced two-lane Build Alternative (D). In 2012, following the circulation of the DEIS in 2010 and consideration of the comments received from the public and federal, state, regional, and local agencies, TDOT and FHWA selected DEIS Alternative A as the Preferred Alternative, hereafter referred to as the 2012 Preferred Alternative (A).

In 2013, during preparation of technical studies for the FEIS, a National Register of Historic Places (NRHP)-eligible archaeological site was discovered within the footprint of the 2012 Preferred Alternative (A) near the southern terminus of the project. TDOT identified and evaluated two minor alignment shifts (East Shift and West Shift) of the 2012 Preferred Alternative (A) to avoid the NRHP-eligible archaeological site. Based on an environmental review of the two shifts (West Shift and East Shift) and input from a community briefing held in May 2013, TDOT determined that the alignment of the 2012 Preferred Alternative (A) would be best modified by the West Shift. Thus the Preferred Alternative described in this FEIS incorporates the West Shift, and is hereafter referred to as the Preferred Alternative.

Figure 2-1 illustrates the Preferred Alternative, the 2012 Preferred Alternative (A), the Preferred Alternative with East Shift not incorporated into the Preferred Alternative, and DEIS Alternatives C and D.

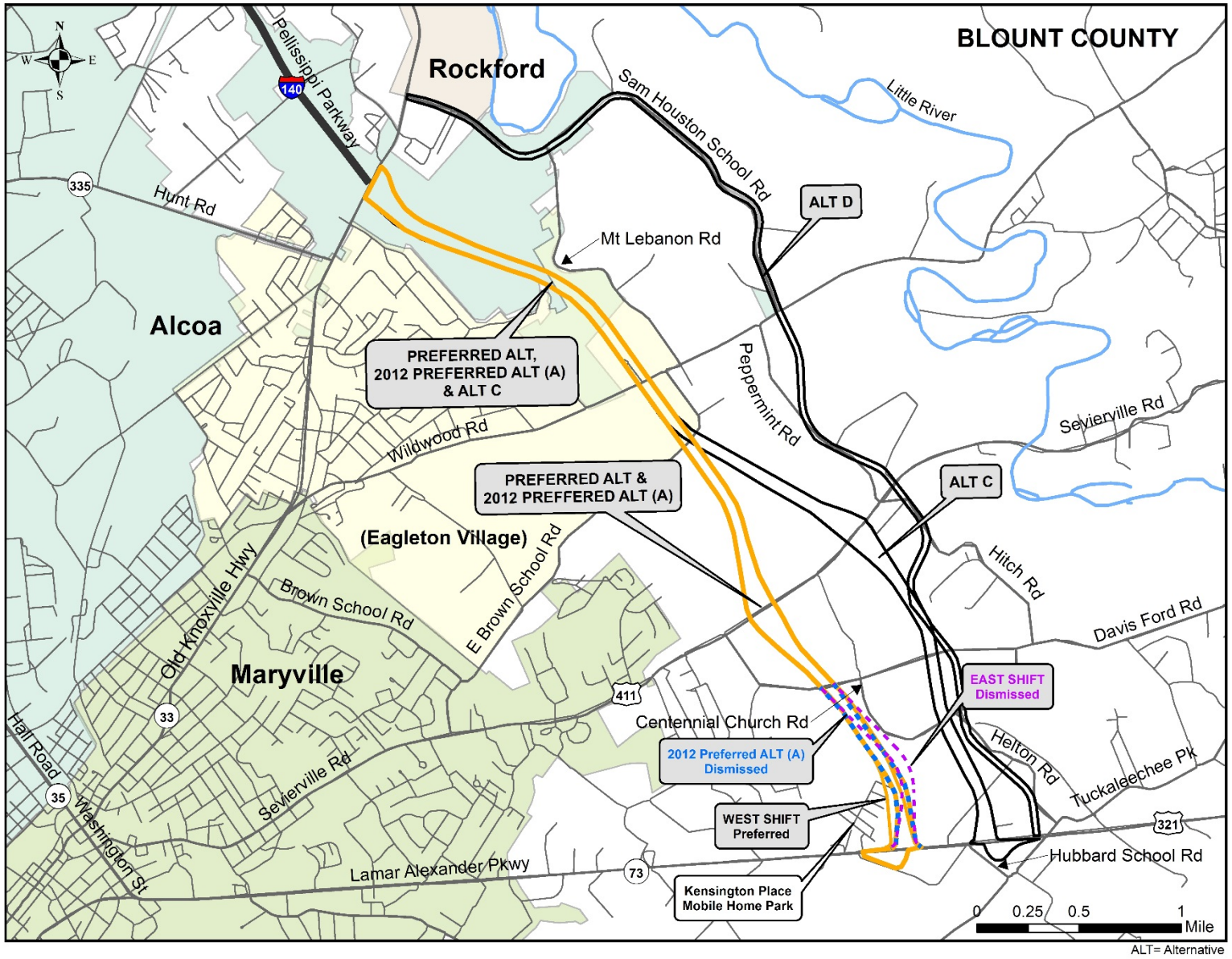
2.1 No-Build Alternative

Under the No-Build scenario, Pellissippi Parkway would not be extended beyond its existing terminus at SR 33 to US 321, as envisioned in local and regional plans. Eastbound traffic would continue to enter and exit the eastern terminus of Pellissippi Parkway (I-140) at the existing half-interchange with SR 33.

The No-Build Alternative assumes that several other capacity-enhancing and safety-related projects in the study area would be constructed or implemented, as identified in the Knoxville Regional TPO *Regional Mobility Plan 2040* (TPO 2012). These capacity-enhancing and safety projects within the study area are listed in Table 2-1. A full listing of the planned projects in Blount County is included in Attachment A, along with Exhibit 8-2 from the *Regional Mobility Plan 2040* that shows all planned Blount County transportation projects.

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 and extend to Old Niles Ferry Road at William Blount Drive (SR 335). 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 roadway 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* (Hunter 2005a). While the Southern Loop Connector was included in the later years of the previous *Regional Mobility Plan (2009-2034)*, it has not been included as a project in the *Regional Mobility Plan 2040*.

Figure 2-1: Preferred Alternative, 2012 Preferred Alternative (A), Preferred Alternative with East Shift and DEIS Alternatives



Source: Parsons Brinckerhoff, 2013.

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

LRMP #	Project	Location	Description	Horizon Year
09-204	Pellissippi Place Access Road Extension/New Road Construction	Pellissippi Place existing termini to Wildwood Road	Extend 2-lane and 4-lane road with center median lane	2029
09-212	Old Knoxville Highway (SR 33) Reconstruction	Wildwood Road to McArthur Road	Reconstruct 2-lane section with shoulders	2024
09-214	Sevierville Road (US 411/SR 35) Widening and Bridge Replacement	Washington Street (SR 35) to Walnut Street	Widen 2 lanes to 3 lanes with curb and gutters, sidewalks, new bridge over Browns Creek, 2 business relocations, and new entrance for Blount Memorial Hospital	2019
09-216	Alcoa Highway (US 129/SR 115) Widening	Pellissippi Parkway (SR 162) to Knox/Blount County Line	Widen 4 lanes to 6 lanes with 2 auxiliary lanes between Singleton Station Road and Topside Road (SR 333)	2019
09-217	Alcoa Highway (SR 115/US 129) intersection improvements	Singleton Station Road to Hunt Road (SR 335)	Improve intersections, including signals, turn lanes, pedestrian infrastructure upon completion of Alcoa Parkway	2024
09-218	Alcoa Highway Parkway (US 129/SR 115) New Road Construction	From south of Airport Road to proposed interchange serving McGhee Tyson Airport	Construct new 8-lane highway	2019
09-231	Old Knoxville Highway (SR 33) Reconstruction and Bridge Replacement	Pellissippi Parkway (SR 162) to Knox County Line (Co Op Road)	Reconstruct 2-lane section with shoulders	2029
09-234	Wildwood Road Reconstruction and Bridge Replacement	Maryville City Limit (Brown School Rd) to Sevierville Road (US 411/SR 35)	Reconstruct 2-lane section with shoulders, reconstruct Wildwood Bridge over the Little River	2034
09-237	E. Broadway Avenue (SR 33)/Eagleton Road/ Brown School Road intersection improvements	From south of Brown School Road to north of Eagleton Road	Realign Eagleton Road with Brown School Road to remove offset and create 4-leg, signalized intersection Widen to include left turn lanes at all approaches with curb and gutter and sidewalk	2019
09-245	Sevierville Road (US 411/SR 35) Widening	Everett High Road to Swanee Drive (Maryville City Limits)	Widen 2 lanes to 3 lanes with curb and gutter, and sidewalks to section recently widened by the City of Maryville	2024
09-247	Sam Houston School Road Widening	Old Knoxville Highway (SR 33) to Wildwood Road	Add center turn lane, bike lane, and shoulder	2040
09-250	Sevierville Road (US 411/SR 35) Reconstruction	Swanee Drive (Maryville City Limits) to Chapman Highway (US 441/SR 71)	Reconstruct 2-lane section with shoulders	2024
09-257	Alcoa Highway Parkway (US 129/SR 115) New Road Construction	From Proposed interchange serving McGhee Tyson Airport to Pellissippi Parkway	Construct new 8-lane highway	2019
09-258	Alcoa Highway Parkway (US 129/SR 115) New Road Construction	From Pellissippi Parkway to Existing Alcoa Highway near Singleton Station Road	Construct new 8-lane highway	2019

Source: Long Range Regional Mobility Plan 2040 (TPO 2012).
LRMP # = project number identified in the *Regional Mobility Plan 2040*.

While the *Regional Mobility Plan 2040* and the 2014-2017 TIP identify specific years by which the transportation improvements are expected to be completed, budget issues and other considerations may delay the start or ultimate completion of a specific project. It is also possible that some projects currently listed in the *Regional Mobility Plan 2040* or 2014-2017 TIP may be modified or removed as a result of currently unforeseen land use changes or other changes in the community or local priorities.

The No-Build Alternative was not selected as the Preferred Alternative for this project because it would not meet the project's Purpose and Need. The No-Build Alternative would retain the radial road network in the county and provide few travel options for motorists traveling between the northern and eastern portions of the county. It is also not consistent with community growth plans or the regional transportation plans.

2.2 Build Alternatives Evaluated in the DEIS

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 at least 1977. The completion of the parkway from SR 33 to US 321/SR 73 was included in the 1999 update of the regional long range transportation plan as a specific project and has been included in subsequent updates. It is identified as Project #09-232 in the *Regional Mobility Plan 2040*. Two four-lane alternatives (A and C) were examined in the DEIS. During the course of the DEIS, discussions with the public about travel needs and environmental concerns contributed to development of an improved two-lane alternative using a network of rural roads (Alternative D). 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 constructing a new freeway.

2.2.1 Alternative A

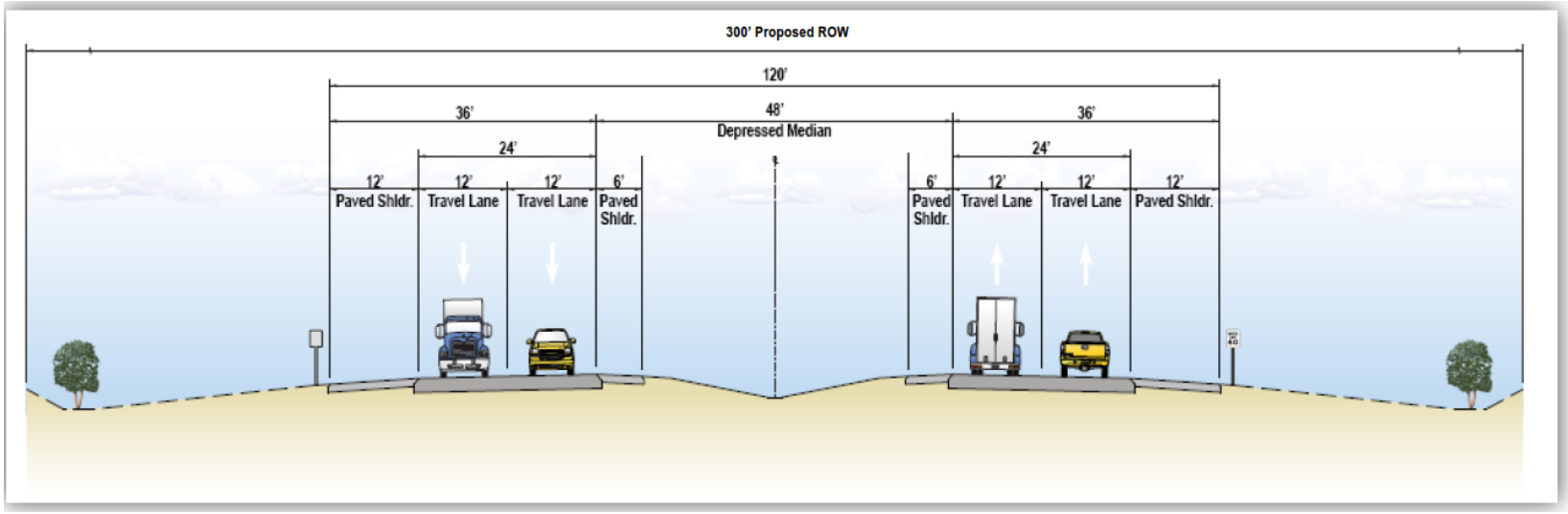
The DEIS Alternative A (selected in 2012 as the Preferred Alternative and later modified) would extend 4.38 miles from SR 33 to US 321/SR 73 as a four-lane divided roadway with three proposed interchanges (with SR 33, US 411/Sevierville Road, and US 321/SR 73). The alignment would begin on the east side of SR 33, opposite the existing half interchange of Pellissippi Parkway (I-140) and SR 33. From this terminus, the alignment 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.

After crossing Wildwood Road, the alignment would continue in a generally southerly direction, crossing Brown School Road and US 411/Sevierville Road east of the Davis Ford Road intersection with US 411. The alignment would continue across Davis Ford Road, passing along the northeastern edge of the Kensington Place mobile-home park and intersecting US 321/SR 73 just east of Flag Branch. The alignment is illustrated on Figure 2-1.

The proposed typical section evaluated in the DEIS for the extension of Pellissippi Parkway along Alternative A consists 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 ROW 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 is designed for traffic traveling at 60 mph, although the posted speed may be lower.

Figure 2-2: Typical Section for the Four-Lane Alternatives



Source: Parsons Brinckerhoff, 2009.

Diamond interchanges would connect the new roadway with SR 33 and US 411/Sevierville Road, and would terminate with a trumpet interchange at US 321/SR 73. All other road crossings would be grade-separated without parkway access. The distance between these two proposed interchanges is about 1 mile. Due to this short distance, during the design phase of the project, TDOT would consider the use of an auxiliary lane in each direction to assist traffic exiting and entering the proposed roadway.

SR 33 through the proposed interchange area was recently upgraded to a five-lane urban section (two 12-foot lanes in each direction with a 12-foot continuous center turn lane, with traffic signals. US 411/ Sevierville Road, would be improved to a five-lane urban section through the interchange area.

2.2.2 Alternative C

Alternative C would extend 4.68 miles from SR 33 to US 321/SR 73, as a four-lane divided roadway with three proposed interchanges (with SR 33, US 411/Sevierville Road and US 321/SR 73). This alternative would have the same typical section and design features as described in Section 2.2.1 for Alternative A.

Alternative C shares the same alignment as Alternative A from the project beginning at SR 33 to the vicinity of Brown School Road. At that point, Alternative C would diverge to the east, and follow a southeasterly course to intersect US 411/Sevierville Road about 0.6 mile east of the Preferred Alternative. Alternative C would continue southeasterly to cross Davis Ford Road and proceed south, crossing Centennial Church Road about 500 feet west of Helton Road. The alternative would terminate at US 321/SR 73 in the vicinity of Hubbard School Road. The alignment is illustrated on Figure 2-1.

2.2.3 Alternative D – Upgrade Existing Two-Lane Network

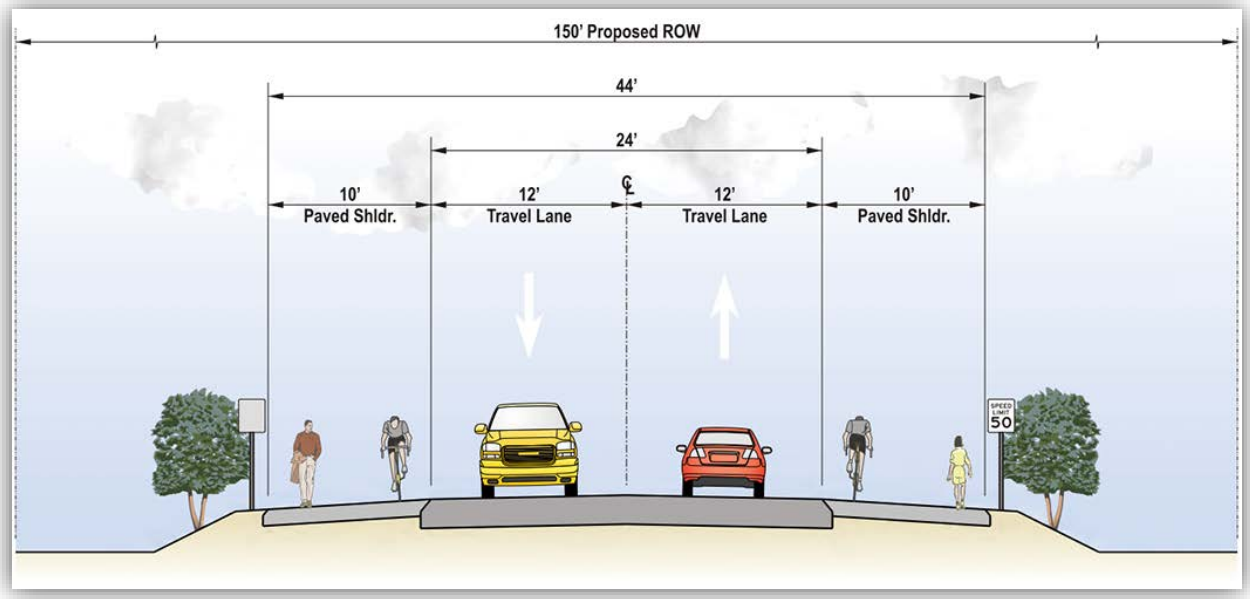
Alternative D would upgrade an existing network of two-lane roads in the area (Sam Houston School Road, Peppermint Road, Hitch Road, and Helton Road) to serve as a two-lane connection between SR 33 and US 321/SR 73. Under this alternative, an improved two-lane roadway would be constructed using the existing roadway alignment where possible, while straightening curves, realigning intersections and using new locations to provide a continuous route with a 50-mph design speed. The length of this corridor would be 5.77 miles.

The proposed typical section for the upgraded two-lane network consists of one 12-foot travel lane in each direction with 10-foot outside shoulders (see Figure 2-3). At major intersections, a center turn lane would be added if necessary. Bicyclists and pedestrians would use the paved shoulders.

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

The alternative would generally follow Sam Houston School Road from SR 33 to Wildwood Road and 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. This alignment would avoid the existing offset intersections of Sam Houston School Road and Peppermint Road with Wildwood Road. The route 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 route would use Hitch Road for about 1,500 feet before shifting southwest to avoid substantial horizontal curves and a large residential subdivision. The route would then follow a south/southeast course behind the subdivision and cross Davis Ford Road to the west of Misty View Drive and subdivision. The alignment would continue southward crossing Centennial Church Road at Helton Road, then follow a course to the west of Helton Road and intersected with US 321/SR 73 about 250 feet west of the intersection of US 321/SR 73 and Old Walland Highway (Tuckaleechee Pike).

Figure 2-3: Typical Section for Build Alternative D



Source: Parsons Brinckerhoff, 2009.

The *Regional Mobility Plan 2040* includes two projects to reconstruct the two-lane sections of two of these roadways by 2040. Project #09-247, Sam Houston School Road from SR 33/Old Knoxville Highway to Wildwood Road, is listed in the period 2020 to 2024 as part of the financially constrained plan. Project #09-244, Peppermint Hills Drive from Wildwood Road to US 411/Sevierville Road, is included in the *Regional Mobility Plan 2040's* Table 8-2: Roadway "Wish List" (Non-Constrained) should other funding become available or if other projects are able to be implemented with lower than anticipated costs.

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 would not require through traffic to make numerous turns to follow the route.

2.2.4 Preliminary Cost Estimates

Preliminary capital cost estimates were developed for the DEIS Build Alternatives and presented in the DEIS. The total estimated capital costs were based on the functional level plans developed for the DEIS and showed construction and engineering, utility relocations, and right-of-way acquisition costs appropriate to the level of the plans. Subsequent to the DEIS, slight alignment modifications were considered and selected for the Preferred Alternative. The capital cost estimates have been revised using the latest version of the TDOT Long-Range Planning Division worksheets, as well as recent real estate assessment data from the State of Tennessee Comptroller of the Treasury. The updated preliminary cost estimates for the Preferred Alternative, 2012 Preferred Alternative (A), Preferred Alternative with East Shift, Alternative C and Alternative D are shown in Table 2-2 are in 2014 dollars.

Table 2-2: Preliminary Capital Cost Estimates, 2014

	Preferred Alternative	2012 Preferred Alternative (A)	Preferred Alternative with East Shift	Alternative C	Alternative D
Construction, engineering, and utilities	$140,958,000	$141,132,000	$141,827,000	$145,822,000	$55,376,000
Right-of-way acquisition	$5,529,000	$5,627,000	$5,690,000	$8,901,000	$7,886,000
Contingency	$19,222,000	$19,245,000	$19,340,000	$19,885,000	$7,551,000
Total Estimated Costs	$165,709,000	$166,004,000	$166,857,000	$174,608,000	$70,813,000

Source: Parsons Brinckerhoff, 2015.

2.3 Selection of the Preferred Alternative

In 2012, TDOT selected Alternative A as the Preferred Alternative after weighing the impacts of the project alternatives on the human and natural environment and giving careful consideration to input from the public, local officials, and local, state, and federal agencies. In 2013, based on additional investigations of the 2012 Preferred Alternative (A), TDOT determined that a minor modification of the alignment was necessary to avoid a NRHP-eligible archaeological site. Section 2.3.1 presents the rationale for the selection of the 2012 Preferred Alternative (A), based on the information available at that time. Section 2.3.2 discusses two alignment shifts investigated in 2013 and describes why the West Shift was selected to modify the 2012 Preferred Alternative (A).

2.3.1 Selection of 2012 Preferred Alternative

Alternative A was selected as the Preferred Alternative in 2012 because it:

- Displaces the least number of residences in comparison to Alternatives C and D.
- Has the greatest physical distance/separation from Little River, a designated Exceptional Tennessee Water, when compared to Alternatives C and D.
- Has the support of local officials. Resolutions were received in 2011 from the legislative bodies of the cities of Maryville and Alcoa and Blount County, each stating support for the selection of Alternative A as the Preferred Alternative. See Attachment C for copies of the resolutions.

The 2012 Preferred Alternative (A) met the purpose and need of the proposed project in that it would:

- Complete Pellissippi Parkway (SR 162/I-140) as envisioned by local and regional plans.
- Create a non-radial transportation route in the growing area of northeastern Blount County where such a route has been lacking.
- Produce a substantial decrease in delays in most of the intersections in the Alcoa/Maryville core.

The following tables summarize information that was used in comparing the DEIS alternatives and selecting Alternative A as the Preferred Alternative in 2012. Table 2-3 presents a comparison of key issues for the 2012 Preferred Alternative (A), the No-Build Alternative, and DEIS Alternatives C and D. The information shown in Table 2-3 reflects the data presented in the DEIS for Alternative A. As previously discussed, additional studies have been conducted since the approval of the DEIS and selection of Alternative A as the Preferred Alternative. Changes in impacts since the approval of the

DEIS are described in Section 2.3.2 and Chapter 3 of this FEIS and the 2014 reevaluation of the DEIS. A copy of the 2014 reevaluation of the DEIS is included as Technical Appendix L to this FEIS.

Table 2-4 presents the pros and cons of each DEIS alternative based on data analysis available at the time of the approval of the DEIS (2010).

Table 2-3: Summary of Project Data and Impacts to Resources for DEIS Alternatives

Impact Category	No-Build Alternative	2012 Preferred Alternative (A)	Alternative C	Alternative D
2035 level-of-service (LOS)	Decline in LOS	No substantial improvement of corridor LOS on existing network; sections of new roadway operate at LOS F in 2035		No improvement of corridor LOS on existing roads; local roads operated at LOS E or F in 2035
Average travel time savings – minutes over existing/% over existing	0	11/56%	11/56%	7-8/44%
Residential relocations	0	5	26	24
Business displacements	0	1	2	0
Farmland converted/prime farmland (acres)	0	128/39	74/44	45/23
Farmland as % of total right-of-way	0	74%	40%	38%
Archaeology sites requiring Phase II studies	0	5	5	1
Noise receptors affected	33	83	110	64
Floodplains (acres)	0	6.9	9.0	8.1
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
Wetlands (acres)	0	1.0	0.9	0

Source: Pellissippi Parkway Extension DEIS (2010), Table 3-35, (http://www.tdot.state.tn.us/pellissippi/library.htm).
Note: Some of the data presented in this table are not current because of the updates of technical studies since approval of the DEIS. The updated information is presented in subsequent sections of the FEIS. See Table 2-7 for the latest information on impacts of the Preferred Alternative, 2012 Preferred Alternative (A), Preferred Alternative with East Shift, Alternative C, and Alternative D.

Table 2-4: Comparison of Primary Positive (Pro) and Primary Negative (Con) Aspects of Each DEIS Alternative

No-Build Alternative	2012 Preferred Alternative (A)	Alternative C	Alternative D
Pros: No direct impacts to: • Residences (by noise or displacements) • Businesses • Farmlands • Waters and wetlands • Floodplains • Rural character and scenery of area • Does not create a bypass to east of Maryville's downtown	**Pros:** • Completes Pellissippi Parkway as envisioned by local and regional plans • Enhances circumferential mobility • Improves intersection LOS for at least 5 key intersections • Improves travel times by up to 11 minutes • Displaces fewest residences (5) and businesses (1) • Provides greatest physical distance/ separation from Little River • Least amount of perpendicular floodplain impacts (6.9 acres) • Supported by local officials	**Pros:** • Completes Pellissippi Parkway as envisioned by local and regional plans • Enhances circumferential mobility • Improves intersection LOS for at least 5 key intersections • Improves travel times by up to 11 minutes	**Pros:** • Provides a new major two-lane, non-radial route for northeastern Blount County • Improves travel times by 7 to 8 minutes • Converts least amount of farmlands (45) • Least number of potentially eligible archaeology sites (1) to be investigated • No wetland impacts • Lowest estimated capital cost ($59.50 million) of the Build Alternatives
Cons: • No major improvement to radial road network • No enhancement to mobility in NE Blount County • Not consistent with community growth and transportation plans • Farmland conversion continues without enhancing the roadway network in vicinity • Not supported by local officials	**Cons:** • Does not substantially improve corridor LOS on existing network • Converts most acres of farmlands (128) • Noise impacts to 83 receptors from major new road • 5 potentially eligible archaeology sites to be investigated • Greatest amount of linear feet of stream impacts (although they are headwaters rather than ecologically diverse downstream reaches)	**Cons:** • Does not substantially improve corridor LOS on existing network • Displaces highest number of residences (26) and businesses (2) • Greatest noise impacts (110 receptors) • 5 potentially eligible archaeology sites to be investigated • Affects more downstream reaches of larger tributaries of Little River than Alternative A • Greatest amount of perpendicular floodplain impacts (9.0 acres) • Highest estimated capital cost ($104.55 million) of the Build Alternatives	**Cons:** • Existing Pellissippi Parkway is not extended to US 321 and continues to terminate at a 2-lane roadway—a major mixed use development is underway to the east of the half interchange • Does not improve corridor LOS on existing network • Increases delay at most intersections • Displaces 24 residences, slightly less than Alternative C • Closest to Little River, Blount County's primary source for drinking water • Affects more linear feet of ecologically diverse downstream reaches compared with Alternatives A or C • 8.1 acres of perpendicular floodplains • Not supported by local officials

Source: Pellissippi Parkway Extension DEIS (2010), Table 3-35, (http://www.tdot.state.tn.us/pellissippi/library.htm).
Note: Some of the data presented in this table are not current because of the updates of technical studies since the circulation of the DEIS. The updated information is presented in subsequent sections of the FEIS. See Table 2-7 for the latest information on impacts of the Preferred Alternative, 2012 Preferred Alternative (A), Preferred Alternative with East Shift, Alternative C and Alternative D.

2.3.2 2013 Modification of Preferred Alternative

Following the selection of the Preferred Alternative (A) in 2012, Phase II archaeological investigations conducted for that alternative identified one site as eligible for listing on the NRHP. Since the 2012 Preferred Alternative (A) had already been analyzed and selected over the other DEIS alternatives, TDOT focused on identifying potential avoidance options via minor alignment shifts near the sensitive portion of the eligible archaeological site rather than major shifts of the alignment. TDOT identified and investigated two possible minor shifts in the alignment of the 2012 Preferred Alternative (A) between Davis Ford Road and US 321/SR 73 (the southern terminus of the project).

The two minor alignment shifts are identified below and illustrated in Figure 2-4.

- The **East Shift** would move the ROW about 300 feet eastward, away from the Kensington Place mobile home community and toward the developing Sweetgrass Plantation subdivision.
- The **West Shift** would move the ROW about 150 feet to the west, which would encroach into the northeastern corner of the Kensington Place mobile home community.

The typical section of each alignment shift is the same as defined for the 2012 Preferred Alternative (A)—a four-lane divided roadway with a 48-foot depressed median. Each avoidance shift extends about 1.4 miles between Davis Ford Road and US 321/SR 73.

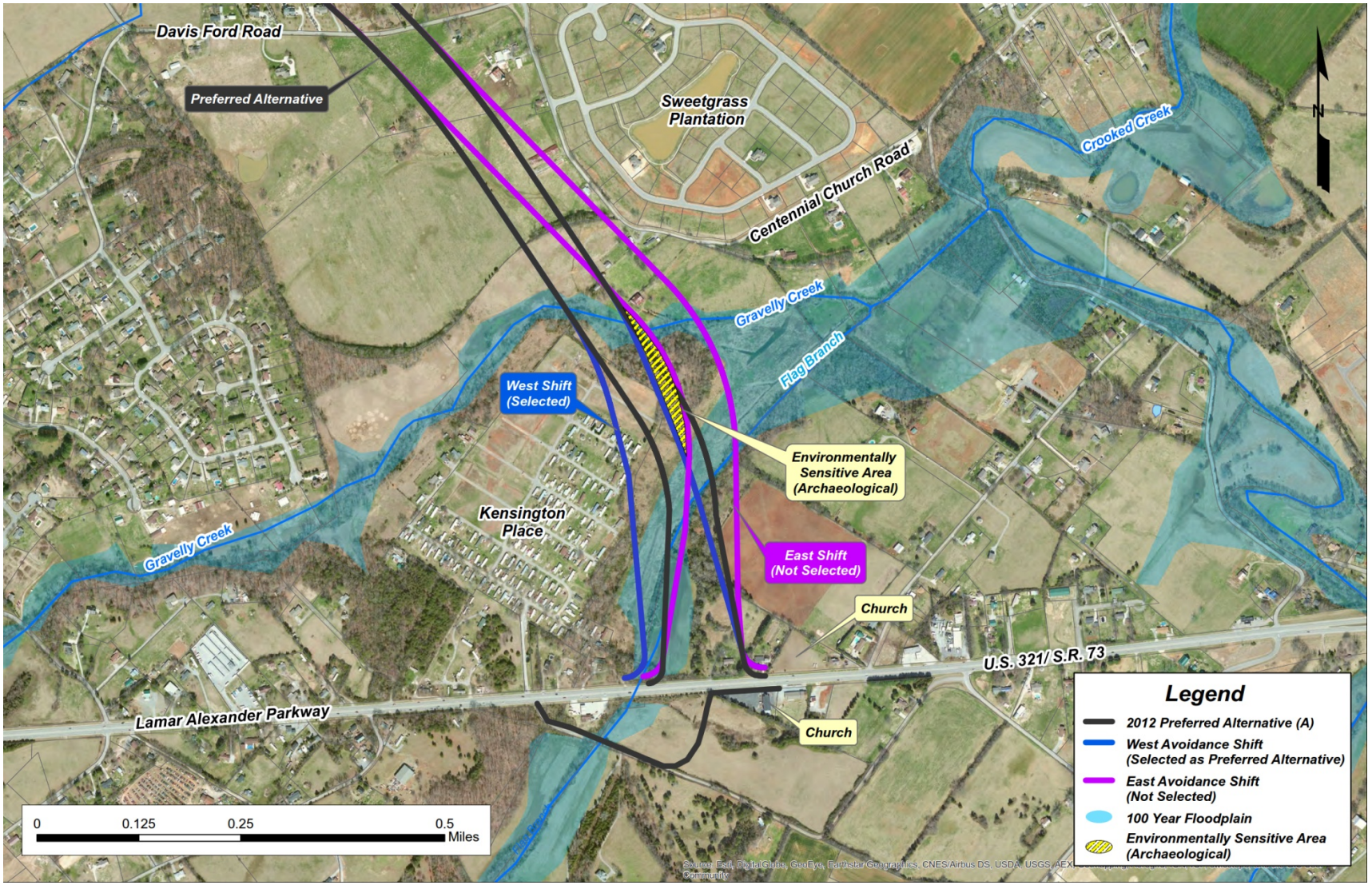
TDOT investigated potential archaeology, noise, ecology, farmland, relocations, and environmental justice impacts for each shift. The two potential alignment shifts and the impacts of these shifts were presented to the public at a Community Briefing held on May 30, 2013 in the project area (see discussion in Section 4.6.3 of this FEIS.

Table 2-5 summarizes the environmental impacts of the two potential shifts between Davis Ford Road and US 321/SR 73. (Note that the impacts presented in Table 2-5 do not cover the entire length of the project). Table 2-6 compares the beneficial and adverse impacts of the East and West shifts between Davis Ford Road and US 321/SR 73.

Based on consideration of the amount and type of impacts of each shift, the potential to mitigate adverse effects, and public input received during the May 30, 2013 Community Briefing and associated comment period, TDOT determined that the alignment of the 2012 Preferred Alternative (A) was best modified by the West Shift (as shown in Figure 2-4). The reasons for the selection of the West Shift are:

- The West Shift minimizes impacts to the operations of two active farms.
- The West Shift is farther away from a recently constructed church, thus minimizing potential access impacts to the church.
- With either alignment shift, Kensington Place residents would experience increased noise levels. With the East Shift, the mobile home community would not be eligible for a noise barrier. With the West Shift, the Kensington Place mobile home community would be potentially eligible for a noise barrier that will minimize both noise and visual impacts. Should this alternative be approved as the Selected Alternative, TDOT is committed to building a noise barrier for this community, provided that the majority of benefited residents and property owner(s) give their approval. TDOT will also allow the Kensington Place residences to have input into the landscaping and color/patterns for the noise barrier.

Figure 2-4: Alignment Shifts Considered in 2013



Source: Parsons Brinckerhoff, 2013.

Table 2-5: Preliminary Impacts for Minor Alignment Shifts from Davis Ford Road to US 321/SR 73/Lamar Alexander Parkway

Potential Resources Affected	East Shift	West Shift
Length of shift	1.44 mi.	1.39 miles
Total new right-of-way	52.4 acres	50.5 acres
Estimated cost[1]	$40.94 million	$40.95 million
Displacements	1 home and 5 barns/other outbuildings on 2 working farms	6 homes in mobile home community
Noise receptors affected	70 (8 in Sweetgrass area and 62 in Kensington Place)	70 (9 in Sweetgrass area and 61 in Kensington Place)
Potentially eligible for noise wall	No	Yes (for Kensington Place)
Floodplain impacts	6.7 acres	10.3 acres
Stream Impacts	1,635 feet	2,842 feet
Wetland—number of wetlands affected[2]	1	3
Wetlands—acres likely eliminated or drained[2]	6.39 acres	8.12 acres
Environmental Justice impacts (Kensington Place)	Adverse impacts due to increased noise. Analysis indicates that a noise barrier would not meet the requirements of TDOT's 2011 Noise Policy.	Adverse impacts due to increased noise, changes in the views, and displacements. Mitigation can minimize impacts.

[1] Planning level costs in 2013 dollars. The west shift included estimated cost for a noise barrier.
[2] Both shifts would substantially affect one wetland (WTL-6), a seasonally saturated to semi permanently flooded beaver impounded scrub-shrub wetland located immediately north of US 321/SR 73. During the 2008 field surveys, this was a small (0.34 acre) wetland that occurred within a constructed swale surrounded by a pasture partially used for grazing livestock. Since then, beavers have moved into the area and have created multiple dams in and along Flag Branch. As a result of the beaver activity, WTL-6 is now a much larger wetland that encompasses an area of approximately 9.5 acres. The East Shift would likely eliminate or drain 6.39 acres or 67 percent of WTL-6, while the West Shift would affect 7.96 acres, or 84 percent of a single wetland, and 0.16 acre of two additional wetlands.

Table 2-6: Comparison of East and West Shifts

East Shift	West Shift
Pros: • Reduces impacts (noise, visual, and property and residential takes) to the Kensington Place mobile home community. • Has lower level of impact on adjacent streams, wetlands, and floodplains. • Has unanimous support of the Maryville City Council.	**Pros:** • Reduces noise and visual impacts to Sweetgrass Plantation by moving the alignment away from the neighborhood. • Installing a noise barrier would minimize noise and visual impacts to the Kensington Place mobile home community.
Cons: • Displaces one residence and five additional barns and farm buildings. • Increases noise impacts to the Sweetgrass Plantation subdivision; a noise barrier has been determined not to be warranted. • Kensington Place would also experience increased noise impacts, although not as much as under the West Shift, but a noise barrier was determined not to be feasible and reasonable.	**Cons:** • Displaces six homes in the mobile home community. • Increases noise levels in the Kensington Place mobile home community, but the area would be "potentially eligible" for a noise barrier to mitigate noise impacts. • The noise barrier may create a visual impact, but as potential mitigation, mobile home community residents would have input into landscaping and the color/pattern of the barrier. • Increases impacts to streams, wetlands, and floodplains.
Estimated Cost: $40.94 million (2013 dollars)	**Estimated Cost:** $40.95 million (2013 dollars), which includes a noise barrier

- While the West Shift would increase impacts to streams, wetlands and floodplains, these would be minimized during the design and permitting phases of the project.
- Since the Kensington Place mobile home community is not completely occupied, displaced residents who want to stay within their existing community may be able to relocate to one of the numerous site pads available, if they so choose.
- While there would be adverse impacts within Kensington Place with the West Shift, TDOT and FHWA have determined through an environmental justice analysis that these impacts would not change the finding of the approved DEIS and that the project would have no disproportionately high and adverse impacts to minority and low-income populations compared with the rest of the corridor pursuant to Title VI of the *1964 Civil Rights Act* and *Executive Order 12898*.

The July 17, 2014 reevaluation (Technical Appendix L) concluded that the 2012 Preferred Alternative (A) modified by the West Shift is the Preferred Alternative for the project. Table 2-7 compares the recently identified or confirmed impacts for the five alternatives considered in the reevaluation.

2.3.3 Design of Preferred Alternative

TDOT will use a Context Sensitive Solution (CSS) design process to develop the appropriate design features such as speed, median type and width, and ROW width of the Preferred Alternative.

The proposed typical section for the Preferred Alternative is 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 ROW is a minimum of 300 feet. The proposed roadway will be designed for traffic traveling at 60 mph, although the posted speed may be lower.

Diamond interchanges are proposed to connect the new roadway with SR 33 and US 411/Sevierville Road, and a trumpet interchange is proposed to terminate the new roadway at US 321/SR 73. 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, TDOT will consider during the design phase the use of an auxiliary lane in each direction to assist traffic exiting and entering the proposed roadway. All other road crossings would be grade-separated without parkway access.

The proposed improved typical section for US 411/Sevierville Road through the interchange area is a five-lane urban section consisting of two 12-foot lanes in each direction with a 12-foot continuous center turn lane. SR 33 through the proposed interchange area was recently upgraded to a five-lane urban section.

The roadway could be designated as I-140, consistent with the existing sections to the west. Because the roadway will be designed to interstate standards, bicycles and pedestrians will be prohibited from using the roadway.

Table 2-7: Comparison of Alternatives

Issues	2012 Preferred Alternative (A)	Preferred Alternative with East Shift	Preferred Alternative with West Shift (Preferred Alternative)	DEIS Alternative C	DEIS Alternative D
Total Project Length	4.38 miles	4.43 miles	4.38 miles	4.68 miles	5.77 miles
Traffic forecasts & operations	Traffic volumes declined with new model. The LOS on proposed route is D or higher. The level of service and delay at key intersections is improved.				While volumes have declined with new model, they still exceed the carrying capacity of a two-lane road.
Displacements	5 residences, 1 business	6 residences, 1 business	11 residences (including 6 mobile homes in Kensington Place), 1 business	27 residences (affecting Tara Estates subdivision and Hubbard community), 1 business	41 residences (affecting Peppermint Hills community), 2 businesses
Farmlands	107 acres in ROW / 54% of total acres	107 acres in ROW / 54% of total acres	110 acres in ROW / 55% of total acres	74 acres in ROW / 40% of total ROW	45 acres in ROW / 38% of total ROW
Environmental Justice impacts	No effect	Noise impacts	Noise, visual and displacement impacts to mobile home park. Noise barrier will mitigate impacts.	No effect	No effect
National Register-eligible archaeology site	Would affect the eligible site	No effect	No effect	5 potentially eligible sites would require Phase II investigation	1 potentially eligible site would have Phase II investigation
Noise impacts (receptors)	81	80	103	64	85
Noise impacts for EJ community as-built*	N/A	No barrier: Substantial Increase: 26 Approach NAC: 0 Increases higher than West Shift: 8	With barrier: Substantial Increase: 21 Approach NAC: 0 Increases higher than East Shift: 47	N/A	N/A
Floodplains	8.1 acres	7.4 acres	11.0 acres	9.0 acres	8.1 acres
Stream / wet weather conveyance impacts	4,525 / 0 linear feet	3,7575 / 0 linear feet	4,962 / 0 linear feet	2,622 / 735 linear feet	1,695 / 650 linear feet
Wetland impacts	5.01 acres (due to beaver activity)	6.99 acres (due to beaver activity)	8.72 acres (due to beaver activity)	0.60 acres	0.03 acres
Sinkholes	0	0	0	0	1

Source: Reevaluation of DEIS for Pellissippi Parkway Extension (SR 62), approved July 17, 2014 (see Technical Appendix L).

*Note: The as-built noise impacts for the EJ community (Kensington Place mobile home community) vary slightly from the approved reevaluation as a result of minor corrections made since the Reevaluation (Bowlby, Noise Effects on Kensington Place for Environmental Justice Evaluation, Memo dated March 3, 2015 (see Attachment E).

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 the DEIS as well as the FEIS.

2.4.1 Alternatives Evaluated in Prior Studies

In January 1999, TDOT initiated a NEPA-level EA for the proposed Pellissippi Parkway Extension to evaluate the final section of Pellissippi Parkway, extending from SR 33 to US 321/SR 73. 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, which are illustrated on Figure 2-5.

The proposed typical section showed four 12-foot-wide traffic lanes with a grassed median within a 250-foot-wide ROW, with full access control. The Build Alternative included interchanges with two roads (US 411/Sevierville Road and US 321/SR 73).

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 parkway 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 for those two roadways would consist of two 12-foot lanes in each direction with a 12-foot continuous center turn lane.

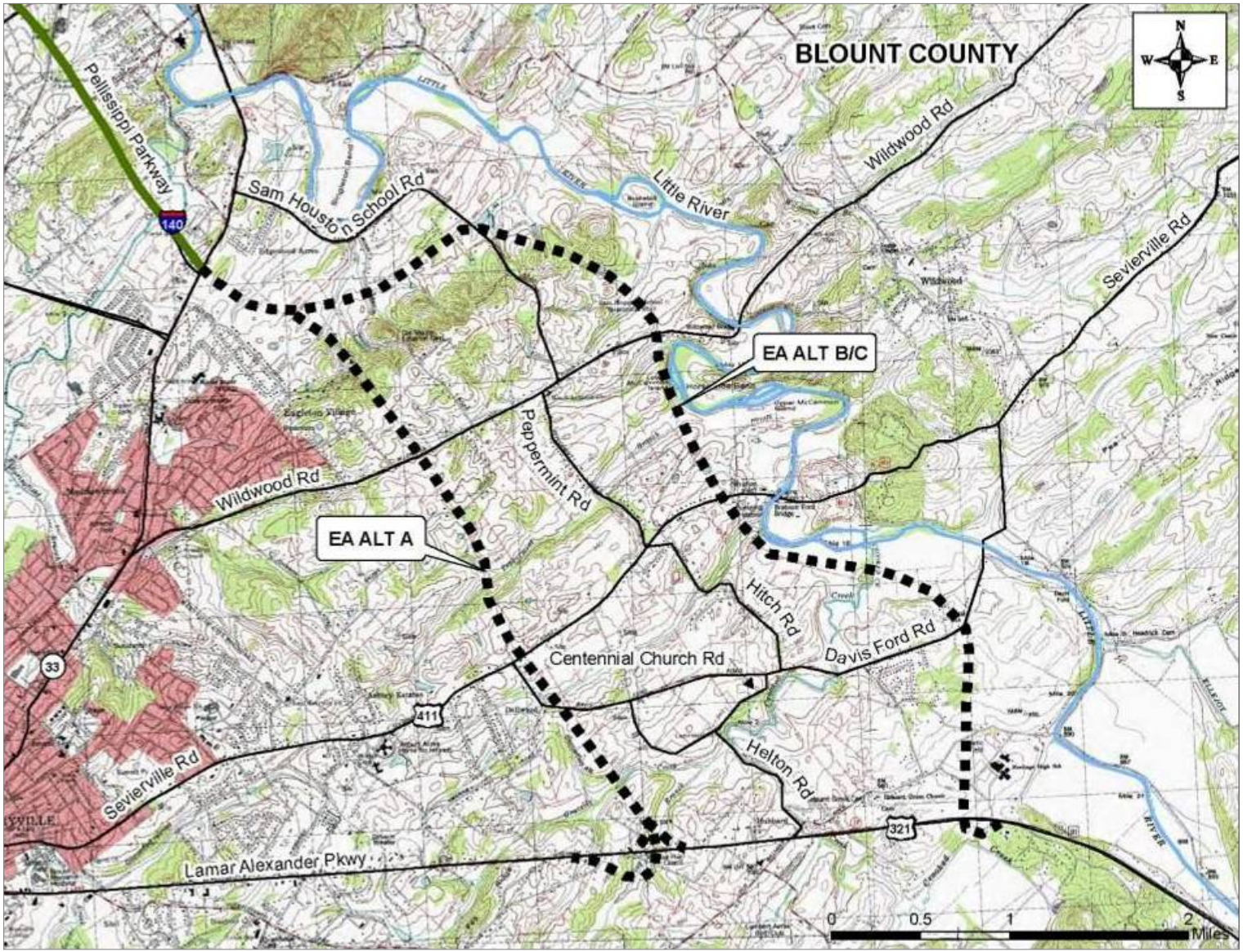
Alternative B started at SR 33 at the current terminus of I-140 and extended to US 321/SR 73 to the east of Alternative A. During the technical studies for this alternative, it was determined that the alignment would have encroached on the historic Hitch Farm. For that reason, TDOT identified a third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

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.

FHWA approved the EA in October 2001. TDOT held a public hearing on the approved EA in November 2001, and in March 2002, TDOT formally identified Alternative A as the Preferred Alternative. The EA's Build 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. FHWA issued a FONSI on the Preferred Alternative in April 2002.

As discussed in Section 1.2.2, in June 2002 a federal court injunction halted the project before TDOT could initiate ROW acquisition. In July 2004, the Sixth Circuit Court of Appeals permitted FHWA to reconsider and reissue environmental documents for the project. That led to the decision to prepare an EIS for the proposed project.

Figure 2-5: Environmental Assessment Alternatives (2001)



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

2.4.2 Initial Range of Alternatives for the EIS

Once FHWA published the NOI to prepare an EIS in April 2006, TDOT initiated coordination with federal, state, and local agencies and the public. 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 (see Section 4.4.1 of this FEIS for a discussion of the scoping meetings and the project website, http://www.tdot.state.tn.us/pellissippi/involvement.htm for a summary of the comments received.

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
- 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: Alcoa completed its signal timing project after the approval of the DEIS.]
- 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 or expand a public transportation system.
- 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 2006 public scoping 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 available 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)
- 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) (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 on 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 the 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.

Information on the 2007 and 2008 meetings is provided in Section 4.4.1 of this FEIS and on the project website at http://www.tdot.state.tn.us/pellissippi/involvement.htm.

TDOT held a field review on 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: U.S. Army Corps of Engineers (USACE), Environmental Protection Agency (EPA), U.S. Fish and Wildlife Service (USFWS), TVA, Tennessee Wildlife Resources Agency (TWRA) and the Knoxville Regional TPO.

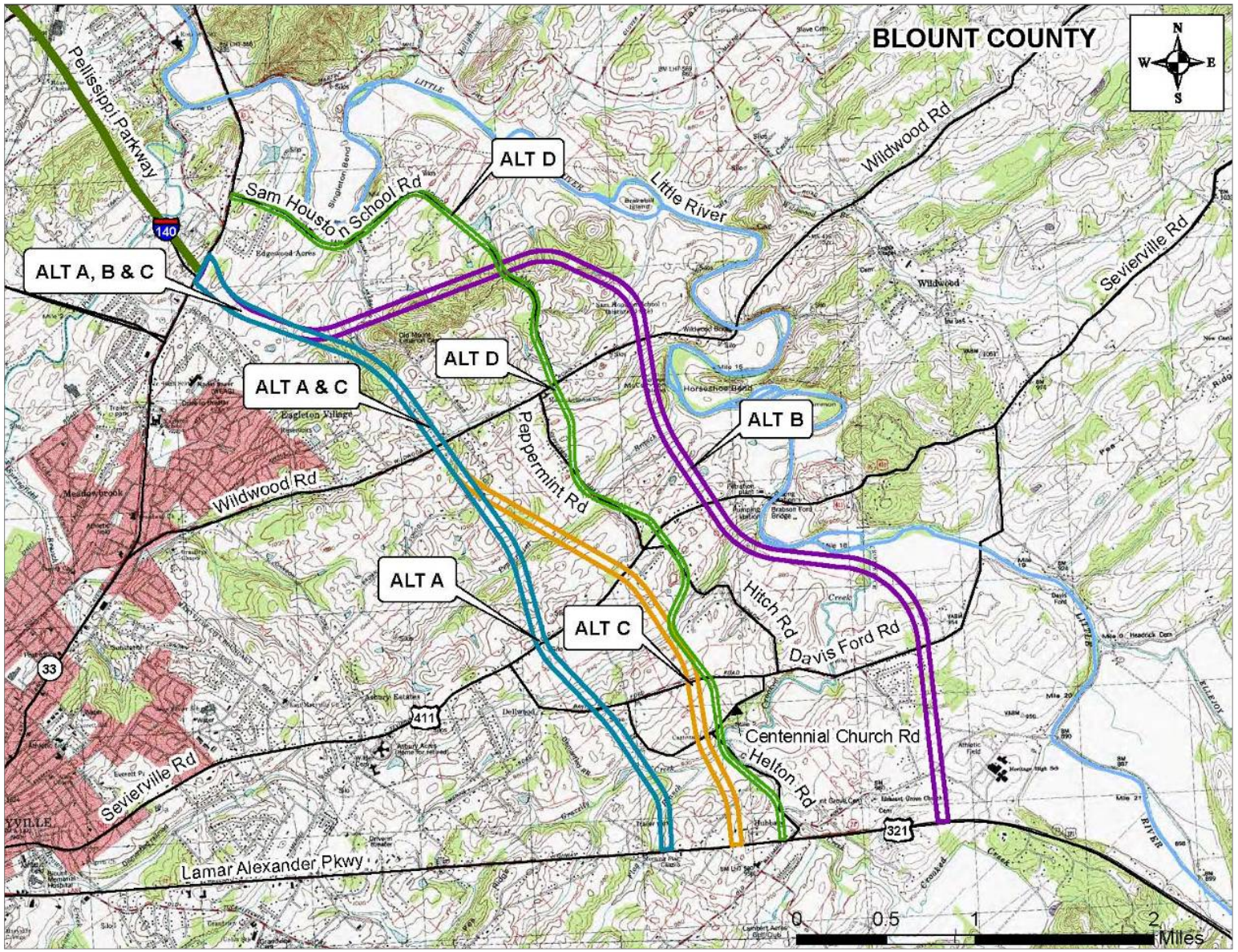
Figure 2-6 shows the corridors and alternatives that were presented to the agencies during the field review.

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

Following the field review, the alternatives and corridors were screened based on their ability to achieve the transportation objectives of the project—meet the project's purpose and need; support community goals; avoid, minimize, or mitigate impacts to neighborhoods and businesses, including farmlands; and minimize or mitigate impacts to the natural and cultural environment. 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 (SAFETEA-LU). This package presented an evaluation of the range of alternatives considered.

Figure 2-6: Preliminary Corridors Evaluated in 2008



Source: Parsons Brinckerhoff, 2008.

In late July 2008, the agencies concurred that four alternatives should be carried forward for further study in the DEIS: the No-Build Alternative and Build Alternatives A, C, and D. The agencies also concurred that 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 2-8..

Table 2-8: 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 farm-lands, floodplains, streams, and residences	• Does not provide travel options for motorists to the existing radial roadway network • Does not address lack of a north-west/east connection east of Alcoa and Maryville • Does not improve travel times	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 farm-lands, 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 LOS issues • Does not address lack of a north-west/east connection east of Alcoa and Maryville	Removed from further consideration
Public Transit			
Demand responsive (paratransit)	• Provides a mobility option to private automobiles • Requires no adverse impacts to farmlands, residences, streams, 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	Removed from further consideration
Fixed route bus service	• Provides a mobility option to private automobiles • Requires no adverse impacts to farmlands, residences, streams, 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	Removed from further consideration
Bus rapid transit	• Provides a mobility option to private automobiles • Requires no adverse impacts to farmlands, residences, streams, 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	Removed from further consideration

Table 2-8: Evaluation of Preliminary Alternatives (continued)

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	Carried 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: 11 minutes	Carried 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: 8 minutes	Removed from further consideration
Corridor C	• 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 • 7 stream crossings • 3 impaired stream crossings (Peppermint Branch, Flag Branch, and Gravelly Creek) • 20.5 acres floodplain encroachment • 12 residences displaced • Travel time savings: 11 minutes	Carried forward to DEIS evaluation

2.4.4 Alternatives Previously Considered and Dismissed

Table 2-8 above identifies the initial corridors/alternatives that were considered and dismissed during the development of the DEIS. Those alternatives were TSM, Transit (Demand Responsive, Fixed Bus Route Service and Bus Rapid Transit), and Corridor B.

The reasons for dismissal of these alternatives are summarized below. For a more detailed discussion of why these alternatives were dismissed from further consideration, refer to the following sections in the DEIS: Sections 2.4.3.1 Public Transit, 2.4.3.2 Transportation System Management, and 2.4.3.3. Extend Pellissippi Parkway (Corridor B). The approved DEIS is in Technical Appendix K.

TSM – The improvements identified for the proposed TSM Alternative would 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.

Fixed Route Bus Service – This alternative was dropped from further consideration 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
- It does not address poor local road network.

Demand Responsive Service – This alternative was dismissed from further consideration because 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 – This 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.

Corridor B – 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.

3.0 Environmental Resources, Consequences and Mitigation

This chapter describes the important characteristics of the project area and discusses the potential impacts on the human and natural environment of the Preferred Alternative compared with the No-Build Alternative, the 2012 Preferred Alternative (A), Preferred Alternative with East Shift, and DEIS Alternatives C and D. This chapter also identifies potential measures to mitigate adverse impacts for the Preferred Alternative.

This FEIS documents the following characteristics and resources found within the project's impact area to determine the potential effects that the Preferred Alternative may have on the resources, as well as construction, 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

The following technical reports/studies were prepared for this project. They are available on the project website, except as noted.

- *SR 162 (Pellissippi Parkway Extension) Addendum to the Traffic Operations Technical Report* (PB 2014c)
- *SR 162 (Pellissippi Parkway Extension) Addendum to the Traffic Operations Technical Report* (PB 2011)
- *SR 162 (Pellissippi Parkway Extension) Traffic Operations Technical Report* (PB 2008a)
- *Traffic Forecast Study: Pellissippi Parkway Extension from State Route 33 to State Route 73 (US 321), Blount County* (Sain 2013)
- *Pellissippi Parkway Extension Traffic Forecast Revisions* (Sain 2010)
- *Traffic Forecast Study: Pellissippi Parkway Extension from State Route 33 to State Route 73 (US 321), Blount County* (Sain 2007)
- *SR 162 (Pellissippi Parkway Extension) Crash Analysis Report Update* (PB 2014b)
- *Addendum to 2009 Economic and Fiscal Impacts Analysis* (PB 2015a)
- *Pellissippi Parkway Extension (SR 162) Economic and Fiscal Impacts Analysis* (PB 2009c)

Types of Impacts Analyzed in the EIS

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

Indirect 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.

- *Conceptual Stage Relocation Plan* (Pellissippi Parkway) (TDOT 2014)
- *Addendum A, B, and C: Archaeological Assessment of 40BT122 Eastern and Western Avoidance Alternatives* (Panamerican 2013b) (not available due to sensitivity of the resource). A copy of this report is available at the TDOT Environmental Division Office.
- *Phase II Archaeological Testing* of Sites *40BT100, 40BT122, 40BT125, 40BT202, AND 40BT203 Along the Proposed Pellissippi Parkway Extension Preferred Alternative (Alternate A)* (Panamerican 2013a) (not available due to sensitivity of the resource). A copy of this report is available at the TDOT Environmental Division Office.
- *Phase I Archaeological Survey for Pellissippi Parkway Extension (SR 162)* (Panamerican 2009) (not available due to sensitivity of the resource). A copy of this report is available at the TDOT Environmental Division Office.
- *Historical and Architectural Survey and Assessment of Effects Under 36 CFR 800* (Pellissippi Parkway) (PB 2009)
- *Pellissippi Parkway Extension Air Quality Technical Report Update* (PB 2014a)
- *Pellissippi Parkway Extension Air Quality Technical Report* (PB 2010)
- *Noise Technical Report for Pellissippi Parkway Extension State Route 162* (Bowlby 2014)
- Pellissippi Parkway Extension Noise Technical Report (PB 2009)
- Preliminary Geological Report, Pellissippi Parkway Extension (SR 162) (TDOT 2009)
- Phase II Preliminary Site Investigation Report, Revised: Site 5—Former A and M American Gas (KS Ware 2012)
- SR 162 (Pellissippi Parkway Extension) Phase I Preliminary Assessment Study (PB 2008b)
- Ecology Report: Study for Alternatives C and D, SR 162 EXT: Pellissippi Parkway Extension (CEC 2014)
- Addendum to 2009 Ecology Report, Pellissippi Parkway Extension (SR 162) (PB 2013)
- Ecology Report, Pellissippi Parkway Extension (SR 162) (PB 2010a)
- SR 32 (Pellissippi Parkway Extension) Indiana Bat (Myotis sodalis) Survey Report (CEC 2012)
- Biological Assessment for Snail Darter, Marbled Darter, Fine-Rayed Pigtoe, Indiana Bat, Ashy Darter, Longhead Darter (TDOT 2013)
- Update to 2009 Indirect and Cumulative Effects Analysis Methodology and Background Information (PB 2015b)
- Pellissippi Parkway Extension Indirect and Cumulative Effects Analysis Methodology and Background Information (PB 2009e)

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 Roadways

Since the DEIS was published, TDOT has prepared two updates to the traffic operational analysis that was reported in the DEIS. The first update was prepared in 2011 to address several comments from members of the public and two agencies—this analysis was completed before TDOT determined the Preferred Alternative in 2012. Following the Knoxville Regional TPO's adoption of a new travel demand model in 2013, TDOT conducted a new traffic forecasting effort and an update of the traffic operational analysis based on the new forecasts.

3.1.1.1 2011 Traffic Operations Analysis Update

Based on comments received during the DEIS public comment period, TDOT determined that more-detailed traffic forecasts should be prepared for the two-lane Alternative D in order to provide the same level of detail as the four-lane Alternatives A and C, and these revised forecasts should include the data necessary to calculate the levels of service for the two-lane roads near Alternative D. The analysis was also intended to clarify the traffic volumes used in the traffic analysis and identify more specific levels of improvement resulting from the Build Alternatives. The analysis was conducted and reported in the report, *SR 162 (Pellissippi Parkway Extension) Addendum to the Traffic Operations Technical Report* (June 30, 2011, with minor corrections September 7, 2011 [on file with the TDOT Environmental Division office and on the project website]) and in the 2014 reevaluation of the DEIS (Technical Appendix L to this FEIS).

Corridor Level of Service

The results of the 2011 corridor-level analysis for Alternatives A and C confirmed the finding reported in the DEIS that construction of a four-lane Pellissippi Parkway Extension (referred to as Alternative A/C since the model is not sensitive enough to determine differences between Alternatives A and C) would not degrade the level of service. The 2011 addendum provided more specific findings for Alternative D:

- Several sections of Alcoa Highway and Wildwood Road would operate at a level of service below the acceptable threshold (below LOS D). By comparison, these sections would operate at acceptable levels under the No-Build Alternative and Alternative A/C in the year 2035.
- Sam Houston School Road, Peppermint Road, Hitch Road, and Helton Road would all operate at LOS E or F in the year 2035 for Alternative D. These two-lane roadways would not have the capacity to accommodate the projected traffic under Alternative D.

Intersection Level of Service

The 2011 *Traffic Addendum* confirmed that the four-lane alternative (Alternative A/C) would improve the level of service at several key intersections. For all the re-aligned intersections as part of Alternative D, the level of service for both 2015 and 2035 would be below the acceptable threshold given the high traffic volumes projected to use the intersections.

More detailed results of the 2011 analysis are provided in the *Addendum to the Traffic Operations Technical Report* (PB 2011) and the 2014 reevaluation of the DEIS.

Intersection Delay

The 2011 *Traffic Addendum* also analyzed the anticipated percentage reduction or increase in delay at intersections for Alternatives A/C and D in 2035. The results of the analysis indicated that Alternative A/C would substantially reduce delay at most intersections in the Alcoa/Maryville core. The improvements would range from 1 percent to 150 percent reduction in delay (compared to the No-

Build Alternative). Two intersections would experience a slight increase in delay (between 11 and 19 seconds).

At key intersections evaluated for Alternative D, most of the intersections in the Maryville core would experience an increase in the amount of delay. The increase in delay would be moderate at most intersections, ranging from 2 percent (a 1-second increase over the No-Build Alternative) to 59 percent (a 128-second increase over the No-Build Alternative).

More detailed results of the 2011 analysis are provided in the *Addendum to the Traffic Operations Technical Report* (PB 2011) and the 2014 reevaluation of the DEIS.

3.1.1.2 Updated Traffic Forecasts and Operations Analysis 2013-2014

Two factors led to the decision by TDOT in the second half of 2013 to update the previous traffic forecasts for the project and prepare a new traffic operational analysis. The first factor was the age of the traffic forecasts used for the traffic analysis of the DEIS and the 2011 traffic analysis update; those traffic estimates were based on turning movement field counts collected in 2006. The traffic forecasts were initially produced in 2007 and updated in 2011. The second factor was the Knoxville Regional TPO's adoption in June 2013 of a new regional travel demand model for horizon year 2034 and a new long range transportation plan to year 2040 (*Regional Mobility Plan 2040*).

The methodology for and results of the new forecasts are contained in the *Traffic Forecast Study* (Sain 2013), in Technical Appendix A. The new operational analysis is reported in the *Addendum to the Traffic Operations Technical Report* (PB 2014), in Technical Appendix B. Also included in Technical Appendix B is a memorandum dated May 14, 2014 addressing the updated traffic analysis for DEIS Alternative D.

The horizon years for the updated study are 2020 and 2040; by comparison, horizon years for the DEIS traffic study and the 2011 addendum were 2015 and 2035. The regional travel demand model is not sensitive enough to differentiate between the various four-lane alternatives studied (DEIS Alternatives A and C, Preferred Alternative, Preferred Alternative with East Shift and 2012 Preferred Alternative (A)), since these alternatives are not separated by much physical distance. Therefore, for this analysis, the results for the Preferred Alternative represent all of the four-lane alternatives. The updated forecasts and the traffic operations analysis for the project are summarized in the following sections.

3.1.1.3 2013 Traffic Forecasts

Similar to the forecasts prepared without the proposed project (No-Build Alternative) as discussed in Section 1.4.1, TDOT prepared forecasts for future traffic volumes for new base year 2020 and design year 2040 with the proposed Pellissippi Parkway Extension build alternatives. Under the updated regional travel demand model, there is a substantial decrease (40 to 52 percent) in the projected volumes on the proposed Pellissippi Parkway Extension to the design year 2040, compared with the previous (2035) projections. The latest projections for 2040 for the proposed project are 38,040 vehicles per day (vpd) between SR 33 and US 411, and 25,240 vpd from US 411 to US 321. Other changes in the design year forecasted traffic volumes (2040) for project area roads are summarized as:

- Existing Pellissippi Parkway (I-140) between Topside Road and SR 33 shows an increase in the average annual daily traffic (AADT) with the new forecasts.
- The new forecasted traffic volumes for the proposed Relocated Alcoa Highway north of Pellissippi Parkway (I-140) are about 40 percent lower than what had been previously projected for 2035. South of Pellissippi Parkway (I-140), the volumes are only 2 to 3 percent higher than previously projected.

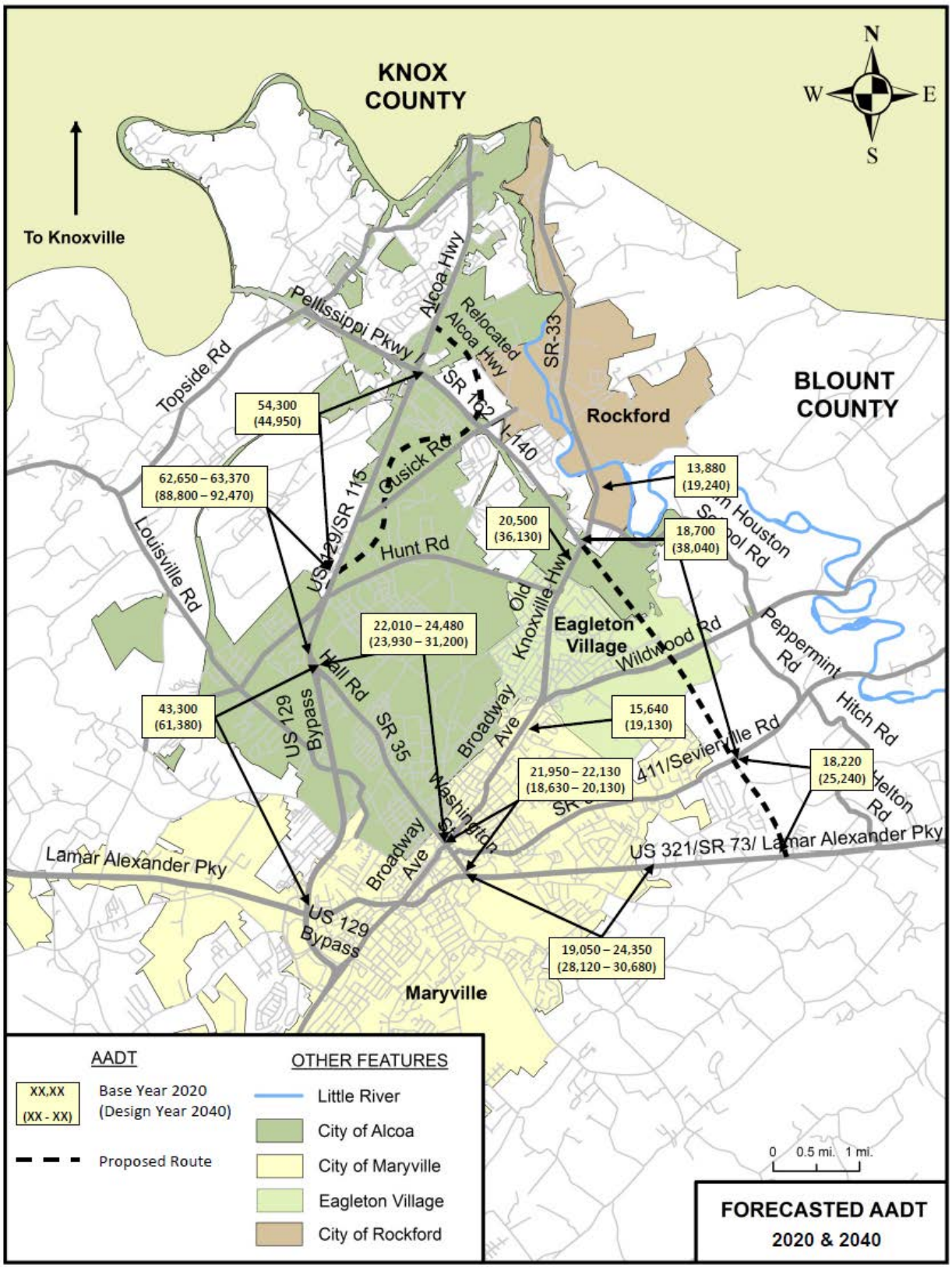
- Wildwood Road between the Pellissippi Place Access Road and Sam Houston School Road has a substantial increase in the forecasted AADT under the new forecasts (62 percent).
- US 321/SR 73 from its junction with SR 33 east of Foothill Parkway shows a decline in traffic forecasted for 2040 with the Preferred Alternative.
- Hall Road has an increase in traffic to 2040 while Washington Street's traffic forecasts are lower for the Preferred Alternative.
- SR 33 (Old Knoxville Highway) shows a decrease in forecasted AADTs for both the No-Build Alternative and the Preferred Alternative from Wildwood Road north through the project area.
- US 129/SR 115 (Alcoa Highway) shows higher forecasts (between 12 and 46 percent) between Louisville Road and the Knox County line for both No-Build and the Preferred Alternative.
- US 411 (Sevierville Road) from South Everett High Road east to the end of the project has an increase in forecasted AADTs under both scenarios.

A comparison of the current 2040 forecasts between the No-Build Alternative and Preferred Alternative yields the following observations:

- The traffic on Wildwood Road with the Preferred Alternative in 2040 is forecasted to be lower than under the No-Build Alternative. The traffic between the Pellissippi Place Access Road and Sam Houston School Road would be about 58 percent lower under the Preferred Alternative.
- Existing Pellissippi Parkway (I-140) traffic would be higher with the Preferred Alternative. The traffic between US 129 and the proposed Relocated Alcoa Highway would be 27 percent higher, while the traffic between the proposed Relocated Alcoa Highway and SR 33 would be 61 percent higher than with the No-Build Alternative.
- The traffic on US 321/SR 73 (Lamar Alexander Parkway) between SR 33 and the proposed interchange of Pellissippi Parkway Extension with US 321/SR 73 would be lower with the Preferred Alternative, while east of the proposed interchange toward the Foothills Parkway and Townsend, traffic would be slightly higher for the Preferred Alternative.
- Traffic on Hall Road and Washington Street would be lower under the Preferred Alternative.
- US 411 traffic would be lower under the Preferred Alternative, with the exception of the section from the proposed interchange with Pellissippi Parkway Extension to Hitch Road where the traffic would be 40 percent higher under the Preferred Alternative.
- The traffic for most sections of SR 33 would be lower under the Preferred Alternative, except between the proposed intersection with the new roadway and Sam Houston School Road.
- Traffic on Alcoa Highway (US 129/SR 115) between Louisville Road and Pellissippi Parkway (I-140) would be slightly lower (1 to 6 percent) under the Preferred Alternative.
- The traffic on the section of Relocated Alcoa Highway south of Pellissippi Parkway (I-140) would be slightly lower under the Preferred Alternative and slightly higher on the northern section.

The AADT forecasts for the updated base and design years (2020 and 2040, respectively) for the Preferred Alternative (and other four-lane alternatives) are illustrated on Figure 3-1.

Figure 3-1: Traffic Forecasts (2020 and 2040)—Preferred Alternative



Source: Traffic Forecast Study: Pellissippi Parkway Extension from State Route 33 to State Route 73 (US 321), Blount County (Sain 2013.

Existing volumes and the updated travel demand model were used to prepare forecasts for Alternative D for years 2020 and 2040. Under the new model, forecasted volumes on the local roads that are part of Alternative D are substantially lower than those forecasted under the previous model. Not accounting for the 5-year difference in forecasts, the volumes show a decline (41 to 56 percent) for the new base year (2020) compared with the old base year (2015). The horizon year volumes (2040) under the new model declined 19 to 32 percent from the AADTs forecasted for 2035.

3.1.1.4 Traffic Operations

To evaluate the effects of the project alternatives on traffic in the study area, the traffic operations analysis included a LOS analysis at the corridor level (roadway sections) for the No-Build Alternative, Preferred Alternative (including all the four-lane alternatives), and Alternative D for the years 2020 and 2040. Existing (2013) LOS was determined for comparison purposes. The traffic operations analysis for the Preferred Alternative also examined LOS at key intersections and identified the expected change in the amount of delay (in terms of seconds of delay) at key intersections. An intersection LOS analysis was not prepared for Alternative D because the forecasted traffic would exceed the carrying capacity of these roads.

Corridor Level of Service

The results of the highway corridor LOS for the four-lane Preferred Alternative and the two-lane Alternative D compared with the No-Build Alternative are shown in Table 3-1. The analysis for the Preferred Alternative is also presented graphically on Figure 3-2 and Figure 3-3. [Note: The Knoxville Regional travel demand model is not sensitive enough to determine differences among the four-lane build alternatives and, as such, the LOS ratings for the four-lane extension of Pellissippi Parkway (both corridor and intersection) are assumed to apply for the Preferred Alternative, East Shift, 2012 Preferred Alternative (A), and Alternative C. Thus, for the discussion of traffic operations, the four-lane extension is referred to as the Preferred Alternative.]

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 undesirable.

The updated traffic analysis shows that the Preferred Alternative from SR 33 to US 321/SR 73 would operate at an acceptable level (LOS D or higher) through the design year 2040. In the DEIS traffic operations analysis, the four-lane new roadway between SR 33 and US 411/Sevierville Road would operate at LOS F in 2035, and the section between US 411/Sevierville Road and US 321 would operate at LOS D. The acceptable level of service predicted for the Preferred Alternative in 2040 is due in large measure to the reduction in the traffic forecasts for the new roadway based on the 2013 Knoxville Regional travel demand model.

The section of US 129/SR 115 (Alcoa Highway) between Louisville Road and the Knox County line shows higher forecasted traffic volumes under the new travel demand model. Alcoa Highway south of Pellissippi Parkway (I-140) is projected to operate at a failing level of service (LOS F) through the design year 2040. The section of US 129/Alcoa Highway north of Pellissippi Parkway (I-140) is projected to operate at LOS C through the design year. The analysis assumes that US 129/Alcoa Highway north of Pellissippi Parkway (I-140) to Cherokee Trail would be improved and that the proposed Relocated Alcoa Highway would be built by 2040.

Table 3-1: Corridor Level of Service (2020 and 2040)—All Alternatives

Route	Begin	End	Existing (2013)	2020			2040		
				No-Build	Preferred Alternative	Alternative D	No-Build	Preferred Alternative	Alternative D
Wildwood Road	Broadway/SR 33	Reservoir Road	B	C	C	N/A[4]	C	C	N/A[4]
	Reservoir Road	Sam Houston School Rd	B	C	C	N/A[4]	**E**	C	N/A[4]
	Sam Houston School Rd	End of Study Area	A	B	B	N/A[4]	C	C	N/A[4]
Pellissippi Parkway Extension/ SR 162	Topside Road	Alcoa Highway/ US 129/SR 115	C	D	D	N/A[4]	**F**	**F**	N/A[4]
	Alcoa Hwy/US 129/SR115	Relocated Alcoa Hwy (proposed)	A	B	B	N/A[4]	C	D	N/A[4]
	Relocated Alcoa Hwy (proposed)	Old Knoxville Hwy/SR 33	A	B	B	N/A[4]	C	**E**	N/A[4]
	Old Knoxville Hwy/SR 33	US 411/Sevierville Rd.	N/A[1]	N/A[1]	B	N/A[1]	N/A[1]	C	N/A[1]
	US 411/Sevierville Rd.	US 321/SR 73	N/A[1]	N/A[1]	B	N/A[1]	N/A[1]	B	N/A[1]
Lamar Alexander Parkway (US 321/SR 73)	Broadway/SR 33	Jones Avenue				N/A[4]			N/A[4]
	Jones Avenue	Merritt Road	B	C	C	N/A[4]	D	C	N/A[4]
	Merritt Road	Tuckaleechee Pike	B	B	B	N/A[4]	C	C	N/A[4]
	Tuckaleechee Pike	Tuckaleechee Pike	N/A[2]	B	B	N/A[4]	C	C	N/A[4]
	Tuckaleechee Pike	Melrose Station Road	A	A	B	N/A[4]	B	B	N/A[4]
	Melrose Station Road	Foothills Parkway	A	A	A	N/A[4]	A	A	N/A[4]
Hall Road (SR 35)	Alcoa Hwy/ US 129	Bessemer Street	B	B	B	N/A[4]	D	C	N/A[4]
	Bessemer Street	Broadway/SR 33				N/A[4]			N/A[4]
Washington Street (SR 35)	Broadway/SR 33	US 411 (SR 35)				N/A[4]			N/A[4]
	US 411 (SR 35)	US 321/SR 73				N/A[4]			N/A[4]
US 411 (SR 35)	Washington St (SR 35)	S. Everett High Road				N/A[4]			N/A[4]
	S. Everett High Road	Westfield Drive	**E**	**E**	**E**	N/A[4]	**E**	**E**	N/A[4]
	Westfield Drive	Hitch Road	**E**	**E**	**E**	N/A[4]	**E**	**E**	N/A[4]
	Hitch Road	End of Study Area	**E**	**E**	**E**	N/A[4]	**E**	**E**	N/A[4]

Table 3-1: Corridor Level of Service (2020 and 2040)—All Alternatives (continued)

Route	Begin	End	Existing (2013)	2020			2040		
				No-Build	Preferred Alternative	Alternative D	No-Build	Preferred Alternative	Alternative D
E. Broadway/Old Knoxville Highway (SR 33)	Hall Road	Wildwood Road				N/A[4]			N/A[4]
	Wildwood Road	Hunt Road				N/A[4]			N/A[4]
	Hunt Road	Pellissippi Pkwy				N/A[4]			N/A[4]
	Pellissippi Pkwy	Sam Houston School Road				N/A[4]			N/A[4]
	Sam Houston School Road	Knox County Line	E	E	E	N/A[4]	E	F	N/A[4]
Alcoa Highway (SR 115/US 129)	Louisville Road	Hall Road	D	D	D	N/A[4]	F	F	N/A[4]
	Hall Road	Hunt Road	E	F	F	N/A[4]	F	F	N/A[4]
	Hunt Road	Cusick Road/Proposed Relocated Alcoa Hwy	F	F	F	N/A[4]	F	F	N/A[4]
	Cusick Road/Proposed Relocated Alcoa Hwy	Pellissippi Pkwy	F	F	F	N/A[4]	E	E	N/A[4]
	Pellissippi Pkwy	Knox County Line	D	D	D	N/A[4]	C	C	N/A[4]
Sam Houston School Road	SR 33	Wildwood Road	C	C	N/A[5]	E	C	N/A[5]	F
Peppermint Road	Wildwood Road	Sevierville Road	C	C	N/A[5]	E	D	N/A[5]	F
Hitch Road	Sevierville Road	Davis Ford Road	B	B	N/A[5]	E	C	N/A[5]	E
Helton Road	Davis Ford Road	US 321/SR 73	A	A	N/A[5]	E	A	N/A[5]	F

Table 3-1: Corridor Level of Service (2020 and 2040)—All Alternatives (continued)

Route	Begin	End	Existing (2013)	2020			2040		
				No-Build	Preferred Alternative	Alternative D	No-Build	Preferred Alternative	Alternative D
Proposed Relocated Alcoa Highway	Alcoa Highway/US 129/SR 115	Pellissippi Pkwy	N/A[1]	B	B	N/A[4]	B	B	N/A[4]
	Pellissippi Pkwy	Alcoa Highway/US 129/SR 115	N/A[1]	B	B	N/A[4]	B	B	N/A[4]

Source: Addendum to Traffic Operations Technical Report (PB 2014c). Updated Traffic Analysis for DEIS Alternative D, Memorandum dated May 14, 2014.

LOS E-F

LOS A-D

Speed < 45 mph, Not Analyzed - The grey shading could not be analyzed because of the inability of the software modules to determine the corridor LOS of urban streets with speeds less than 45 mph.

[1] The Preferred Alternative or other four-lane alternatives would not be constructed for these segments under these scenarios; thus no LOS could be determined.

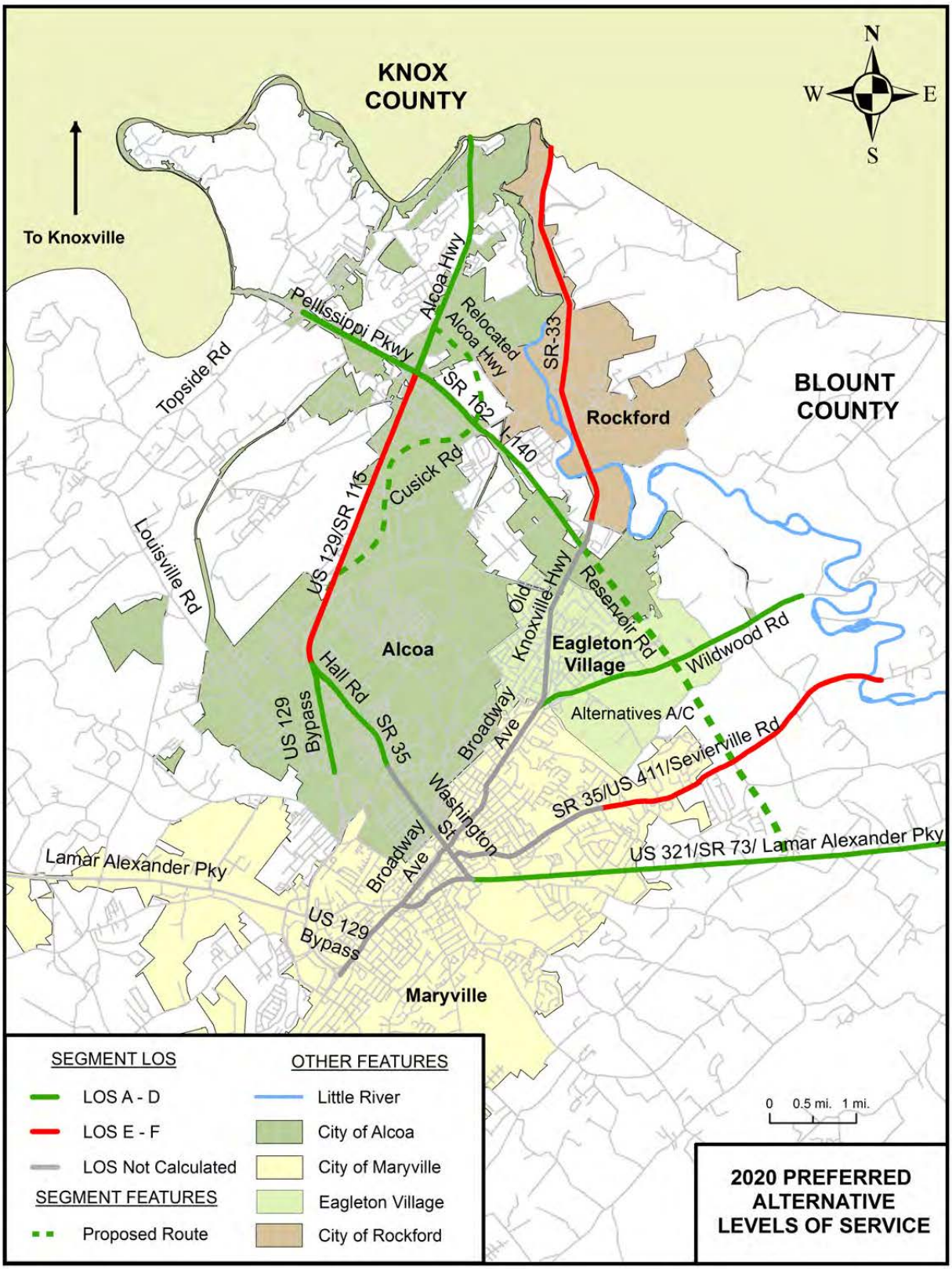
[2]-2013 traffic counts for the short segment of US 129/SR73 between the north and south legs of Tuckaleechee Pike were not available.

[3] -Proposed Relocated Alcoa Highway is still in the planning phase, thus no existing LOS could be determined.

[4] For Alternative D, a LOS analysis for other area roads was not prepared since traffic operations on those roads are assumed to be similar to the No-Build Alternative. Alternative D would not significantly reduce volumes on existing routes given that it is projected to operate over capacity.

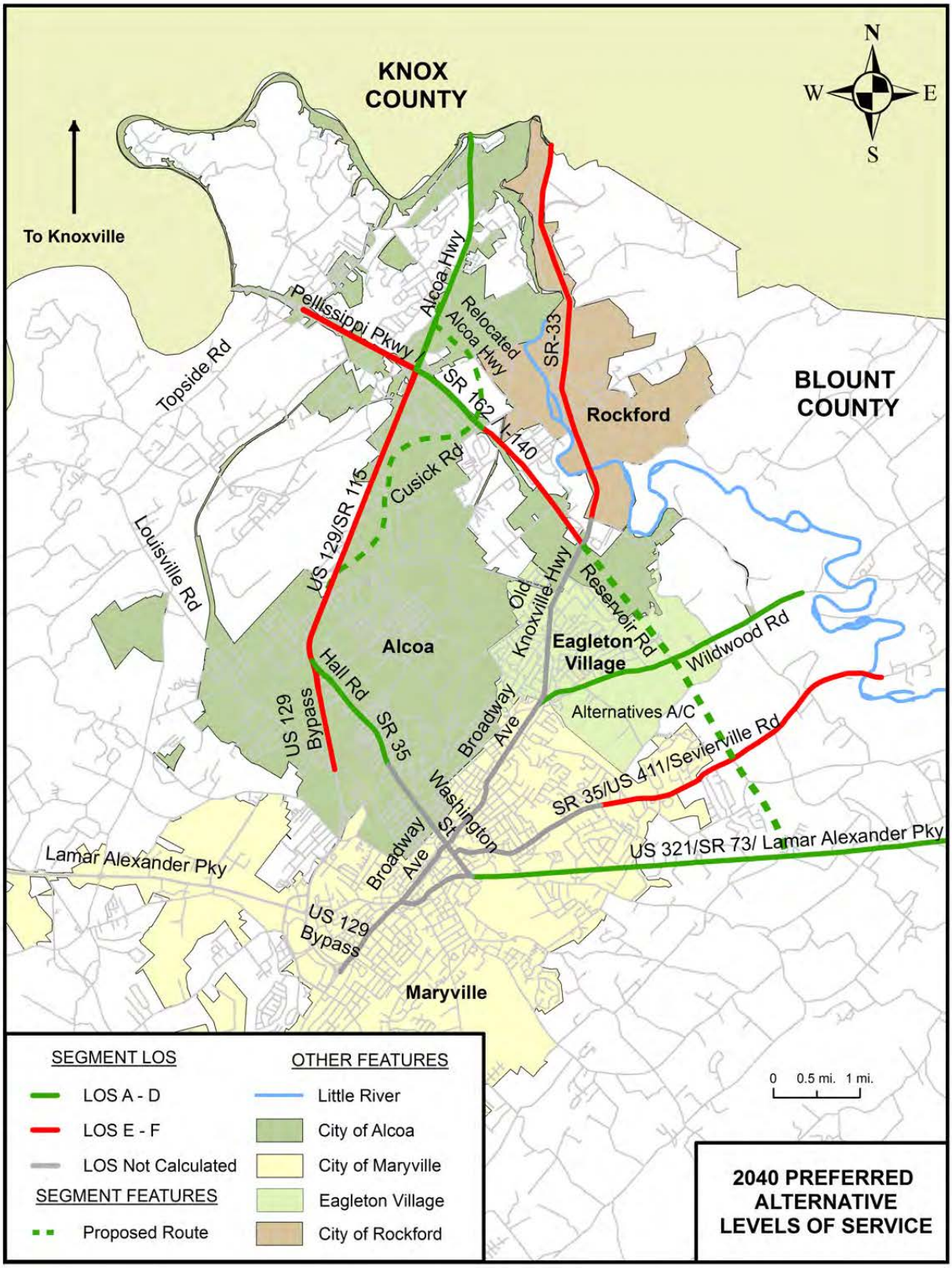
[5] Traffic forecasts for these local roadways (which essentially comprise Alternative D) were not prepared for the Preferred Alternative since it is assumed that operations on these roadways under the Preferred Alternative would be similar to or better than operations for the No-Build Alternative.

Figure 3-2: Corridor Level of Service (2020)—Preferred Alternative



Source: Addendum to Traffic Operations Technical Report (PB 2014c).

Figure 3-3: Corridor Level of Service (2040)—Preferred Alternative



Source: Addendum to Traffic Operations Technical Report (PB 2014c).

Other results for the updated traffic operations analysis include the following:

- Traffic operations would remain generally at an acceptable level of service (LOS D or better) on Lamar Alexander Parkway (US 321/SR 73) through 2040.
- Wildwood Road would decline to LOS E (poor) by 2040 under the No-Build Alternative; under the 2040 Preferred Alternative, it would operate at LOS C (acceptable).
- Traffic operations by 2040 would decline on existing Pellissippi Parkway (I-140) to below a desirable level of service just west of Alcoa Highway for both the Preferred and No-Build Alternatives. Between the proposed Relocated Alcoa Highway and SR 33 in 2040 the level of service would decline to LOS E under the Preferred Alternative.

Even with lower forecasted traffic volumes based on the current regional model, Alternative D would operate poorly (LOS E or F) in the 2020 and 2040 horizon years. The corridor LOS analysis indicates that the projected volumes for Alternative D would exceed the carrying capacity of a two-lane road. This would be true even if that network of two-lane roads were improved by wider lanes, improved shoulders, and the straightening of substandard curves.

Intersection Level of Service

A LOS analysis was also conducted at the intersection level for the Preferred Alternative (and other four-lane alternatives) for the years 2020 and 2040. Existing (2013) LOS ratings were determined for comparison purposes. The results of the LOS analysis for major intersections are shown in Table 3-2.

This level of detail was not conducted for Alternative D because:

- The corridor LOS analysis demonstrates that the forecast volumes exceed the carrying capacity of a two-lane road; and
- An intersection LOS analysis is expected to yield poor results similar to the corridor LOS analysis.

Traffic operations at eight intersections would be improved by the Preferred Alternative:

- SR 33/E. Broadway Avenue and SR 35/S. Washington Street—Improvements include LOS D to LOS C in the AM peak hour and LOS F to LOS D in the 2020 PM peak hour.
- SR 35/S. Washington Street and Sevierville Road—The LOS improves from LOS D to LOS C in the 2040 PM peak hour.
- S. Washington Street/SR 35 at High Street/SR 35—The LOS improves from LOS D in the No-Build scenario to LOS C in the Preferred Alternative scenario in the 2040 AM peak hour. In the PM peak hour, the LOS for the year 2020 is LOS C for the Preferred Alternative, which is an improvement over the LOS D for the No-Build scenario. However, for the year 2040 in the PM peak hour, the LOS declines to an LOS F in the Preferred Alternative compared to an LOS E for the No-Build scenario.
- Sam Houston School Road at Wildwood Road—The Preferred Alternative improves the LOS to LOS B in both the AM and PM peak hours for both analysis years (2020 and 2040).
- Peppermint Road at Wildwood Road—the Preferred Alternative improves the LOS to LOS C for both the AM and PM peak hours in the year 2020. In the year 2040, the LOS is improved to LOS D for the AM peak hour and remains at LOS C in the PM peak hour.
- US 411/SR 35/Sevierville Road at Peppermint Road—the Preferred Alternative improves the LOS to LOS C for both the AM and PM peak hours for the year 2020. In the year 2040, the LOS improves to LOS B for the AM peak hour and remains at LOS C for the PM peak hour.

Table 3-2: Intersection Levels of Service (2020 and 2040)—No-Build Alternative and Preferred Alternative

Intersection	AM Peak Hour					PM Peak Hour				
	2013 Existing	2020 No Build	2040 No Build	2020 Preferred	2040 Preferred	2013 Existing	2020 No Build	2040 No Build	2020 Preferred	2040 Preferred
SR 33 @ I-140 Off-Ramp	C	E	F			F	F	F	-	-
SR 33 @ I-140 On-Ramp	F	F	F			C	E	F	-	-
SR 33 @ Wildwood Road	D	F	F	F	F	F	F	F	F	F
SR 33/E. Broadway @ SR 35/Washington Street	C	D	D	C	C	E	F	F	D	F
SR 35/Washington Street @ Sevierville Road	B	B	B	B	B	C	C	D	C	C
Washington Street/SR 35 @ High Street/SR 35	C	C	D	C	C	C	D	E	C	F
Washington Street @ US 321/SR 73	F	F	F	F	F	F	F	F	F	F
SR 33 @ Sam Houston School Road	B	B	C	D	D	B	B	B	B	B
Sam Houston School Road @ Wildwood Road	B	C	F	B	B	B	C	F	B	B
Peppermint Road @ Wildwood Road	B	F	F	C	D	B	F	F	C	C
SR 35/US 411/Sevierville Road @ Peppermint Road	C	F	F	C	B	C	F	F	C	C
SR 35/US 411/Sevierville Road @ Hitch Road/Peppermint Hills Drive	C	D	F	C	B	C	D	F	C	C
Davis Ford Road @ Hitch Road	B	B	B	A	A	A	B	B	B	B
Davis Ford Road @ Helton Road	A	A	A	A	A	A	A	A	A	A
SR 73/US 321 @Helton Road/Tuckaleechee Pike	F	F	F	F	F	D	F	F	D	D

Source: Addendum to Traffic Operations Technical Report (PB 2014c).

LOS E-F **LOS A-D**

- US 411/Sevierville Road at Hitch Road/Peppermint Hills—the Preferred Alternative improves the LOS to LOS C for both the AM and PM peak hours for 2020. In 2040, the LOS improves to LOS B for the AM peak hour and remains at LOS C for the PM peak hour.
- US 321/SR 73 at Helton Road/Tuckaleechee Pike—in the years 2020 and 2040 in the PM peak hour, the Preferred Alternative improves to LOS D.

Based on the analysis, the construction of the Preferred Alternative would degrade the LOS at one intersection. The LOS for the intersection of SR 33 with Sam Houston School Road would degrade from an LOS B in the 2020 No-Build Alternative to an LOS D in the 2020 Preferred Alternative and from an LOS C in the 2040 No-Build Alternative to an LOS D in the 2040 Preferred Alternative during the AM peak hour.

The new interchanges created by this project at SR 33 and US 411 are shown to operate at an acceptable level in the year 2020, as summarized in Table 3-3. By the year 2030, some of the movements/operations begin to degrade given the volumes forecasted for these intersections. TDOT would need to give further consideration to the specific design for these interchanges during the design phase of the project. The new interchange of the Preferred Alternative and US 321/SR 73 was not evaluated since it will have no intersection; it may be designed with directional loop ramps.

Given that the level of service analysis indicates that the forecast volumes for Alternative D would exceed the carrying capacity of a two-lane road, an intersection-level analysis is expected to yield poor results similar to the corridor LOS analysis. Even if some intersection movements would be acceptable with Alternative D, the overall corridor would provide poor traffic operations as demonstrated by the corridor LOS. Thus, an intersection level of service analysis is unnecessary to demonstrate that Alternative D is not a viable alternative from a traffic operations perspective.

Table 3-3: Level of Service—New Intersections with Preferred Alternative (2020 and 2040)

Intersection	AM Peak Hour		PM Peak Hour	
	2020 Preferred	2040 Preferred	2020 Preferred	2040 Preferred
SR 33 @ I-140 North of Pellissippi Parkway Extension	B	F	A	D
SR 33 @ I-140 South of Pellissippi Parkway Extension	C	F	C	F
US 411 @ I-140 West of Pellissippi Parkway Extension	A	C	B	E
US 411 @ I-140 East of Pellissippi Parkway Extension	B	C	A	B

Source: Addendum to Traffic Operations Technical Report (PB 2014c).

LOS E-F **LOS A-D**

Intersection Delay

The delay associated with the intersection LOS is another measure to determine changes in traffic operations and thereby evaluate the impacts of the project alternatives. Intersection delay is the amount of additional time (measured in seconds) it may take a driver to travel through an intersection. The analysis is used to evaluate if there is any significant reduction in the delay time between the Preferred Alternative and the No-Build Alternative.

The Preferred Alternative shows substantial reduction in delay for most of the intersections in the Alcoa/Maryville core. The improvements range from an 8 percent to a 50 percent reduction in delay (compared to the No-Build). In actual seconds of delay, these improvements correspond to a reduction

in delay of between 1 second and 163 seconds over the No-Build Alternative. The intersection of S. Washington Street at High Street in Maryville would experience an increase in delay in the PM peak of about 11 seconds.

The average intersection delay per movement is detailed in Tables 11–19 in the 2014 *Addendum to the Traffic Operations Technical Report* (Technical Appendix B). Table 3-4 summarizes the expected change in the amount of delay (in seconds of delay) at four key intersections in 2040 under the Preferred Alternative in comparison with the No-Build Alternative.

Table 3-4: Intersection Delay Change (2040)—Preferred Alternative Compared to No-Build Alternative

	AM Reduction in Delay (seconds)	PM Reduction in Delay (seconds)
SR 33/E. Broadway Avenue @ SR 35/S. Washington Street	19.2	85.1
SR 35/S. Washington Street @ Sevierville Road	1.4	9.4
S. Washington Street/SR 35 @ High Street/SR 35	15.8	-11.3
S. Washington Street @ US 321/SR 73	106.4	162.7

Source: Addendum to Traffic Operations Technical Report (PB 2014c).

Preferred Alternative operates better than No-Build

Preferred Alternative operates worse than No-Build

Travel Time Savings

Another issue to consider in the comparison of the alternatives is the change in travel times as a result of the proposed alternatives. Travel time data was initially collected during a 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 Alternative and the Build Alternatives. The travel demand model is another analysis tool that can be used to compare scenarios and estimate potential travel time savings in lieu of field data. For this update, the most recent version of the Knoxville Regional TPO's travel demand model (June 2013) was used to generate travel times and potential savings.

The future analysis year of 2040 was selected for the comparison as this corresponds to the model year as well as the future traffic analysis year used in the traffic operations analysis. Travel times were calculated for the 2040 No-Build, the Preferred Alternative (representing all four-lane alternatives), and Alternative D.

For the purpose of the travel 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 the existing Pellissippi Parkway (I-140) terminus, proceeding south into Maryville, turning south onto Washington Street to US 321/SR 73, then following US 321/SR 73 east to Hubbard Drive. A similar route had been evaluated for the 2009 *Economic and Fiscal Impact Analysis* (in reverse), provided on the project website. Travel time savings are assumed to be similar for both the noted and reverse trip since the analysis is based on the regional model. Table 3-5 shows the results of the travel time savings analysis for this route.

Table 3-5: Travel Time Savings—From the North along SR 33 to US 321/SR 73

Alternative	Travel Time (minutes)	Travel Time Savings over No-Build (minutes)	Travel Time Savings over Existing (%)
2040 No-Build	15.6	—	—
Preferred Alternative (and other 4-lane alternatives)	5.4	10.2	65%
Alternative D	8.9	6.7	43%

Source: Knoxville Regional Travel Demand Model (June 2013)

The likely existing path of motorists traveling from the west who would divert to the new Pellissippi Parkway Extension would begin on Pellissippi Parkway (I-140) near Topside 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 3-6 shows the results of the travel time savings analysis for this route.

Table 3-6: Travel Time Savings—From the West along Pellissippi Parkway to US 321/SR 73

Alternative	Travel Time (minutes)	Travel Time Savings over No-Build (minutes)	Travel Time Savings over Existing (%)
2040 No-Build	19.5	—	—
Preferred Alternative (and other 4-lane alternatives)	8.6	10.9	56%
Alternative D	13.0	6.5	33%

Source: Knoxville Regional Travel Demand Model (June 2013)

Based on this review, all alternatives have substantial travel time savings over the existing travel paths. The Preferred Alternative would have the highest travel time savings (between 10 to 11 minutes) while Alternative D would have the least travel time savings (about 6.5 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. None of the alternatives considered would affect existing freight railroads in Blount County.

3.1.3 Airports

The Knoxville-McGhee Tyson Airport serves the Knoxville region with passenger and freight air service. It is on the west side of US 129/Alcoa Highway, about 3 miles west of the project area and about 1.5 miles south of the I-140/US 129/Alcoa Highway interchange. None of the alternatives would adversely affect the airport. The Preferred Alternative 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 and Sevier County.

Since the northern half of the project area is within 6 miles of the Knoxville-McGhee Tyson Airport, once final design is initiated, TDOT will inform the Federal Aviation Administration (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, Notice of Proposed Construction or Alteration.

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 a 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.

The *Knoxville Regional Transit Corridor Study* (TPO 2013b) examined the need for capital investment in rapid transit service within a growing congested region between the city of Knoxville and Knox, Blount, and Anderson counties. Twelve corridors in the region were identified and examined, including four corridors with connections to Maryville, Alcoa, and the Knoxville-McGhee Tyson Airport. While the analysis did not justify the advancement of any of the four corridors through the Federal Transit Administration's project development process, it was evident in the study that express bus service along Alcoa Highway and Pellissippi Parkway (west of US 129) would provide connections to and from the Knoxville-McGhee Tyson Airport, Maryville, Alcoa, downtown Knoxville, the University of Tennessee, and the Oak Ridge National Laboratory, among other attractions. A short-term recommendation of the plan was the formation of a regional transit authority to provide inter-county transit service, especially for transit investments along Pellissippi Parkway and Alcoa Highway.

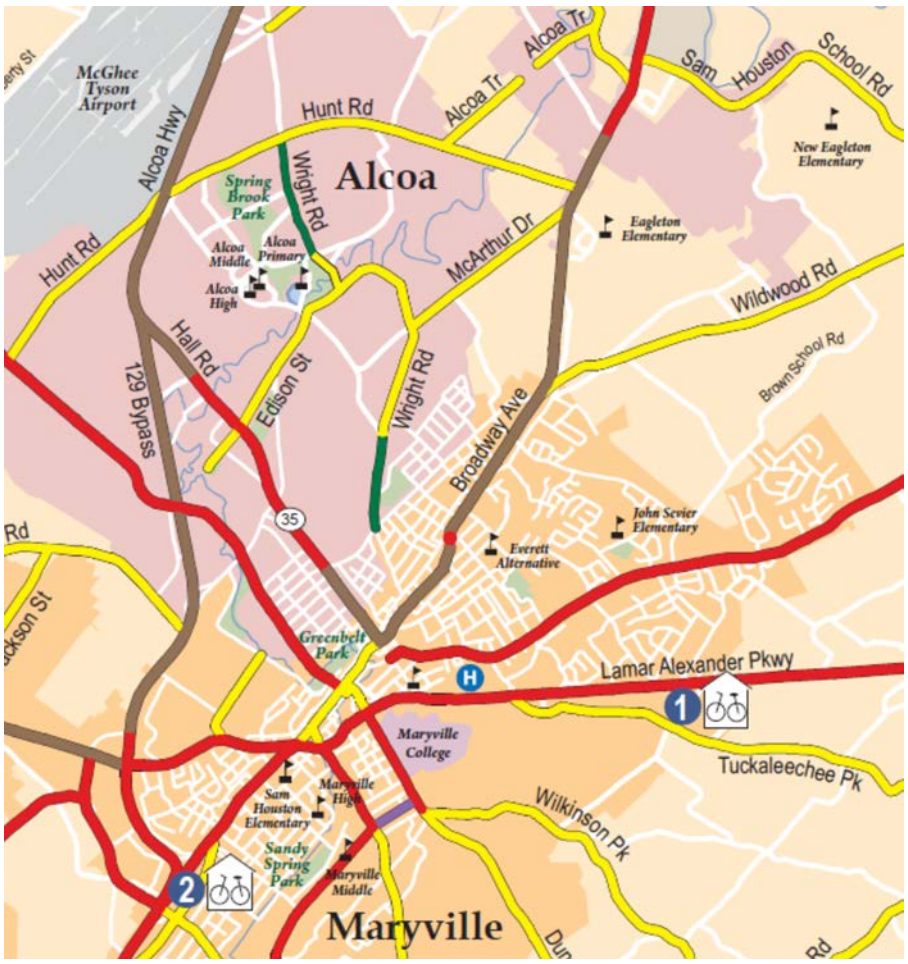
Public transportation services in the project area or Blount County would not be adversely affected by the proposed project. Construction of a new four-lane divided roadway (under the Preferred Alternative or other four-lane alternatives considered) or improvements to existing two-lane routes (under Alternative D) in the project area may have a positive impact on the existing bus service by improving travel times for the paratransit vans traveling within or through the study area. The improved mobility resulting from the Preferred Alternative 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 TPO developed the *Blount County Bicycle Map* as a tool to assist residents and visitors in finding appropriate bicycle routes 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 3-4 illustrates the section of the Blount County Bicycle Map that includes the project area.

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 *Blount 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 (I-140). 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 therefore not likely to be comfortable for bicyclists or pedestrians.

Figure 3-4: Excerpt from Blount County Bicycle Map



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

According to the *Greenways of Blount County Map* (TPO 2014), most 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 *Knox/Blount Regional Greenway Master Plan for Maryville, Alcoa, and Blount County, Phase One* (BWSC 2010) proposes a greenway network that would connect the Knox County greenway to the extensive greenway networks in Alcoa and Maryville, as well as the Heritage High School area, and would be a major component of the ultimate plan to provide a pedestrian connection from Knoxville to Alcoa/Maryville to Townsend and eventually to the Great Smoky Mountains National Park.

This study is limited to a specific area of Blount County and is not considered to be comprehensive from a county or regional perspective. One route initially identified would have extended through Pellissippi Place and along the future extension of Pellissippi Parkway to Lamar Alexander Parkway, but that route is noted in the plan as the least desirable route due to its location along a four-lane parkway with high traffic volumes. The recommended route would include a connection with Pellissippi Place as an extension of Alcoa's greenway network.

The *Knoxville Regional Bicycle Plan* (Knoxville Regional TPO, adopted May 27, 2009) identifies only two critical bicycle or greenway projects in Blount County, both of which are in downtown Maryville. The Preferred Alternative 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* (Blount County 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* (Maryville 2006) require the construction of sidewalks on streets within the corporate limits; the sidewalks must be at least 5 feet wide. The City of Alcoa's *Subdivision Regulations* (Alcoa 1997) do not mention sidewalks.

According to TDOT's Bicycle and Pedestrian Policy (Policy 530-01, December 1, 2010), Exception 1, bicyclists and pedestrians are prohibited by law from using an interstate-designed facility. Since the new roadway will be designed per interstate highway design standards, no bicycle or pedestrian facilities are planned for the roadway.

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.

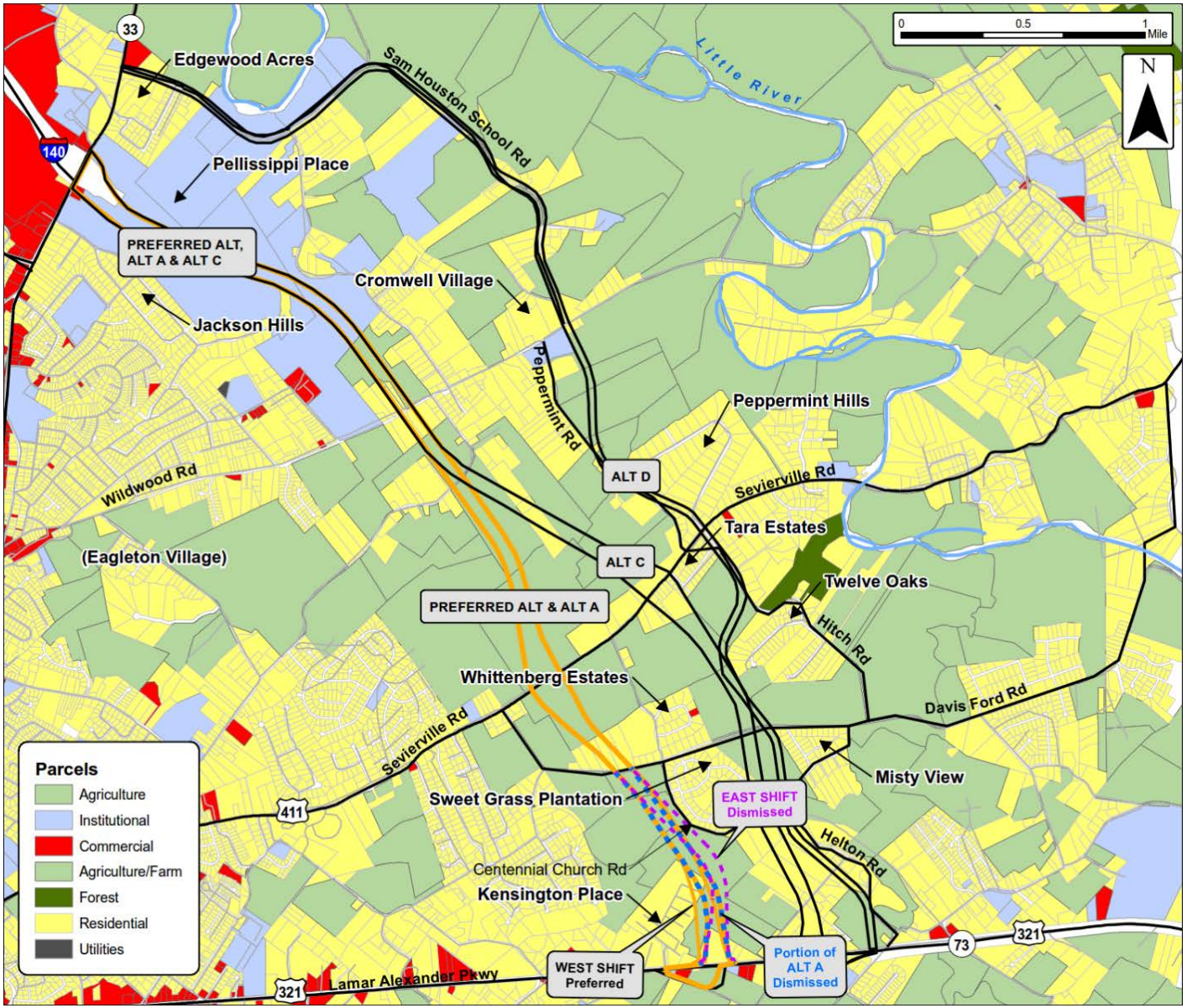
3.2.1.1 Existing Land Use and Land Use Controls

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 on Figure 3-5.

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

- Jackson Hills
- Eagleton Village
- Whittenburg Estates
- Sweetgrass Plantation
- Edgewood Acres
- Cromwell Village Condominiums
- Peppermint Hills
- Twelve Oaks
- Tara Estates
- Misty View
- Kensington Place Mobile Home Park

Figure 3-5: Existing Land Use



Source: Blount County GIS, 2009, 2014.

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- to medium-scale farming operations are in the project area.

Most of the industrial development is centered in Maryville and Alcoa and along Pellissippi Parkway (I-140), US 129/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 Pellissippi Parkway (I-140).

Since the approval of the DEIS, there have been minor changes in land use in the project vicinity. As reported in the DEIS, the Pellissippi Place technology research and development park at the northwestern terminus of the project (east side of SR 33 at the half interchange with existing Pellissippi Parkway(I-140)) was expected to open in 2010 and 2011. The first phase of Pellissippi Place broke ground in November 2008 and the basic infrastructure was completed in 2010. However, many of the targeted technology businesses have not expanded given the economic downturn of 2007-2009. In February 2013 the anchor tenant, a healthcare technology company, was announced. The company opened its first phase of operations in early June 2015, with 55,000 square feet of research, development, testing, manufacturing and office space and 120 employees. Company officials indicated their intention to construct their project in five phases over the next several years, with an end goal of nearly 200,000 square feet at full build-out.

The 96-acre Sweetgrass Plantation subdivision on Centennial Church Road, near the southern terminus of the project, was planned prior to the publication of the DEIS. Since 2010, ten new homes have been built and occupied. These residences are scattered throughout the subdivision. The estimated value of the homes is between $300,000 and $500,000.

A new church, Rio Revolution Church, was constructed in 2012 on the north side of US 321/Lamar Alexander Parkway, just east of the proposed westbound ramp for the Preferred Alternative.

While scattered new homes have been constructed in the project area, no other new subdivisions or major developments have occurred in the project vicinity. For the existing land uses in the area, Blount County and the cities of Maryville and Alcoa enforce zoning and land use ordinances.

3.2.1.2 Future Land Use

Blount County's future land use is expected to be guided by five principals first established in the 1999 *Blount County Policies Plan*. These principals are listed in Section 1.6, Consistency with Plans, in this FEIS.

The plan focused largely on preserving the rural and suburban residential nature of the larger part of Blount County outside 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 mixed-use and rezoning to guide land use decisions. The plan also recognized the need to "prepare for future increases in traffic demands as the County grows" (objective 4C). One of the implementation strategies for this objective is to "Build arterial and collector road segments that will create a circumferential system, and collaborate with Maryville and Alcoa on this. Utilize Blount County Growth Strategy Technical Memorandum #9 for proposed circumferential system." The plan further indicates that the area surrounding the proposed Pellissippi Parkway Extension is expected to develop, given its proximity to Maryville and Alcoa.

The 2000 *Blount County Conceptual Land-Use Plan* (Blount County 2000) 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 (Figure 3-6) 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.

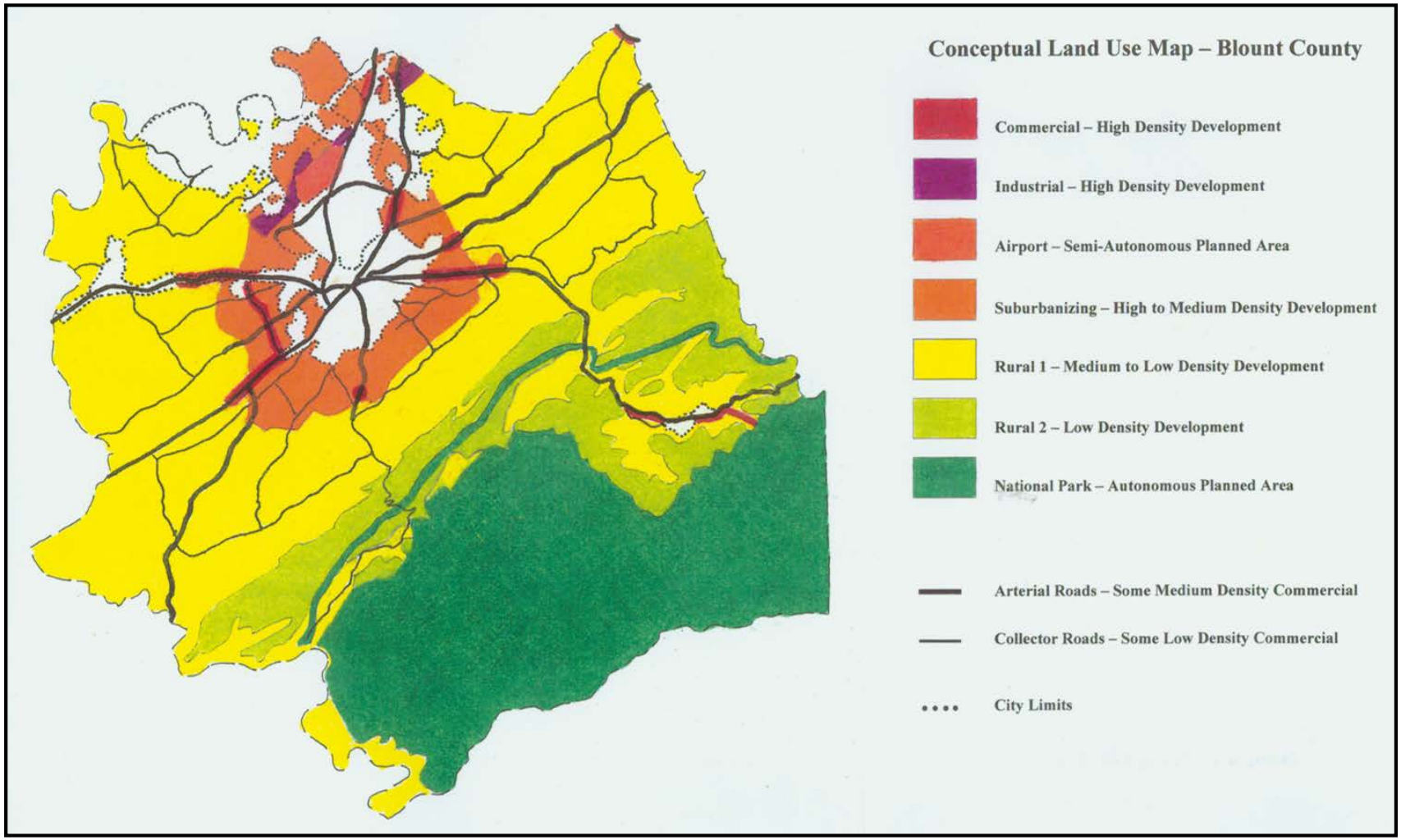
The *Conceptual Land-Use Plan* is consistent with the *Growth Plan Developed for Tennessee's 1998 Public Chapter (PC) 1101* (Blount County 2007). PC 1101 requires local governments to adopt Urban Growth Boundaries (UGB), which show land projected to develop over the next 20 years. The UGBs have been established for Blount County, Alcoa, Maryville, and Rockford (Figure 3-7). The proposed area of the Pellissippi Parkway Extension is within these officially adopted UGBs. The Preferred Alternative and the other alternatives considered are within the UGBs for Alcoa and Maryville.

The 2005 *Blount County Growth Strategy* (Blount County 2005) and the *Maryville Urban Growth Strategy* (Maryville 2005) 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 1999 *Blount County Policies Plan* (Blount County 1999), which was updated in 2008 by Blount County, and the *Maryville 2010 Comprehensive Plan* (Maryville 2005).

The Blount County and Maryville growth strategy documents each 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.

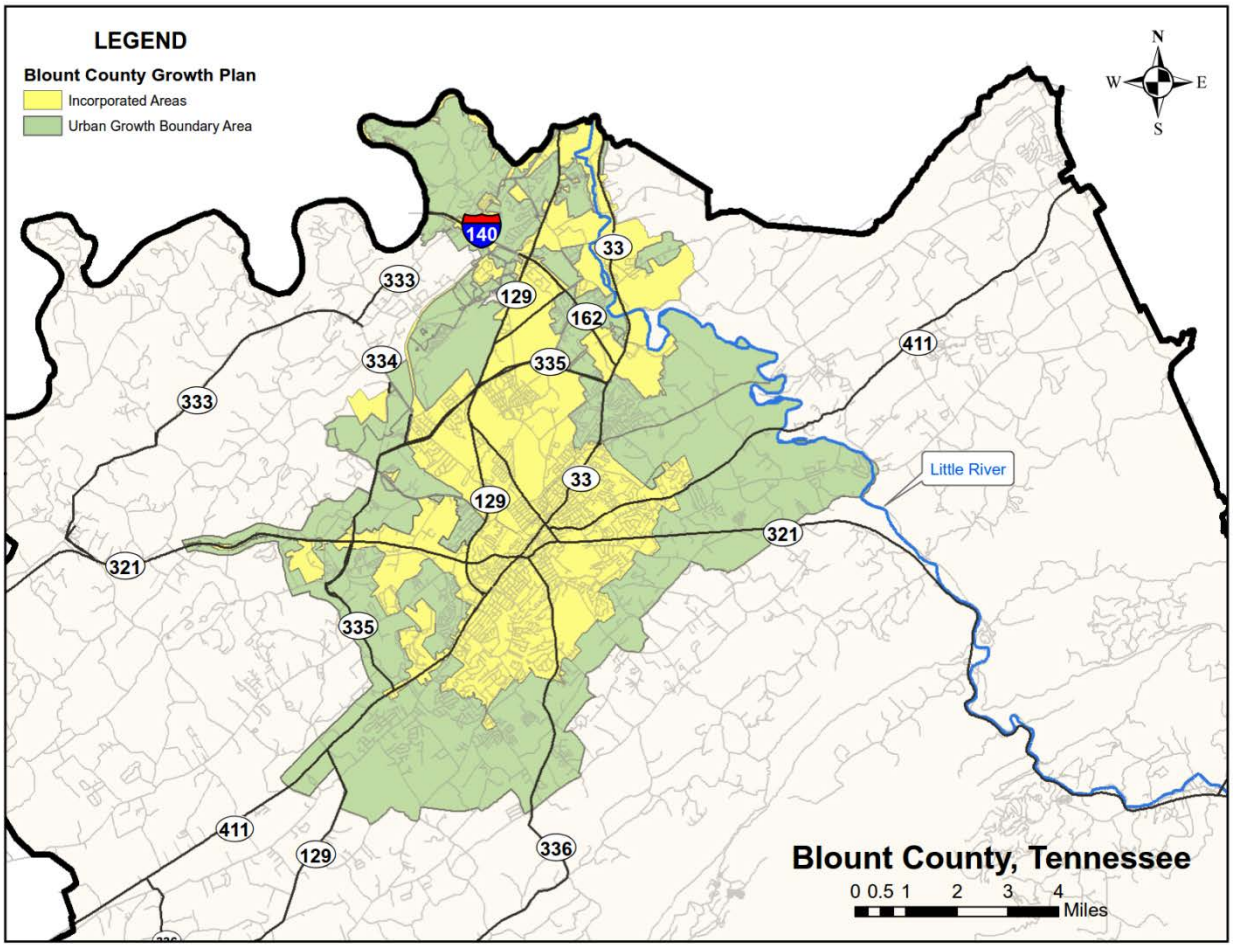
- Population in Blount County is expected to increase consistently between 2005 and 2050. Using the moderate level projections, an increase in population of more than 50 percent is expected in Blount County between 2000 and 2035. [Based on updated population forecasts from the Knoxville Regional TPO, the county population is expected to increase by nearly 75 percent between 2000 and 2040.]
- 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.
- Blount 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.

Figure 3-6: Conceptual Land Use Map (Unincorporated Blount County)



Source: Blount County Conceptual Land-Use Plan (Blount County 2000).

Figure 3-7: Urban Growth Boundaries



Source: Blount County GIS, 2009.

- 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 should not contribute to urban sprawl.

There have been no changes or updates in community or comprehensive land use plans since the DEIS was circulated.

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 and would not be consistent with local land use plans and policies.

The project alternatives would convert existing land uses in the project area from their current use to a transportation use. Table 3-7 provides estimates of the area of land that would be converted to a transportation use by each alternative.

The extension of Pellissippi Parkway (I-140) under the Preferred Alternative and other four-lane alternatives would complement the anticipated future growth by enhancing the transportation infrastructure of the area. Alternative D would create an improved two-lane route in the project area, but its benefits to land use would be diminished by the traffic exceeding the carrying capacity of the roadway and reducing level of service on the route.

Table 3-7: Estimated Land Use Conversions

Alternative	Total Acres of New Right-of-Way
Preferred Alternative	200
Preferred Alternative with East Shift	198
2012 Preferred Alternative (A)	197
Alternative C	209
Alternative D	104

Source: Parsons Brinckerhoff, 2014.

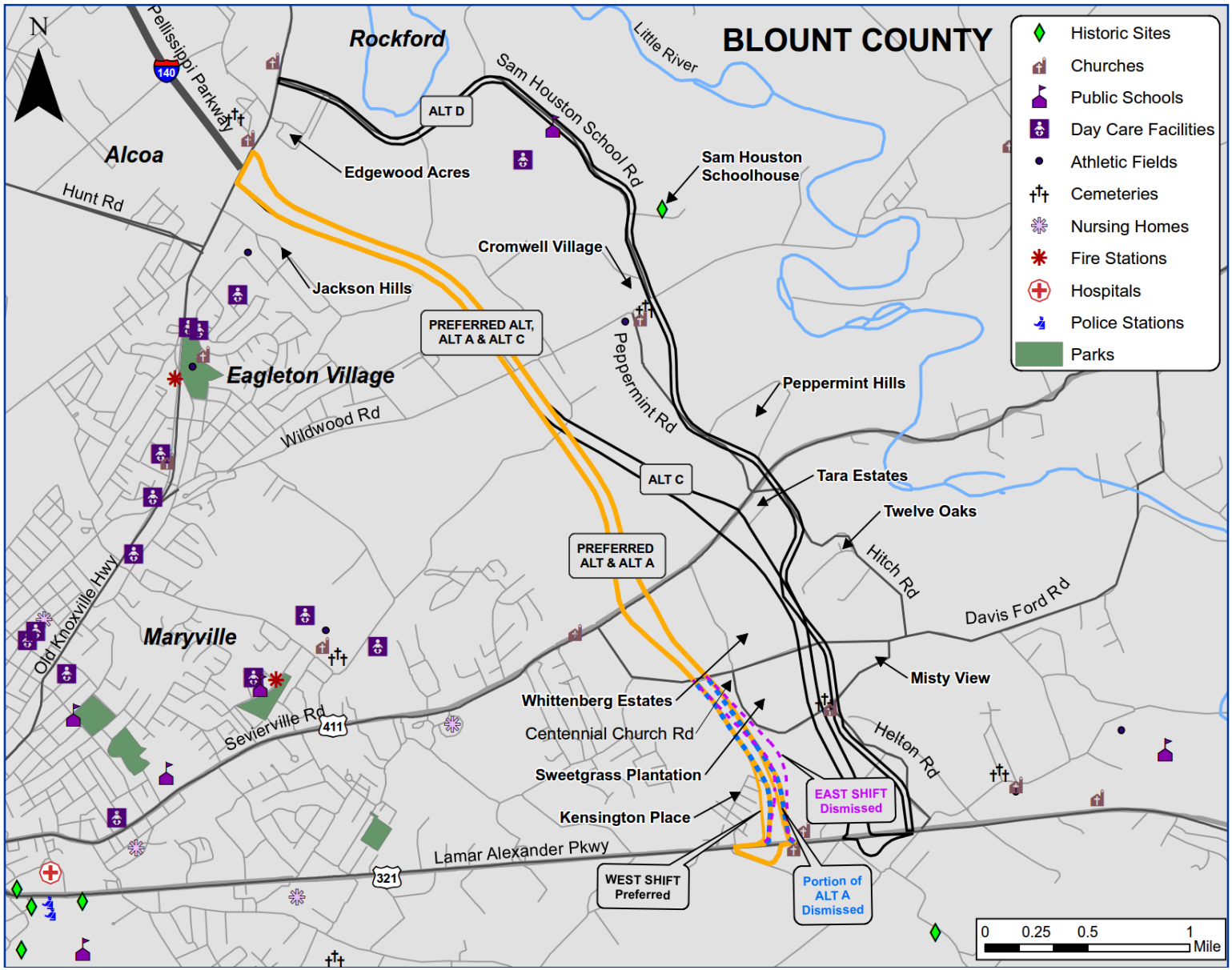
3.2.1.4 Preliminary Mitigation Measures

No specific mitigation measures are proposed since the project would not have an adverse effect on 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, 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 3-8.

Figure 3-8: Community Facilities



Source: Parsons Brinckerhoff, 2014.

3.2.2.1 Description of Community Services and Facilities

Schools

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

Churches and Cemeteries

Six 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, Faith Baptist Church, and Rio Revolution Church. The Rio Revolution Church was constructed after the DEIS was circulated; it is adjacent to the southern terminus of the project.

Parks and Recreation

No public parks are found in the immediate project area, although several county parks are west and southwest of the project area. The closest park is John Sevier Park, which is owned and operated by Blount County. John Sevier Park is about 1.5 miles southwest of the project area. The western boundary of the Great Smoky Mountains 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. Maryville, Alcoa, and Townsend have their own police departments. Fire protection services within Blount County are provided by the Blount County Fire Department and fire departments in Maryville, Alcoa, and Townsend.

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 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.

The Preferred Alternative, Preferred Alternative with East Shift and 2012 Preferred Alternative (A) would not require the acquisition or displacement of any community, public, or social services or facilities within the project area. Two churches are in proximity to the southern terminus interchange for these alternatives – Morning Star Baptist Church and Rio Revolution Church. Both churches will experience changes in the visual character of the area as a result of the new interchange; however, this impact should not be considered adverse given the location of the churches on a four-lane divided highway. The churches may also experience some congestion in the vicinity of their driveways during peak periods of church activities as a result of the location of the northbound on-ramp. During design, TDOT will examine ways to minimize access issues for the churches.

The Preferred Alternative and the other four-lane alternatives would improve mobility by providing travel options to the existing roadway network and would improve the safety and the roadway network, making travel easier for individuals who need to access the community facilities in the project area. As shown in Section 3.1.1, the Preferred Alternative and the other four-lane alternatives considered would operate better and experience less delay and higher travel speeds than the two-lane Alternative D. Therefore, response times for emergency vehicles would be improved more under the Preferred Alternative and other four-lane options.

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. 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 Alternatives 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. Alternative D would also require a minimal amount of 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.

Alternative D would provide a new mobility option for the existing roadway network; however, the carrying capacity of the road would be reduced by the high traffic volumes forecasted. This would likely increase travel times for emergency responders and create delays in accessing community facilities if Alternative D is implemented.

3.2.2.3 Preliminary Mitigation Measures

During design, TDOT will examine ways to minimize access issues for the churches in the vicinity of the new interchange at US 321/SR 73.

Since there would be no other adverse effects to community facilities and services as a result of the Preferred Alternative, Preferred Alternative with East Shift and 2012 Preferred Alternative (A), no mitigation measures would be necessary. Alternative C would require possible design changes to minimize noise impacts to the church on Centennial Church Road, as necessary. Alternative D would necessitate investigation of design changes to minimize noise impacts to the cemetery and church ball fields of the Mt. Lebanon Baptist Church, as necessary. For Alternative D, TDOT and local officials would need to consider design and policy changes to ensure that emergency responders are able to respond in a timely manner.

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 U.S. Census Bureau, Tennessee's Department of Labor and Workforce Development and Department of Health, and visual inspections of the project area. This information has been updated since the approval of the 2010 DEIS.

3.3.1 Social and Economic Patterns

3.3.1.1 Population Trends and Forecasts

Between 1980 and 2010, Blount County experienced double-digit population growth over each 10-year census period, as shown in Table 3-8.

In the region, Blount County's growth is surpassed only by that of its neighbor to the east, Sevier County. According to recent projections by the Knoxville Regional TPO, by 2040 Blount County is expected to about a 1.7 percent average annual growth rate, which is slightly higher than the annual growth rate of the 2000-2010 decade (1.6 percent).

Table 3-8: Historical Population and Projections (1980 to 2040)

Geographic Area	1980	1990	2000	2010	2040
Tennessee	4,607,294	4,877,185	5,689,283	6,346,105	8,449,472
Average annual growth		0.6%	1.7%	1.2%	1.1%
Knoxville Region	594,857	634,423	747,300	856,087	1,419,373
Average annual growth		0.7%	1.8%	1.5%	2.2%
Blount County	77,770	85,969	105,823	123,010	183,913
Average annual growth		1.1%	2.3%	1.6%	1.7%
Sevier County	41,418	51,043	71,170	89,889	168,786
Average annual growth		2.3%	3.9%	2.6%	2.9%

Sources: U.S. Census, 2010. Knoxville Regional TPO Long Range Regional Mobility Plan 2040, Appendix G: Socioeconomic Control Total Projections Report.
Note: The Knoxville Region includes Anderson, Blount, Grainger, Hamblen, Jefferson, Knox, Loudon, Roane, Sevier, and Union counties.

Race and Ethnicity

The immediate project area covers six U.S. Census block groups within three census tracts: Block Groups 1, 3, and 4 of Census Tract 109, Block Groups 1 and 3 of Census Tract 110.01, and Block Groups 1 and 2 of Census Tract 110.02.

As of the 2010 census, 15,322 people were living in the three census tracts that cover the project area (Tracts 109, 110.01, and 110.02). Approximately 95 percent of the population is white, and 5 percent is minority. The largest minority group represented in these census tracts is Hispanic, followed by Black/African American, and those persons who classified themselves as "Some Other Race." In the study area, the Hispanic population has surpassed other minority groups in population since 2000. The Hispanic population within the study area is highest in Census Tract 110.01 Block Group 1 (CT 110.01 BG 1), at 5.9 percent; this block group encompasses the Kensington Place mobile home park at the southwest terminus of the project. Minority residents are fairly dispersed across the three census tracts, although the highest concentration of minorities is in CT 109 BG 3 (9.2 percent). The lowest share of minority residents is in the block groups to the south and southeast of the study area.

Table 3-9 presents the racial and ethnic characteristics in the project area, while Figure 3-9 summarizes the distribution of minority populations.

Age

The ages of the area residents (those within the block groups in the study area) are shown in Table 3-10. The concentrations of persons in each age group generally resemble the concentrations in Blount County and Tennessee. The highest number of children (ages 0 to 7) is in CT 109 BG 4 (27.5 percent) while the smallest share of children is in CT 110.02 BG 2 (18.0 percent).

Table 3-9: Population by Race and Hispanic Origin (2010)

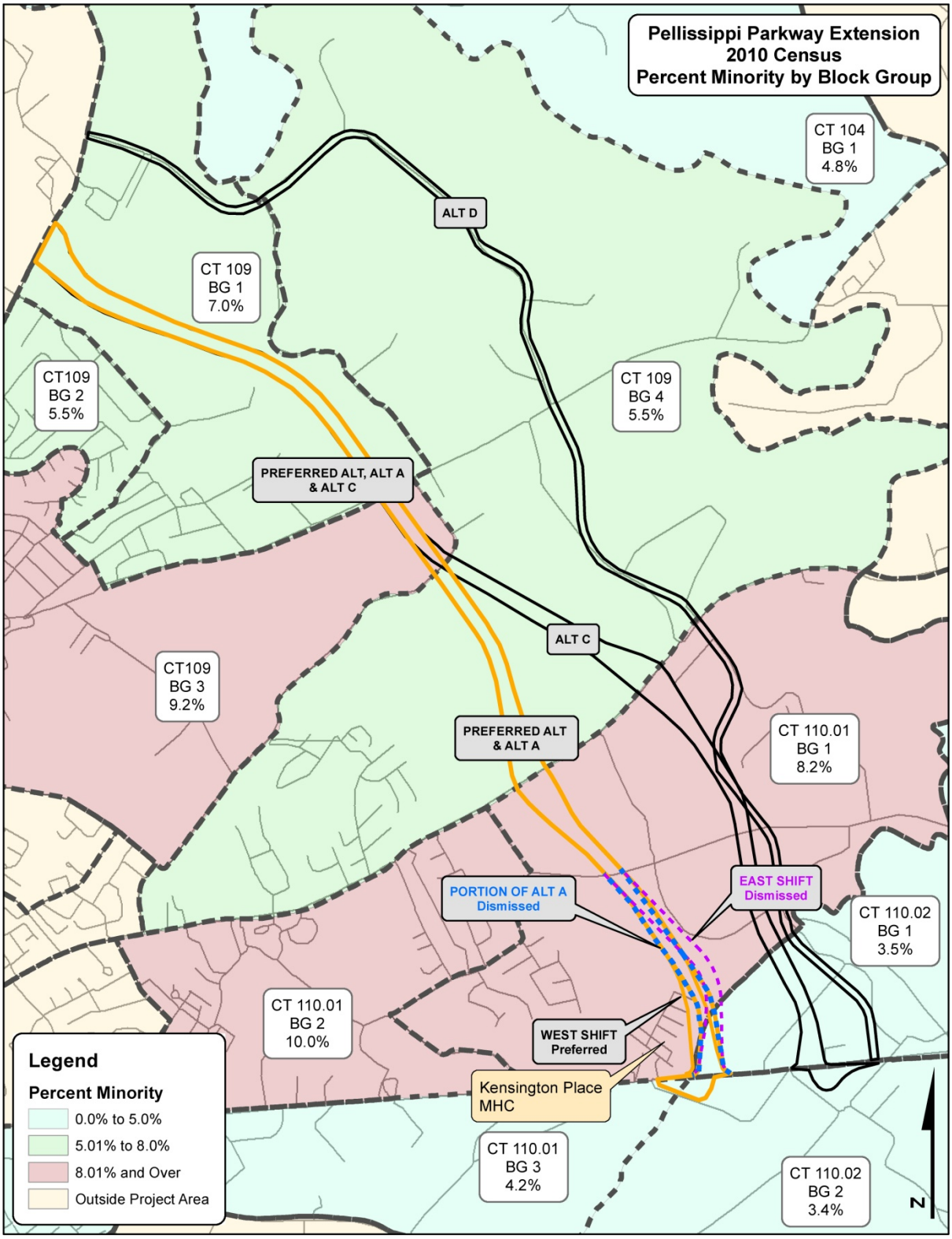
	State	Blount County	CT 109 Total	CT 109 BG 1	CT 109 BG 3	CT 109 BG 4	CT 110.01 Total	CT 110.01 BG 1	CT 110.01 BG 3	CT 110.02 Total	CT 110.02 BG 1	CT 110.02 BG 2
Total Population	6,346,105	123,010	5,812	1,018	1,829	1,934	5,524	1,410	1,431	3,986	1,450	1,232
Total Hispanic	4.5%	2.7%	3.1%	4.4%	1.3%	1.3%	2.8%	5.9%	1.5%	1.3%	1.1%	0.9%
White	77.5%	93.4%	94.5%	94.7%	92.1%	95.5%	93.9%	92.4%	96.8%	97.3%	97.5%	96.0%
Hispanic (White)	1.9%	1.4%	1.7%	1.3%	0.9%	0.9%	1.0%	0.6%	1.0%	0.8%	1.1%	0.1%
Black	16.6%	2.7%	1.6%	2.4%	2.3%	0.7%	1.7%	0.1%	1.0%	0.5%	0.7%	0.8%
Hispanic (Black)	0.1%	0.1%	0%	0%	0%	0%	0%	0%	0%	0.1%	0%	0.3%
American Indian and Alaska Native	0.3%	0.3%	0.5%	0%	0.9%	0.7%	0.3%	0.4%	0.1%	0.4%	0.4%	0.5%
Hispanic (American Indian and Alaska Native	0.05%	0.05%	0%	0.8%	0%	0%	0%	0%	0%	0%	0%	0%
Asian	1.4%	0.7%	0.1%	0.1%	0.3%	1.9%	0.9%	0.3%	0.2%	0.2%	0.3%	0.1%
Hispanic (Asian)	0.01%	0.01%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Native Hawaiian and Other Pacific Islanders	0.05%	0.02%	0%	0%	0%	0%	0.01%	0%	0%	0.1%	0%	0%
Hispanic (Native Hawaiian and Other Pacific Islanders)	0.01%	0.01%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Some Other Race	3.9%	2.6%	2.3%	2.6%	4.1%	0.9%	0.3%	6.5%	0.6%	1.3%	0.8%	1.7%
Hispanic (Some Other Race)	2.4%	1.2%	1.3%	2.2%	0.3%	3.0%	1.8%	5.3%	0.5%	0.4%	0.1%	0.5%
Total Minority [1]	24.3%	7.9%	6.9%	7.0%	9.2%	5.5%	7.1%	8.2%	4.2%	3.4%	3.5%	3.4%

Source: U.S. Census, 2010.

CT = Census Tract; BG = Block Group.

[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.

Figure 3-9: Percent Minority Population



Source: U.S. Census, 2010.

Table 3-10-Age Characteristics

	State	Blount County	CT 109 Total	CT 109 BG 1	CT 109 BG 3	CT 109 BG 4	CT 110.01 Total	CT 110.01 BG 1	CT 110.01 BG 3	CT 110.02 Total	CT 110.02 BG 1	CT 110.02 BG 2
Total Population	6,346,105	123,010	5,812	1,018	1,829	1,934	5,524	1,410	1,431	3,986	1,450	1,232
Ages 0 to 17	23.5%	22.2%	23.7%	20.3%	23.5%	27.5%	19.8%	21.2%	20.1%	17.9%	21.3%	18.0%
Ages 18 to 64	62.90%	61.6%	60.9%	60.5%	63.7%	58.6%	56.2%	59.8%	54.2%	61.0%	59.8%	61.6%
Ages 65 or above	13.40%	16.0%	15.3%	19.1%	12.7%	13.8%	23.9%	16.1%	25.7%	18.7%	18.7%	20.2%
Median Age	37.6	40.8	39.8	41.7	37.2	41.0	46.0	42.1	46.5	45.5	45.5	47.8

Source: U.S. Census, 2010.
CT = Census Tract; BG = Block Group.

The working age group (18 to 64) in the study area ranges between 54.2 percent (in CT 110.01 BG 3) and 63.7 percent (in CT 109 BG 3). The highest share of elderly persons is in CT 110.01 BG 3 (25.7 percent), nearly double the size of the Tennessee percentage. The lowest share of elderly persons is in CT 109 BG 3 (12.7 percent).

The highest median age of person in the study area is 47.8 years (in CT 110.02 BG 2). CT 109 BG 3 has the lowest median age in the study area (37.2 years) and the largest percent of work aged persons (63.7 percent).

Education

According to the US Census Bureau, the Tennessee high school graduation rate is 82.5 percent. The 2010 high school graduation rate in Blount County was slightly higher at 85.5 percent. Blount County's rate for obtaining a bachelor's degree or higher (20.6 percent) is slightly lower for than the state rate (22.7 percent).

Personal Income and Poverty Levels

Table 3-11 and Figure 3-10 summarize the income and poverty information in the project area. The 2010 Census did not report income levels at the Block Group level. So for the purposes of this analysis, the block group level poverty information shown in Figure 3-10 was obtained from the 2012 *American Community Survey*, a product of the U.S. Census Bureau.

Income levels (median household income and per capita income) in Blount County are generally higher than the statewide average. Two of the three census tracts that comprise the study area (Tracts 109 and 110.02) have average income levels exceeding Blount County. These census tracts also have substantially lower percentages of persons living in poverty than the state and Blount County averages.

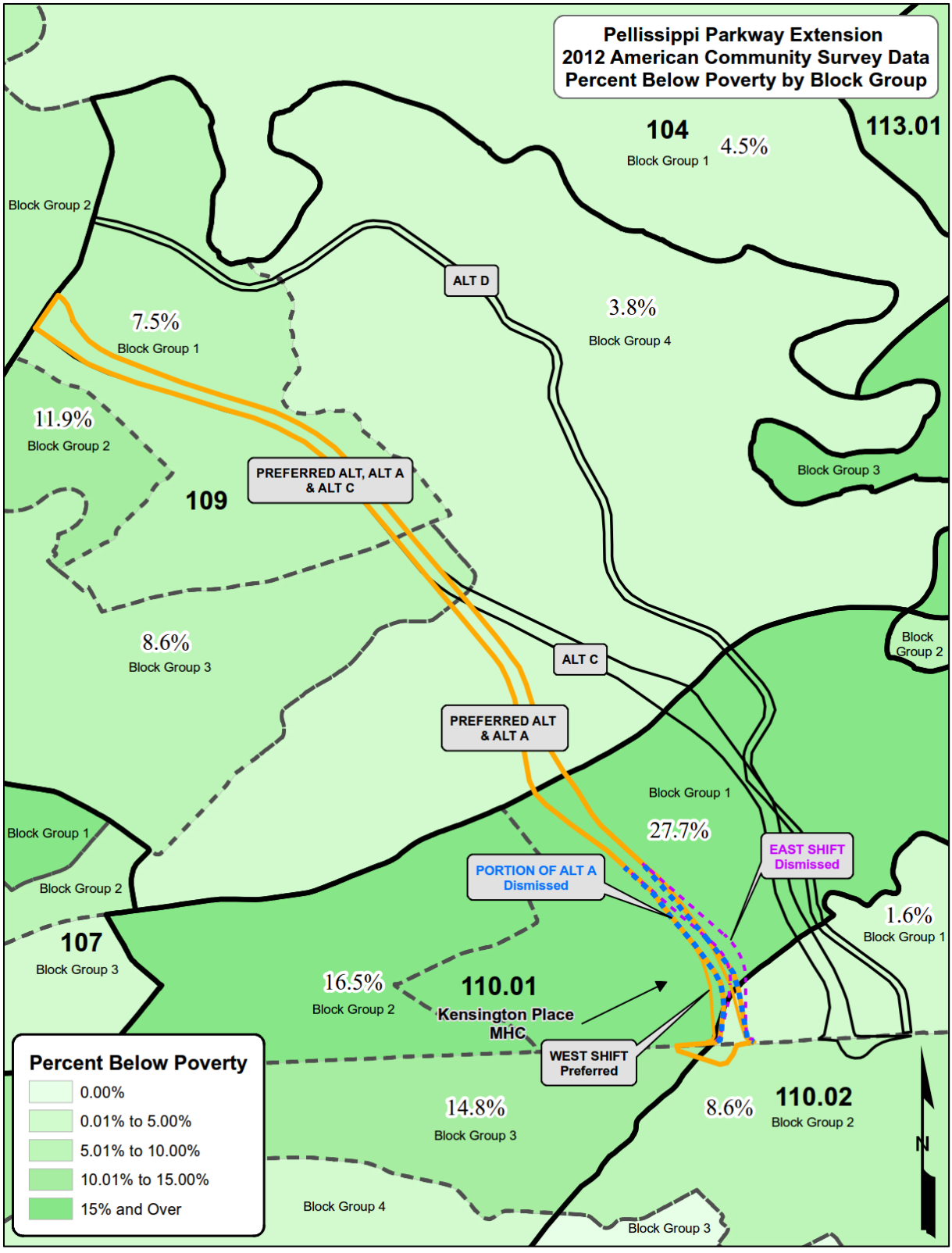
Census Tract 110.01, in the southern portion of the study area, has lower income levels and higher proportions of residents living below the poverty level when compared to the state, Blount County, and the rest of the study area. The median household income for Census Tract 110.01 is about 25 percent lower than for Blount County.

Table 3-11: Income Measures (2010)

Income Measure	Tennessee	Blount County	Census Tract 109	Census Tract 110.01	Census Tract 110.02
Median household income	$43,314	$47,322	$52,353	$37,773	$50,208
Per capita income	$23,722	$24,071	$25,069	$23,595	$30,066
Percent persons below poverty level	16.50%	11.70%	5.40%	15.70%	4.70%

Source: U.S. Census, 2010.
The 2010 Census did not report income levels at the Block Group level.

Figure 3-10: Percent of Population Below Poverty



Source: American Community Survey (Census 2012).

Housing and Household Characteristics

Housing and household characteristics generally include information pertaining to housing ownership (tenure) and household size. The census tracts in the study area have homeownership averages that are higher than the state and county. As shown in Table 3-12, the median housing value in Blount County is higher than the statewide median housing value. The median rent for Blount County is $639, slightly lower than the statewide average of $678 per month.

Table 3-12: Housing Characteristics 2010

	Tennessee	Blount County	Census Tract 109	Census Tract 110.01	Census Tract 110.02
Total households	2,493,552	49,265	2,348	2,236	1,603
Median home value	$134,100	$157,200	$139,900	$161,000	$160,400
Homeownership rate	68.1%	74.10%	78.2%	75.1%	85%
Median rent	$678	$639	$ 646	$685	$771

Source: U.S. Census, 2010.

Residential density in Blount County is low, though somewhat higher in the cities and towns, reflecting the suburban and 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.

According to the *Addendum to the 2009 Economic and Fiscal Impact Analysis* (PB 2015a); contained in Technical Appendix D), the households in the study area are expected to grow by roughly 680 households per year based on the amount of undeveloped land in the area. However, 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 demand in the area.

3.3.1.2 Existing Economic Characteristics

According to the U.S. Census Bureau, approximately 70 percent of Blount County's available labor force worked in Blount County in 2010, up from the 2000 estimate of 64 percent. The vast majority (14,009) of those individuals who work outside of Blount County, travel to Knox County for their jobs (http://www.planeasttn.org/Newsroom/NewsArchive/ArticleView/ArticleId/48/New-Census-Figures-Confirm-Regional-Connections.aspx).

The Tennessee Department of Labor and Workforce Development in its *2014 Labor Force Estimates Summary (http://tennessee.gov/assets/entities/labor/attachments/LaborForce2014.pdf)* reported the labor force within Blount County in 2014 averaged 58,300 individuals, with an unemployment rate of 6.0 percent compared to that of Tennessee, which had an average unemployment rate of 6.7 percent. This report is included in Technical Appendix N.

Blount County's employment is largely dominated by the services and trade sectors. 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 and the Blount Memorial Hospital, respectively.

Within the project area, there are currently few commercial enterprises. A golf driving range is located 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 Pellissippi Place technology research and development Park, east of the

current terminus of Pellissippi Parkway at SR 33, is under development. In June 2015 the park's anchor tenant, a healthcare technology firm, opened for business. The majority of commercial properties are adjacent to the project area along US 129/Alcoa Highway, US 411/Sevierville Road, and 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. 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 2 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 2013, Blount County ranked eighth in Tennessee for visitor spending; tourism expenditures were approximately $320.39 million, which represented a 1.68-percent increase from 2012. Blount County ranks third in East Tennessee Region in economic impact increase, behind Sevier and Knox Counties. About 2,950 people were employed in the tourism industry in the county in 2013, with an annual payroll of approximately $76 million. Annual local sales tax receipts for Blount County in 2013 were about $10.9 million (TARD 2013).

3.3.2 Impacts to Social and Economic Resources

3.3.2.1 Impacts on Population

According to the *Supplemental Information and Analysis for Blount County Plans, Approved August 26, 2010* (https://www.blounttn.org/planning/plans.asp) the majority of the population (63 percent) in Blount County in 2000 lived in the urbanized area. Most of the rural population (36 percent) was not associated with farming but lived in low-density areas not directly associated with the urban pattern in the county. Based on the 2010 Census, the urban population has grown to 67 percent and the rural population has declined to 33 percent.

The extension of Pellissippi Parkway (I-140) would complement the anticipated future growth by enhancing the transportation infrastructure of the area; improving mobility in Blount County, Maryville, and Alcoa; and assisting in the improvement of safety and operations 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.

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
- 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. 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 indicates some degree of neighborhood bonds.

The Preferred Alternative will displace 11 single-family residences. Six of the homes to be displaced are in the Kensington Place mobile home community near the southern terminus of the project. These six mobile homes account for about 4 percent of total residences in that neighborhood. The Preferred Alternative also will result in visual and noise impacts to the remainder of the neighborhood. The preliminary noise analysis indicates that the neighborhood is eligible for a noise barrier that would mitigate adverse noise and visual impacts, and TDOT has committed to build the noise wall provided that the majority of benefited residents and property owner(s) give their approval. While the roadway will be built within the northwest corner of the mobile home community, it will not physically divide residents within the neighborhood. Access within the neighborhood and to and from US 321 will not be affected.

All along the Preferred Alternative, 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.

While there will likely be individuals who experience adverse impacts due to disruption of their immediate neighborhood, overall, the impact of the Preferred Alternative will 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.
- The area is already experiencing conversion to new residential developments.

The 2012 Preferred Alternative (A) would not displace any homes within the Kensington Place community. It would displace five residences scattered along the alignment. The East Shift, which was not selected to be incorporated into the Preferred Alternative, would displace five residences plus one mobile home. The East Shift would be closer to the developing Sweetgrass Plantation subdivision but would not intrude into the subdivision's boundaries. Otherwise the impacts on communities and neighborhoods would be as described above for the Preferred Alternative.

Alternative C would displace 27 single-family homes. Twenty-three of the 27 residences to be displaced are in two clusters. One cluster is in the footprint of the proposed interchange with Sevierville Road (US 411) in which 11 homes would be displaced in the vicinity of the Tara Estates subdivision. The second cluster is in the footprint of the proposed interchange with US 321, in which 12 residences would be displaced north and south of US 321 in the Hubbard community. This alternative would adversely affect community cohesion in these areas.

Alternative D would displace 41 single-family residences. Seventeen of the 41 residences are clustered in the Peppermint Hills community. The alternative would result in noise impacts to the neighborhoods and changes in the visual character of the area. Alternative D would 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.

3.3.2.3 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.

During the preparation of the DEIS, an analysis of the economic and fiscal impact of the project was conducted, and the results are presented in the 2009 *Pellissippi Parkway Extension (SR 162): Economic and Fiscal Impact Analysis* report, available on the project website and from the TDOT Environmental Division. In 2015, TDOT updated the 2009 economic and fiscal impact analysis in light of the 2010 Census data and the new travel demand model adopted in 2013. The travel demand model update includes significant revisions to the model's socio-economic (population and employment) assumptions as well as its structure, network, and calibration. The changes are enhancements aimed at improving the accuracy of the model's forecasts. The new population and employment forecasts for Blount County are lower than the projections forecasted under the previous regional model. The reduction of population and employment at the county level is somewhat modest at less than 10 percent, but the reduction in the area most impacted by the project is much greater at more than 20 and 30 percent for population and employment, respectively. Forecasted traffic volumes for the project's roadways are also substantially lower (as discussed in Section 3.1.1.3).

The analysis assessed the direct, indirect, and induced effects of the one-time demand for construction labor and materials needed to implement the proposed improvements. The analysis determined that the proposed project represents an increase in demand for construction services. Thus, 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 3-13 summarizes the economic impacts of the project alternatives. Technical Appendix D contains the *Addendum to 2009 Economic and Fiscal Impact Analysis* report.

Table 3-13: Economic Impacts in Blount County

Characteristics	Preferred Alternative[1]	Alternative C	Alternative D
Jobs created	629	663	269
Labor income	$34.1 mil	$36.0 mil	$14.6 mil
Economic output	$195.1 mil	$205.6 mil	$83.4 mil

Source: Addendum to 2009 Economic and Fiscal Impacts Analysis (PB 2015a).

[1] The results for the Preferred Alternative would be the same for Alternative A and for the East Shift, due to the proximity of the alignments.

The Preferred Alternative and the other four-lane alternatives would generate substantially more jobs, labor income, and economic output than would the two-lane alternative (D). While the greatest benefit would be to the construction industry, real estate, retail and professional services would also experience substantial benefit.

3.3.3 Preliminary 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 TDOT will carry out to assist those persons and businesses that are 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 3-14 summarizes the number of displacements for each alternative.

Table 3-14: Displacements

Displacement	Preferred Alternative	2012 Preferred Alternative (A)	Preferred Alternative with East Shift	Alternative C	Alternative D
Single-family units	11	5	6	27	41
Businesses	1	1	1	1	2
Total	**12**	**6**	**7**	**28**	**43**

Source: Conceptual Stage Relocation Plan (TDOT 2014).

3.4.1 Displacement of Existing Residences

A Conceptual Stage Relocation Plan (CSRP) was prepared for the DEIS in 2009. In 2014, TDOT prepared a new CSRP to identify displacement effects for the Preferred Alternative and other alternatives considered. The 2014 CSRP is provided in Attachment D.

The Preferred Alternative will displace five single-family residences scattered along the alignment and six mobile homes that are clustered in the northeast corner of the Kensington Place mobile home community.

The 2012 Preferred Alternative (A) would displace five scattered residences and the East Shift (considered but not selected) would displace a total of six scattered residences. Alternative C would displace a total of 27 residences, most of which are clustered in the vicinity of the Tara Estates subdivision and in the Hubbard community, as described in Section 3.3.2.2.

The number of homes that would be displaced by Alternative D has nearly doubled since the DEIS was published, indicating some new development has occurred along this corridor. The DEIS reported that 21 single-family homes and three mobile homes would be displaced, compared with the recent study that identified 39 single-family residences and two mobile homes to be displaced along Alternative D.

Results of the 2014 survey indicate that the supply of available property in the project area appears to be adequate to satisfy the relocation requirements of the 11 households and one business affected by the Preferred Alternative, 2012 Preferred Alternative (A), and Preferred Alternative with East Shift. Alternatives C and D would have a greater impact with between 27 and 41 households requiring relocation. While research indicates that the supply of available housing in the area should be adequate to meet the residential relocation requirements, it would take more time to identify and secure available housing for the larger number of households that would be displaced under Alternative D.

3.4.2 Displacement of Existing Businesses

The Preferred Alternative, the 2012 Preferred Alternative (A), and the East Shift would displace one business—a convenience/thrift store. Alternative C would displace a golf driving range, while Alternative D would displace a general store and a service station/convenience market. A review of the local commercial real estate market indicates there are a sufficient number of replacement sites available to relocate the eligible displaced businesses. Displacement of the businesses would not be expected to have a substantial economic or otherwise generally disruptive effect on the community affected by this project.

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

3.4.3 Preliminary Mitigation Measures

As the project moves forward into design, TDOT will look for ways to reduce the number of actual residential relocations based on available design solutions. One example of a potential design solution is the use of retaining walls to reduce the width of ROW necessary to accommodate normal side slopes.

3.4.4 Relocation Assistance

To minimize the unavoidable effects of the ROW acquisition and displacement of people and businesses, TDOT will carry out an ROW and relocation program in accordance with the *Tennessee Uniform Relocation Assistance Act of 1972* (T.C.A. 13-11-101 et seq.) and the *Uniform Relocation Assistance and Real Property Acquisition Act of 1970, as amended* (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 is found at http://www.tn.gov/tdot/topic/relocation-office.

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.

In 2014, TDOT updated the Environmental Justice (EJ) analysis for the project alternatives in conformity with the U.S. Department of Transportation's (USDOT) 2012 Departmental Order 5610.2(a), *DOT Actions to Address Environmental Justice in Minority Populations and Low-Income Populations*.

The updated analysis focuses on the Preferred Alternative (with West Shift), 2012 Preferred Alternative (A), Preferred Alternative with East Shift, and DEIS Alternatives C and D. The analysis is documented in the memorandum dated June 10, 2014, *Updated Environmental Justice Analysis as Part of the Reevaluation of the Draft Environmental Impact Statement (*DEIS) (with minor corrections March 3, 2015), contained in Attachment E.

The updated EJ analysis accomplishes the following:

- Identifies potential low-income and minority populations in the project area, which was defined in the DEIS and has not changed;
- Describes potential impacts to identified EJ communities as well as mitigation measures to minimize impacts to those communities;
- Describes coordination activities to achieve public participation and input from low-income and minority persons; and
- Addresses alternatives considered to avoid or minimize impacts to the protected populations.

3.5.1 Identification of Environmental Justice Communities

Within the project area, there are scattered locations of low-income and minority persons. Only one area, however, has a concentration of the protected populations (low-income and minority) that would be directly affected by the project. The EJ community is the Kensington Place mobile home park.

The Kensington Place community is on the north side of US 321/SR 73, to the east of the Maryville city limits, at the southern end of the proposed project. The community has 163 mobile home site pads, and more than 70 percent of the site pads have a mobile home on them. Most of the mobile homes

are occupied, and most are owner-occupied according to the mobile home park manager in a May 30, 2014, telephone conversation. Figure 3-11 illustrates the layout of the mobile home community.

Figure 3-11: Kensington Place Mobile Home Community

Source: Parsons Brinckerhoff, September 2013. Alignment shown is the Preferred Alternative.

Low-Income Persons

The southern end of the project area has a higher concentration of low-income persons (persons below the poverty level) compared with the rest of the project area and Blount County (Table 3-15 and Figure 3-10). The 2012 *American Community Survey* provides block group level data on the location of concentrations of low-income persons in the area. CT 110.01 BG 1, which encompasses Kensington Place, has a substantially higher percentage of population below the poverty level (27.7 percent) compared with the county (11.7 percent) and most of the other block groups in the vicinity of the project.

Table 3-15: Persons below the Poverty Level (2010)

	CT 109 BG 1	CT 109 BG 2	CT 109 BG 3	CT 109 BG 4	CT 110.01 BG 1	CT 110.01 BG 2	CT 110.01 BG 3	CT 110.02 BG 1	CT 110.02 BG 2
Persons below poverty level	7.5%	11.9%	8.6%	3.8%	27.7%	16.5%	14.8%	1.6%	8.6%

Source: American Community Survey, 2012.

Minority Population

Two block groups in the project area, CT 109 BG 3 (9.2 percent) and CT 110.01 BG 2 (10.0 percent), have higher percentages of minority persons than CT 110.01 BG 1 (8.2 percent), which contains the Kensington Place community, as shown on Figure 3-9. There are scattered individual blocks in the

vicinity of the project area with greater than 10 percent minority concentrations and one block along Wildwood Road has 50 percent minority residents, as shown on Figure 6 in Attachment E.

Table 3-16 and Figure 3-9 show the number and percentage of minority residents within Kensington Place and in the larger block group and census tract in which this community is located, as well as the larger project area. Kensington Place has a much larger share of minority residents (23.3 percent) compared with the majority of the surrounding area. Most of the minority population within the community is Hispanic (about 20 percent of the total population of Kensington Place).

Table 3-16: Minority Population in Kensington Place and Vicinity (2010)

	Blount County		CT 110.01 Total		CT 110.01 BG 1		Blocks in Mobile Home Park	
	Number	% of Total	Number	% of Total	Number	% of Total	Number	% of Total
Total population	**123,010**		**5,524**		**1,410**		**352**	
White	113,240	92.1%	5,131	92.9%	1,295	91.8%	270	76.7%
Total minority	9,770	7.9%	393	7.1%	115	8.2%	82	23.3%
Total Hispanic	3,441	2.8%	160	2.9%	84	6.0%	70	19.9%
Black	3,314	2.7%	94	1.7%	2	0.1%	0	0.0%
Asian	863	0.7%	55	1.0%	5	0.4%	3	0.85%
American Indian and Alaska Native	365	0.3%	18	0.3%	7	0.5%	3	0.85%
Other races	1,787	1.5%	66	1.2%	17	1.2%	6	1.7%

Source: U.S. Census, 2010.

Limited English Proficiency

With the higher ethnicity reported in the southern portion of the project area, another factor to consider is that of limited English proficiency. The 2012 *American Community Survey* reports the number and percent of persons considered linguistically isolated. The term "linguistically isolated" refers to people and families who do not speak English very well. About 9.7 percent of the residents of CT 110.01, BG 1 report Spanish or Spanish Creole as their primary language. Table 4 and Figure 7 in the EJ Memorandum in Attachment E illustrate the locations of persons with limited English proficiency.

3.5.2 Potential Impacts to Environmental Justice Communities

The No-Build Alternative and Alternatives C and D would have no direct effect on the Kensington Place EJ community. The impacts of the Preferred Alternative, the 2012 Preferred Alternative (A), and the East Shift on Kensington Place are discussed below. The primary impacts would be displacements and relocation, visual quality, and noise.

3.5.2.1 Land Acquisition and Relocations

As analyzed in the DEIS, Alternative A (2012 Preferred Alternative (A)) would have an effect on the low-income and minority mobile home community, taking about 1.5 acres of land from the northeastern edge of the community but not acquiring any of the mobile homes.

The Preferred Alternative will encroach farther into Kensington Place, taking about 4.8 total acres and acquiring six occupied mobile homes. The Preferred Alternative with East Shift would move the proposed ROW outside the boundaries of Kensington Place.

3.5.2.2 Visual Impacts

The Preferred Alternative will place a major new transportation facility within the northeastern corner of the Kensington Place community property. Some of the residents, primarily those in the northeastern portion of the mobile home community, will experience a substantial change in their existing view, from natural vegetation and agricultural activities to a new major roadway. The new edge of ROW will be within 10 to 50 feet of several mobile homes along Hepatica Drive.

The 2012 Preferred Alternative (A) would have a similar visual impact in that a major new transportation facility would be placed within the northeastern corner of Kensington Place, but the ROW edge would be farther from the closest mobile home (about 80 feet) and no existing mobile homes would be removed.

With the East Shift, the new roadway would be outside of the community and farther away both physically (about 400 feet) and visually from the mobile homes.

3.5.2.3 Noise Impacts

The Preferred Alternative and the East Shift would each result in noise impacts to the Kensington Place community. The East Shift would result in noise impacts to 26 residences in the community while the Preferred Alternative will impact 48 residences if a noise barrier would not be built.

In compliance with TDOT's 2011 *Noise Policy*, noise barriers were evaluated to mitigate the predicted noise impacts in the Kensington Place community (see Tables 6 and 7 in the EJ Memorandum in Attachment E for details on the noise analysis for Kensington Place). The results of this preliminary analysis indicate that a noise barrier would be feasible and reasonable at this community under the Preferred Alternative but not with the East Shift. To minimize adverse impacts to the mobile home community, TDOT has committed to build a noise barrier for the community with the Preferred Alternative. TDOT will conclude that a community desires the construction of a noise barrier unless a majority (at least 51 percent) of the benefited property owners and residents indicate that they do not want the proposed noise barrier.

Table 3-17 summarizes the as-built impacts expected to occur in the Kensington Place community with the Preferred Alternative (with a barrier) and with the Preferred Alternative with East Shift (with no noise barrier).

Table 3-17: As-Built Noise Impacts of East and West Alignment Shifts

Alternative	Number of Impacted Residences			
	Experiencing Substantial Increases	Approach or Exceed Noise Abatement Criteria	Total	Sound Level Increases Higher than with the Other Shift
Preferred Alternative (with barrier)	21	0	21	47
Preferred Alternative with East Shift (no barrier)	26	0	26	8

Source: Bowlby, Memo dated March 3, 2015, contained in Attachment E.
Note: The noise impacts reported in this table vary slightly from what was reported in the 2014 *Environmental Justice Report* and the July 2014 reevaluation of the DEIS as a result of minor corrections made to the noise study since the reevaluation was approved.

Both alternatives would result in increased noise for residents of the mobile home community. As shown in Table 3-17, 21 residences would still experience substantial increases in sound levels under the Preferred Alternative with the proposed noise barrier; however, this number is slightly lower than the 26 residences in the mobile home community that would experience substantial noise level increased under the East Shift with no barrier. The differences in noise level increases between the two alternatives are generally 3 dBA or less; 3 dBA is usually the smallest change in traffic noise levels that people can detect without specifically listening for the change. Nine residences in Kensington Place as well as the three residences on Lamar Alexander Parkway would have the same level of increase for either alternative. Finally, six residences would be relocated under the Preferred Alternative. Based on this assessment, the differences in the as-built noise impacts of the Preferred Alternative and the East Shift do not appear to be significant.

3.5.3 Coordination, Access to Information, and Participation

Throughout the EIS process there have been substantial efforts to achieve public participation along the proposed corridor and in the project area. In 2010, copies of the announcement of the availability of the DEIS and the public hearing were hand-delivered to the Kensington Place mobile home park manager for distribution to the community. As part of the community briefing held by TDOT on May 30, 2013, to provide information about the potential shifts in the alignment of the 2012 Preferred Alternative (A), TDOT provided announcements and materials in English and Spanish. TDOT also sent direct mailings printed in both English and Spanish to the mobile home community residents and provided a Spanish translator to ensure full understanding of the concepts presented.

The May 2013 meeting was attended by 136 persons (those who signed in). TDOT received more than 150 comments, including comments from persons residing in Kensington Place. Table 4-8 in Chapter 4 contains a summary of the community briefing comments and TDOT responses.

3.5.4 Environmental Justice Summary

Consistent with *Executive Order 12898 on Environmental Justice* and the Final DOT Environmental Justice Order 5610.2(a), FHWA must ensure that any of its respective programs, policies, or activities that may have a disproportionately high and adverse effect on populations protected by Title VI ("protected populations") will only be carried out if:

(1) A substantial need for the program, policy, or activity exists, based on the overall public interest; and

(2) Alternatives that would have less adverse effects on protected populations (and that still satisfy the need identified in part (1)), either

   a. Would have other adverse social, economic, environmental or human health impacts that are severe; or

   b. Would involve increased costs of extraordinary magnitude.

The Preferred Alternative will result in adverse impacts to the low-income and minority residents in the Kensington Place mobile home community due to increased noise, changes in views, and displacements. To mitigate for the adverse impacts to the protected populations, TDOT has committed to build a noise barrier for the Kensington Place mobile home community to mitigate the predicted noise impacts, provided that the majority of benefited residents and property owner(s) give their approval. TDOT also will seek input from community residents regarding the landscaping and color/pattern of the barrier in order to minimize possible visual impacts to the community as a result of the barrier and the new roadway.

The other alternatives would minimize or avoid adverse impacts to the mobile home community; however, TDOT determined that the other alternatives would result in other adverse social, economic, environmental, or human health impacts that would be substantial.

The 2012 Preferred Alternative (A) would adversely affect an NRHP-eligible archaeological site.

The Preferred Alternative with East Shift would have the following impacts:

- Operations of two active farms—this shift would take five farm buildings and reduce access to agricultural fields in active production.
- A recently constructed church (Rio Revolution Church) is on the north side of US 321 immediately east of the proposed on-ramp for the East Shift—The alignment would reduce access to the church by members during heavy traffic times and may result in increased visual and noise impacts to external activities of the church.
- Increased noise levels for Kensington Place residents for both alignment shifts—With the East Shift, the mobile home community would not be eligible for a noise barrier. As shown in Table 3-17, the differences in the as-built noise impacts of the Preferred Alternative and the Preferred Alternative with East Shift do not appear to be significant.

Alternatives C and D would avoid direct impacts to the protected populations in Kensington Place, but it would result in other impacts that would be severe if the EJ community were avoided.

Adverse impacts of Alternative C include the following:

- Displacing 27 residences, of which 23 residences would be in two clusters (Tara Estates subdivision at the proposed interchange and in the Hubbard community at US 321/SR 73 at the proposed interchange). This alternative would adversely affect community cohesion in these areas.
- Affecting more downstream reaches of larger tributaries of Little River than the Preferred Alternative.

Adverse impacts of Alternative D include the following:

- Displacing 39 single-family residences and two mobile homes, including a cluster of homes in the vicinity of the Peppermint Hills Drive community. The alternative would adversely affect community cohesion in this area.
- The forecasted traffic volumes for Alternative D exceeding the carrying capacity of a two-lane road; thus, this alternative would not serve the traffic demands that are anticipated in future years.
- Proximity to the Little River, a designated Exceptional Tennessee Water that is Blount County's primary source for drinking water.

This analysis is presented in the June 10, 2014 *Environmental Justice Technical Memorandum,* which is provided in Attachment E.

The TDOT Civil Rights Office reviewed the June 10, 2014 *Environmental Justice Memorandum* and found that the assessment and methodology used is in keeping with the laws that govern projects that are federally funded, specifically Title VI of the 1964 Civil Rights Act. The letter (dated June 10, 2014) is included in Attachment E.

3.5.5 Preliminary Mitigation Measures

TDOT has committed to build a noise barrier for the Kensington Place mobile home community to mitigate the predicted noise impacts, provided that the majority of benefited residents and property owners give their approval. TDOT also will seek input from community residents regarding the landscaping and color/pattern of the barrier wall in order to minimize possible visual impacts to the community as a result of the barrier and the new roadway.

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 U.S. 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.

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 U.S. Census of Agriculture, conducted every 5 years, provides a picture of Blount County's farmland trends since 1982. The U.S. 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 3-18 summarizes trends in the county's farmlands since 1982.

Table 3-18: Farmland in Blount County

Characteristics	1982	1992	2002	2012	Change (1982–2012)
Number of farms	1,219	1,012	1,302	980	-20%
Land in farms (acres)	111,029	96,181	105,148	100,717	-9%
Land in farms—average size of farm (acres)	91	95	81	103	13%

Source: U.S. Census of Agriculture, 1982, 1992, 2002, 2012

Since 1982, the number of farms and the amount of farmland acres in Blount County have declined. About 9 percent of farmland acres have been converted to other uses over the 30-year period. The number of farmland acres has not dropped as substantially as the number of farms; these factors along with the 13 percent increase in the average size of farms indicate a possible consolidation of farms.

In more recent comparisons, in 2012 Blount County was home to 980 farms, a substantial decline (25 percent) since 2002. In 2012, the county had 100,717 acres of farmland, a 4-percent decrease from 2002, but the average size of a Blount County farm had increased by 27 percent. The increase in the average size of farms may be indicative of a trend toward farm consolidation throughout the state, or the loss of smaller farms due to economic conditions.

Based on information provided by the NRCS on December 10, 2014, approximately 94,952 acres of land in Blount County met the NRCS soil requirements for prime farmland designation (which includes farmlands of statewide or local significance).[1] This represents about 36 percent of the total land acreage in the county (minus the land in the Great Smoky Mountains National Park). About half (48,400 acres) of the prime farmlands are also classified as farmlands of local significance. The correspondence with the NRCS regarding the current listing of farmlands by classification is included in Attachment C-2.

3.6.1.2 Project Area Farmlands

The project area includes land currently zoned agricultural or in agricultural production. Historically, the project area was a rural, farming area featuring primarily dairy farms where cattle are 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.

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

[1] The DEIS reported that approximately 54,050 acres of land in Blount County met the soil requirements for prime farmland designation by NRCS, representing about 15 percent of the total land acreage in the county. Based on information provided by the NRCS at that time, the DEIS stated that the county had no farmlands designated as statewide or local significance. The difference between what was reported in the DEIS and the information provided in 2014 by the NRCS appears to be the amount of land now classified as statewide or local significance.

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.)

3.6.2 Coordination with NRCS

During the DEIS, TDOT coordinated with NRCS and completed Form NRCS-CPA-106 for Alternatives A, C, and D. The initial coordination for this project indicates that the project area crossed soils that met the criteria as prime farmland. (See NRCS response letter dated June 13, 2006, in DEIS Appendix A.) The NCRS determined that each of the Build Alternatives would affect prime farmlands, as documented in the NCRS-CPA-106 form that was returned to TDOT in correspondence dated January 9, 2009 (also in DEIS Appendix A). In a letter dated January 15, 2009 (also in DEIS Appendix A), NRCS confirmed that this project would not affect any planned or executed agency programs and that NRCS has no Wetland Reserve Program easements or agreements installed or planned in the proposed corridor.

With the identification of the alignment modification for the Preferred Alternative in 2013, TDOT coordinated again with NRCS and completed a new Form NRCS-CPA-106 for the Preferred Alternative (referred to at that time as the Preferred Alternative with West Shift), the East Shift, and the 2012 Preferred Alternative (A). In reevaluating the farmlands, the NRCS excluded areas within the city limits of Alcoa and the census-designated area of Eagleton Village from area and acreage calculations since urbanized areas are exempt from the provisions of the FPPA. The May 30, 2013, letter from NRCS and the completed NRCS-CPA-106 form (dated June 4, 2013) are included in Attachment C-2 of this FEIS.

In May 2014, TDOT contacted NRCS to request assistance in updating the evaluation of the previously considered Alternatives C and D. In an email response from NRCS to TDOT, dated May 16, 2014 (see Attachment C-2), NRCS indicated that there were no significant differences with the information previously submitted for these alternatives. Since the spatial data included with the 2014 request was identical to the data used for the 2009 evaluation, NRCS did not see the need to update the information on Alternatives C and D.

3.6.3 Impacts to Farmlands

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

The farmland effects of the Preferred Alternative and the other alternatives are discussed briefly below and summarized in Table 3-19.

Each alternative 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, which could reduce the productivity of the individual farm, depending on the location and size of the amount of ROW acquired. Each alternative may also alter access to the remaining portions of the farmlands.

The Preferred Alternative will affect approximately 110 acres of farmlands; more than half of the land (about 55 percent) within the proposed ROW of this alternative is classified as farmland. The Preferred Alternative will convert about 34 acres of prime farmlands to a transportation use, which is about 30 percent of the total farmland acres to be converted.

Table 3-19: Farmland Impacts

	Preferred Alternative[1]	East Shift[1]	2012 Preferred Alternative (A)[1]	Alternative C[2]	Alternative D[2]
Total land in right-of-way (acres)	200	198	197	209	104
Total farmland in right-of-way (acres)	110	107	107	74	45
Farmland as % of total land in right-of-way	55%	54%	54%	40%	38%
Total prime farmland in right-of-way (acres)	34	30	31	44	23
Total statewide and locally important farmland (acres)	48	50	49	0[3]	0[3]
% of Blount County farmland to be converted	0.01%	0.01%	0.01%	0.01%	0.01%
Total corridor assessment score	141	140	141	122	127

[1] *NRCS, 2013, and Parsons Brinckerhoff, 2013*. During the 2013 farmlands coordination, the NRCS reduced the acreages of total farmlands from what was shown in the DEIS, based on the fact that the FPPA specifically excludes urbanized areas from such calculations.
[2] *NRCS, 2009, and Parsons Brinckerhoff, 2009*. Subsequent to the DEIS, the total ROW for Alternatives C and D were corrected to 209 acres and 104 acres, respectively, to reflect updated calculations of rights-of-way. Also the acres of farmlands were revised to exclude areas within the city limits of Alcoa and the census-designated area of Eagleton Village from farmland calculations based on the provisions of the FPPA. In 2014, TDOT attempted to re-coordinate with NRCS on DEIS Alternatives C and D, but the NRCS declined to update the assessment for these alternatives.
[3] In 2008, NRCS reported 0 acres of statewide or locally important farmlands for all of the DEIS Alternatives on the CPA-106.

TDOT conducted the required corridor assessment for the Preferred Alternative and the other alternatives considered. The total scores for the Preferred Alternative and the other alternatives are shown in Table 3-19 and in the completed NRCS-CPA-106 forms provided in Attachment C. The score for each alternative is 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 the Preferred Alternative or other alternative is consistent with the FPPA.

The Preferred Alternative and other alternatives are entirely within the UGBs 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 or commercial use, which is generally consistent with the 2000 *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 3-6). 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.

3.6.4 Preliminary Mitigation Measures

While farmland impacts are below the 160-point threshold for regulatory required mitigation, TDOT recognizes the importance of agricultural community resources and will meet with agricultural land owners to identify potential design measures to minimize impacts to farmland. 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 2008 Blount County *Growth Policies Plan* is to preserve

the area's rural character. Zoning and land use controls enacted by Blount County can assist in minimizing future effects.

3.7 Cultural Resources

Section 106 of the *National Historic Preservation Act* (16 USC 470 et seq.) 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 that are listed in or eligible for listing in the NRHP exist in the project's Area of Potential Effect (APE). A project's APE is defined in 36 CFR 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). The SHPO comments regarding NRHP eligibility and effects are in Attachment F. The project has also been coordinated with parties pursuant to Section 106. A summary of this coordination is provided in Section 4.2.3 of this FEIS.

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
- United Keetoowah Band of Cherokee Indians
- Muscogee (Creek) Nation

The Eastern Band of Cherokee Indians, in a letter dated June 7, 2006, accepted the invitation to be a consulting party for the project. The Eastern Shawnee Tribe of Oklahoma, in an email dated June 1, 2006, and the Cherokee Nation, in an email dated June 19, 2006, did not request to be a consulting party but asked that they be notified if any items under the *Native American Grave Protection and Repatriation Act* (NAGPRA) were discovered during construction. The results of the coordination with the tribes are described in Chapter 4. Copies of the coordination and copies of the tribes' responses are contained in Attachment F.

The results of the studies are documented in several reports that are on file with TDOT's Environmental Division:

- *Historical and Architectural Survey and Assessment of Effects Under 36 CFR 800* (PB 2009a) (also available on the project website)
- *Phase I Archaeological Survey for Pellissippi Parkway Extension* (SR 162) (Panamerican 2009) (not publicly available due to sensitivity of the resources)
- *Phase II Archaeological Testing of Sites 40BT100, 40BT122, 40BT125, 40BT202, and 40BT203 along the Proposed Pellissippi Parkway Extension, Preferred Alternative (Alternative A)* (Panamerican 2013a) (not publicly available due to sensitivity of the resources)

- *Addendum A, B, and C: Archaeological Assessment of 40BT122 Eastern and Western Avoidance Alternatives* (Panamerican 2013b) (not publicly available due to sensitivity of the resources)

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 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 Project Impacts to Historic/Architectural Resources

Only one eligible/listed resource, the Sam Houston Schoolhouse, was within the project's APE that was defined during the preparation of the DEIS. The schoolhouse, situated to the east of Sam Houston School Road, 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.

The Preferred Alternative and the other four-lane alternatives are more than one mile west of the Sam Houston Schoolhouse; thus, this historic resource is outside the APE for these alternatives. Alternative D would improve the existing two-lane Sam Houston School Road, which 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 DEIS alternatives would not adversely affect the Sam Houston Schoolhouse. A copy of the letter is included in Attachment F.

3.7.1.3 Preliminary Mitigation Measures for Historic/Architectural Resources

Since no historic architectural resources will be adversely affected by the Preferred Alternative, no mitigation measures are necessary.

In an e-mail dated March 5, 2009, the SHPO requested that the Anne Elizabeth Thompson Pershing historic marker be preserved during this road project (Attachment F). The marker (BT 2361) was erected in 1922 by the Tennessee Historical Commission. It is located at 3334 Buchanan Road, on the south side, in the immediate area of the proposed interchange of the Preferred Alternative, 2012 Preferred Alternative

(A) and Preferred Alternative with East Shift with US 321. While the marker is not eligible for listing in the NRHP, it is of local interest. If the project involves relocating the marker, it should be re-erected in a pull-off area (instead of adjacent to the road), which would be safer and make the marker more accessible to the public.

3.7.2 Archaeological Resources

3.7.2.1 Area of Potential Effects

The APE for archaeological resources is defined as an area approximately 250 feet in either direction from the centerline of each alternative considered during the DEIS.

3.7.2.2 Project Impacts to Archaeological Resources

During the DEIS, nine archaeological sites within the APE were recommended as potentially eligible for the NRHP pursuant to 36 CFR 60.4, criterion D. 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 Attachment F.

Table 3-20 lists the potentially eligible archaeological sites and the alternatives that would affect them, as identified in the DEIS.

Table 3-20: Potentially Eligible Sites Affected by Build Alternatives

Site	Alternative	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	C/D	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: Phase I Archaeological Survey for Pellissippi Parkway Extension (SR 162) (Panamerican 2009).

Following the selection of the 2012 Preferred Alternative (A), TDOT conducted a Phase II investigation of the five sites affected by the alternative to determine whether any were eligible for the NRHP. The testing revealed that one of the five sites (40BT122) is eligible for the NRHP. This site was determined to be a high-density prehistoric lithic quarry/workshop dating predominantly to the Woodland Period. No human remains were found at this site. The findings of the investigation are documented in the report *Phase II Archaeological Testing of Sites 40BT100, 40BT122, 40BT125, 40BT202, and 40BT203 along the Proposed Pellissippi Parkway Extension, Preferred Alternative (Alternative A*), which is on file at TDOT's Environmental Division office. The SHPO concurred with the determination in a letter dated December 17, 2012; a copy of the letter is included in Attachment F.

TDOT then explored measures to avoid the NRHP-eligible site found within the proposed ROW of the 2012 Preferred Alternative (A). Two minor alignment shifts were identified and additional Phase I assessments of the two shifts were conducted. The archaeological survey and testing demonstrated that no potentially eligible or eligible archaeological sites or deposits are within the area of the two

shifts (East and West). The results of that study are documented in the report *Addendum A, B, and C: Archaeological Assessment of 40BT122 Eastern and Western Avoidance Alternatives*, which is on file at TDOT's Environmental Division office. The SHPO concurred with the findings in a letter dated July 8, 2013; a copy of the letter is included in Attachment F.

The findings of the studies have also been coordinated with the Eastern Band of the Cherokee, the only tribe to request to be a consulting party to the project. TDOT also provided the findings to the Muscogee (Creek) Nation, a recent addition to the list of tribes for this area that had not previously received correspondence on the project. To date, no comments have been received from either tribe.

Since TDOT has been able to avoid the eligible site through the west shift in the southern portion of the project, the Preferred Alternative will have no adverse effect on archaeological resources.

If Alternative C or D were to be selected, Phase II archaeological surveys would be required to determine whether either alternative would affect eligible or listed sites.

3.7.2.3 Preliminary Mitigation Measures for Archaeological Resources

Since the NRHP-eligible archaeological site has been avoided by the Preferred Alternative, no mitigation is necessary.

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 Parks and Recreational Resources

No national forests, wilderness areas, state or local parks, or other documented public recreational resources are within the project corridor. The project terminates on US 321/SR 73, which crosses the National Park Service's Foothills Parkway approximately 5 miles to the east. US 321/SR 73 also connects the project area to the GSMNP approximately 15 miles to the east. Cades Cove within the GSMNP is also approximately 20 miles to the southeast of the project area, east of Townsend. Figure 3-12 shows the location of these recreational resources in relation to the project area.

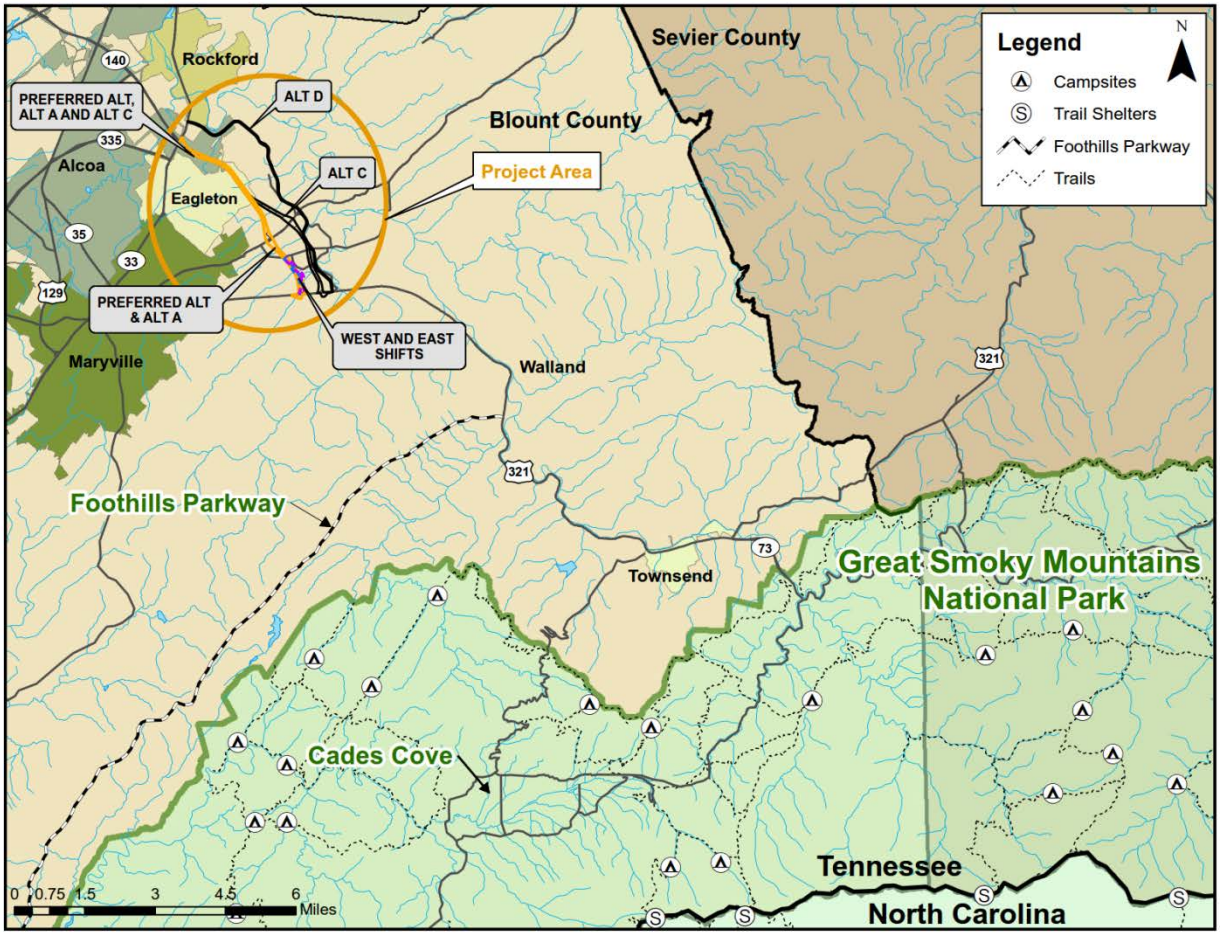
3.8.1 Identification of Parks and Recreation Areas

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 and is the most visited in the National Park Service system. Park visits have been relatively steady at about 9.4 million annual visits since 2010; the latest numbers reported by the National Park Service showed 9,355,000 visits in 2013 in the GSMNP. According to the National Park Service, the park provides an economic hub generating over $718 million a year for surrounding tourist communities.

Within Blount County's portion of the GSMNP is the single most frequented destination in the entire Park—Cades Cove. Cades Cove is a valley with a well-preserved collection of historic buildings 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.

The Foothills Parkway skirts the GSMNP's western side in Tennessee. In 1944, Congress authorized construction of a scenic parkway to provide picturesque viewing of the Great Smoky Mountains as well as to disperse traffic from the heavily used transportation corridors in East Tennessee. When completed, this scenic road will connect US 129 to the west with I-40 to the east, traversing parts of Blount, Sevier and Cocke counties.

Figure 3-12: Recreational Resources



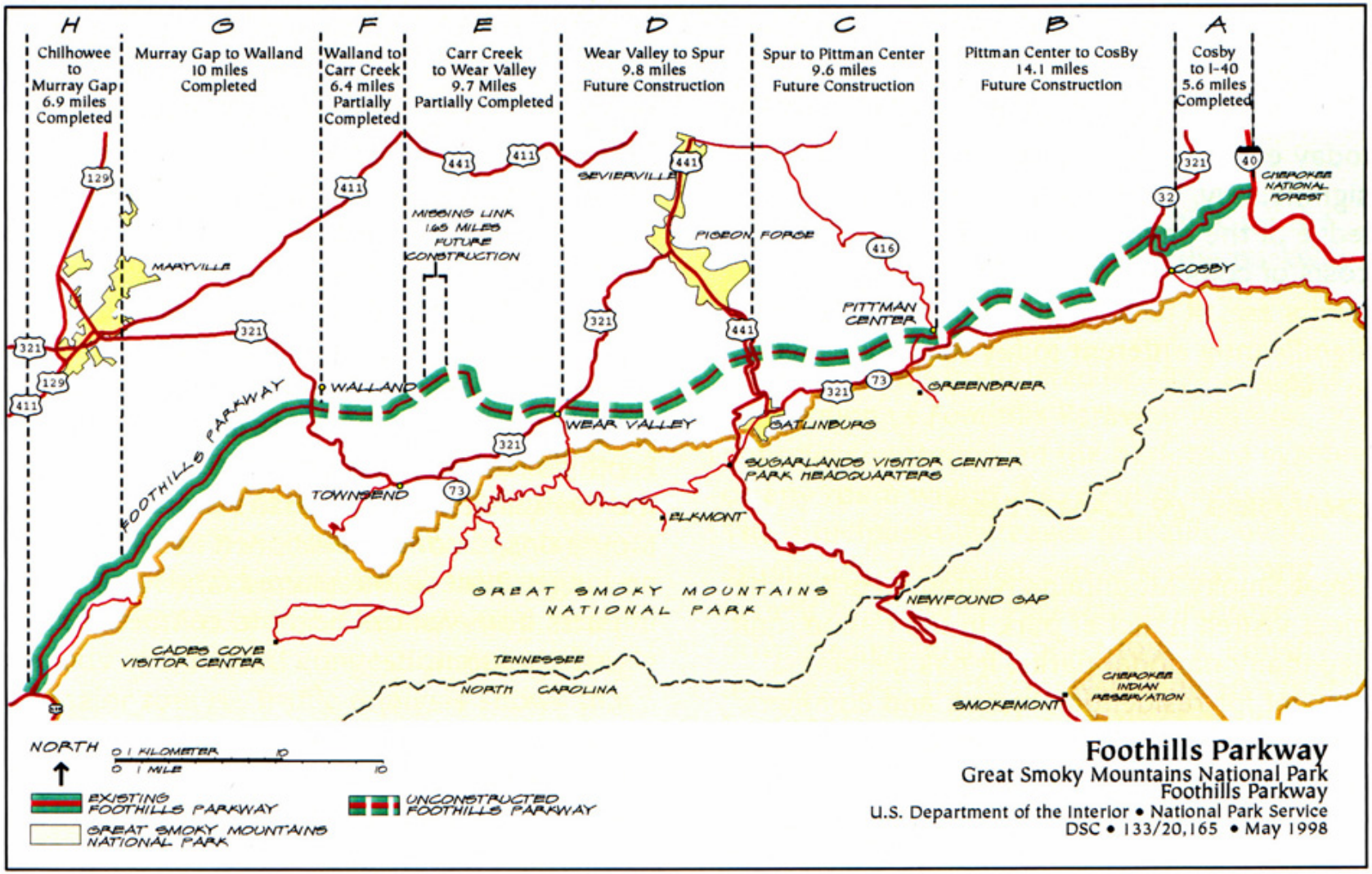
Source: National Park Service and Parsons Brinckerhoff, 2010.

The parkway was to contain eight sections with an approximate length of 71 miles; however, only three sections have been completed, approximately 22.6 miles (shown as Sections A, G and H in Figure 3-13). 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 (Sections G and H).

Construction on the parkway between Walland and Wears Valley (Sections E and F) was initiated in 1984 and 1985 but work was suspended as a result of environmental and design problems encountered. This left a 1.6-mile "missing link," shown on Figure 3-13. The sections of the parkway on either side 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 the missing link segment, and the completion of the missing link is currently underway. The final stage of the project will complete the paving and other miscellaneous work needed to open all of Segments E and F, but remains unfunded at this time. Once completed, 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 east of the proposed project.

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

Figure 3-13: Foothills Parkway



Source: National Park Service, February 2010.

3.8.2 Impacts to Parks and Recreation Areas

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

3.8.3 Preliminary Mitigation Measures

Since no parks or recreation areas would be adversely affected by the project, no mitigation measures are 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* (49 USC 303(a) 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.[2] 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; or
- The use will have a de minimis impact on the property.

The Preferred Alternative or other alternatives considered would not require ROW or easement from public parks, recreation lands, or wildlife/waterfowl refuges. There are no NRHP-eligible or -listed historic properties along the Preferred Alternative or other alternatives considered.

As discussed in Section 3.7.2, the 2012 Preferred Alternative (A) would have affected one archaeological site that was determined to be eligible for the NRHP. Section 4(f) applies to all archaeological sites that are on or eligible for inclusion on the NRHP and that warrant preservation in place. TDOT has conducted additional studies to identify an alignment shift that avoids the eligible site and that shift (West Shift) has been incorporated into the Preferred Alternative. Thus, Section 4(f) does 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.

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 program provides matching grants to states and local governments through the U.S. Department of the 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.

[2] The FHWA's Section 4(f) regulations, entitled Parks, Recreation Areas, Wildlife and Waterfowl Refuges, and Historic Sites, are codified at 23 CFR Part 774.

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 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 agricultural. 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 that are predominately be found at the northern end of the project area (near the end of the existing Pellissippi Parkway) as well as the terminus of the project area at the intersection with US 321/SR 73.

  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, 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 Residential Landscape

- **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 Whittenburg Estates, Sweetgrass Plantation, and Cromwell Village Condos are examples of rural suburban developments within this landscaping unit.

Rural Suburban Landscape

Many of these developments 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 visual sensitivity or unique visual importance.

- **Agricultural—**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—**This landscape unit covers the smallest amount of actual land 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.

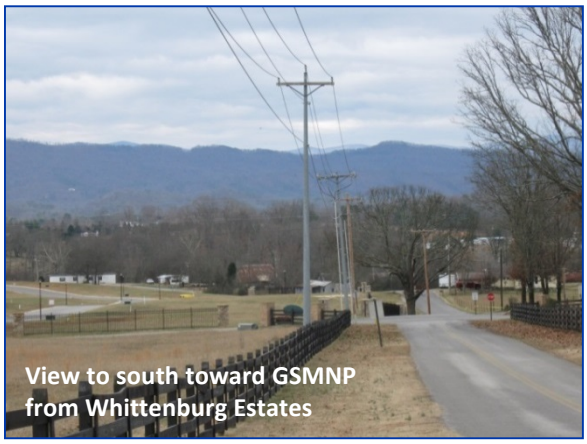
Natural Landscape

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 the process recommended by FHWA in its 1988 publication, *Visual Impact Assessment for Highway Projects.* The major components of this process include establishing the visual environment of the project, assessing the visual resources in the project area, and identifying viewer response to those resources. These components define the existing or baseline conditions. The process then assesses the change in the visual resources that would be introduced by the project and the associated viewer responses; this process helps determine the degree of visual impact.

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.


View to south toward GSMNP from Whittenburg Estates

The GSMNP is approximately 15 miles from the terminus of the project. Background views of the Smoky Mountains are present to the east and south 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 in Blount County.

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.

View to southeast toward GSMNP from Sam Houston School 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 change.
- The commuter, who is somewhat less aware of his or her surroundings, due to the repetitive nature of the activity.
- 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. One way of categorizing the level of visual impacts is minimal, moderate, or high.

Levels of Visual Impacts

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 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 or visually sensitive resources would undergo a substantial change in view.

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.

Preferred Alternative —The Preferred Alternative will introduce a new, four-lane roadway into the landscape where one does not presently exist. From the western terminus at SR 33, this route follows 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 will 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 will pass through active agricultural lands. A new interchange with US 411/Sevierville Road will be approximately 20 feet high. The Preferred Alternative will pass through the northeastern edge of the Kensington Place mobile home community, where the new four-lane divided highway will be in the immediate foreground views of those persons living in the northeastern portion of the mobile home park. The corridor will intersect US 321/SR 73 just east of Flag Branch with an elevated interchange.

Currently, the visual scene of the Preferred Alternative is dominated by a rural residential landscape with pockets of rural suburban, agricultural, and forested areas (natural). The construction of the proposed alternative will result in a visual split of the project area, which in turn may 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 may also further increase the amount of visual impact the new roadway will have on residents within the study area.

Within the Kensington Place community, the proximity of the proposed noise barrier to remaining residences will be both a benefit and an adverse impact. The wall will substantially reduce the noise levels for the residents in the community from a new four-lane roadway within their community. The presence of the wall will be a major change in view, from the open view of agricultural lands to that of a wall up to 1,300 feet in length and 15 feet in height.

The overarching background views of the Smoky Mountains will 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 will be altered and segregated by the construction of the Preferred Alternative. Consequently, the viewshed for adjacent residents whose views are important to them will be altered somewhat. Overall, the visual impact of the construction of the Preferred Alternative 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 will be adversely affected by the Preferred Alternative.

2012 Preferred Alternative (A) and Preferred Alternative with East Shift — The visual impacts for these alternatives would be the same as those described above for the Preferred Alternative, except in the vicinity of the Kensington Place mobile home park. The 2012 Preferred Alternative (A) would

intrude into the northeastern corner of the mobile home park, but the ROW edge would be farther from the closest mobile home (about 80 feet) and no existing mobile homes would be removed. With the East Shift, the new roadway would be outside the community and farther away both physically (about 400 feet) and visually from the mobile homes. A noise wall within the northeastern corner of the mobile home park would not be constructed with either of these alternatives. The visual impacts of these alternatives would be moderate.

Alternative C — The visual impacts for this alternative would be similar to those described above for the Preferred Alternative with the following exceptions:

- It would have no visual impact on the Kensington Place mobile home park. Alternative C would intersect US 411/Sevierville Road about 0.6 mile east of the Preferred Alternative.
- Alternative C would pass closer to residential clusters, resulting in the displacement of 27 residences. The majority of the displacements would be in the Tara Estates subdivision and in the Hubbard community north and south of US 321/SR 73. Tara Estates is in a rural suburban area and Alternative C would place a four-lane highway and interchange at the western end of the subdivision. The alternative would also place a new four-lane highway and interchange in the Hubbard community, although this community is currently bisected by the four-lane US 321/SR 73.

The expected visual impact of this alternative would be moderate.

Alternative D — Along most of the length of Alternative D, an at-grade two-lane transportation facility is already part of the landscape. The alternative would displace a large number of residences (41) scattered throughout the alignment, although 17 displaced residences would be in or adjacent to the established Peppermint Hills subdivision.

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 (moderate) 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.

3.10.3 Preliminary Mitigation Measures

TDOT has committed to build a noise barrier for the Kensington Place community, provided that the majority of benefited residents and property owner(s) approve. To minimize visual impacts of the barrier to persons residing in the community, TDOT will permit residents to have input into the landscaping and color/pattern of the noise barrier. No other visual mitigation is proposed for this project since there are no high amounts of visual impacts elsewhere along the Preferred Alternative.

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, and reducing human or animal health. Air quality describes the amount of pollution in the air.

An *Air Quality Report* (PB 2010) and *Air Quality Technical Report Update* (PB 2014a) were prepared to analyze air quality impacts of the proposed project. The 2010 report is located on the project website (http://www.tn.gov/tdot/article/pellissippi), while the 2014 update is provided as Technical Appendix E of this FEIS.

3.11.1 Transportation Conformity

Transportation conformity is a process required of Metropolitan Planning Organizations (MPOs) pursuant to the *Clean Air Act Amendments* (CAAA) of 1990. The CAAA require that transportation plans, programs, and projects in nonattainment or maintenance areas that are funded or approved by the FHWA be in conformity with the State Implementation Plan (SIP), which represents the state's plan to either achieve or maintain the National Ambient Air Quality Standard (NAAQS) for a particular pollutant. Projects conform to the SIP if they are included in a fiscally constrained and conforming LRTP or TIP.

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.

The project is within the Knoxville $PM_{2.5}$ and ozone Nonattainment Area. The project is included in the *Regional Mobility Plan 2040* as project 09-232 and in the *Knoxville Regional 2014-2017 TIP* as TIP 2014-025. The project is described in the TIP as "construct a new four-lane road from Old Knoxville Highway (SR- 33) to SR-73 (US-321)." This project description and the termini are consistent with the proposed project. Therefore, the project is in conformity with the SIP. Copies of the TIP project sheet and the *Regional Mobility Plan 2040* project page are provided in Attachment A.

3.11.1.1 $PM_{2.5}$ Hot-Spot Analysis

Since the project is in an area designated as being in nonattainment for small particulate matter ($PM_{2.5}$), a $PM_{2.5}$ hot-spot analysis is required. TDOT completed a $PM_{2.5}$ Hot-Spot Determination for the project that concluded that the project was "not a project of air quality concern." TDOT submitted this determination to the Knoxville Area Interagency Consultation (IAC) group on December 1, 2008. The IAC members concurred with TDOT's determination in January 2009. The $PM_{2.5}$ Hot-Spot Determination, IAC concurrence responses, and $PM_{2.5}$ clearance record are provided in Attachment G.

Following the update of the Design Year 2040 traffic projections in 2013, TDOT asked the IAC group to review the 2009 decision and validate the finding. The updated Design Year 2040 traffic projections are substantially lower than the previous Design Year 2035 projections used for the 2009 $PM_{2.5}$ Hot-Spot Determination. During a conference call on January 27, 2014, the IAC group agreed that the previous determination ("not a project of air quality concern") remains valid. Attachment G contains a copy of the January 30, 2014, email documenting the IAC group's concurrence with the 2009 finding.

3.11.1.2 Carbon Monoxide Hot-Spot Analysis

Carbon monoxide (CO) is a colorless, odorless gas that interferes with the delivery of oxygen to a person's organs and tissues. Blount County is an attainment area for CO, but since an EIS is being prepared for the project, a CO evaluation is needed.

The NAAQS for CO include a 1-hour standard of 35 parts per million (ppm) and an 8-hour standard of 9 ppm. The *Guideline for Modeling Carbon Monoxide from Roadway Intersections* published by the U.S. Environmental Protection Agency (EPA) (EPA 1992) (hereafter referred to as the EPA Guideline) indicates that signalized intersections that operate at LOS A, B, or C do not require further analysis because the delay and congestion would not likely cause or contribute to an exceedance of the CO

NAAQS. As a result, CO modeling is only required at signalized intersections that operate at LOS D or worse during any hour.

Two signalized intersections have been constructed in the project area since the DEIS was circulated, and they will be directly affected by the project:

- Pellissippi Parkway (SR 162/I-140) and Old Knoxville Highway (SR 33)
- Old Knoxville Highway (SR 33) and Sam Houston School Road

The analysis conducted for the *Air Quality Technical Report Update* (PB 2014a) demonstrated that both of these intersections are predicted to operate at LOS D or worse in the design year during both the morning and afternoon peak hours, under the Preferred Alternative as well as the other alternatives considered. Therefore, a CO hot-spot analysis of the two intersections was completed.

Dispersion modeling for the intersections was conducted using the CAL3QHC computer model recommended by EPA for predicting CO concentrations near roadway intersections. The methodology and results are detailed in the *Air Quality Technical Report Update*. The analysis demonstrated that the predicted 1-hour CO concentrations at each intersection (between 1.2 and 2.1 ppm) are well below the NAAQS of 35 ppm and the predicted 8-hour concentrations (between 1.1 and 1.8 ppm) are well below the NAAQS of 9 ppm (see Table 3 in Technical Appendix E.)

The Preferred Alternative is not predicted to cause new violations or contribute to existing violations of the NAAQS in the Design Year 2040. Violations of the CO NAAQS would also not be predicted in any interim year since the maximum traffic volumes and the worst congestion would occur in the design year.

3.11.2 Mobile Source Air Toxics

On February 3, 2006, FHWA released *Interim Guidance on Air Toxic Analysis in NEPA Documents*. This guidance was superseded on September 30, 2009, and most recently on December 6, 2012, by FHWA's *Interim Guidance Update on Air Toxic Analysis in NEPA Documents* (FHWA 2012). The purpose of FHWA's guidance is to advise on when and how to analyze Mobile Source Air Toxics (MSAT) in the NEPA process for highways. This guidance is interim because MSAT science is still evolving. As the science progresses, FHWA will update the guidance.

The qualitative analysis presented below provides a basis for identifying and comparing the potential differences among MSAT emissions, if any, for the various alternatives. The assessment is derived in part from a study conducted by FHWA entitled *A Methodology for Evaluating Mobile Source Air Toxic Emissions Among Transportation Project Alternatives* (http://www.fhwa.dot.gov/environment/air_quality/air_toxics/research_and_analysis/mobile_source_air_toxics/msatemissions.cfm). Additional information regarding MSATs is provided in Attachment G.

FHWA's Interim Guidance groups projects into the following categories:

- Exempt projects and projects with no meaningful potential MSAT effects
- Projects with low potential MSAT effects
- Projects with higher potential MSAT effects

FHWA's Interim Guidance provides examples of "Projects with Low Potential MSAT Effects." These projects include minor widening projects and new interchanges, such as those that replace a signalized intersection on a surface street or where design year traffic projections are less than 140,000 to 150,000 AADT. This project is considered to be a "Project with Low Potential MSAT Effects" since the design year traffic projections on the Preferred Alternative (and other four-lane alternatives

considered) are projected to be between 25,240 and 38,040 vpd in 2040. These volumes are substantially lower than the FHWA criterion.

For the No-Build, Preferred, and other alternatives, the amount of MSATs emitted would be proportional to the vehicle miles traveled (VMT), assuming that other variables such as fleet mix are the same for each alternative.

The VMTs of the No-Build Alternative, the Preferred Alternative and the other four-lane project alternatives were determined for the affected roadway network as shown in Table 3-21. The link-by-link VMT analysis is provided in Attachment G. There is a small predicted increase in overall VMT for the Preferred Alternative, and the other four-lane alternatives considered, compared to the No-Build Alternative.

Table 3-21: Design Year Vehicle Miles Traveled Projections on Affected Roadway Network

Alternative	Year 2040 VMT	Change from No-Build
No-Build	1,359,807	n/a
Preferred Alternative, Preferred with East Shift, 2012 Preferred Alternative (A), and Alternative C	1,476,516	8.6%

Source: Air Quality Technical Report Update (PB 2014a).

The traffic projections for the project were developed using the Knoxville Regional TPO's travel demand model, which uses travel time as an impedance rather than travel distance. The calculated increase in VMT with the project likely occurs because the four-lane alternatives would offer more efficient travel routes and would divert traffic from other more congested routes. New routes that utilize a four-lane Pellissippi Parkway Extension may be longer than existing routes but would have shorter travel times. So while the VMT in the area might increase, the vehicle hours of travel would likely not increase and may actually decrease. Additionally, the new capacity of the Pellissippi Parkway Extension will free up capacity on existing travel routes making the entire system more efficient even though travel distances may increase.

There may be localized areas where VMT would increase and other areas where VMT would decrease. The localized increases in MSAT concentrations would likely be most pronounced along the new roadway sections that would be built near or adjacent to area subdivisions, such as Jackson Hills, Sweetgrass Plantation, and Kensington Place. However, even if these increases do occur, they too will be substantially reduced in the future due to implementation of EPA's vehicle and fuel regulations.

A full analysis of Alternative D's impact on the broader study area roadways was not conducted since the forecast volumes for Alternative D exceed the carrying capacity of a two-lane road. This is true even if that network of two-lane roads is improved by wider lanes, improved shoulders, and the straightening of substandard curves.

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 over 80 percent from 2010 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 the Preferred Alternative and other alternatives considered, reduced MSAT emissions are expected in the project area relative to the No-Build Alternative primarily due to EPA's MSAT reduction programs. Substantial construction-related MSAT emissions are not anticipated for this project as construction is not planned to occur over an extended building period. However, construction activity may generate temporary increases in MSAT emissions in the project area.

3.11.3 Greenhouse Gas Emissions (Climate Change)

Climate change is an important national and global concern. While the earth has gone through many natural changes in climate in its history, there is general agreement that the earth's climate is currently changing at an accelerated rate and will continue to do so for the foreseeable future. Anthropogenic (human-caused) greenhouse gas (GHG) emissions contribute to this rapid change. Carbon dioxide (CO_2) makes up the largest component of these GHG emissions. Other prominent transportation GHGs include methane (CH_4) and nitrous oxide (N_2O).

Many GHGs occur naturally. Water vapor is the most abundant GHG and makes up approximately two thirds of the natural greenhouse effect. However, the burning of fossil fuels and other human activities are adding to the concentration of GHGs in the atmosphere. Many GHGs remain in the atmosphere for time periods ranging from decades to centuries. GHGs trap heat in the earth's atmosphere. Because atmospheric concentration of GHGs continues to climb, our planet will continue to experience climate-related phenomena. For example, warmer global temperatures can cause changes in precipitation and sea levels.

To date, no national standards have been established regarding GHGs, nor has EPA established criteria or thresholds for ambient GHG emissions pursuant to its authority to establish motor vehicle emission standards for CO_2 under the Clean Air Act. However, there is a considerable body of scientific literature addressing the sources of GHG emissions and their adverse effects on climate, including reports from the Intergovernmental Panel on Climate Change, the US National Academy of Sciences, and EPA and other Federal agencies. GHGs are different from other air pollutants evaluated in Federal environmental reviews because their impacts are not localized or regional due to their rapid dispersion into the global atmosphere, which is characteristic of these gases. The *affected environment* for CO_2 and other GHG emissions is the entire planet. In addition, from a quantitative perspective, global climate change is the cumulative result of numerous and varied emissions sources (in terms of both absolute numbers and types), each of which makes a relatively small addition to global atmospheric GHG concentrations. In contrast to broad scale actions such as actions involving an entire industry sector or very large geographic areas, it is difficult to isolate and understand the GHG emissions impacts for a particular transportation project. Furthermore, presently there is no scientific methodology for attributing specific climatological changes to a particular transportation project's emissions.

Under NEPA, detailed environmental analysis should be focused on issues that are significant and meaningful to decision-making.[3] FHWA has concluded, based on the nature of GHG emissions and the exceedingly small potential GHG impacts of the proposed action, as discussed below and shown in Table 3-22, that the GHG emissions from the proposed action will not result in "reasonably foreseeable significant adverse impacts on the human environment" (40 CFR 1502.22(b)). The GHG emissions from the project build alternatives will be insignificant, and will not play a meaningful role in a determination of the environmentally preferable alternative or the selection of the preferred alternative. More detailed information on GHG emissions "is not essential to a reasoned choice

[3] *See* 40 CFR 1500.1(b), 1500.2(b), 1500.4(g), and 1501.7

among reasonable alternatives" (40 CFR 1502.22(a)) or to making a decision in the best overall public interest based on a balanced consideration of transportation, economic, social, and environmental needs and impacts (23 CFR 771.105(b)). For these reasons, no alternatives-level GHG analysis has been performed for this project.

Table 3-22: Statewide and Project Emissions Potential, Relative to Global Totals

Year	CO_2 Emissions, MMT			Million Vehicle Miles of Travel (VMT)			
	Global[4]	Tennessee Motor Vehicles[5]	Tennessee Contribution to Global Total	Tennessee Statewide	Project Study Area	Change Due to Project	Change in Statewide VMT Due to Project
2014	33,280	38.5	0.116%	73,310	---	---	---
2040	45,500	35.0	0.077%	93,820	538.9	42.6	.045%

Table notes: MMT = million metric tons. Global emissions estimates are interpolated from *International Energy Outlook 2010*, data for Figure 104. Tennessee emissions and statewide VMT estimates are from MOVES2014.

The context in which the emissions from the proposed project will occur, together with the expected GHG emissions contribution from the project, illustrate why the project's GHG emissions will not be significant and will not be a substantial factor in the decision-making. The transportation sector is the second largest source of total GHG emissions in the U.S., behind electricity generation. The transportation sector was responsible for approximately 27 percent of all anthropogenic (human caused) GHG emissions in the U.S. in 2012.[6] The majority of transportation GHG emissions are the result of fossil fuel combustion. CO_2 makes up the largest component of these GHG emissions. U.S. CO_2 emissions from the consumption of energy accounted for about 16 percent of worldwide energy consumption CO_2 emissions in 2012[7]. U.S. transportation CO_2 emissions accounted for about 6 percent of worldwide CO_2 emissions in 2012.[8]

[4] These estimates are from the EIA's *International Energy Outlook 2010*, and are considered the best-available projections of emissions from fossil fuel combustion. These totals do not include other sources of emissions, such as cement production, deforestation, or natural sources; however, reliable future projections for these emissions sources are not available.

[5] MOVES projections suggest that Tennessee motor vehicle CO2 emissions may decrease by 9% between 2014 and 2040; even though VMT increases; this is due to the effect of EPA's GHG emissions standards and tighter fuel economy standards.

[6] Calculated from data in U.S. Environmental Protection Agency, Inventory of Greenhouse Gas Emissions and Sinks, 1990-2012, http://www.epa.gov/climatechange/Downloads/ghgemissions/US-GHG-Inventory-2014-Main-Text.pdf, Table ES-2 (1,739.5 million metric tons/6,525.6 million metric tons)

[7] Calculated from data in U.S. Energy Information Administration International Energy Statistics, Total Carbon Dioxide Emissions from the Consumption of Energy, http://www.eia.gov/cfapps/ipdbproject/IEDIndex3.cfm?tid=90&pid=44&aid=8 (5,270.422 million metric tons/32,310.29 million metric tons).

[8] Calculated from data in EIA figure 104: http://www.eia.gov/forecasts/archive/ieo10/emissions.html (30,480 million metric tons) and EPA table ES-3: : http://www.epa.gov/climatechange/Downloads/ghgemissions/US-GHG-Inventory-2014-Chapter-Executive-Summary.pdf (1,743.4 million metric tons)

While the contribution of GHGs from transportation in the U.S. as a whole is a large component of U.S. GHG emissions, as the scale of analysis is reduced the GHG contributions become quite small. Using CO_2 because of its predominant role in GHG emissions, Table 3-22 presents the relationship between current and projected Tennessee highway CO_2 emissions and total global CO_2 emissions, as well as information on the scale of the project relative to statewide travel activity.

The values for Tennessee in Table 3-22 were derived from EPA's Motor Vehicle Emissions Simulator (MOVES2014) model[9], and global CO_2 estimates and projections from the Energy Information Administration. As shown, CO_2 emissions from motor vehicles in the entire state of Tennessee are projected to contribute less than one half of one percent of global emissions in 2014 (0.116%). These emissions are projected to contribute an even smaller fraction (0.077%) in Design Year 2040[10]. Vehicle miles traveled (VMT) in the project study area in Design Year 2040 represents 0.574% of total Tennessee travel activity; and the project itself would increase statewide VMT by 0.045%. (Note that the project study area includes travel on many other roadways in addition to the proposed project.) As a result, for the Preferred Alternative[11], FHWA estimates that the proposed project could result in a potential increase in global CO_2 emissions in Design Year 2040 of 0.003% (approximately three thousandths of one percent), and a corresponding increase in Tennessee's share of global emissions in 2040 from 0.077% to 0.081%. This very small change in global emissions is well within the range of uncertainty associated with future emissions estimates.[12, 13]

EPA issued the Federal Notice of Availability for MOVES2014 for official purposes on October 7, 2014. While the use of MOVES2014 was not required for this analysis, it was used instead of MOVES2010b because it incorporates the effects of the most recent greenhouse gas and fuel economy rulemakings

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[9] http://www.epa.gov/otaq/models/moves/index.htm. EPA's MOVES model can be used to estimate vehicle exhaust emissions of carbon dioxide (CO_2) and other GHGs. CO_2 is frequently used as an indicator of overall transportation GHG emissions because the quantity of these emissions is much larger than that of all other transportation GHGs combined, and because CO_2 accounts for 90-95% of the overall climate impact from transportation sources. The MOVES model includes estimates of both emissions rates and VMT, and these were used to estimate the Tennessee statewide highway emissions in Table 3-22.

[10] Tennessee emissions represent a smaller share of global emissions in 2040 because global emissions increase at a faster rate.

[11] Selected to represent a "worst case" for purposes of this comparison; the Preferred Alternative may have a smaller contribution.

[12] For example, Figure 114 of the Energy Information Administration's *International Energy Outlook 2010* shows that future emissions projections can vary by almost 20%, depending on which scenario for future economic growth proves to be most accurate.

[13]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 is required make clear that such information is lacking (40 CFR 1502.22). The methodologies for forecasting GHG emissions from transportation projects continue to evolve and the data provided should be considered in light of the constraints affecting the currently available methodologies. As previously stated, tools such as EPA's MOVES model can be used to estimate vehicle exhaust emissions of carbon dioxide (CO_2) and other GHGs. However, only rudimentary information is available regarding the GHG emissions impacts of highway construction and maintenance. Estimation of GHG emissions from vehicle exhaust is subject to the same types of uncertainty affecting other types of air quality analysis, including imprecise information about current and future estimates of vehicle miles traveled, vehicle travel speeds, and the effectiveness of vehicle emissions control technology. Finally, there presently is no scientific methodology that can identify causal connections between individual source emissions and specific climate impacts at a particular location.

since the last MOVES release, as well as updated travel and emissions data and would, therefore, provide more accurate estimates of future emissions and the effects of the project.

3.11.3.1 Mitigation for Global GHG Emissions

To help address the global issue of climate change, USDOT is committed to reducing GHG emissions from vehicles traveling on our nation's highways. USDOT and EPA are working together to reduce these emissions by substantially improving vehicle efficiency and shifting toward lower carbon intensive fuels. The agencies have jointly established new, more stringent fuel economy and first ever GHG emissions standards for model year 2012-2025 cars and light trucks, with an ultimate fuel economy standard of 54.5 miles per gallon for cars and light trucks by model year 2025. Further, on September 15, 2011, the agencies jointly published the first ever fuel economy and GHG emissions standards for heavy-duty trucks and buses.[14] Increasing use of technological innovations that can improve fuel economy, such as gasoline- and diesel-electric hybrid vehicles, will improve air quality and reduce CO_2 emissions future years.

Consistent with its view that broad-scale efforts hold the greatest promise for meaningfully addressing the global climate change problem, FHWA is engaged in developing strategies to reduce transportation's contribution to GHGs—particularly CO_2 emissions—and to assess the risks to transportation systems and services from climate change. In an effort to assist States and MPOs in performing GHG analyses, FHWA has developed a *Handbook for Estimating Transportation GHG Emissions for Integration into the Planning Process.* The Handbook presents methodologies reflecting good practices for the evaluation of GHG emissions at the transportation program level, and will demonstrate how such evaluation may be integrated into the transportation planning process. FHWA has also developed a tool for use at the statewide level to model a large number of GHG reduction scenarios and alternatives for use in transportation planning, climate action plans, scenario planning exercises, and in meeting state GHG reduction targets and goals. To assist states and MPOs in assessing climate change vulnerabilities to their transportation networks, FHWA has developed a draft vulnerability and risk assessment conceptual model and has piloted it in several locations.

3.11.3.2 Summary for GHG

This document does not incorporate an analysis of the GHG emissions or climate change effects of each of the alternatives because the potential change in GHG emissions is very small in the context of the affected environment. Because of the insignificance of the GHG impacts, those impacts will not be meaningful to a decision on the environmentally preferable alternative or to a choice among alternatives. As outlined above, FHWA is working to develop strategies to reduce transportation's contribution to GHGs—particularly CO_2 emissions—and to assess the risks to transportation systems and services from climate change. FHWA will continue to pursue these efforts as productive steps to address this important issue.

3.11.4 Preliminary Mitigation Measures

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

[14] For more information on fuel economy proposals and standards, see the National Highway Traffic Safety Administration's Corporate Average Fuel Economy website: http://www.nhtsa.gov/fuel-economy/.

3.12 Noise

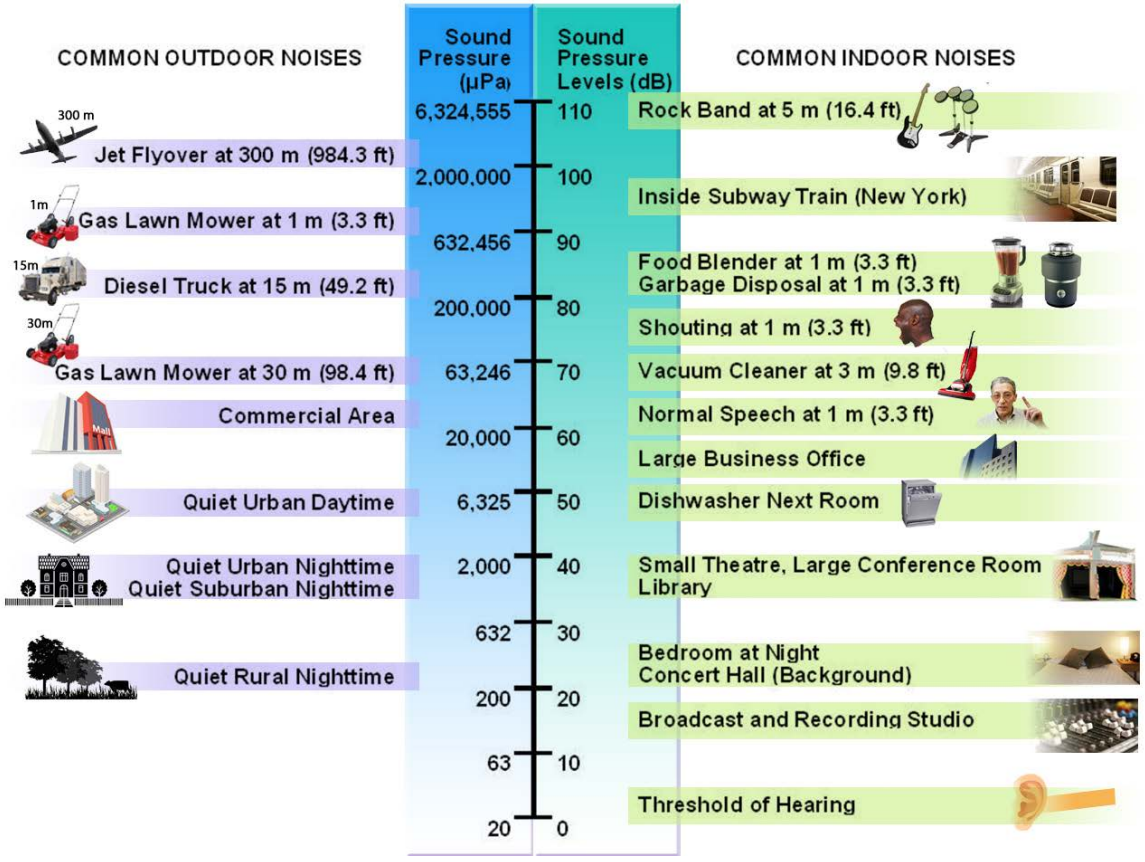
Since the approval and circulation of the DEIS, TDOT revised its noise policy and procedures in July 2011 to be consistent with new FHWA noise regulations, and traffic forecasts for the project were updated in 2013 based on a new regional travel demand model. Therefore, an updated noise assessment was prepared in 2014 to assess the potential impacts of the project's alternatives in accordance with the current FHWA noise regulations and TDOT's *Noise Policy* and accounting for updated traffic forecasts. The FHWA noise regulations are set forth in 23 CFR 772, and TDOT's *Noise Policy* are contained in the TDOT *Policy on Highway Traffic Noise Abatement*, 2011. The results of the noise assessment are presented in the *Noise Technical Report* (Bowlby 2014), contained in Technical Appendix F. The findings are summarized in the following sections.

3.12.1 Traffic Noise Terminology

Traffic noise levels are expressed in terms of the hourly, A-weighted equivalent sound level in decibels. A sound level represents the level of the rapid air pressure fluctuations caused by sources such as traffic that are heard as noise. A decibel is a unit that relates the sound pressure of a noise to the faintest sound the young human ear can hear.

The A-weighting refers to the amplification or attenuation of the different frequencies of the sound (subjectively, the pitch) to correspond to the way the human ear "hears" these frequencies. Generally, when the sound level exceeds the mid-60 dBA range, outdoor conversation in normal tones at a distance of 3 feet becomes difficult. Figure 3-14 shows some common indoor and outdoor sound levels.

Figure 3-14: Common Sound Levels



Source: Federal Highway Administration.

A 9- to 10-dB increase in sound level is typically judged by the listener to be twice as loud as the original sound while a 9- to 10-dB reduction is judged to be half as loud. Doubling the number of sources (i.e., vehicles) would increase the hourly equivalent sound level by approximately 3 dB, which is usually the smallest change in hourly equivalent A-weighted traffic noise levels that people can detect without specifically listening for the change.

Because most environmental noise fluctuates from moment to moment, it is standard practice to condense data into a single level called the equivalent sound level (L_{eq}). The L_{eq} averages the louder and quieter moments but gives much more weight to the louder moments in the averaging.

3.12.2 Criteria for Determining Impacts

Noise impact is determined by comparing future sound levels to: (1) a set of noise abatement criteria (NAC) for a particular land use category and (2) existing sound levels.

The FHWA noise regulations and TDOT's *Noise Policy* state that traffic noise impacts require consideration of abatement when worst-hour sound levels approach or exceed the NAC listed in Table 3-23. TDOT's *Noise Policy* defines "approach" as 1 dB below the NAC, or 66 dBA for Category B and C land uses.

Table 3-23: FHWA Noise Abatement Criteria

Activity Category	L_{Aeq} (1h)	Evaluation Location	Activity Description
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 purpose.
B[1]	67	Exterior	Residential.
C[1]	67	Exterior	Active sport areas, amphitheaters, auditoriums, campgrounds, cemeteries, day care centers, hospitals, libraries, medical facilities, parks, picnic areas, places of worship, playgrounds, public meeting rooms, public or nonprofit institutional structure, radio stations, recording studios, recreation areas, Section 4(f) sites, schools, television studios, trails, and trail crossings.
D	52	Interior	Auditoriums, day care centers, hospitals, libraries, medical facilities, places of worship, public meeting rooms, public or nonprofit institutional structure, radio studios, recording studios, schools, and television studios.
E[1]	72	Exterior	Hotels, motels, offices, restaurants/bars, and other developed lands, properties or activities not included in A-D, or F.
F	–––	–––	Agriculture, airports, bus yards, emergency services, industrial, logging, maintenance facilities, manufacturing, mining, rail yards, retail facilities, shipyards, utilities (water resources, water treatment, electrical), and warehousing.
G	–––	–––	Undeveloped lands that are not permitted.

Source: Federal Highway Administration.
[1] Includes undeveloped lands permitted for this activity category.

The FHWA noise regulations and TDOT's *Noise Policy* also define impacts to occur if there is a substantial increase in design year sound levels. Table 3-24 presents TDOT's criteria to define substantial noise increase.

Table 3-24: Noise Level Increases

Existing Noise Level (dBA) [1]	Predicted Design Year Noise Level Increase (dB) [2]
42 or less	15 or more
43	14 or more
44	13 or more
45	12 or more
46	11 or more
47 or more	10 or more

Source: TDOT Noise Policy.

[1] Worst hour noise level from the combination of natural and mechanical sources and human activity.

[2] Predicted design year noise level minus existing noise level.

3.12.3 Noise Analysis Areas

The 2014 noise analysis examined five build alternatives: Preferred Alternative, Preferred Alternative with East Shift, 2012 Preferred Alternative (A), Alternative C, and Alternative D. Eighteen noise analysis areas containing noise-sensitive land uses were identified that might be affected by these alternatives. Some of these noise analysis areas would be affected by only one alternative while other areas would be affected by two or more alternatives. Each area was evaluated separately for each alternative. A description of the 18 noise analysis areas and figures showing their locations are in Attachment H.

The vast majority of noise-sensitive uses in the project area are Activity Category B residences. The only Category C land use in the project area is the Mt. Lebanon Baptist Church baseball field and playground on the south side of Wildwood Road. Noise impacts would be identified and noise abatement would be considered for the residences and baseball field and playground if design year sound levels are 66 dBA or higher or if a substantial increase in existing sound levels is predicted.

The Morning Star Baptist Church, the Rio Revolution Church, and the Full Gospel Church do not have any exterior areas of frequent human use; therefore, these churches are Activity Category D land uses that must be assessed for interior impacts. Noise impacts would be identified and noise abatement would be considered if interior future sound levels are 51 dBA or higher or if a substantial increase in existing sound levels is predicted. There are no Category E land uses in the project area. However, there are some Category F properties located within the project limits, but these are not noise-sensitive and do not have an NAC. Therefore, they were not included in the noise study. Finally, there are tracts of Activity Category G undeveloped lands in the project area. These undeveloped lands are not noise-sensitive and have not been included in the noise analysis. A discussion of future sound levels and the need for noise-compatible land use planning is provided in the 2014 *Noise Technical Repor*t (in Technical Appendix F).

3.12.4 Noise Impact Evaluation

The purpose of this analysis is to identify the number and locations of impacted noise-sensitive land uses in each Noise Analysis Area under each build alternative. As noted previously, a location is impacted if (1) the predicted worst hour noise level approaches or exceeds the NAC or (2) there is a substantial increase in design year noise levels above existing noise levels.

Table 3-25 summarizes the number of impacts predicted to occur under the Preferred Alternative and other alternatives considered. Tables showing the results of the updated noise analysis for the Preferred Alternative and the other alternatives considered are in Attachment H. The *Noise Technical Report*, in Technical Appendix F, provides greater detail on the predicted noise levels for each alternative.

Table 3-25: Noise Impact Summary (2040)

Alternative	Impacts Due to Approaching NAC	Impacts Due to Substantial Increase	Impacts Due to Substantial Increase and NAC	Total Impacts
Preferred Alternative	12	79	12	103
Preferred Alternative with East Shift	12	59	9	80
2012 Preferred Alternative (A)	12	61	8	81
Alternative C	9	45	10	64
Alternative D	17	44	24	85

Source: Noise Technical Report (Bowlby 2014).

Preferred Alternative — A total of 103 residences are predicted to be impacted under the Preferred Alternative, mostly by a substantial increase in design year noise levels. Forty-eight of those impacted residents will be within the Kensington Place mobile home community if a noise barrier is not constructed. The alternative will not impact any other land uses. Eleven residences would be displaced under this alternative.

Preferred Alternative with East Shift — A total of 80 residences are predicted to be impacted under this alternative, mostly by a substantial increase in design year noise levels. Twenty-six of the 80 impacted residences are located in the Kensington Place community. The alternative would not impact any other land uses. Six residences would be displaced under this alternative.

2012 Preferred Alternative (A) — A total of 81 residences are predicted to be impacted by this alternative, mostly by a substantial increase in design year noise levels. Only 12 of the 81 impacts are due to sound levels approaching or exceeding the NAC. Twenty-seven of the impacts are predicted in the Kensington Place mobile home community. The alternative would not impact any other land uses. Five residences would be displaced under this alternative.

Alternative C — A total of 63 residences and the Misty Meadow Driving Range are predicted to be impacted under Alternative C—again, mostly by a substantial increase in design year noise levels. Although the fewest number of impacts are predicted under Alternative C, 27 residences would be displaced under this alternative.

Alternative D — A total of 83 residences, the Mt. Lebanon Baptist Church playground, and the Mt. Lebanon Baptist Church baseball field are predicted to be impacted under Alternative D. Thirty-two residences of the impacted residences are along Sam Houston School Road—17 of these have predicted noise levels that approach or exceed the NAC. Approximately 41 residences would be displaced under Alternative D.

3.12.5 Noise Abatement Evaluation

Noise abatement in the form of noise barriers was evaluated for all impacted areas in accordance with TDOT's Noise Policy. The noise barrier analysis resulted in the identification of two locations where noise barriers would be preliminarily feasible and reasonable in accordance with TDOT's *Noise Policy*:

- Area 4 for Preferred Alternative—To minimize adverse impacts to Area 4 (Kensington Place mobile home community), TDOT has committed to build a noise barrier for the community with the Preferred Alternative. TDOT will conclude that a community desires the construction of a noise barrier unless a majority (at least 51 percent) of the benefited property owners and residents indicate that they do not want the proposed noise barrier.
- Area 11 for Alternative D—A barrier for Area 11 (Belfair Lane, in the northwestern portion of the project area) under Alternative D could pose sight distance and other design or construction issues that cannot be fully assessed at this time. These issues would need to be much more thoroughly evaluated if Alternative D were constructed. As a result, a barrier for this part of Area 11 has been identified as "possible."

3.12.6 Preliminary Mitigation Measures

Although the noise analysis is based on functional project plans, TDOT has committed to build a noise barrier for the Kensington Place community (Area 4) with the Preferred Alternative to mitigate noise and visual impacts for this low-income and minority community, provided that the majority of benefited residences and property owners give their approval.

During final design, TDOT will conduct outreach with residents affected by the selected alternative. A design public hearing will be held at which residents and the general public will be encouraged to provide input. Final decisions regarding noise abatement measures will be made following an update of the noise analysis using the design plans for the project and after the public involvement.

3.12.7 Information for Local Officials

Tracts of undeveloped land are adjacent to the alignment of the Preferred Alternative. TDOT encourages the local governments with jurisdiction over these lands, as well as potential developers of these lands, to practice noise compatibility planning in order to avoid future noise impacts. The following language is included in TDOT's *Noise Policy*:

> *Highway traffic noise should be reduced through a program of shared responsibility. Local governments should use their power to regulate land development in such a way that noise-sensitive land uses are either prohibited from being located adjacent to a highway or that the developments are planned, designed and constructed in such a way that noise impacts are minimized*.

Two guidance documents on noise compatible land use planning are available from FHWA:

- *The Audible Landscape: A Manual for Highway Noise and Land Use* (November 1974) at http://www.fhwa.dot.gov/environment/Noise/noise_compatible_planning/federal_approach/audible_landscape/
- *Entering the Quiet Zone: Noise Compatibility Land Use Planning* (May, 2002) at http://www.fhwa.dot.gov/environment/noise/noise_compatible_planning/federal_approach/

Table 3-26 presents design year sound levels for areas along the Preferred Alternative and other build alternatives, where vacant and possibly developable lands exist. Noise predictions were made at distances between 50 and 800 feet from the edge of pavement of the near lane for the Design Year 2040. As indicated, sound levels within an approximate range between 100 and 250 feet from the edge of pavement of the nearest lane of the proposed Pellissippi Parkway Extension will approach or exceed the NAC of 66 dBA for Category B and C land uses. Noise-sensitive land uses should generally not be constructed in these areas unless noise mitigation measures are provided.

Table 3-26: Design Year 2040 Sound Levels for Undeveloped Lands

Distance from Pellissippi Parkway Extension[1]	L_{eq} (1h) (dBA)[2]
50 feet	77
100 feet	73
200 feet	68
300 feet	64
400 feet	60
500 feet	58
600 feet	57
700 feet	56
800 feet	55

Source: Noise Technical Report (Bowlby 2014).
[1] Perpendicular distance to the center of near lane
[2] At-grade situation.

The values in Table 3-26 do not represent the predicted sound levels at all additional locations adjacent to and particular with the proposed project corridor. Sound levels may vary with changes in terrain and will be affected by the shielding of objects, such as buildings. This information is being included to make local officials and planners aware of anticipated highway sound levels so that future development will be compatible with these levels.

Finally, TDOT currently has an active Type II Noise Barrier Program to facilitate the construction of "retrofit" noise barriers along existing highways. To be eligible for a Type II noise barrier, an area must meet the following criteria:

- The neighborhood must be located along a limited-access roadway;
- The neighborhood must be primarily residential;
- The majority (more than 50 percent) of residences in the neighborhood near the highway pre-date the initial highway construction;
- A noise barrier for the neighborhood must not have been previously determined to be not reasonable or not feasible as part of a new highway construction or through-lane widening study (Type I project);
- Existing noise levels measured in the neighborhood must be above the NAC of 66 dBA;
- A barrier must be feasible to construct and will provide substantial noise reduction; and
- A barrier must be reasonable (barrier area per benefited residence) in accordance with TDOT's Noise Policy. A residence is considered "benefited" if the noise barrier will reduce the traffic noise by at least 5 dB.

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

For the DEIS, TDOT conducted a preliminary geologic study, which included limited field inspections in December 2008 and January 2009. Based on the results of the preliminary geologic study, reported in the *Preliminary Geologic Report* (TDOT 2009), 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 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 will be taken into consideration during design once an alternative is selected and advanced. The report is found on the project website (http://www.tn.gov/tdot/article/pellissippi).

3.13.1.1 Karst Topography

Karst Topography

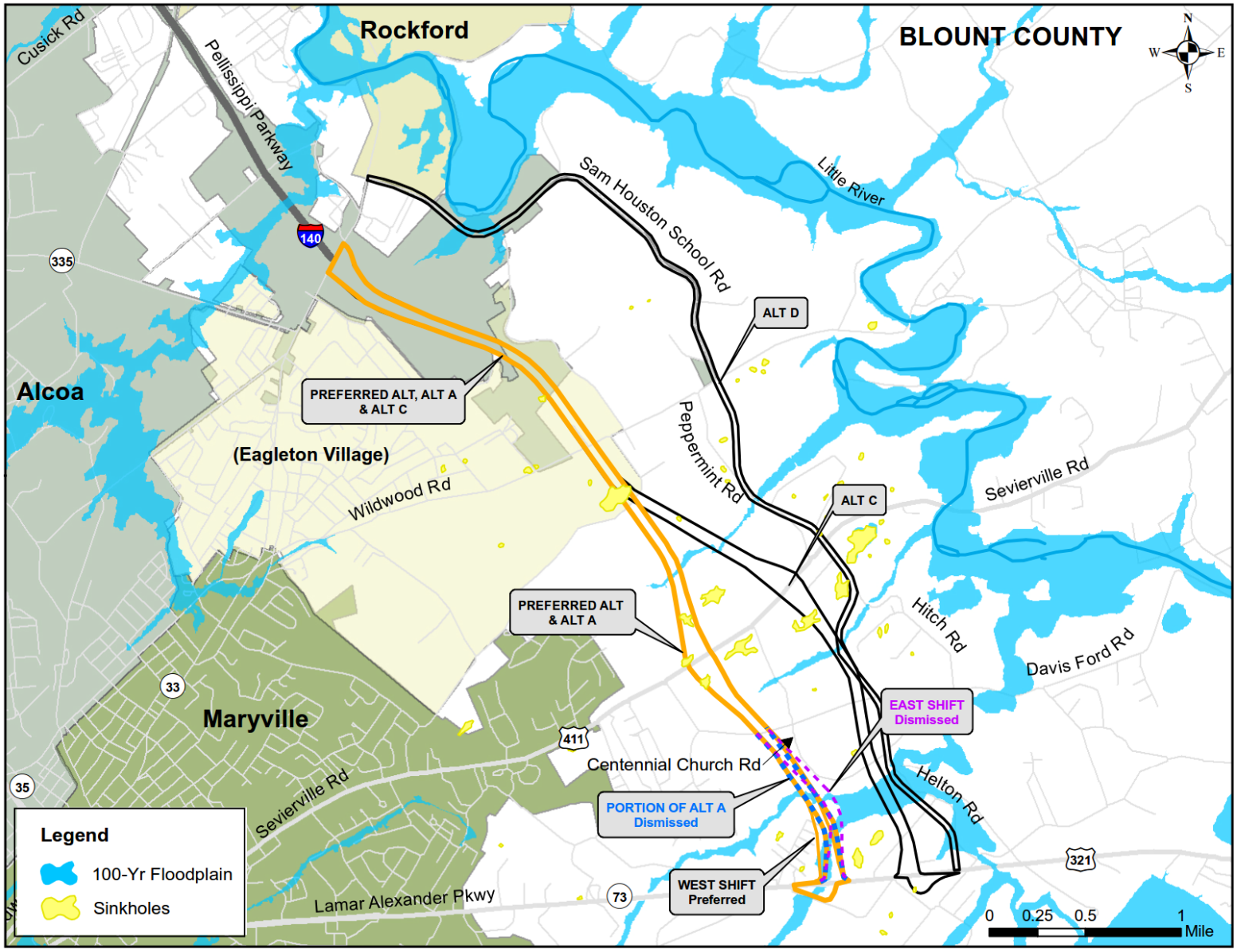
Karst topography describes a landscape that is characterized by numerous caves, sinkholes, fissures, and underground streams. Karst topography usually forms in regions of plentiful rainfall where bedrock consists of carbonate-rich rock, such as limestone, gypsum, or dolomite, that is easily dissolved.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

Prior to the September and October 2008 field surveys and the subsequent 2013 and 2014 field surveys, reviews of the appropriate U.S. Geological Survey (USGS) topography maps were preformed to help determine potential sinkhole locations. Based on the reviews of USGS topography maps, the findings of the 2009 *Preliminary Geologic Report*, and the field surveys, several sinkhole locations were identified within the Preferred Alternative and other project alternatives. During the 2008 field surveys, the mapped sinkhole locations within DEIS Build Alternatives were investigated to determine if they were associated with watercourses (i.e., streams) and if they provided habitat for listed threatened and endangered species. None of the sinkholes were associated with watercourses or provided habitat for listed threatened and endangered species. The only field evidence that indicates a potential sinkhole location was the observance of depressed ground. No openings (indicating a potential cave) or flooding were observed during the 2008 field surveys; however, flooding was noted at several of the sinkhole locations during the field surveys conducted to prepare the *Preliminary Geologic Report*.

During the 2013 ecological field surveys, an opening to a potential cave site was identified near the southern terminus of the proposed project, north of US 321/Lamar Alexander Parkway that was not observed during the 2008 field surveys. However, after further investigation by TDOT, it was determined that the opening was not a cave or “karst” topography and it does not pose any concern to the proposed project. No other sinkholes or cave sites were identified during the 2013 and 2014 field surveys that were not previously identified during the 2008 field surveys.

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 the Preferred Alternative and the other 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. Areas of previously 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: Addendum to 2009 Ecology Report (PB 2013).

The sinkholes in the project area likely connect to the Little River; thus, impacted sinkholes could potentially impact the water supply intakes of the City of Maryville and the City of Alcoa along the Little River.

The Tennessee Department of Environment and Conservation (TDEC) has noted that a sinkhole is considered to be the entire closed depression whether there is an open throat or not and not just the area near an open throat. For any project that affects water flowing into an open sinkhole or cave, or for any impact that may affect ground water via a sinkhole, TDOT must submit an application for an Underground Injection Control (UIC) permit to the TDEC Division of Water Resources, Ground Water Management Section.

Preliminary Mitigation Measures

Erosion controls will need to be strictly adhered to so as to prevent impacts to water intakes from surface water flow and underground flow via sinkholes in the area. TDEC's requirements for erosion control in the vicinity of sinkholes are essentially the same as for streams. The erosion control plan for sinkholes must include:

- 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, such as straw bales and silt fences, must be placed and the Division of Water Resources notified with 24 hours of the discovery.
- Silt fence and straw bales will be installed along the entire edge of the sinkhole and around any potential conduit that water may use to enter the ground water prior to any construction.
- Note that silt fences are used as a temporary diversion feature and generally have a life expectancy of 3 months.
- 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 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 4 inches against the up gradient side of the barrier.
- After every storm event, the entire silt fence would 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 workday.
- 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.
- 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 is stabilized.

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 alignment and will develop a project-specific geotechnical and geological design. Special care will 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, Floodplain Management*, a survey of the proposed alternatives identified transverse crossings of the 100-year floodplains associated with tributaries of the 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 project alternatives would affect 100-year floodplains at various stream crossings throughout the project area (Figure 3-15).

The impacts to floodplains for the 2012 Preferred Alternative (A) and the East and West (now Preferred Alternative) Shifts were updated during the surveys and reported in the *Addendum to 2009 Ecology Report* (PB, 2013), contained in Technical Appendix G). The floodplain impacts of Alternatives C and D were confirmed through a review of the flood insurance rate maps. Potential impacts of these alternatives on floodplains are shown in Table 3-27

Table 3-27: Floodplain Impacts

Resource Name	Preferred Alternative (acres)	Preferred Alternative with East Shift (acres)	2012 Preferred Alternative (A) (acres)	Alternative C (acres)	Alternative D (acres)
Unnamed tributary to Little River (STR-1 D)	0	0	0	0	0.9
Unnamed tributary to Little River (STR-2 D)	0	0	0	0	1.4
Peppermint Branch	0.7	0.7	0.8	1.2	0.5
Crooked Creek	0	0	0	0	0
Unnamed tributary to Little River (STR-8 C; STR-6 D)	0	0	0	0.7	0.3
Gravelly Creek	1.7	1.3	1.8	0	0
Flag Branch	8.6	5.4	5.5	7.1	0
Crooked Creek/Gravelly Creek [1]	0	0	0	0	5.0
Total Floodplain Impacts	**11.0**	**7.4**	**8.1**	**9.0**	**8.1**

Source: 2009 Ecology Report (PB 2010a); Addendum to 2009 Ecology Report (PB 2013).
STR = stream (stream locations shown on Figure 3-17 and Figure 3-18).
[1] Alternative D intersects the floodplains of Crooked Creek and Gravelly Creek where the floodplains of these streams converge.

Protection of floodways and floodplains is required under 23 CFR 650A, as well as by *Executive Order 11988* and *USDOT Order 550.2, Floodplain Management and Protection*. The intent of these regulations is to avoid or minimize highway encroachments within the 100-year (base) floodplains, where practicable and to avoid supporting land use development that is incompatible with floodplain values.

While the Preferred Alternative has the highest potential impact to floodplains, this alternative and the other project alternatives do not involve a significant encroachment on floodplains in the study area because construction of the proposed project would not:

- Represent a significant risk to life or property;
- Have a significant impact on natural and beneficial floodplain values;
- Support incompatible floodplain development; or
- Interrupt or terminate a transportation facility that is needed for emergency vehicles or provides a community's only evacuation 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 will be avoided or minimized by crossing the floodplain at a near-perpendicular angle, with appropriately sized bridges and culverts.

Preliminary 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 will be implemented during the design and construction of the proposed project to reduce the direct impacts to the 100-year floodplains. These measures include the following:

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

3.13.3 Hazardous Materials

For the DEIS, a *Phase I Preliminary Assessment Study* (PB 2008b) was conducted to determine the potential for hazardous materials contamination of properties and business operations located adjacent to the proposed alignment. Following the selection of the Preferred Alternative in 2012, TDOT conducted a Phase II contamination assessment to investigate in greater detail one of the sites identified in the Phase I study. The results of the study are presented in the *Phase II Preliminary Site Investigation Report* (KSWA 2013), which is contained in Technical Appendix H.

3.13.3.1 Potential Contamination Sites

An environmental database search and a field review of the proposed project alternatives were conducted in 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. Telephone and on-site interviews were conducted as necessary. The evaluation also included reviews of property ownership and historical aerial photographs.

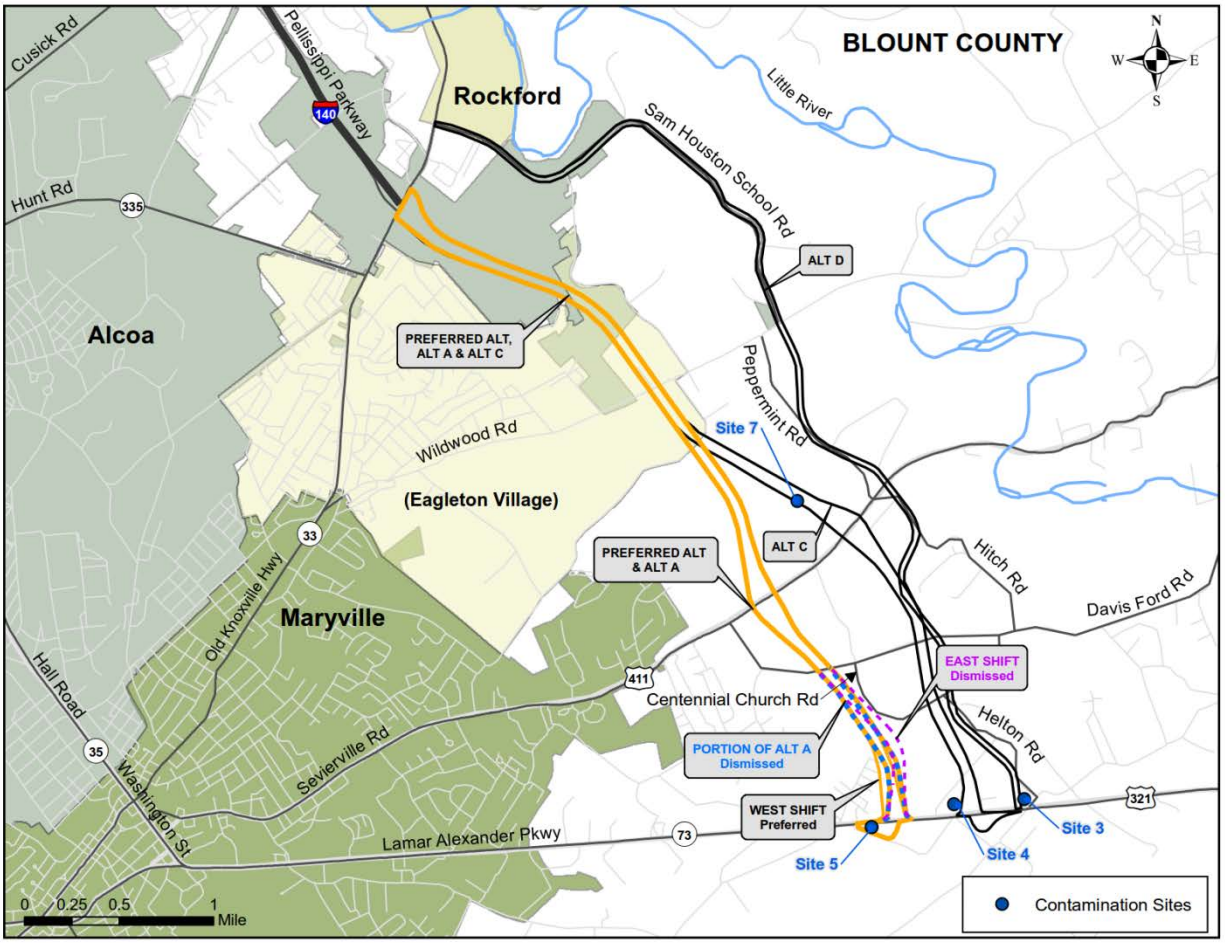
The *Phase I Preliminary Assessment Study* identified four sites that would require further investigation to confirm or refute the actual presence or levels of contamination and the need for remedial action, depending on which alternative was chosen as the Preferred Alternative. Those four sites are identified in Table 3-28 and shown on Figure 3-16.

Table 3-28: Potential Contamination Sites Requiring Further Investigation

Site Name	Storage Tank(s) Currently in Service	Alternative Requiring ROW for Expansion
Hackney Amoco/Aztec Food Shop	Yes	D
Sunoco/D.T.'s Market and Deli	Yes	C
Thrift shop and former A and M American Gas	Yes	A/Preferred
Dump site—located 850 feet west of Sevierville Road	No	C

Source: Phase I Preliminary Assessment Study (PB 2008b).

Figure 3-16: Potential Contamination Sites



Source: Phase I Preliminary Assessment Study (PB 2008b).

3.13.3.2 Results of Phase II Contamination Assessment

The Phase II preliminary site investigation focused on Site 5, which is in the footprint of the Preferred Alternative as well as the Preferred Alternative with East Shift and the 2012 Preferred Alternative (A). The more-detailed analysis was recommended because of the potential acquisition of ROW from this site and the nature of past or current business operations of the site.

Site 5 is currently a thrift store, but it historically housed a fueling station and automotive service garage called A and M American Gas. A registered underground storage tank (UST) system, consisting of three gasoline tanks, canopy, and fuel islands, is still present on the property, although the fuel dispensers have been removed. There are currently piles of tires, a waste oil tank, vehicle parts, and

multiple vehicles adjacent to the portion of the building that housed the automotive service garage. On November 27, 2012, eight soil borings were taken on the site and were analyzed for the presence of potentially harmful chemical compounds that often are associated with fueling stations. The laboratory analysis found that the chemical compounds contained in the samples were substantially lower that the thresholds or limits set for harmful or hazardous effects on human health. Based on this analysis, no further investigation of soil contamination on Site 5 is necessary before construction activities of the Preferred Alternative can begin.

If TDOT purchases the property, the on-site UST system will be removed in accordance with TDEC Division of Underground Storage Tanks Closure Assessment Guidelines, and the tires, waste oil tank, vehicle parts, and vehicles associated with the former automotive service garage will be properly removed and disposed of before construction activities begin.

Should either Alternative C or D become the Selected Alternative, a Phase II Preliminary Site Investigation would be required on the affected sites listed in Table 3-28.

3.13.3.3 Preliminary Mitigation Measures

In the event hazardous substances/wastes are encountered within the proposed ROW, their disposition will be subject to all applicable regulations, including the applicable sections of the federal *Resource Conservation and Recovery Act, as amended*; the federal *Comprehensive Environmental Response, Compensation, and Liability Act, as amended*; and the *Tennessee Hazardous Waste Management Act of 1983, as amended*.

An asbestos and lead-based paint survey will be performed by an EPA *Asbestos Hazard Emergency Response Act* trained asbestos building inspector prior to any demolition or alteration of the building structure or canopy on the site.

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

The DEIS reported the findings of the 2009 *Ecology Report* (PB 2010a) for the Build Alternatives A, C, and D. After the selection of the 2012 Preferred Alternative (A), TDOT undertook an assessment of the potential impacts to the ecological resources along the 2012 Preferred Alternative (A) and the East and West Shifts. The assessment included an updated survey for aquatic resources and threatened and endangered species. TDOT also conducted a mist net survey and an Anabat survey for the federally

endangered Indiana bat (*Myotis sodalist)* and prepared a new Biological Assessment of four federally listed threatened or endangered species. Results of these updated surveys have been incorporated into the *Addendum to 2009 Ecology Report* (PB 2013); this report is contained in Technical Appendix G. An update of the DEIS Alternatives C (the discrete section south of Brown School Road not shared with the Preferred Alternative) and D was conducted in April 2014 and the results are incorporated in the June 2014 *Ecology Report* (CEC 2014), in Technical Appendix I.

3.14.1 Terrestrial Resources

Most of the land along the project alternatives has been disturbed at one time or another. While a small percentage of the land is forested or in shrub/scrub thickets, the majority of the land is being or has been used for agricultural activities, such as crop production or pastureland. Conversion of agricultural land to residential use is evident by the presence of the numerous, existing and currently being constructed, single-family home subdivisions. 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

Table 3-29 summarizes the impacts that the Preferred Alternative and other project alternatives would have on the current terrestrial communities in the project area.

Table 3-29: Impacts to Terrestrial Habitat

Terrestrial Community	Preferred Alternative (acres)	Preferred Alternative with East Shift (acres)	2012 Preferred Alternative (A) (acres)	Alternative C (acres)[1]	Alternative D (acres)
Forested	30	34	32	33	20
Agricultural fields and pastureland	147	146	147	139	45
Commercial and residential	23	18	18	37	39
Total impacts	200	198	197	209	104

Source: Addendum to 2009 Ecology Report (PB 2013); Ecology Report (CEC 2014).

[1] The acreages for Alternative C require consulting the findings of both the 2013 Addendum and the 2014 Ecology Report. The 2013 Addendum updated the impacts for the Preferred Alternative, East Shift and 2012 Preferred Alternative (A), which included the common alignment with Alternative C north of Brown School Road. The 2014 Ecology Report investigated the impacts of Alternative C south of the common alignment with the Preferred Alternative.

The most substantial impact to terrestrial resources will 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 15 percent of the Preferred Alternative's project area; for the other four-lane alternatives, forested communities make up 16 to 15 percent of the project areas. Alternative D would have the highest impact on forested communities, which constitutes about 19 percent of that alternative's project area. These communities primarily occur as small (1 to 2 acres) fragmented tracts, or along stream corridors and fence rows.

The agricultural fields and pasturelands also provide foraging opportunities as well as nesting potential for numerous bird species. These communities would have the largest impact from the proposed project since they constitute approximately 74 percent of the Preferred Alternative, Preferred Alternative with East Shift and 2012 Preferred Alternative (A). For Alternatives C and D, the percentages of agricultural fields and pasturelands are 67 percent and 45 percent, respectively. The remaining land use is comprised of residential and commercial areas, which also provide some foraging and nesting opportunities for birds because of the presence of fruit-producing trees and shrubs.

Individual wildlife mortality 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), then traffic-related mortality can contribute to the demise of the population. Although vegetated ROWs will be maintained after project construction, these areas will not be planted with wildlife-attracting plant species as a means to reduce vehicle-wildlife collisions. As a result, ROWs will 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 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 project area, 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 are likely to be minimal. Furthermore, it is not likely that the area is of critical to migratory bird species since it does not contain large amounts of undisturbed forested habitat, a condition preferred by most migratory bird species.

3.14.1.3 Invasive Species

Executive Order 13112 calls for the prevention of and control of invasive species (non-native exotics). This Executive Order, issued in 1999, 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 concern along roadways. These invasive species can be spread along roadways by automobile and animal traffic; mowing and spraying operations; 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 USDA and designated by the state on the "Regulated Noxious Weeds" list. The list includes just 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 species 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*)
- White poplar (*Populus alba*)

Preliminary Mitigation Measures

During construction of the proposed project, TDOT will 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, will be implemented for the stabilization of disturbed areas and to prevent revegetation of disturbed areas by harmful exotic plants. Disturbed areas will not be revegetated with plants listed by the Tennessee Exotic Pest Plant Council as harmful exotic plants.

3.14.2 Aquatic Resources and Water Quality

The USACE has jurisdiction over "waters of the United States" under the *Clean Water Act of 1972* and subsequent amendments. Non-tidal waters of the U.S. 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 TDEC Division of Water Resources 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* 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, or wetland impacts are subject to review and approval by TVA.

3.14.2.1 Streams, Springs, Seeps, and Other Water Bodies

Non-wetland waters of the U.S. occurring within the project alternatives include ponds (constructed and impounded), perennial streams, intermittent streams, and certain ephemeral streams (wet weather conveyances). These resources 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 is considered to be a water of the U.S. provided a definable channel bed and bank exists. A non-flowing stream is deemed intermittent streambed if the channel intercepts the groundwater table or standing water is present. Watercourses that are considered wet weather conveyances lack standing or flowing water and show evidence of flow only after a short duration of rainfall events.

Stream channels are considered regulated waters of the U.S. by USACE. The determinations as to which of these are waters of the state or of the U.S. have not been confirmed by TDEC and USACE. These determinations will be made during the permitting phase of the Preferred Alternative.

Impacts to Streams and Other Water Bodies

The proposed project will affect streams and ponds within the Watts Bar Lake Watershed. Table 3-30 identifies the impacts to these aquatic resources for the Preferred Alternative and other project alternatives. Descriptions of individual water resources that would be affected by the alternatives are contained in greater detail in Tables I-1 through I-3 in Attachment I. The locations of these resources are shown on Figure 3-17 and Figure 3-18.

Table 3-30: Summary of Aquatic Resource Impacts

Waterbodies	Preferred Alternative	Preferred Alternative with East Shift	2012 Preferred Alternative (A)	Alternative C	Alternative D
Perennial streams (linear feet)	2,782	1,823	2,345	2,622	1,695
Intermittent streams (linear feet)	2,180	1,932	2,180	0	0
Wet weather conveyances (linear feet)	0	0	0	735	650
Ponds (acres)	0.42	0.42	0.42	0.42	0.02

Source: Addendum to 2009 Ecology Report (PB 2013); Ecology Report (CEC 2014).

During the 2013 field surveys for the Preferred Alternative, Preferred Alternative with East Shift, and 2012 Preferred Alternative (A) and the 2014 field surveys for Alternatives C and D, it was discovered that some of the non-wetland waters determined in 2008 to be wet weather conveyances (WWCs) are now more representative of a wetland, intermittent stream, or a perennial stream.

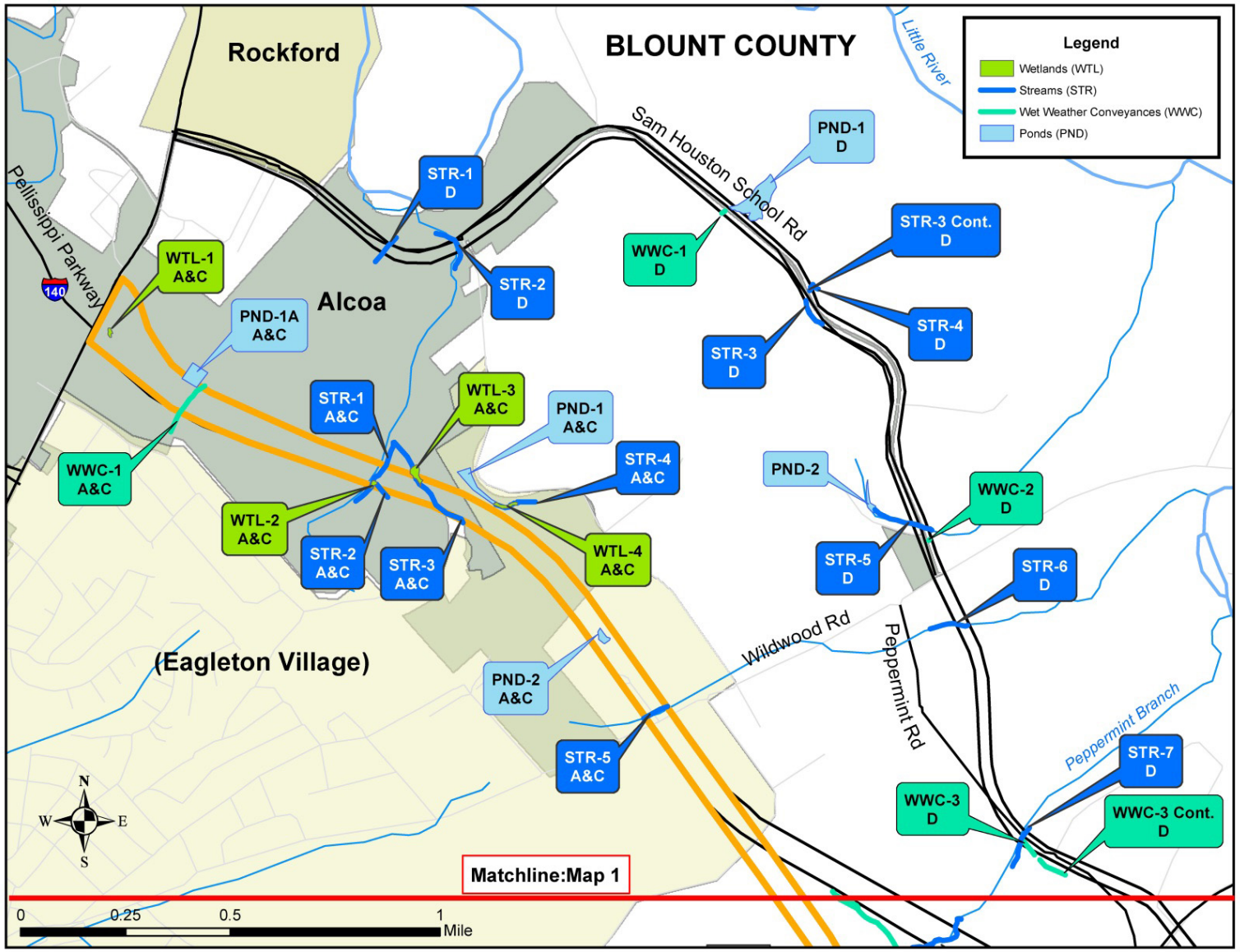
In addition, some streams (STRs 6 and 7) characterized in 2008 as intermittent are now characterized as perennial stream channels. These changes are most likely because precipitation in 2008 was well below average for the region, resulting in no water flow in watercourses; under normal conditions, these streams may have been intermittent to continuous water flow. Furthermore, a large wetland system (the result of beaver activity) now encompasses the area where WWC 3 was identified in the area of 2012 Preferred Alternative (A) in the 2008 surveys.

Based on preliminary engineering assessments, the Preferred Alternative, Preferred Alternative with East Shift, 2012 Preferred Alternative (A) and Alternative C would each impact six perennial streams (Peppermint Branch, Gravelly Creek, Flag Branch, and three unnamed tributaries to the Little River). The remaining stream crossings are considered to be intermittent streams. Three ponds were also found in the project area; however, only two of the three ponds identified would be impacted directly by these four-lane alternatives.

Alternative D, closer to the Little River, would impact four perennial streams (Peppermint Branch, Gravelly Creek, Crooked Creek and one unnamed tributary to the Little River), in addition to several intermittent stream crossings and three ponds.

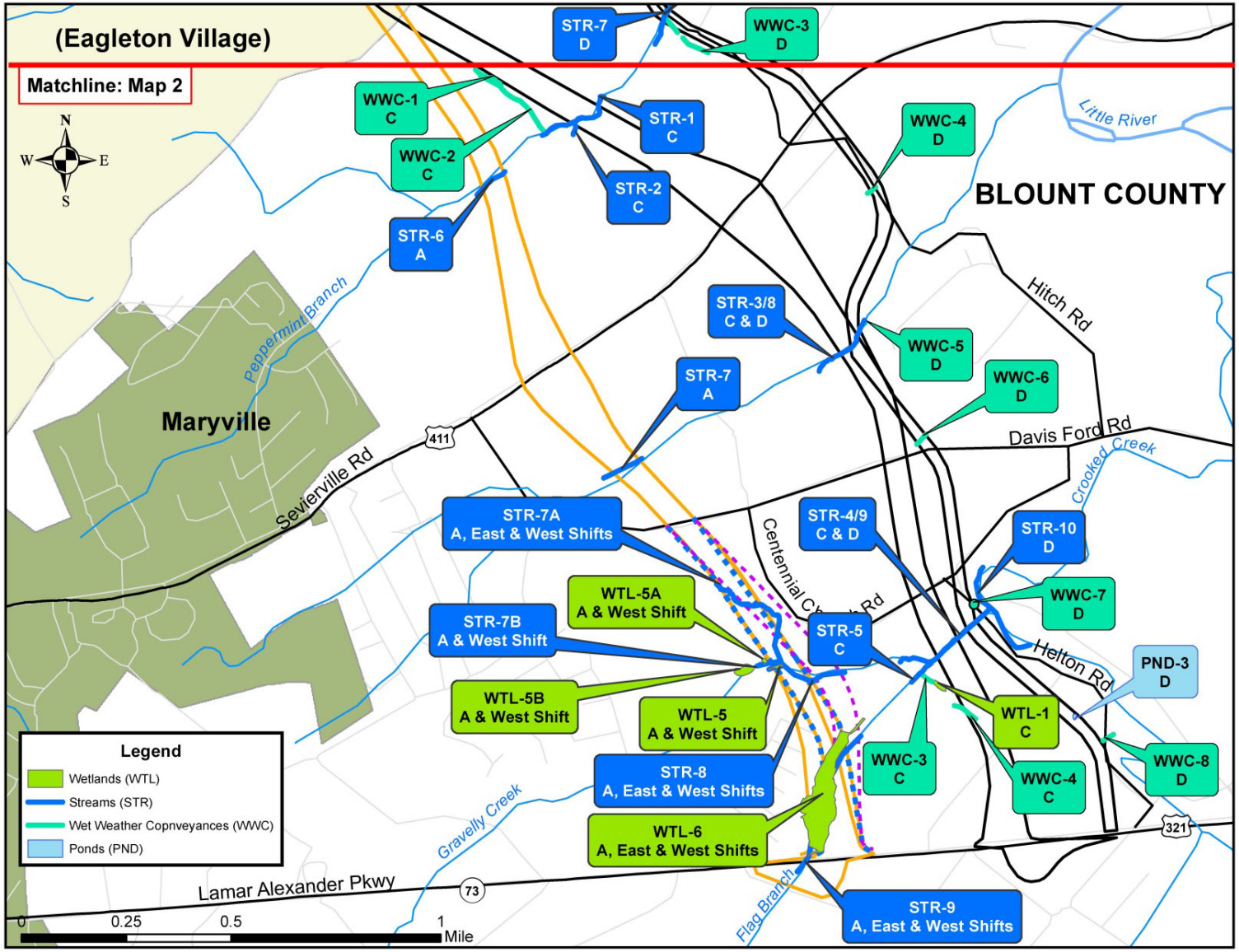
The Preferred Alternative, Preferred Alternative with East Shift, and 2012 Preferred Alternative (A) would not affect any wet weather conveyances or seeps/springs. Alternative C would impact four wet weather conveyances, while Alternative D would impact eight wet weather conveyances. No seeps or springs were identified during field surveys of the project area.

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



Source: Addendum to 2009 Ecology Report (PB 2013); Ecology Report (CEC 2014).
Numbers correspond to water resources listed and described in the tables in Attachment I.

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



Source: Addendum to 2009 Ecology Report (PB 2013); Ecology Report (CEC 2014).
Numbers correspond to water resources listed and described in the tables in Attachment I.

Measures to Avoid or Minimize Impacts to Aquatic Resources

The impacts reported in Table 3-30 are based on conceptual designs. At this time in the NEPA phase, with the design being preliminary and conceptual, construction limits and culvert and bridge locations have not yet been determined. Therefore, the exact impact type (e.g., culvert placement, bridge crossing, and channel relocation) and the amount of impact at the individual non-wetland waters of the U.S. sites cannot yet be determined. Because the exact impact type and amount is not yet known, the 2013 and 2014 ecology reports represent the anticipated worst-case impact (linear feet/acres of non-wetland water within proposed ROW limits), with the assumption that these impacts would be reduced where possible during project design. Efforts to further minimize impacts will continue throughout the design, permitting, and construction phases.

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 will be immediately repaired or upgraded.

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

The contractor will identify and develop staging areas for equipment repair and maintenance away from all drainage courses. Fuel and chemical storage areas will be at least 300 feet away from open waters. The fording of streams by construction equipment at bridge locations will be prohibited. All stream crossings will be accomplished using only approved methods as per permit conditions.

Preliminary Mitigation Measures

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 that 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 U.S. The mitigation sequence of avoidance, minimization, and compensation for unavoidable impacts forms the basis for permit application evaluation by USACE and will be considered in project planning and development.

The proposed project will be designed to avoid and minimize impacts to regulated waters of the U.S. in accordance with the *Clean Water Act*, *Tennessee Valley Authority* Act, and all other applicable laws and regulations. The avoidance and minimization measures will include bridging, where possible, to minimize construction impacts at major stream crossings; the use of bottomless “arch-span” culverts, where possible, to allow for the natural streambed to be maintained; and the implementation of best management practices (BMPs) that include silt fencing, straw bales, and stabilization measures for exposed soil during construction.

In addition, bridges will be designed to span the entire stream channel, where possible, and the construction of culverts will be staged during the drier times of the year when stream flows have been reduced. The culverts will not be constructed immediately following rain events. Locations of these structures will 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, TDOT will take measures to avoid impacts to streams adjacent to the proposed ROW. Precautions will 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 will be kept to a minimum with bioengineering techniques in lieu of rip-rap.

Unavoidable impacts to waters of the U.S. may still occur after all 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 U.S.

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

These 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.

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
- Preservation of an existing aquatic site

Three mechanisms are available to carry out compensatory mitigation:

- Permittee-responsible compensatory mitigation
- Use of mitigation banks
- Use of in-lieu fee mitigation

The proposed project will use the compensatory mitigation option that will achieve the required mitigation credits for impacts to waters of the U.S. and waters of the State. The mitigation banking option will 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) will be incorporated into the compensatory mitigation plan that will be developed for the proposed project and the plan will be included with the submittal of the appropriate permit application(s).

Long-term impacts to aquatic organisms can occur through the loss of natural streambed by culvert construction, bank clearing, the placement of riprap, and the removal of trees lining the channel. TDOT will make every effort to avoid or minimize impacts to perennial streams at highway crossings. Construction of culverts will be staged during the drier portions of the year where and when possible,

typically late summer and fall, when stream flows are reduced. If bridges are constructed, they will be designed to span the entire stream channel, where possible. The fording of streams by construction equipment at bridge locations will be prohibited.

Stream channels requiring relocation or channelization will be replaced on-site to the practical extent possible, using techniques that will maintain existing stream characteristics such as channel profile, elevation, gradient, and tree canopy. Use of "Natural Channel Design" may be required if the portion of affected stream is generally greater than 200 feet long. Stream or water body impacts that cannot be mitigated on-site—such as impacts of culverts greater than 200 feet or impacts to springs or seeps that require rock fill to allow for movement of water underneath the roadway—will be mitigated off-site by either improving a degraded system or by making a comparable payment to an in-lieu-fee program or mitigation bank. The particular program or bank used will perform the required off-site mitigation under the direction of state and federal regulatory and resource agencies.

TDOT will provide USACE with a copy of the Environmental Boundaries Study and Mitigation Memorandum prior to submitting the permit application. Prior to submitting a permit application, TDOT will invite USACE to participate in a field review to make jurisdictional determinations for any of the streams and wetlands that will be impacted by the project, at USACE's discretion. TDOT will carry out any required mitigation for jurisdictional stream and wetland impacts per condition of the permit.

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. The 2010 DEIS reported that within the project's general study area, the Little River, Peppermint Branch, Crooked Creek, Gravelly Branch, and Flag Branch were all listed on the 2008 303(d) list of streams for not meeting their designated uses. Based on Tennessee's 2012 303(d) list, only two listed streams, Peppermint Branch and Flag Branch, are within the limits of the Preferred Alternative and other alternatives. (The Little River is outside the project limits of these alternatives, and Crooked Creek and Gravelly Branch are no longer listed as impaired.) According to the latest available list of 303(d) list (2012), both of these streams do not meet their designated use due to pasture grazing and discharges from municipal separate storm sewer systems areas.

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. The Preferred Alternative, as well as the other alternatives investigated, would cross impaired streams in the area. The Preferred Alternative and the other four lane alternatives cross Peppermint Branch and Flag Branch, both of which are Section 303(d) listed. Alternative D also crosses Peppermint Branch, but Flag Branch is already merged into Gravelly Creek upstream of Alternative D. Gravelly Creek was not included on the 2012 list of impaired streams.

Water quality may be affected as a result of the Preferred Alternative or the other 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) into the surface waters.

The land disturbing activities can also contribute to degradation of groundwater quality by the activities and removal of overburden that would otherwise protect the underground sources of water, particularly in the case of karst geology. The result could be increased levels of drinking water treatment for public water supplies and could be a major concern for private well owners in an area with grazing cattle.

Preliminary Mitigation Measures for Water Quality

Some of the projected impacts to water quality will 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.

Some of the BMPs that may be implemented to avoid and minimize impacts to water quality are installing silt fencing, biodegradable mats/blankets, and straw bales; applying temporary grass seed in disturbed areas; covering soil piles during rain events and at the end of each work day; fueling equipment away from aquatic resources; installing check dams, where appropriate, installing retention/detention basins, where appropriate, and preserving riparian vegetation, when possible.

Mitigation will also be achieved by restoring the impacted streams and wetlands on-site or by purchasing stream and wetland mitigation credits within the watershed.

3.14.2.3 Exceptional Tennessee Waters

Tennessee water quality standards require the incorporation of the antidegradation policy into regulatory decisions (TDEC Rules Chapter 1200-4-3-.06). The TDEC Division of Water Resources has been delegated the responsibility of identifying exceptional Tennessee Waters (previously known as Tier 2) and Outstanding National Resource Waters (Tier 3). In exceptional waters, degradation cannot be authorized unless (1) there is no reasonable alternative to the proposed activity that would render it non-degrading, and (2) the activity is in the economic or social interest of the public. In Outstanding National Resource Waters, no new discharges, expansions of existing discharges, or mixing zones will be permitted unless such activity will not result in measurable degradation of the water quality.

The Little River has been designated as an Exceptional Tennessee Water because a portion of the river flows through the GSMNP and also supports federal and state threatened and endangered species that include the fine-rayed pigtoe (*Fusconaia cuneolus*), marbled darter (*Etheostoma marmorpinnum*) (formerly duskytail darter), snail darter (*Percina tanasi*), longhead darter (*Percina macrocephala*), and the ashy darter (*Etheostoma cinereum*).

The Fort Loudoun watershed (in which the Little River occurs) is characterized by forested slopes, high gradient, cool, clear streams, and rugged terrain. Some of the lower stream reaches occur on limestone. In addition, some of the watershed's streams flow through the Blue Ridge Mountains and have a distinct fauna, some containing brook trout, the only salmonid native to Tennessee.

The potential impact to the Little River would include water quality degradation from roadway-induced development. The construction of roads reduces the ability of land to absorb and filter rainwater, resulting in a higher potential for contaminated runoff to directly enter the Little River and other surface waters. 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 U.S. as a result of the increased amount of impervious surfaces.

3.14.2.4 Wetlands

Wetlands are defined by USACE and 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).

Characteristics of Wetlands

In order to be considered a wetland, an area must have all of the following characteristics:

- Wetland vegetation
- Wetland soil types
- Wetlands hydrology

USACE, through Section 404 of the *Clean Water Act*, has regulatory authority over waters of the U.S., which includes wetlands.

Recent studies to determine the impacts of the proposed alternative alignments on wetlands were conducted by biologists in 2013 and 2014. During these recent field surveys, all wetland areas that were delineated and mapped in 2008 and are within the proposed ROW of the project alternatives were revisited to evaluate the current condition of the wetland. Furthermore, the field surveys identified and delineated any new areas within the alternatives that displayed evidence or presence of the three wetland characteristics outlined in the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Eastern Mountains and Piedmont Region* (USACE 2012). The delineations included those wetlands identified on the National Wetland Inventory (NWI) maps as well as those wetlands identified during field surveys but not indicated on NWI mapping. Isolated wetlands were also included in the delineations and will be included in additional discussions and reports until TDEC and USACE have confirmed or refuted the jurisdictional applicability of these wetlands.

The 2013 field surveys identified two small wetlands (WTLs 5A and 5B associated with Gravelly Creek near the southern terminus of the project) that were not observed during the 2008 field surveys. The Preferred Alternative and the 2012 Preferred Alternative (A) would affect WTL 5A (0.06 acre). In addition, one previously identified wetland (WTL 6, east of Flag Branch and north of US 321) had increased substantially in size (from 0.4 acre to 11.1 acres) as a result of beaver activity in the area.

There have been minor changes in the condition of other wetland areas since the 2008 field surveys were completed. The following observations about the wetlands in the area were made during the 2013 and 2014 field surveys:

- The wetlands encountered were primarily associated with intermittent and perennial stream corridors that traverse pastureland or abandoned livestock watering ponds.
- The location of these wetlands allows for frequent disturbances from livestock and other anthropogenic activities that have severely degraded and reduced the size of the wetland habitats.
- Past and current agricultural activities and land uses have also contributed to the reduction or loss of important functions provided by wetlands that include floodwater abatement, pollutant filtration, maintenance of stream and pond base flow, and wildlife habitat.

Impacts to Wetlands

Table 3-31 summarizes the wetland impacts of each alternative. Tables detailing the features of and impacts to each wetland are included in Attachment I. The estimates of affected wetland acres are based on a worst-case scenario and the actual impact may be less once final design plans have been

developed. The Preferred Alternative and the 2012 Preferred Alternative would each affect six of the eight wetland sites identified during the 2008 and 2013 surveys (shown on Figure 3-17 and Figure 3-18), while the Preferred Alternative with East Shift would affect four of the eight wetland sites. Alternative C would affect four wetlands, and Alternative D would affect one wetland. These wetland acres will likely be filled as a result of construction of build alternatives.

Table 3-31: Wetlands Impacts

Waterbodies	Preferred Alternative	Preferred Alternative with East Shift	2012 Preferred Alternative (A)	Alternative C	Alternative D
Wetlands (acres)	8.72	6.99	5.01	0.60	0.03

Source: Addendum to 2009 Ecology Report (PB 2013); Ecology Report (CEC 2014).

Measures to Avoid or Minimize Impacts to Wetlands

Avoidance of impacts to wetlands is not practicable since there are wetlands scattered throughout the project area. Two alternatives considered (Alternative C and D) each have less than 1 acre of potential wetland take; however, each would have substantial impacts on neighborhoods (relocations and community cohesion). In addition, Alternative D would not serve the forecasted traffic needs for the project area.

The impacts reported in Table 3-31 are based on preliminary designs, and the impacts may increase or decrease once final design has begun. The proposed project will be designed to avoid and minimize impacts to wetlands to the extent possible. Efforts to further minimize impacts will continue throughout the design, permitting, and construction phases.

Preliminary Mitigation Measures

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.

Mitigation measures for unavoidable impacts to wetlands per Section 404 of the *Clean Water Act* are prioritized in the same manner as impacts to non-wetland waters of the U.S. (see Section 3.14.2.1 above).

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 hydrologic unit code (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
8. A combination of any of the above activities

The appropriate BMPs will be implemented to avoid and minimize impacts to wetlands. These may include, but are not limited to, reducing cut and fill limits where possible, installing silt fencing, and placing straw bales over exposed soil.

The proposed project will use the compensatory mitigation option(s) that will achieve the required mitigation credits. The mitigation banking option will 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, Tennessee. 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) will be incorporated into the compensatory mitigation plan that will be developed for the proposed project. The compensatory mitigation plan will be included with the submittal of the appropriate permit application(s).

TDOT will provide USACE with a copy of the Environmental Boundaries Study and Mitigation Memorandum prior to submitting the permit application. Prior to submitting a permit application, TDOT will invite USACE to participate in a field review to make jurisdictional determinations for any of the streams and wetlands that will be impacted by the project, at USACE's discretion. TDOT will carry out any required mitigation for jurisdictional stream and wetland impacts, which is a condition of the permit.

3.14.3 Threatened and Endangered Species

Threatened and endangered species are protected under federal law by the *Endangered Species Act of 1973*, as amended. As defined by the *Endangered Species Act*, 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 USFWS is the federal agency responsible for determining whether a species should be listed. FHWA must consult with USFWS if a federally listed species is present in the area of a proposed transportation project. USFWS determines whether the proposed project is likely to adversely affect the species or habitat.

3.14.3.1 Threatened and Endangered Species in the Project Area

In 2008, field surveys were conducted along the proposed alternative corridors to identify state and federally protected species and their habitats. Per Section 7 of the *Endangered Species Act* and TESA, TDOT requested concurrence (or non-concurrence) from USFWS on the effect determination that the proposed project "is not likely to adversely affect" the federally protected Indiana bat, snail darter, marbled darter (formerly known as the duskytail darter), and the fine-rayed pigtoe. In a letter dated July 30, 2010, USFWS concurred with the findings for the snail darter, marbled darter, and fine-rayed pigtoe but withheld Section 7 concurrence until TDOT fully addressed the potential impacts to the Indiana bat due to the removal of suitable summer roosting habitat within the project area.

In response to USFWS's concerns about the Indiana bat, during the 2012 summer season TDOT conducted a mist net and acoustical survey in the project area. No Indiana bats were captured or acoustically detected during the survey. The results are documented in the *SR 32 (Pellissippi Parkway Extension) Indiana Bat (*Myotis sodalis*) Survey Report* (CEC 2012). The USFWS concurred with the findings of the report in a letter dated October 11, 2012.

The project area was surveyed again in 2013 to re-evaluate the state and federally protected species and their habitat findings previously documented in *2009 Ecology Report*. Results of the survey are included in the 2013 *Ecology Report Addendum*. Prior to conducting the 2013 field surveys, information from USFWS, TDEC, and the TWRA was requested, TDEC and USFWS databases were consulted, and books and databases of cave records were reviewed.

TWRA responded to TDOT's request for additional coordination on June 6, 2013. The response stated support for the proposed East Shift due to the reduced amount of stream and wetland impacts as compared to the West Shift. The letter also stated that both the East and West Shifts would impact the same streams. Therefore, the same species would be impacted, but the habitat impacts would differ.

The TDEC Natural Heritage Inventory Program responded on March 1, 2013, identifying three federally protected species and two state protected species known to occur within 1 mile of the proposed project and one federally protected species known to occur within 4 miles of the proposed project. In addition, the TDEC Natural Heritage Inventory Program documented state rare species, species of concern, species deemed in need of management, and species commercially exploited within 1-mile and 4-mile radii of the proposed project.

In October 2013, USFWS issued a proposal to list the Northern long-eared bat (*Myotis septentrionalis*) as endangered under the ESA. On April 1, 2015, the USFWS announced that it is protecting the northern long-eared bat as a threatened species under the *Endangered Species Act*, primarily due to the threat posed by white-nose syndrome; the listing was effective May 4, 2015. With that announcement, the USFWS also issued an interim special rule under Section 4(d) of the Endangered Species Act that eliminates unnecessary regulatory requirements for landowners, land managers, government agencies and others in the range of the Northern long-eared bat. The final rule is expected to be finalized by the end of the 2015 calendar year.

The federally threatened and endangered species that potentially occur in Blount County are listed in Table 3-32. A more detailed discussion of these species is included below.

Copies of all correspondence referenced above to USFWS, TDEC, and TWRA are included in Attachment C and in the *2013 Ecology Report Addendum*, which is contained in Technical Appendix G.

3.14.3.2 Impacts to Threatened and Endangered Species

As documented in the 2013 *Ecology Report Addendum*, no individual aquatic species or suitable habitat was found within the limits of the Preferred Alternative or other project alternatives. 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. 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.

Although suitable Indiana bat summer roosting habitat is present within the project area, no individual Indiana bats were captured and no calls were recorded during the 2012 Indiana bat mist net and acoustical surveys. In addition, no Indiana bat hibernaculum (winter habitat) is known to occur within the project area. All known Indiana bat hibernacula are 5 miles or farther away from the project area (Bull Cave, 9.2 miles; Kelly Ridge Cave, 8.25 miles; and White Oak Blowhole Cave, 11.5 miles). The primary impact that the project could have on the Indiana bat is the removal of trees that potentially provide summer roosting habitat.

The Northern long-eared bat has similar habitat requirements to the Indiana bat. In a letter to USFWS on May 5, 2015, TDOT indicated that the 2012 bat study did not capture any Northern long-eared bats. Due to the negative results for the Northern long-eared bat, TDOT concluded that the species is “not likely to [be] adversely affected” by the project. In their response letter dated May 28, 2015, the USFWS concurred with the finding of “not likely to adversely affect” for the Northern long-eared bat. The coordination letters between TDOT and the USFWS that address both the Indiana bat and Northern long-eared bat are located in Attachment C-2.

The USFWS concurrence with the findings of the 2012 bat survey was valid until April 1, 2015; thus additional coordination with the USFWS regarding the Indiana bat and the Northern long-eared bat was needed. In the May 5, 2015 letter to USFWS, TDOT requested a project update from the USFWS and that the finding of “not likely to adversely affect” be continued until the signing of the NEPA decision document (i.e., ROD) by the FHWA.

Table 3-32: Protected Species Potentially Occurring in Blount County

Common Name	Scientific Binomial	Regulatory Status	Preferred Habitat	Habitat Present or Not Present	Species Determination
Mammals					
Indiana bat	*Myotis sodalis*	Federal 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. No individuals captured during 2012 survey.	Not Likely To Adversely Affect
Northern long-eared bat	*Myotis septentrionalis*	Federal Threatened	Similar habitat to the Indiana bat	Summer habitat present within project corridor. No individuals captured during 2012 survey.	Not Likely To Adversely Affect
Aquatic Species					
Snail darter	*Percina tanasi*	Federal Threatened	This species inhabits large free-flowing rivers with extensive areas of clean-swept gravel shoals.	Habitat not present within ROW	Not Likely To Adversely Affect
Marbled darter (formerly duskytail darter)	*Etheostoma marmorpinnum (formerly Etheostoma percnurum)*	Federal Endangered	This species inhabits 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	Not Likely To Adversely Affect
Fine-rayed pigtoe	*Fusconaia cuneolus*	Federal Endangered	This species is found in river ecosystems, usually inhabiting ford or shoal areas with moderate gradient.	Habitat not present within ROW	Not Likely To Adversely Affect
Ashy darter	*Etheostoma cinereum*	State Threatened	This species inhabits 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	No Effect
Longhead darter	*Percina macrocephala*	State Threatened	This species inhabits 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	No Effect

Source: Addendum to 2009 Ecology Report (PB 2013).
Note: On April 1, 2015, USFWS announced that the Northern long eared bat (Myotis septentrionalis) has been federally listed as a threatened species under the Endangered Species Act.

In their May 28, 2015 response letter (Attachment C-2), the USFWS acknowledged that they have no new information indicating the presence of the Indiana bat or the Northern long-eared bat within the project area. They added that since TDOT has committed to re-coordinating with the USFWS for potential impacts to listed or proposed species prior to the construction of the project, they believed that "the requirements of section 7 of the *Endangered Species Act of 1973*, as amended, are fulfilled for all species that currently receive protection under the Act."

Summary of Habitat Findings

The 2013 and 2014 field surveys revealed that the overall habitat conditions had for the most part remained unchanged since the 2008 field surveys were completed. The primary difference from 2008 was the increased water levels in some of the larger stream crossings. This change in water levels was most likely due to the fact that in 2008 precipitation was well below average for what is typical to the region. The other reported stream conditions in 2008 and observed in 2013 and 2014 included lack of sufficient riparian buffer adjacent to stream corridors, streams impacted (i.e., trampling, grazing) by livestock, silt and sediment deposition, and other sources of water quality degradation from various nonpoint sources.

Therefore, based on the current stream conditions no suitable habitat for these species exists within the project area.

In addition, the area has limited foraging for the Indiana bat as most of the area is comprised of open fields or is residential with few stream corridors with large intact riparian buffers. No hibernaculum was known to exist within 5 miles of the proposed project. However, summer habitat for the Indiana bat does exist within the project area.

3.14.3.3 2013 Biological Assessment

During the preparation of the 2013 *Ecology Report Addendum*, it was noted that an update to the *2001 Biological Assessment* (TDOT, 2001b) was needed due to the document's age. The updated *Biological Assessment* (TDOT 2013) was prepared for the federally listed Indiana bat, snail darter, fine-rayed pigtoe, and marbled darter and the state listed ashy darter and longhead darter. The 2013 *Biological Assessment* is contained in Attachment I.

There are numerous records for the snail darter, marbled darter, fine-rayed pigtoe, ashy darter, and longhead darter from the Little River, downstream of the proposed project. Although the project would not cross the Little River, it will cross several small tributary streams 1 to 2 miles upstream of their confluences with the Little River. There are no records for any of the above listed darter or mussel species from these tributary streams.

Project construction could result in some temporary stream disturbances at the proposed crossing locations. However, installation and maintenance of effective erosion and siltation control measures throughout project construction will minimize impacts to these streams, which in turn will minimize potential impacts to the Little River and the aquatic fauna present there. Provided the necessary BMPs for erosion and sediment control are implemented and maintained throughout project construction, the proposed project is "not likely to adversely affect" any aquatic species.

As described above, the 2012 Indiana bat mist net and acoustical surveys found no evidence of individual Indiana bats in the project area. No Indiana bat hibernacula are known to occur within the Preferred Alternative, and while suitable roosting habitat appear to be present, very little of it will be affected by project construction. There are sufficient suitable trees present outside the project limits to accommodate any Indiana bats that might use the area. USFWS concurred with TDOT's findings in the *2012 Indiana Bat Mist Survey Report* on October 11, 2012 (Attachment C-2). Thus, the proposed project is "not likely to adversely affect" the Indiana bat.

USFWS concurred with TDOT's species determination calls for all of the federally listed species in a letter dated July 26, 2013 (Attachment C-2). In addition, USFWS stated that in light of TDOT's commitment to implement stringent water quality BMPs during construction and the negative survey results for the Indiana bat in the project area, that the requirements under Section 7 of the *Endangered Species Act*, as amended, are fulfilled.

3.14.3.4 Preliminary Mitigation Measures

Stringent BMPs, including erosion and siltation control measures, will be implemented during construction. TDOT will coordinate with TWRA regarding methods to minimize potential impacts to terrestrial and aquatic species under TWRA's authority in the event species of concern are discovered during TWRA's future aquatic species surveys near proposed stream crossings. TDOT will protect groundwater resources if previously unknown species are identified by TWRA or other resources agencies.

3.14.4 Permits

The following permits will be required from USACE, TVA, and TDEC for implementation of the Preferred Alternative:

- Individual or general ARAP from the State of Tennessee
- Individual or Nationwide Permit for impacts to waters of the U.S. (including wetlands and aquatic resources) from USACE pursuant to Section 404 of the *Clean Water Act*—other agencies, such as USFWS and EPA, 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
- NPDES Stormwater General Permit for Construction Activities for construction projects disturbing one or more acres of land
- UIC 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 Preferred Alternative and other build alternatives considered would have physical construction-related impacts but, with implementation of appropriate controls, minimal to no indirect or cumulative 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 will be required to prepare and implement a Traffic

Management Plan (TMP). If local streets must be temporarily closed during construction, detour routes will be provided and clearly marked with signs. The TMP will be implemented and coordinated with all emergency services organizations and school districts prior to construction. Access to all properties will 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 will coordinate with affected business owners to plan acceptable arrangements for temporary access and temporary signage during construction as needed. In addition, the construction contractor will be required to maintain access to businesses throughout the construction period. TDOT or the construction contractor will make provisions for posting appropriate signs to communicate the necessary information to potential customers.

3.15.3 Air Quality

This project will result in the temporary generation of construction-related pollutant emissions and dust that could result in short-term air quality impacts. These construction-related impacts will be mitigated through the implementation of BMPs, which are included in TDOT's *Standard Specifications for Road and Bridge Construction*. All construction equipment shall be maintained, repaired, and adjusted to ensure satisfactory condition to minimize pollutant emissions.

3.15.4 Noise

TDOT's construction specifications will apply to this project. As a result, construction procedures shall be governed by TDOT's *Standard Specifications for Road and Bridge Construction,* as amended by the most recent applicable supplements. The contractor will be bound by Section 107.01 of the Standard Specifications to observe any noise ordinance in effect within the project limits. Detoured traffic shall be routed during construction so as to cause the least practicable noise impact on noise-sensitive areas.

3.15.5 Soils and Geology

The contractor will 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 will be developed and implemented. The sediment control plan will be formulated in accordance with the TDOT *Standard Specifications for Road and Bridge Construction* and will 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 volume directed toward local landfills.

Any toxic and hazardous materials will be handled and used in accordance with package labels and manufacturer's directions. Wastes will be segregated, labeled, and stored in a manner that will

prevent their release into the environment from an accident or spill. The contractor will dispose of these materials and their containers in accordance with applicable state and federal regulations.

The contractor would be responsible for handling and disposing of excess material in accordance with TDOT's *Standard Specification for Road and Bridge Construction*.

3.15.7 Water Quality and Erosion Control

Construction activities can have an impact on surface and underground sources of drinking water. The project will be subject to the conditions of the NPDES permit. 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, these controls will be immediately repaired or upgraded. The failure of erosion and sediment controls that leads to exceedence of turbidity standards in receiving waters will result in work being stopped until the problem is remedied. TDOT will also implement its *Standard Specifications for Road and Bridge Construction*, which includes erosion and sediment control standards for use during construction.

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

3.15.8 Wetlands

Construction activities will be confined within the permitted limits to prevent unnecessary disturbance of adjacent wetland areas. Potential temporary impacts to wetlands will 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 will 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 will be replaced with plantings of native tree species within the affected area. The contractor will adhere to project requirements identified in the 2013 *Biological Assessment* and the USFWS letter dated April 26, 2013 (Attachment I).

3.16 Indirect and Cumulative Impacts

As required by NEPA legislation and Council on Environmental Quality regulations, 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 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 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 that 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
- Local or regional infrastructure projects that could impact resources (schools, hospitals, etc.)

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.

Actions that are not usually considered reasonably foreseeable include:

- Possible, but not likely, actions/projects
- Actions that have little or no influence on the transportation decision

Generally, 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 and 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, streams, floodplains), regardless of who has built the project (including developers, localities, etc., not just state departments of transportation or federal agencies). If a project does not cause direct or indirect impacts on a resource, it would not contribute to a cumulative impact on the resource.

3.16.2 Methodology

3.16.2.1 Indirect Effects

The time frame used for the assessment of reasonably foreseeable indirect impacts from this project has been determined to be 2040, which is based primarily on the transportation planning horizon (based on the Knoxville Regional TPO *Regional Mobility Plan 2040*).

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 past impacts that have occurred within the project area, impacts associated with the Pellissippi Parkway Extension itself, impacts associated with present/near future planned projects, and impacts associated with longer-term anticipated (2040) 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 2009 were utilized in this analysis (see Attachment B).

More information regarding the methodology of the ICE analysis and the data that was available can be found in the *Update to the* 2009 *Indirect and Cumulative Effects Methodology and Background Information—Technical Memorandum* (PB 2015b); the report is hereafter referred to as the *Update to the 2009 ICE Report*. The report is contained in Technical Appendix J. The analysis presented herein has been updated to address 2040 employment and population forecasts prepared by the Knoxville Regional TPO for the 2013 travel demand model.

3.16.3 Elements of Indirect Effects 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 analyses. Table 3-33 lists those resources assessed for this analysis. Boundaries for these resources were used to create the overall ICE boundary.

Table 3-33: Indirect and Cumulative Effects Resources

Resource
Land Use
Socio-Economic Resources
Farmlands
Cultural Resources ▪ Historic Resources ▪ Archaeological Resources
Recreational Resources
Visual Resources
Air Quality
Physical Environment ▪ Noise ▪ Floodplains ▪ Hazardous Materials
Natural Resources ▪ Terrestrial Resources ▪ Aquatic Resources ▪ Wetlands ▪ Threatened and Endangered Species

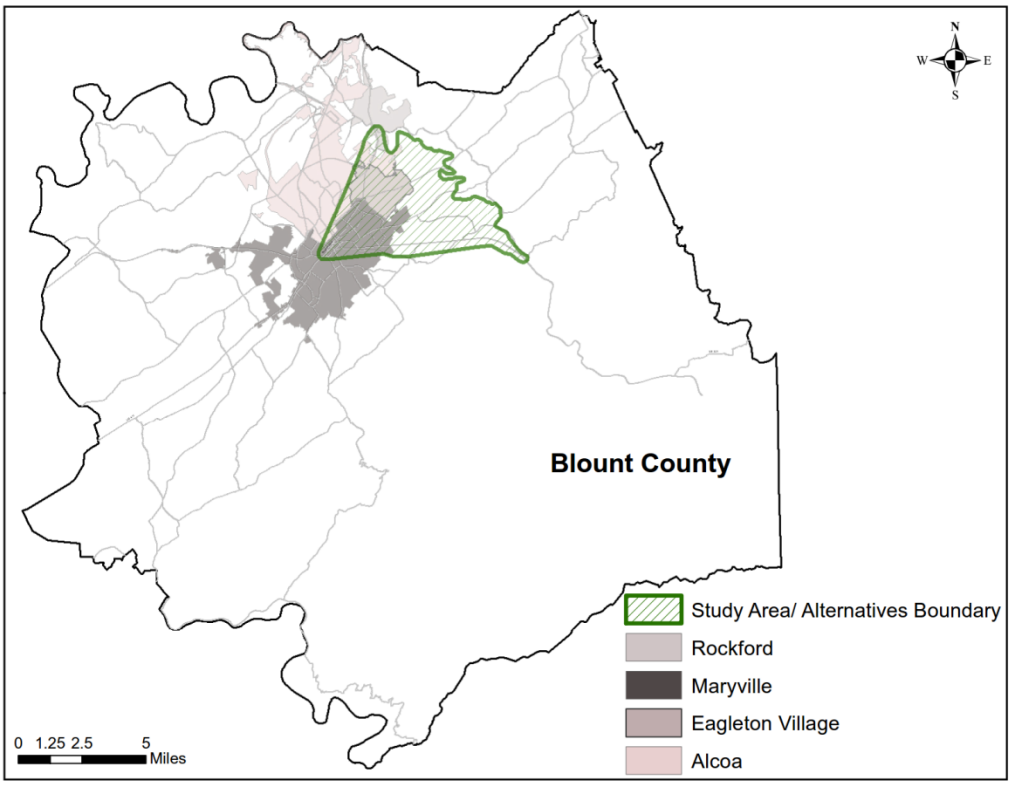
3.16.3.2 Geographical Boundaries

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. The boundaries identified for the ICE analysis are listed below and shown in Figure 3-19 through Figure 3-23.

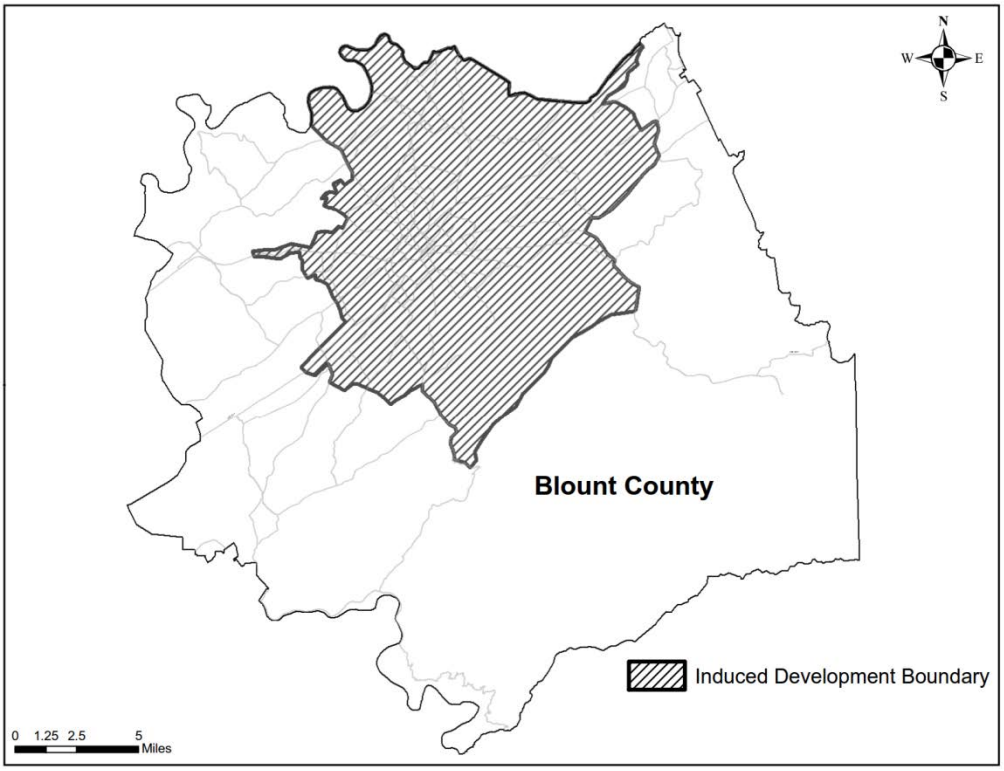
- Alternatives Study Area Boundary
- Induced Development Boundary
- Natural Resources Boundary
- Visual Resources Boundary
- Air Quality Boundary

Figure 3-19: ICE Analysis—Alternatives Study Area Boundary



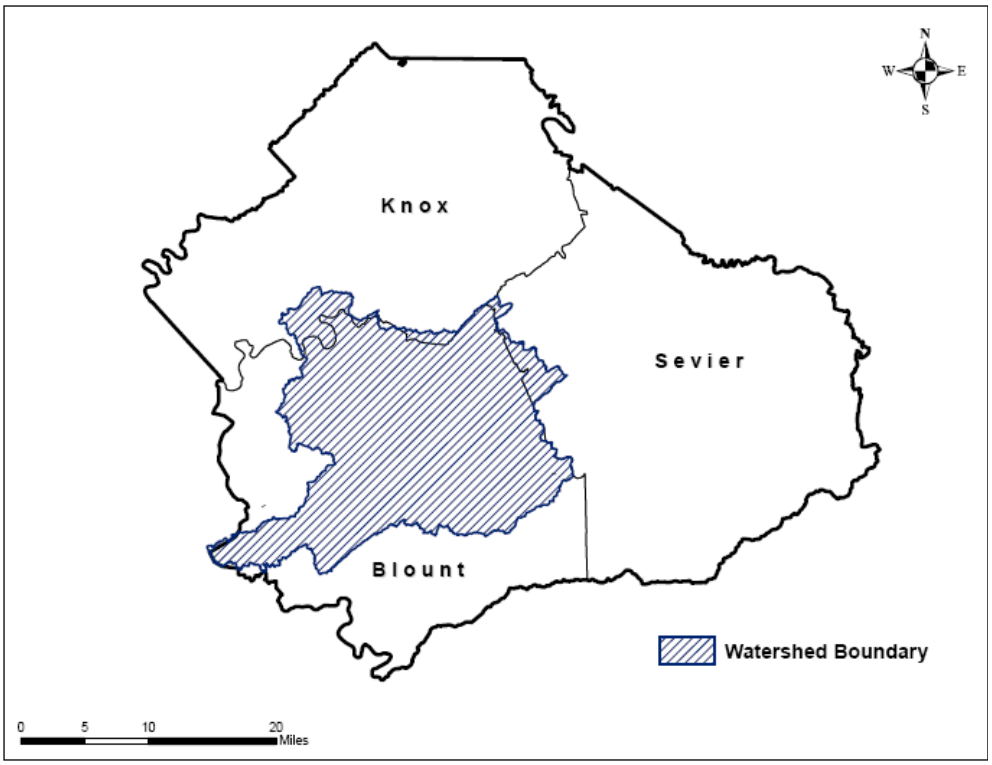
Source: Update to the 2009 ICE Report (PB 2015b).

Figure 3-20: ICE Analysis —Induced Development Boundary



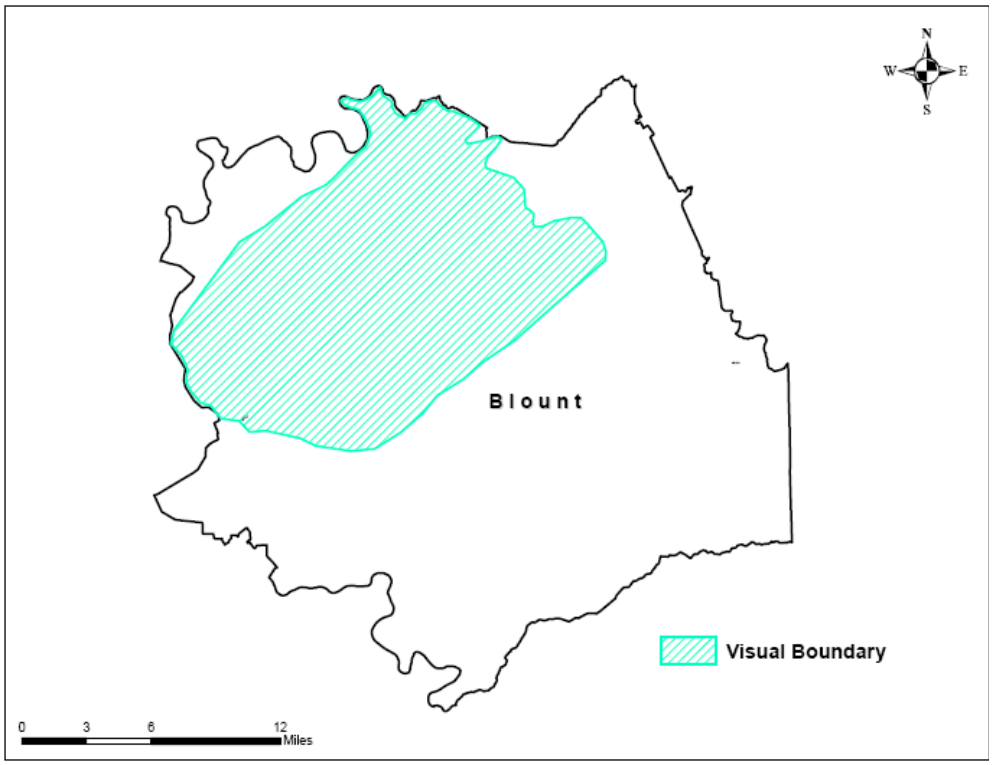
Source: Update to the 2009 ICE Report (PB 2015b).

Figure 3-21: ICE Analysis —Natural Resources Boundary



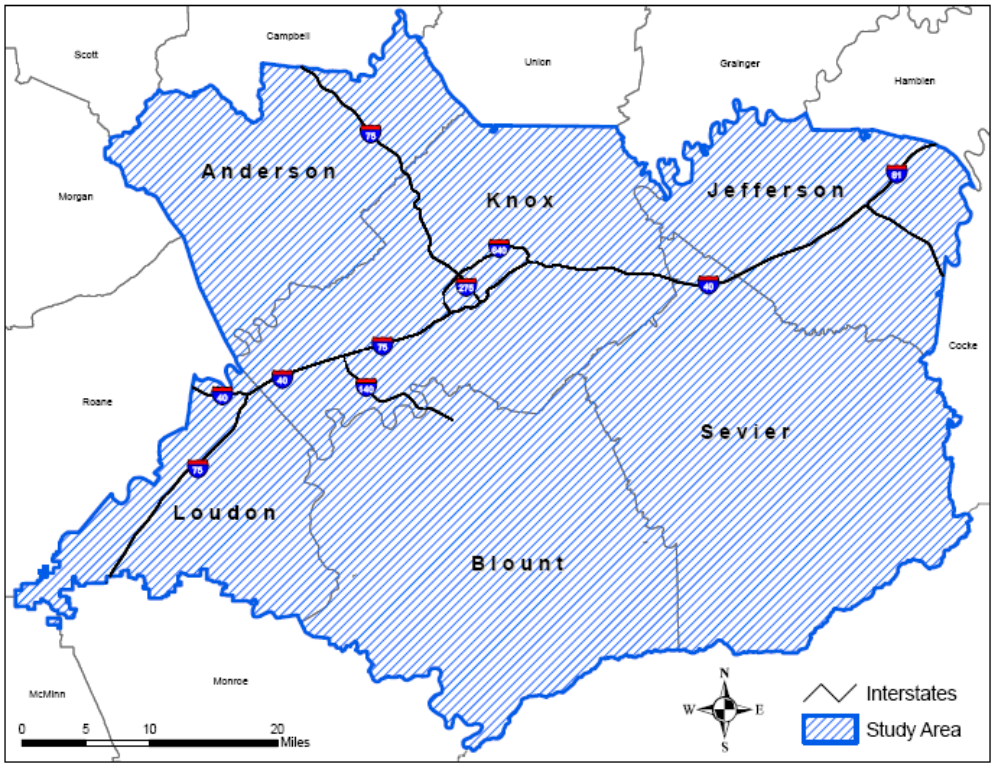
Source: Update to the 2009 ICE Report (PB 2015b).

Figure 3-22: ICE Analysis —Visual Resources Boundary



Source: Update to the 2009 ICE Report (PB 2015b).

Figure 3-23: ICE Analysis—Air Quality Boundary



Source: Update to the 2009 ICE Report (PB 2015b).

The geographical boundaries are discussed in Section 2.2 of the *Update to the 2009 ICE Report* in Technical Appendix J.

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 *Update to the 2009 ICE Report* (Technical Appendix J).

Population data was also examined to assist with the determination of the past time frame. Population data from 1900 to 2010 for Blount County and from 1950 to 2010 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). Since the 1970s, Blount County has been one of the fastest growing counties in the Knoxville region. The county has experienced double-digit population growth over each 10-year census period. Between 1990 and 2000, it grew by 23 percent. In 2010, the county was home to 123,010 people (an increase of about 16 percent since 2000). Blount County is expected to continue to grow at a slightly higher rate; by 2040, the county is expected to have 183,913 residents, with an annual growth of 1.7 percent.

Population in Maryville grew by more than 100 percent between 1970 and 2010. Much of the growth between 1970 and 2000 was due in large part to annexation, which according to the *Maryville 2010 Plan*, reflects a significant trend toward urbanization. The Maryville plan also acknowledges that factors contributing to the increase include economic development and job growth and retirees moving into the area.

The past time frame of 1977 was selected because it marks the construction of the initial 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. In addition, this was the year that local officials in Blount County, Maryville and Alcoa made the first of three requests to the Tennessee General Assembly to fund the extension of the parkway southeast to US 321/SR 73. 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 GSMNP, also influenced land use in the region.

As part of the *Update to the 2009 ICE Report*, it was determined that the year 2020 continues to be an appropriate present/near future timeframe for the project, given the economic downturn that recently affected the region. The future time frame of 2030 used in the DEIS analysis was determined based primarily on the planning horizon for most of the local land use planning documents; however, local land use plans have not been updated since the DEIS was circulated. Population projections are now available through 2040 through the Knoxville Regional TPO, thus allowing a more accurate depiction of future population within the ICE boundary. Thus the future time frame for the current analysis is 2040.

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 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 Plan,* policies plans, and zoning ordinances are used as tools by Blount 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 areas of Knox, Blount, Loudon, and Sevier counties. Specific planning activities and documents required of the TPO include the Unified Planning Work Program; the development of an intermodal transportation plan with at least a 20-year horizon (the latest is *the Regional Mobility Plan 2040*) that must be updated every four years; the 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 that must include system monitoring, performance measures, congestion identification, mitigation strategies, implementation strategy, and monitoring of its effectiveness. The current transportation plans are the *Regional Mobility Plan 2040* and the 2014-2017 TIP.

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) UGBs, (2) Planned Growth Areas, and (3) Rural Areas. Municipalities are responsible for proposing UGBs and counties are responsible for proposing Planned Growth Areas and Rural Areas. There have been no changes in the Blount County UGBs since the DEIS was circulated. The UGBs in Blount County are illustrated on Figure 3-7.

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 3-34. Attachment B contains a series of maps prepared by the Blount County Planning Department to illustrate the county's residential development between 1950 and 2009.

According to the *Addendum to the 2009 Economic and Fiscal Impact Analysis* (PB 2015a), the Knoxville Regional TPO's 2040 forecast predicted the households within the ICE-induced development boundary to grow by roughly 680 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.

Table 3-34: Number of Housing Units (1970–2010)

	1970	1980	1990	2000	2010
Blount County	21,835	23,680	36,532	47,059	55,266
Percent Change		*8.4%*	*54.3%*	*28.8%*	*17.4%*
Knox County	93,011	125,883	143,582	171,439	194,949
Percent Change		*35.3%*	*14.1%*	*19.4%*	*13.7%*
Sevier County	10,268	unavailable	24,166	37,252	55,918
Percent Change				*54.2%*	*50.1%*
Alcoa	2,520	unavailable	2,892	3,857	4,175
Percent Change				*33.4%*	*8.2%*
Knoxville	61,064	73,263	76,453	84,981	88,009
Percent Change		*20.0%*	*4.4%*	*11.2%*	*3.5%*
Maryville	4,976	7,156	8,280	9,795	11,629
Percent Change		*43.8%*	*15.7%*	*18.3%*	*18.7%*

Source: U.S. Census of Housing 1970, 1980, 1990, 2000, and 2010.

The *Addendum to the 2009 Economic and Fiscal Impact Analysis* predicts that construction of the Preferred Alternative is likely to spur the development of a relatively modest number of new housing units (between 27 and 49 new units) by 2025, the year when full build-out of the area surrounding the proposed project is predicted. This is in addition to the 680 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 Knoxville Regional TPO estimated that between 2010 and 2040, nearly 24,850 new jobs are expected to be added to the study area. Of these, the TPO estimated that

roughly 75 percent or 18,540 of these jobs would be in commercial sectors (retail/finance, insurance, and real estate/service). Assuming a weighted average of 2.9 jobs per 1,000 square feet of commercial space, this yields a commercial land consumption rate of roughly 147 acres of new commercially developed land in total, whether or not the project is constructed. Given the nearly 500 acres (21.8 million square feet) of vacant commercial land in the study area, the availability of commercial land is not a potential constraint to growth.

The *Addendum to the 2009 Economic and Fiscal Impact Analysis* also predicted that construction of the Preferred Alternative is likely to spur the development of between 13,300 and 24,100 square feet of induced commercial space by 2025. Table 3-35 presents the range of induced commercial space by office, retail and hotel space. To estimate the induced number of jobs likely created as a result of the project, the metrics for square feet per employee were used. The analysis assumes 400 square feet per employee for retail development, 275 square feet per employee for office development, and 600 square feet per employee for hotel development. The number of induced commercial jobs is between 41.4 and 74.9, as shown in Table 3-35.

Table 3-35: Summary of Induced Commercial Development and Jobs Created

	Office	Retail	Hotel	Total Commercial
Space (square feet	7,900 - 14,300	4,400 - 7,900	1,000 - 1,900	13,300 - 24,100
Jobs created	28.7 - 52	11 – 19.8	1.8 – 3.2	41.4 – 74.9

Source: Addendum to 2009 Economic and Fiscal Impact Analysis (PB 2015a).

The residential and commercial trends show that the Preferred Alternative would not encourage extensive growth that would be inconsistent with past growth trends or would substantially differ from the No-Build Alternative.

The results of the previously prepared *Economic and Fiscal Impact Analysis* (2009) for this project predicted higher numbers of new housing units and commercial square footages as a result of the proposed project. Contributing to the lowered estimates under the current study are the results of the updated (2013) regional travel demand model and traffic forecasts for the project. Travel volumes for the project are substantially lower under the new model than they were under the previous model. Among the reasons for the lower forecasts for the project was the lowered expectation for overall growth in population and employment in the region since the 2007–2009 economic recession.

The implications of the 2013 traffic forecasts based on the regional travel demand model are the reduced potential for land use change (induced growth). Per the *2009 Economic and Fiscal Impact Analysis*, change in accessibility and expected growth were identified as key factors influencing induced development. The *Addendum to the 2009 Economic and Fiscal Impact Analysis* demonstrates that both accessibility benefits (in terms of travel-time reduction) and growth potential are estimated to be lower than the previous estimates. This trend has a downward pull on induced growth. By extension, fiscal impacts of the project would be lower than estimated previously. Fiscal impact is calculated as the difference between revenue generated and the cost of providing service to the new development.

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 maps in Attachment B. As mentioned in the previous section, this trend is

anticipated to occur whether or not the project is constructed. The Preferred Alternative and the other alternatives considered pass through the designated UGBs of Alcoa and Maryville, where growth is targeted.

Social Resources

Under the No-Build Alternative, the limited mobility options in Blount County, Maryville and Alcoa 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 are likely to result in increased demand on other local roads as motorists attempt to find alternate 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 Preferred Alternative and the other four-lane alternatives considered would increase mobility options in Blount County and Maryville, improve travel times for vehicles traveling from the north and the west, and reduce delay at several key intersections. 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. Alternative D would not substantially increase mobility, travel time or improvement in intersection delay since the future traffic would exceed the carrying capacity of a two-lane road; this alternative would likely increase stress on the locally roadways and neighborhoods served by it.

Community Cohesion

Under the No-Build Alternative, a major new roadway through the residential and agricultural area will not be constructed. Thus no existing neighborhoods would be encroached upon by the new roadway, and the residential displacements expected under the project would not occur. Residential development in the area would be expected to increase, based on recent trends, which may be scattered or in new subdivisions. As mentioned above under Social Resources, the increased residential development is expected to lead to increased traffic on the local roads, which could lead to the physical and visual disruption of existing residential clusters.

By increasing mobility options, the proposed project is likely to encourage additional residential development, although the volume of new residences is not expected to be substantially greater than what is expected under the No-Build Alternative. The existing character of the area and relationships among the rural clusters will be altered by the new roadway and the expected increase in residential development. Some clusters of homes/farms will be physically and visually divided by the new roadway. The anticipated increase in residential developments and density of development will likely alter the rural and open character of the area and may disrupt long-time relationships among neighbors within the corridor.

Quality of Life

Quality of life is a subjective topic, including a variety of factors ranging from physical health, psychological state, level of independence, family, education, wealth, religious beliefs, a sense of optimism, local services and transportation, employment, social relationships, housing, and the environment. Measuring quality of life for one person or group of persons may be completely different for another person or group of persons.

In the context of the proposed project, some people may feel a decrease in quality of life by the construction of a major new roadway through the area. They may feel that the new road will disrupt or break down the fabric of the community, degrade the environment, and introduce unwelcomed new development. Others may see the new roadway as an improvement that brings better transportation

services, improved travel times, and access to a more rural/suburban lifestyle. Still others may see positives and negatives to the new roadway.

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 include, but are not limited to, police services, local road and highway costs, and public education for Kindergarten through 12th grade students.

The residential development projected to be induced by the construction of the Preferred Alternative is expected to be relatively minor (between 27 and 49 new households by 2025), particularly when compared to the estimated 680 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.

The fiscal impact analysis conducted for the project 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 focuses 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; nor does it assess public capital improvement requirements associated with the development program in detail.

In the 2009 study, the analysis examined the fiscal effects of two development scenarios: 2020 Business as Usual Case and the 2020 Smart Growth Case. The 2020 Business as Usual Case 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 BAU scenario, it was 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. The 2020 Smart Growth Case concept represented a future where most new residential and nonresidential development will 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 was 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.

Since the 2009 *Economic and Fiscal Impact Analysis* was conducted, Blount County has not made progress toward the implementation of a smart growth plan. Thus, the current analysis presents a single methodology, based on the assumption of the continuation of the business as usual approach that the County has been following.

The methodology used to estimate the fiscal implications of the induced development program consists of the following steps, which are described in more detail in the *Addendum to the 2009 Economic and Fiscal Impact Analysis Report* (Technical Appendix D):

- Step 1: Estimate Additional Expenditures. Operating expenditure items were reviewed and classified as either "affected" or "not affected" by the induced development program. Affected cost categories were assigned a fixed versus variable cost ratio based on research in comparable jurisdictions. Total variable costs of each category were then projected by multiplying the estimated increase in population, employment, etc. by the appropriate estimating factor.

- Step 2: Estimate Additional Revenues. Operating revenue items were forecast using a variety of techniques, depending on the revenue source. Current local tax rates were then applied to estimate property tax revenue for the induced development.
- Step 3: Determine Net Fiscal Operating Effects. Net fiscal effects were determined based on a comparison of the costs of providing public services to the induced development program and any revenues that may be collected in connection with that new development.
- Step 4: Review Capital Needs. In addition to increases in operating costs, new public streets and schools infrastructure may be needed to serve additional residents that result from the induced development program. A capital improvement plan for Blount County was not available at the time of this analysis. Nevertheless, PB performed a preliminary analysis to determine the level of service thresholds for expansion or development of new schools.

The results of the analysis are summarized below and shown in Table 3-36.

- The primary driver of induced development in the study area would be the travel time savings resulting from the new extension. As travel times between Blount and Knox Counties and Blount County and Oak Ridge are reduced due to the extension, more residents and commercial establishments may find it viable to live farther away from the main centers of employment and closer to the unincorporated areas of the County.
- Lack of adequate services in the unincorporated areas and a moderate projection of population and employment growth rates in the study-area will, however, limit the extent of induced development.
- Induced development resulting from the extension is largely expected to be residential in nature, with commercial development being restricted to nodal areas (intersections) along primary corridors such as the Pellissippi Parkway Extension.
- The expected fiscal impact for Blount County at project buildout (Year 2025) is provided in Table 3-36.

Table 3-36: Summary of Fiscal Impact of Induced Development Program

New Annual Revenue	Operating Expenditures	Net Fiscal Balance
$257,804	$176,844	$80,959

Source: Addendum to 2009 Economic and Fiscal Impact Analysis (PB 2015a).

- At project buildout, the induced development program is projected to have a modest positive fiscal benefit on the County's operating budget. In other words, the development program would generate more revenues to the County than it demands in costs for operations.
- The induced development program is projected to generate an additional $159,376 in property tax revenues that will likely accrue to the County, with approximately 87% of that increase coming from residential development. Exhibit C-1 in Appendix C of the *Addendum to 2009 Economic and Fiscal Impacts Analysis* report presents the property tax calculations. The report is provided in Technical Appendix D to this FEIS.

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 No-Build Alternative, Preferred Alternative, and other alternatives considered 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 as well as the availability of utilities. Additional loss of farmland outside the UGBs is not anticipated to be different than the No-Build Alternative. Under the Preferred Alternative and the other build alternatives considered, more farmlands within the UGBs will likely 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, the Preferred Alternative, or another alternative considered is selected due to the anticipated continued growth of the area. Indirect impacts could be slightly greater for the Preferred Alternative or other the build alternatives 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, none of which are in place in the project area.

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 the immediate project area.

Visual Resources

Continued development is anticipated whether or not the project is constructed. The Knoxville Regional TPO 2040 forecast predicted an additional 680 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 Preferred Alternative would include an additional 27 to 49 housing units by 2025. This would result in changes to the visual landscape. Given the growth policies, UGBs, and the development of a Blount County green infrastructure plan, this growth may occur in areas where the county and the cities are targeting growth.

Air Quality

The forecasted traffic volumes for most projects typically account for any redistribution of traffic that would occur as a result of the project. Therefore, the air quality analysis addresses any indirect traffic-related air quality impacts that might occur.

The project will 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.

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 the Preferred Alternative and other build alternatives considered than for the No-Build Alternative since the Preferred Alternative and other build alternatives considered will induce slightly more growth.

Floodplains

The Preferred Alternative and the other build alternatives considered 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 will 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 Preferred Alternative will 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 within the area, which will 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, cleanup of these sites would involve the removal of old USTs or above-ground storage tanks (ASTs) or old equipment containing greases, oils, or other potential contaminants.

Terrestrial Ecology

Since continued development is anticipated, whether or not the project is constructed, forest communities and open spaces will likely be further reduced as these areas are converted to developed land uses. The loss of habitat will further displace animals from the area, forcing them to concentrate into a smaller area, which may cause over-use of the habitat. This will ultimately lower the carrying capacity of the remaining habitat and would be manifested in some species becoming more susceptible to disease, predation, and starvation. The loss of habitat will likely be higher for the Preferred Alternative and other build alternatives considered than for the No-Build Alternative since they will induce slightly more growth.

Water Quality

The potential indirect impacts on water quality from the proposed alternatives 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 or groundwater in karst geology. New residential and other development 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 U.S. as a result of the increased amount of impervious surfaces. Decreased recharge of groundwater also result from increased amounts of imperious surfaces.

The application of erosion and sediment control plans and the implementation of BMPs during roadway and other construction will help to minimize impacts to water quality.

Wetlands

Indirect impacts to wetlands may occur as the transportation project induces new commercial, residential or other uses as a result of improved access. Typically, as undeveloped land is developed, wetlands are often filled or encroached upon to accommodate the new construction. Most of the substantial wetland habitats in the project area are closer to the Little River corridor than the project area, while smaller wetland seeps or constructed open water bodies are in the area that will likely be developed as a result of the project. 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 should be relatively minimal given the small number of existing wetland acres within the proposed project area.

Federal, state, and local regulations 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 U.S. 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 U.S.

Threatened and Endangered Species

The primary indirect impact that the proposed project may have on the listed protected aquatic species is the potential to increase silt and sediment within stream channels. The 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. Stringent BMPs, including erosion and siltation control measures, will be implemented during construction to minimize indirect impacts to aquatics species.

Increased development may result in the removal of trees that potentially provide summer roosting habitat for the Indiana bat and the Northern long-eared 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 Knoxville Regional TPO's 2014–2017 TIP, projects in the *Regional Mobility Plan 2040*, and other private and public projects. Area transportation projects included in the *Regional Mobility Plan 2040* are listed in Table 2-1 (in Chapter 2) of this FEIS. Some of these projects are identified below:

Projects in the TPO's *Regional Mobility Plan 2040*

- Alcoa Highway Parkway (Relocated Alcoa Highway)—The existing road currently serves multiple purposes, including providing local business access, carrying traffic to and from the Knoxville-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

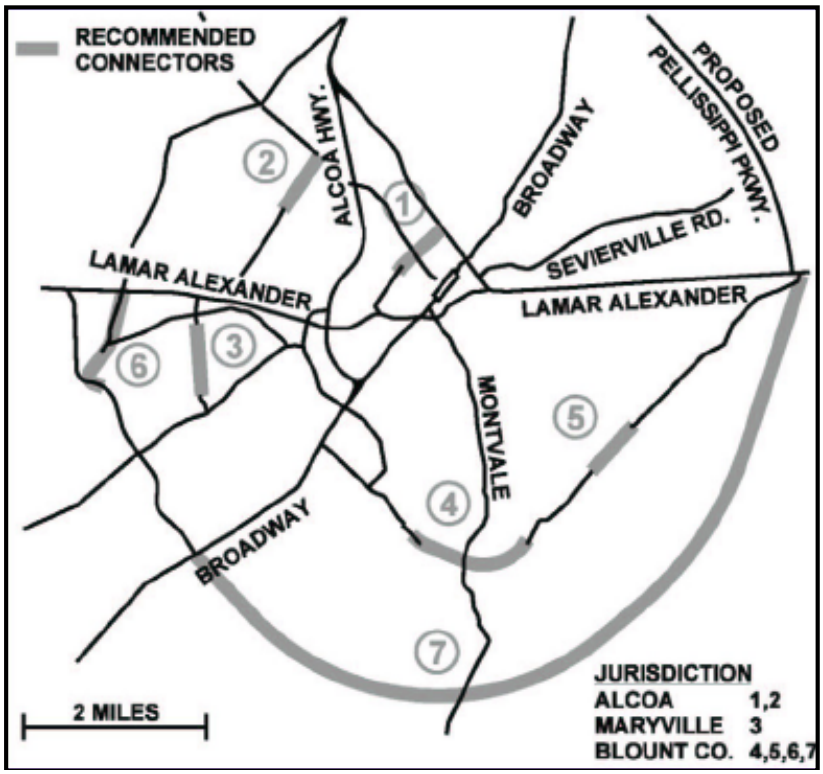
end of the GSMNP and nearby recreational opportunities. As Blount and Knox counties have continued to grow, these contrasting priorities for the roadway have adversely affected safety and capacity on US 129/Alcoa Highway. The horizon year for this project is 2019.

- Alcoa Highway Improvements—This project includes improving US 129/Alcoa Highway from I-140/Pellissippi Parkway to the Knox County line. The timeframe for this project is 2019. The plan also includes intersection improvements (including signals, turn lanes, pedestrian infrastructure) along US 129 between Singleton Station Road and Hunt Road upon completion of Alcoa Highway Parkway; these improvements are scheduled for 2024.
- Foothills Mall Extension—This project would extend the Foothills Mall Drive across the US 129 Bypass on a new alignment to Foch Street, adding additional turn lanes and modifying the traffic signal at Foothills Mall Drive and US 129 Bypass. The horizon year is 2019.
- Pellissippi Place Access Road Extension/New Road Construction—This project would extend the current two-lane roadway to four lanes with a center median lane between Pellissippi Place terminus and Wildwood Road to serve the Pellissippi Place research and development park. The horizon year for this project is 2029.

The 2005 *Blount County Growth Strategy* (Hunter 2005a) proposed a series of corridors to form a circumferential route, along with Pellissippi Parkway Extension, to improve connectivity around Maryville (Figure 3-24). These corridors were included in the TPO's *2009–2034 Regional Mobility Plan,* which was discussed in the DEIS. Included in the set of corridors was the controversial Southern Loop (Corridor 7). The concept of series of corridors around Maryville, including the Southern Loop, is not included in the current regional long-range plan (*Regional Mobility Plan 2040*).

Of the seven corridors proposed by the 2005 *Blount County Growth Strategy*, only three segments are in the *Regional Mobility Plan 2040*. Corridors 2 and 3 are proposed extensions of Robert C. Jackson Drive on the west side of US 129 Bypass. These two projects, with a horizon year of 2024, would construct a new four-lane road with a center turn lane or median between Middlesettlements Road and US 129/Alcoa Highway (Corridor 2) ,and a new two-lane road between US 321/Lamar Alexander Parkway and Morganton Road (Corridor 3). Corridor 1, Home Avenue Extension from McCammon Avenue to Calderwood Street, has a horizon year of 2040.

Figure 3-24: 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 partnered to facilitate the development of the 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 by the end of 2010, most of the infrastructure was in place, but many of the targeted technology businesses did not pursue expansion in the aftermath of the economic downturn of the late 2000s. In February 2013, Blount County announced the anchor tenant, a healthcare technology firm. The company opened its first phase of operations in early June 2015, with 55,000 square feet of research, development, testing, manufacturing and office space and 120 employees. Company officials indicated their intention to construct their project in five phases over the next several years, with an end goal of 200,000 square feet at full build-out.

  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 the Pellissippi Parkway Environmental Assessment in 2002.

- Alcoa West Plant Site—The Alcoa Aluminum West Plant on about 350 acres was closed in 1989 and the buildings were demolished. The site is adjacent to US 129 and Hall Road. The West Plant site has been earmarked for redevelopment as a town center for the city of Alcoa. It also is under consideration as the site of a new high school. In support of the potential

redevelopment, the city is constructing a new four-lane road between Hall Road/Associates Drive and Mill Street/future Hunt Road interchange with US 129.

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 would be focused inward toward designated growth areas, thus reducing the amount of new development in the areas targeted for preservation and lower-density development. If the land use policies contain in the current plans 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, the Preferred Alternative, or another alternative 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. The combination of past, present, and reasonably foreseeable private and public projects are trending toward increased development and densification of the central Blount County area.

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—more than 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 proposed future federally funded 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 existing transportation network could reduce travel times for visitors traveling to the GSMNP, Cades Cove, and Foothills Parkway. Reducing travel times could potentially increase visitation by making these areas easier to access. Increased residential growth 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 of this project and other developments would 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. Local and/or regional land use laws could be implemented to address ridgetop development on private lands. Ridges within the GSMNP 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* 2040. The conformity determination conducted for the *Regional Mobility Plan 2040* 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.

By 2040, MSAT emissions are expected to be lower than present levels as a result of EPA's national control programs that are projected to reduce annual MSAT emissions by over 80 percent from 2010 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 Alternative or the Preferred Alternative is implemented.

Noise

Implementation of the No-Build Alternative, the Preferred Alternative, or other alternative considered 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. Local governments could regulate land development in such a way that noise-sensitive land uses are either prohibited from being located adjacent to a highway or that the developments are planned, designed and constructed in such a way that noise impacts are minimized.

Floodplains

The cumulative effect on floodplains by this project and other public and private projects contributes to pressure on floodplains through increased impervious paving as a result of new roads and new residential and commercial development in a relative rural area. 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. Blount County participates in the National Flood Insurance Program and all development must comply with floodplain regulations.

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 expected to be 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 would result from the indirect effects of the current proposed project in combination with future land development and transportation projects. This would have the potential to further degrade water quality in the area. Storm water runoff from new developments could contain oil, grease, pesticides, and other chemicals, which could be carried to water bodies (surface waters or groundwater). Use of ineffective water pollution control measures during and/or following construction of developments could result in increased erosion, sedimentation, and total suspended solids. New residential and other development could also result in additional discharges from sewer and stormwater treatment facilities into water bodies. However, some of the projected impacts would be offset 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 U.S.; 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 much of the eastern U.S., 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 contributed to the elimination of 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.

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 could be minimized given the numerous federal, state, and local regulations currently in place. Any wetland 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, 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 that may result from

construction of the proposed project are not expected to contribute significantly to the loss of wetlands within the proposed project area.

Threatened and Endangered Species

Prior to the *Endangered Species Act of 1973*, there was no legislation that gave federal protection to plant and animal species that were in danger of becoming extinct. Prior to this legislation, many plant and animal species with specific habitat requirements or sensitivity 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, the conversion of land use from agriculture to residential, commercial, and industrial as the region experiences an increase in population is becoming a significant factor.

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 listed species. The area of influence for the Preferred Alternatives or other build alternatives considered 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 2013 *Biological Assessment* resulted in a "not likely to adversely affect" determination 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 and absence of individual federal or state protected species. 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. Based on the information provided in this document, the proposed project would have no cumulative effects to federal- or state-protected species.

3.17 Summary of Environmental Consequences

Table 3-37 summarizes the potential impacts, adverse and beneficial, of the Preferred Alternative, compared with the No-Build Alternative, Preferred Alternative with East Shift, 2012 Preferred Alternative (A), and DEIS Alternatives C and D. The results shown for the Preferred Alternative reflect the updated technical analysis conducted since the DEIS was approved.

Table 3-37: Summary of Effects

Impact Category	No-Build Alternative	Preferred Alternative	Preferred Alternative with East Shift	2012 Preferred Alternative (A)	Alternative C	Alternative D
Project Features						
Total project length (miles)	0.00	4.38	4.43	4.38	4.68	5.77
Estimated cost (2013 dollars)	$0.00	$165,709,000	$166, 857,000	$166, 040,000	$174,608,000	$70,813,000
Estimated new ROW (acres)	None	200	198	197	209	104
Transportation Impacts						
2040 level-of-service (LOS)		Pellissippi Parkway Extension would operate at an acceptable level (LOS D or higher) through the design year 2040.				Traffic volumes would exceed the carrying capacity of a two-lane road; the route would operate at LOS E or F in the 2020 and 2040 horizon years.
Intersection delay		Substantial reduction in delay in most of the intersections in the Alcoa/Maryville core, ranging an 8-percent to a 50-percent reduction in delay compared to the No-Build Alternative.				Poor corridor LOS and volumes expected to exceed capacity indicate that intersections would perform poorly.
Travel time savings	0	10-11 minutes				6.5 minutes
Pedestrian and bicycle facilities	No effect	No effect on current or planned facilities. Because the Preferred Alternative (or other four-lane alternatives) will be designed to interstate standards, bicycles and pedestrians will be prohibited from using the new roadway.				Widened shoulders could accom-modate pedestrians/ bicyclists.

Table 3-37: Summary of Effects (continued)

Impact Category	No-Build Alternative	Preferred Alternative	Preferred Alternative with East Shift	2012 Preferred Alternative (A)	Alternative C	Alternative D
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.				Not incompatible with local and regional land use plans and transportation plans, but is not the level of roadway anticipated in local plans.
Social and Economic						
Social/community cohesion	No effect	Potential adverse effect on Kensington Place mobile home park	No adverse impacts anticipated	No adverse impacts anticipated	Potential adverse effects due to relocations on two communities (Tara Estates and Hubbard community).	Potential adverse effects due to relocations in Peppermint Hills subdivision.
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. Substantial noise impacts to cemetery and church on Centennial Church Rd.
Environmental justice	No effect	Residents of Kensington Place would experience adverse impacts due to increased noise, changes in the views, and displacements. TDOT has committed to construct a noise wall to minimize impacts.	No disproportionately high and adverse effect to low-income or minority persons.			

Table 3-37: Summary of Effects (continued)

Impact Category	No-Build Alternative	Preferred Alternative	Preferred Alternative with East Shift	2012 Preferred Alternative (A)	Alternative C	Alternative D
Residential relocations	0	11	6	5	27	41
Business displacements	0	1	1	1	1	2
Economic—Projected new jobs created in Blount County	0	629			663	269
Farmland						
Acres of farmland in ROW	0	110	107	107	74	45
Farmland as percent of total land in ROW	0	55%	54%	54%	40%	38%
Acres of prime farmland in ROW	0	34	30	31	44	23
Total corridor assessment score	0	141	140	141	122	127
Cultural Resources						
Architectural/historic	No effect	No effect on historic resources				
Archaeological	No effect	No eligible sites	No eligible sites	1 eligible site identified by Phase II investigation—site has been avoided by alignment shift	5 potentially eligible sites would have Phase II investigation	1 potentially eligible site would have Phase II investigation
Recreational Resources	No effect					
Section 4(f) and Section 6(f) Resources	No effect					
Aesthetics and Visual	No effect	Moderate effect				Minimal to moderate effect
Air Quality						
Vehicle miles travelled	1,359,807	1,476,516				N/A
Violations of NAAQS	None					
Traffic Noise						
Total receptors affected	N/A	103	80	81	64	85

Table 3-37: Summary of Effects (continued)

Impact Category	No-Build Alternative	Preferred Alternative	Preferred Alternative with East Shift	2012 Preferred Alternative (A)	Alternative C	Alternative D
Physical Environment						
Geology	No effect	Sinkholes present—Subsurface investigation recommended				
Hazardous materials	No effect	Level 2 Contamination Assessment on one site—no further investigations warranted			Two potential contamination sites would require a Level 2 Contamination Assessment	One potential contamination sites would require a Level 2 Contamination Assessment
Floodplains (acres)	No effect	11.0	7.4	8.1	9.0	8.1
Energy	No effect	No adverse effect				
Natural Resources						
Streams (linear feet)	0	4,962	3,755	4,525	2,622	1,695
Wet weather conveyances (linear feet)	0	0	0	0	735	650
Ponds (acres)	0	0.42	0.42	0.42	0.42	0.02
Wetlands (acres)	0	8.72	6.99	5.01	0.60	0.03
Water Quality	No effect	Construction activities can contribute to degradation of groundwater quality by the activities and the removal of overburden that would otherwise protect the underground sources of water, particularly in the case of karst geology.				
Federally threatened or endangered species and state listed species	No effect	"Not likely to adversely affect" Indiana bat and federally listed aquatic species				

4.0 Public Input and Agency Coordination

This chapter describes the agency coordination and public involvement activities that have been carried out during the EIS process for this project. In addition to the early coordination and public involvement conducted prior to the DEIS, this chapter describes the activities and interactions with state- and federal-review agencies, the public, and other interest groups since the release of the DEIS in May 2010, including the DEIS public hearing and subsequent community briefing.

4.1 Project Initiation and Coordination

4.1.1 Project Initiation and Notice of Intent

On April 17, 2006, TDOT formally notified FHWA in writing of its intent to initiate the NEPA EIS process for this project.

Following the project initiation, an NOI to Prepare an EIS, as required by the Council on Environmental Quality 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. A copy of the NOI can be found on the project website (www.tdot.state.tn.us/pellissippi/involvement.htm).

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 study to reflect changes and new information and has been posted on the project website.

4.1.3 Initial Coordination Packages

TDOT distributed an initial coordination package on May 1, 2006, to approximately 58 agencies, officials, and organizations. The coordination package was distributed to other agencies, officials, and 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 issues that would be considered during the EIS process.

The following agencies and organizations received the initial coordination package.

Federal Agencies

- Tennessee Valley Authority (TVA) (**C**) (**P**)
- US Army Corps of Engineers (USACE) (**C**) (**P**)
- Advisory Council on Historic Preservation
- Appalachian Regional Commission

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**).

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**).

- 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—Division of Natural Heritage
  - Tennessee Historical Commission/State Historic Preservation Office (SHPO)
- Tennessee Department of Economic and Community Development
- 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 (**P**)
- City of Alcoa Mayor (**P**)
- City of Rockford Mayor (**P**)
- Blount County Mayor (**P**)
- 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 of 1966 (NHPA) (16 USC 470 et seq.) as amended 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, in June 2006, 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 that have an interest in this area of Tennessee or are recognized as having an interest in Tennessee:

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

In 2013, the Muscogee (Creek) Nation indicated an interest in Tennessee and was invited to be a consulting party at that time.

4.2 Agency Input

4.2.1 Response to Initial Coordination

Nine federal, state, and regional agencies provided comments on the project following its initiation in 2006. The comments received are summarized in Table 4-1 and copies of the agency comment letters are provided in Appendix A of the DEIS.

Table 4-1: Agency Comments on Initial Coordination

Agency	Date of Letter	Comment	Disposition
Federal Agencies			
TVA (**C&P**)	5-18-2006	Several alternatives appear to require approvals under Section 26a of the TVA Act for Little River tributary streams.	TVA was invited to be a cooperating and a participating agency for this EIS. Stream impacts were identified and addressed in the DEIS and FEIS.
USACE (**C&P**)	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.	USACE was invited to be a cooperating and a participating agency for this EIS. Stream impacts were identified and addressed in the DEIS, which included a measure to avoid and mitigate impacts to streams.
FAA (**P**)	7-30-2008	The FAA should be informed of the nature of the construction if the chosen alternative is within 6 miles of the closest airport (McGhee-Tyson Airport in Alcoa), and TDOT must submit FAA Form 7460-1.	The northern half of the project area is within 6 miles of the McGhee-Tyson Airport in Alcoa. Coordination with the FAA will occur during design of the Selected Alternative.
USDOI—GSMNP (**P**)	3-11-2008	The agency is most concerned with traffic and air quality impacts to the Foothills Parkway and the Park.	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.[1] The Air Quality analysis indicated that the project is not predicted to cause or exacerbate a violation of the NAAQS.
NRCS (**P**) Clinton Soil Survey *(*This letter was inadvertently left out of the DEIS. A copy is now included at the end of Attachment C of this FEIS)*	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.

[1]Updated traffic forecasts in 2013 based on the Knoxville Regional TDM show that with the project, traffic volumes on US 321/SR 73 east of Tuckaleechee Pike would be about 7% higher in 2020 and less than 4% higher east of Foothills Parkway, compared with the No-Build Alternative.

Table 4-1: Agency Comments on Initial Coordination (continued)

Agency	Date of Letter	Comment	Disposition
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 were used in the evaluation of alternatives and will be used in the design and construction of the Selected Alternative.
NRCS (Resource Soil Scientist)	1-9-2009	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 completed Form NRCS-CPA-106 was included in DEIS Appendix A. The impacts to farmlands were discussed in the DEIS. Wetland impacts were addressed in the DEIS.
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 were discussed in the DEIS.
State Agencies			
Tennessee Historical Commission (**P**)	5-8-2006	Project may affect properties that are eligible for listing in the NRHP.	Historic Architectural and Archaeological surveys and assessments of effect were conducted for the alternatives and reported in the DEIS.
Tennessee Department of Economic & Community Development TDECD(**P**)	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 was conducted for this project and was reported in the DEIS. The Knoxville Area 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 Comments on Initial Coordination (continued)

Agency	Date of Letter	Comment	Disposition
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 is made. Coverage under the Tennessee General NPDES Permit for Stormwater Discharges Associated with Construction Activity (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 has conduct an assessment of all water resources as part of the DEIS and FEIS, and will prepare the Environmental Boundaries Report during project design. TDOT 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 (**P**)	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 were identified and addressed in the DEIS, and the DEIS included measures to avoid and mitigate impacts to streams and the habitat of listed species.
Regional Agencies			
Knoxville Regional TPO (**P**)	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.

(C) = cooperating; (**P**) = participating

4.2.2 Tennessee Environmental Streamlining Agreement Coordination

TDOT established the Tennessee Environmental Streamlining Agreement (TESA) for the Environmental and Regulatory Coordination of Major Transportation Projects, in 2008. In addition to TDOT and FHWA, the following agencies signed the original TESA agreement: EPA, USFWS, USACE (Memphis and Nashville Districts), TVA, USDA Forest Service, TWRA, and TDEC. In 2014, TDOT completed a revision to the original TESA agreement. The updated agreement was signed by TDOT, FHWA, USFWS, USACE (Nashville and Memphis Districts), TVA, TDEC, and TWRA, with US Coast Guard and the Tennessee SHPO as conditional signatories. Conditional signatories have requested that they not receive TESA materials if they have determined they have no jurisdictional interest in a specific project after TDOT's initial agency coordination.

This project has been developed in accordance with the original TESA agreement. The TESA signatory agencies that participated in the project's TESA review process were EPA, USACE (Nashville District), USFWS, TVA, TDEC, and TWRA. Three other agencies participated in the review process: Great Smoky Mountains National Park/National Park Service, Knoxville Regional TPO, and Tennessee SHPO.

The original TESA agreement established four concurrence points (CP) in the environmental review process:

- CP 1—Purpose and need and study area
- CP 2—Project alternatives to be evaluated in the environmental document
- CP 3—Preliminary draft environmental document
- CP 4—Preferred alternative and preliminary mitigation

The TESA participants are sent a detailed package of information for each CP and are asked to provide comments within 45 days of receipt of the package. The recipients were asked to sign a form at each point to signal their concurrence with the documentation in the package in order to move forward to the next project phase. Agencies that did not comment within the 45-day comment period and did not ask for a 15-day extension were assumed to concur (pursuant to the conditions of TESA).

As part of the TESA process, TDOT held an agency field review on April 9, 2008, with the TESA agencies to look at the study area and discuss potential alternative corridors under consideration. During the field review, agencies were asked to provide input on the corridors and possible impacts to resources and to identify potential conflicts. The field review was held prior to preparation of CP 2. Representatives from USFWS, EPA, USACE, and TWRA attended the field review and offered comments that were used to refine the potential alternative corridors.

TDOT included TESA and other agency participants at the required concurrence points and field review and their comments have been addressed in this FEIS.[2] The dates and results of TESA coordination at each CP are shown in Table 4-2: TESA Coordination. The updated overall TESA agreement, implemented in 2014, provided for a revised CP 4 package, Draft Final Mitigation, which occurs after the issuance of a decision document (i.e., ROD) and prior to the permit application. Even though the TESA process for this project is considered complete, TDOT will provide the agencies with an opportunity to comment on the Draft Final Mitigation for the project prior to application for permits.

[2] In 2012, TDOT decided that agencies previously treated as TESA agencies but that had not officially signed the TESA would be treated as Non-TESA participating agencies. For this project, that decision applies to the GSMNP/NPS, Knoxville Regional TPO, and Tennessee SHPO, which were treated as TESA agencies for CP 1, CP 2, and CP3. For CP 4, these agencies were provided copies of the package for review and comment, but were not asked to concur.

Table 4-2: TESA Coordination

Concurrence Point	Date Package Mailed to Agencies	End of Concurrence Period	Result
CP 1—Purpose and Need and Study Area	December 19, 2007	February 4, 2008	All agencies concurred
CP 2—Alternatives to be Evaluated in the DEIS	June 11, 2008	July 28, 2008	All agencies concurred
CP 3—Preliminary DEIS	November 6, 2009	January 6, 2010	All agencies concurred
CP 4—Preferred Alternative and Preliminary Mitigation	April 2, 2012	May 18, 2012	Four agencies concurred by May 18, 2012*

*Two agencies did not return their concurrence form by the end of the document review period and did not request a time extension. Per TESA Section 4.3, TDOT assumes concurrence by those agencies. One of those agencies later provided a signed concurrence form and comments (on June 29, 2012).

Since the approval of the DEIS and the conclusion of CP 4 under the original TESA agreement, TDOT has kept the agencies informed of changes in the project.

- At the May 23, 2013 TESA meeting, TDOT informed the agencies of the two alignment shifts (east and west) under consideration for the Preferred Alternative. The agencies were also informed of the May 30, 2013 Community Briefing on the alignment shifts. No comments from the agencies were received at the TESA meeting.
- During the course of the technical studies of the alignment shifts in the first half of 2013, TDOT coordinated with USFWS and TWRA on issues related to natural resources. TWRA responded in letter dated June 3, 2013 (see Attachment C-2), recommending that the east shift be selected because it has fewer wetland and stream impacts than the west shift. In a letter dated June 10, 2013, USFWS stated its preference for the east shift because it would have fewer stream and wetland impacts compared with the west alignment shift (see Attachment C-2).
- The reevaluation was posted on the TDOT project website on July 22, 2014. An email message was sent to the list of interested parties, including agencies, to announce the approval of the reevaluation and provide a link to the documents on the project website. Following the publication of the reevaluation, no agency comments were received.
- At the December 11, 2014 TESA meeting, TDOT provided a brief update of the project, noting the approved reevaluation and the preparation of the FEIS. No agency comments were received at the meeting.
- At the May 14, 2015 TESA meeting, TDOT provide a brief update of the project since the approval of the DEIS, including the alignment shifts to avoid the archaeological site and the reevaluation. TWRA asked whether the agencies would receive a package for the new CP 4, Draft Final Mitigation. TDOT responded that although the TESA process for this project was completed in 2012, TDOT would provide the agencies the opportunity to provide input on the draft final mitigation prior to the submittal of the permit applications.
- At the August 4, 2015 TESA meeting, TDOT provided the agencies with an opportunity to comment on the project prior to the submittal of the FEIS to FHWA for approval. A copy of the July 2014 DEIS reevaluation was distributed (via email) on July 30, 2015 to the TESA agencies for review prior to the meeting. As part of the presentation at the meeting, TDOT provided a more detailed update of the additional environmental evaluations and studies conducted since CP4 was concluded in May 2012. Meeting handouts included a hard copy of the presentation, a project map showing the alignment shifts in 2013 and the summary impact matrix from the July 2014 reevaluation.

During the question and answer portion of the presentation, a representative of the USACE mentioned the permitting process, stating that the permits will need to demonstrate that the Section 404 [of the Clean Water Act] guidelines are adequately addressed and that streams and wetlands would be a larger impact.

TDEC requested that TDOT coordinate with TDEC regarding permits. TDEC keeps an updated list of federally and state-protected species and can help determine if the presence of such species and their habitat contribute to aquatic features being classified as Exceptional Tennessee Waters or impaired waters; or if increased mitigation is needed. TDOT confirmed that it would coordinate with appropriate agencies regarding permits needed for the project.

UFWS asked whether all of the streams in the project area were tributaries of the Little River. TDOT confirmed that the streams crossed by the project are tributaries of the Little River.

Attachment C-3 provides handouts from the May 14 and August 4, 2015 TESA meetings.

4.2.3 Section 106 Coordination

During early coordination, TDOT and the FHWA sent Section 106 consulting party invitations to the Blount County Mayor and Native American tribes that have an interest in this area of Tennessee or are recognized as having an interest in the area. No response was received from the Blount County Mayor. Three tribes responded to the initial coordination—Eastern Band of Cherokee Indians, Cherokee Nation, and Eastern Shawnee Tribe of Oklahoma and the Cherokee Nation. The Eastern Band of Cherokee Indians, in a letter dated June 7, 2006, accepted the invitation to be a consulting party for the project. The Cherokee Nation and the Eastern Shawnee Tribe of Oklahoma did not request to be a consulting party but asked that they be notified if any items under the NAGPRA were discovered during construction. A copy of the coordination letters to the tribes and copies of the tribes' responses are included in Attachment F.

In an e-mail dated March 5, 2009, the SHPO requested that the Anne Elizabeth Thompson Pershing historic marker be preserved during this road project (Attachment F). If the project involves relocating the marker, TDOT will re-erect the marker in a pull-off area, which is safer and makes the marker more accessible to the public. This has been included in the Environmental Commitments for the project.

TDOT provided a copy of the *Historical and Architectural Survey and Assessment of Effects Under 36 CFR 800* (PB 2009a) report to the SHPO for review. In a letter dated May 4, 2009, the SHPO concurred with the finding that the project alternatives would not adversely affect any NRHP-listed or eligible properties (Attachment F). TDOT also provided copies of the *Historical and Architectural Survey and Assessment of Effects Under 36 CFR 800* to nine local officials, agencies, and organizations for consultation. No responses have been received.

TDOT provided a copy of the *Phase I Archaeological Assessment* to the SHPO for review. 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 NRHP and recommended avoidance or performing a Phase II archaeological investigation (Attachment F). TDOT also provided a copy of the *Phase I Archaeological Survey* (Panamerican 2009) to the Eastern Band of the Cherokee Indians as part of the consultation process. No comments have been received.

TDOT provided the SHPO with a copy of the November 2012 *Draft Phase II Archaeological Testing of Sites 40BT100, 40BT122, 40BT125, 40BT202, and 40BT203 Along the Proposed Pellissippi Parkway Extension Preferred Alternative (Alternate A*) (Panamerican 2013a). In a letter dated December 17,

2012, the SHPO concurred with the determination that one site was eligible for listing in the NRHP and that the project as currently configured may adversely affect the site (Attachment F). The final version of that report is dated February 2013.

Subsequent to that determination, TDOT identified and investigated two alignment shifts to avoid the eligible site and submitted the *Addendum A, B, and C: Archaeological Assessment of 40BT122 Eastern and Western Avoidance Alternatives* (Panamerican 2013b) to the SHPO for review. In a letter dated July 8, 2013, the SHPO concurred with the determination that no NRHP-eligible or -potentially eligible archaeological sites or deposits are located within the footprints of the east or west alignment shifts (Attachment F).

Copies of the *Phase II Archaeological Testing* report and *Addendum A, B, and C* were submitted to the Eastern Band of the Cherokee Indians as part of the consultation process. In 2013, the Muscogee (Creek) Nation expressed its interest in Blount County, and copies of the Phase I, Phase II, and addendum reports were submitted to the Muscogee (Creek) Nation as part of the consultation process. No comments from either tribe have been received. The coordination letter to the Muscogee (Creek) Nation and the Eastern Band of the Cherokee Indians is in Attachment F.

4.2.4 Ongoing Coordination with Local Officials

TDOT representatives met with local government officials at various times during the preparation of the DEIS, the determination of the Preferred Alternative, and the preparation of the FEIS to provide updates on the project and to ask for comments and concerns. The following meetings were held with local officials to provide project updates and to solicit input:

- June 13, 2006, the morning of the public scoping meetings
- October 25, 2007, the morning of the alternatives workshop
- February 19, 2008, the morning of the public information meeting
- July 20, 2010, the morning of the public hearing
- September 1, 2011, to discuss local officials support for a Preferred Alternative
- May 30, 2013, the morning of the community briefing on the proposed alignment shifts

4.3 Agency Comments on DEIS

Copies of the DEIS were mailed to 29 federal, state, regional, and local agencies. Nine agencies provided written responses to the DEIS—FAA, EPA, USFWS, USACE, USDOI-Office of the Secretary, TWRA, City of Alcoa, City of Maryville and Blount County. Table 4-3 briefly summarizes both the comments received and the disposition of those comments.

A more detailed discussion of the comments and the disposition of comments is presented in Table C-1 in Attachment C.

Table 4-3: Brief Summary of Agency Comments on DEIS

Agency	Date	Brief Summary of Comments	TDOT Disposition
FAA	June 2, 2010	Requests that TDOT submit available drawings for review as the project moves forward.	Once design plans are prepared for the final alternative, TDOT will submit to FAA.
US EPA	June 17, 2010	Purpose & Need - TDOT had not adequately documented the purpose and need for the project, given its contentious and controversial background. EPA is concerned that the level of service for existing roadways would not be substantially improved with the project. LOS forecasts should be provided for local roads. TDOT should provide more data and discussion on east/west volumes of traffic toward I-40 and how the Build Alternatives would improve safety.	Improving traffic flow is one of several transportation purposes for the project as documented in Section 1.3, Purpose of the Project, in this FEIS document. The level of service is one measure of traffic analysis. Intersection delay and travel time savings are another. Intersection delay analysis shows improvement for the Build Alternative over the No-Build Alternative for several key intersections. This is explained in more detail in Chapter 3 of this FEIS. Additional discussion of traffic, based on the updated regional travel demand model, is in this FEIS.
US EPA	June 17, 2010	Farming - EPA expressed concerned with impacts to the rural farming community. TDOT needs to offer mitigation measures to lessen impacts on farming community and conduct aggressive outreach to farming community to solicit their input.	During the final design of the project, TDOT will meet with the farming community, either through individual meetings or community meetings, to determine how best to minimize the impacts on existing farmlands in the corridor.
US EPA	June 17, 2010	Noise impacts - TDOT should commit to provide noise abatement measures in the green pages.	TDOT has committed to construct a noise barrier in the Kensington Place mobile home community to mitigate noise and visual impacts, provided the majority of affected property owners and residents give their approval. This commitment has been added to the Environmental Commitments sheet. Once design details are developed, the noise analysis and associated feasibility and reasonableness determinations for the entire project area will be updated. Final decisions regarding the construction of noise barriers will be made during final project design and following the public involvement process.
US EPA	June 17, 2010	MSATS - DEIS discussion of MSATs is not consistent with many air quality studies. A discussion should be included regarding near-roadway health impacts and a more thorough consideration of air toxics.	In FHWA's view, information is incomplete or unavailable to credibly predict the project-specific health impacts due to changes in MSATs emissions associated with a proposed set of highway alternatives. FHWA has "standard" guidance concerning MSATs, defined in FHWA's December 2012 *Interim FHWA'S Interim Guidance on Air Toxic Analysis in NEPA Documents*. EPA disagrees with parts of the FHWA guidance, and discussions between the agencies have taken place to attempt to resolve the differences.

Table 4-3: Brief Summary of Agency Comments on DEIS (continued)

Agency	Date	Brief Summary of Comments	TDOT Disposition
US EPA	June 17, 2010	LOS Analysis -TDOT has not conducted LOS analysis for several roads in the Maryville/Alcoa area. These roads should be better analyzed to determine the Purpose and Need for the project. Overall TDOT has not provided convincing data to fulfill the project objective of "Assist in achieving acceptable traffic flows (LOS) on [the] transportation network or not adversely affect traffic flows on existing transportation network." In fact, the in Corridor LOS section on page 3-4, TDOT states, "Overall, this analysis does not demonstrate that any of the Build Alternatives would substantially improve the level of service for the existing roadway network."	Based on the public and agency comments received on the DEIS, TDOT determined that an LOS analysis should be conducted for Alternative D (enhanced two-lane) to provide a comparable level of analysis with the Alternatives A and C. This additional analysis was conducted in 2011, prior to the selection of the Preferred Alternative. This additional analysis demonstrated that the Preferred Alternative (A) and Alternative C would result in substantial improvements in delay at five key intersection on the existing network, which Alternative D would have a moderate increase in delay at most of the intersections by 2035. These finding was upheld for the four-lane alternatives in the updated traffic analysis performed in 2013-2014 based on the updated regional travel demand model. An intersection delay LOS was not conducted for Alternative D in 2014 since this alternative would exceed the carrying capacity of a two-lane road. LOS is only one indicator of traffic operations and provides a relative rating scale. For two-lane highway analysis, LOS is based on percent time-spent following and average travel speed. For a multilane highway, LOS is based on speed-flow and density-flow relationships. For intersections, LOS is determined by control delay per vehicle. Improvements in these additional measures related to the build alternatives can be identified by reviewing the more detailed tables in the 2014 *Traffic Technical Report* contains updated information on LOS for the roadway segments and intersections (including delay) based on the 2013 updated regional travel demand model. Chapter 3 of this FEIS present the major changes in improvement (such as the reduction of multiple minutes in delay~~)~~ have for clarification on the full impact of an alternative.
US EPA	June 17, 2010	Karst Topography - TDOT should either include a specific environmental commitment to address sinkhole mitigation or revise the Karst topography commitment statement to reflect sinkhole mitigation.	TDOT has expanded the list of potential mitigation measures in Section 3.13.1.1. The Environmental Commitment has been revised to read: "During final design and during construction, TDOT will take special care to minimize unnecessary impacts to the habitat of the numerous karst features (specifically sinkholes) in the study area. TDOT will abide by all permit terms, including those through the UIC program."
US EPA	June 17, 2010	Potential Mitigation measures for Soils and Geology—the last sentence needs more detail regarding the design for protecting groundwater and aquatic species during and after construction.	Based on coordination from TDEC Division of Water Supply in 2006 and 2010, the requirements for erosion control in the vicinity of sinkholes are basically the same as the erosion control plan around streams required by the Division of Water Resources. In the FEIS, TDOT has expanded the Section 3.13.1.1, Soils and Geology, Potential Mitigation Measures, to include TDEC's Division of Water Supply's requirements as listed in the Mary 15, 2006, coordination letter and confirmed in the January 6, 2010, TDEC response to the Concurrence Point 3 package.

Table 4-3: Brief Summary of Agency Comments on DEIS (continued)

Agency	Date	Brief Summary of Comments	TDOT Disposition
		Measures to Avoid or Minimize Impacts to Aquatic Resources - what specific measures will be taken and how will they minimize the impacts; provide more specific detail regarding erosion and control failures and standards; in particular the standards that will be followed for erosion and control should be included.	Additional details regarding mitigation have been added to the Preliminary Mitigation Measure for Aquatic Resources subsection of Section 3.14.2.1: Long-term impacts to aquatic organisms can occur through the loss of natural streambed by culvert construction, bank clearing, the placement of rip-rap, and the removal of trees lining the channel. TDOT will make every effort to avoid or minimize impacts to perennial streams at highway crossings.
US EPA	June 17, 2010	Mitigation for Water Quality - There should be much more detail on the mitigation measures.	Additional discussion has been added to the Preliminary Mitigation Measures for Water Quality subsection in Section 3.14.2.2 of the FEIS. The discussion addresses some of the BMPs that would be implemented to avoid and minimize impacts to water quality, such as installing silt fencing, biodegradable mats/blankets, straw bales, applying temporary grass seed in disturbed areas, covering soil piles during rain events and at the end of each work day, fueling of equipment away from aquatic resources, installing check dams, where appropriate, installing retention/detention basins, where appropriate, and preserving riparian vegetation, when possible. Mitigation would also be achieved by restoring the impacted streams and wetlands on-site and/or by purchasing stream and wetland mitigation credits within the watershed.
US EPA	June 17, 2010	Indirect Effects - A project could have a small effect and the resulting development (such as commercial or residential) could have a very large effect…that could mean a large impact that would not have occurred without the roadway. This should be acknowledged and included in the EIS.	New or expanded development coming in after a road project could have its own direct and indirect effects on various resources. The previously conducted and recently updated *Economic and Fiscal Impact Analysis* for this project determined that the amount of additional development as a result of this project would be small.
USACE	July 8, 2010	Stream and wetland commitments should be incorporated in the summary section of the DEIS. USACE recommended practicable alternatives based on the alignment that would minimize impacts on aquatic resources.	TDOT will provide USACE with a copy of the Environmental Boundaries Study and Mitigation Memorandum prior to submitting the permit application. Prior to submitting a permit application, TDOT will invite USACE to participate in a field review (at USACE's discretion) to make a jurisdictional determination for any of the streams and wetlands that will be affected by the project. TDOT will carry out any required mitigation for jurisdictional stream and wetland impacts, which is a condition of the permit.

Table 4-3: Brief Summary of Agency Comments on DEIS (continued)

Agency	Date	Brief Summary of Comments	TDOT Disposition
USFWS	July 30, 2010	Section 7 of Endangered Species Act requirements fulfilled for three species. The USFWS no longer believes that a timeframe restriction on tree cutting properly addresses indirect and cumulative impacts to Indiana bat. Further coordination is required under Section 7 prior to removal of trees for this project.	TDOT conducted a mist net and Anabat survey on the Preferred Alternative from July 30 to August 1, 2012, to determine the possible presence of the Indiana bat in the project area. No Indiana bats were identified in the area. In a letter dated October 11, 2012, the USFWS concurred with the finding that the project is not likely to adversely affect this species. In a letter dated July 26, 2013, the USFWS states that the requirements under Section 7 of the ESA of 1973, as amended, are fulfilled. In a letter dated May 28, 2015, the USFWS acknowledged that they have no new information indicating the presence of the Indiana bat or the Northern long-eared bat within the project area. They added that since TDOT has committed to re-coordinating with the USFWS for potential impacts to listed or proposed species prior to the construction of the project, the requirements of section 7 of the ESA of 1973, as amended, are fulfilled An Environmental Commitment has been added to this FEIS stating that TDOT will re-coordinate with the USFWS for potential impacts to listed or proposed species prior to the construction of the project.
USDOI, Office of the Secretary	December 3, 2010	Indiana Bat -Further coordination with the FWS is required prior to removal of trees for this project.	See response to USFWS July 30, 2010. An Environmental Commitment has been added to this FEIS stating that TDOT will re-coordinate with the USFWS for potential impacts to listed or proposed species prior to the construction of the project.
		A Section 4(f) Evaluation was not prepared for this project, but because of the project's potential involvement with several historic and archaeological resources in the area, the project has been processed as a Section 4(f) case. At this time the Department (US DOI) cannot concur that there is no feasible and prudent alternative to the proposed use and that all possible planning has been done to minimize harm to the Section 4(f) lands/ archaeological sites. Phase II testing must be completed and a report or avoidance strategy must be submitted to the SHPO for review. Section 106 consultation of the NHPA has begun but is not yet complete.	For the Preferred Alternative, TDOT has conducted a Phase II archaeological testing program on five potentially eligible sites and submitted a report of the Section 106 findings to the SHPO; the report recommended one site as National Register eligible. The SHPO concurrence with that eligibility recommendation for site 40T122 in a letter dated December 17, 2012 and stated that the project as currently configured may adversely affect the site. TDOT subsequently considered two minor alignments shifts (East and West Shifts) between Davis Ford Road and US 321/SR 73 to avoid the National Register-eligible site. TDOT determined that the Preferred Alternative was best modified by the West Shift. Thus the eligible site has been avoided and there is not taking of a Section 4(f) resource. No Section 4(f) Evaluation is necessary.
TWRA	August 9, 2010	Suggest further coordination with USFWS on methods to minimize impacts to Indiana bat. TWRA will work with TDOT on further avoiding, minimizing, and mitigating potential impacts to streams, wetlands, and floodplains.	See response to USFWS July 30, 2010. An Environmental Commitment has been added to this FEIS stating that TDOT will re-coordinate with the USFWS for potential impacts to listed or proposed species prior to the construction of the project.

Table 4-3: Brief Summary of Agency Comments on DEIS (continued)

Agency	Date	Brief Summary of Comments	TDOT Disposition
City of Alcoa	August 27, 2010	The City reaffirmed its support for the extension of Pellissippi Parkway. It also identified several corrections for traffic forecasts on US 129 and Hall Road and identified recent developments and planned redevelopments that would demonstrate traffic growth on Hall Road by 2035.	As a result of a new regional travel demand model adopted in 2013, TDOT prepared new traffic forecasts and a new traffic operations analysis for the Preferred Alternative in 2013. The results are reported in Chapters 1 and 3 of this FEIS.
City of Maryville	September 14, 2010	The City reiterated its continued support of the completion of the Pellissippi Parkway Extension and indicated preference for Alternative A.	No response needed.
Blount County Mayor	September 17, 2010	The County reiterated its continued support of the completion of the Pellissippi Parkway Extension.	No response needed.

4.4 Public Involvement

TDOT has implemented an active engagement process to inform the public of the project and to seek input to assist in identifying and evaluating environmental issues and in refining project alternatives. TDOT held a series of public meetings between June 2006 and May 2013 and held a public hearing on the DEIS in July 2010. In addition, TDOT developed and maintains a database of names of interested and affected citizens and organizations who receive notices of the meetings/hearings, the two project newsletters to date, and announcements of project milestones. TDOT also provides updates on the project webpage (http://www.tdot.state.tn.us/pellissippi/). The public involvement activities are described in more detail in the following sections.

4.4.1 Public Meetings

Scoping Meetings, June 2006

TDOT held two public scoping workshops 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 and the study area for the project, alternatives to be considered, and community and environmental concerns.

The first public workshop was held at Eagleton Elementary School on 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 on East Lamar Alexander Parkway from 6:00 to 8:00 p.m. Approximately 95 people attended that meeting.

Workshop attendees were given several options for recording their comments:

- Oral comments to a court reporter at the public meetings
- Written comments—comment forms, letters, and emails
- Informal comments made to TDOT representatives at the public workshops

In order to encourage additional comments, TDOT allowed scoping comments during the time period from April 25 through December 31, 2006. A total of 295 individual comments were received.

The majority of comments (66 percent) expressed support for a Build Alternative (the extension of Pellissippi Parkway from SR 33 to US 321), while 28 percent expressed opposition to a Build Alternative. The remaining 6 percent of the respondents did not specify their support or opposition to the project.

During the comment period, members of the public provided input on the following issues and concerns:

- Transportation needs
  - More direct routes
  - Safer roads
  - Less congested roads
- Impacts to the environment
- Impacts to homes and businesses
- Impacts to agricultural and farmland
- Impact to cultural resources

Alternatives Workshop, October 2007

On October 25, 2007, TDOT held a public workshop in the project area at the Heritage High School Auditorium from 5:00 to 8:00 p.m. TDOT held this meeting to provide the public with an update on the project activities since the June 2006 public scoping meetings and to solicit input on the refined purpose and need for the project and on potential project alternatives. The workshop included a formal presentation, breakout groups, and a wrap-up with the full group during which questions from the breakout discussions were addressed. 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 emails). During the public comment period (October 25 through November 15, 2007), 190 individual public comments were received.

Table 4-4 summarizes comments received as a result of the workshop and during the comment period.

Table 4-4: Summary of Public Comments on Alternatives—October 25, 2007 Workshop

Question #1: Should other transportation needs or purposes to be considered?
• 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.

Table 4-4: Summary of Public Comments on Alternatives—October 25, 2007 Workshop (continued)

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.

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 will 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.

Table 4-4: Summary of Public Comments on Alternatives—October 25, 2007 Workshop (continued)

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.

Public Information Meeting, February 2008

TDOT held a public information meeting on February 19, 2008, at the Heritage High School from 5:00 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 upcoming activities in the environmental process. Local public officials attended the meeting 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 2006 public scoping meetings and the October 2007 public alternatives workshop and the comment period following this meeting.

During the comment period (February 19, 2008, to March 11, 2008), 124 TDOT comment forms were received. The Blount Count Chamber of Commerce distributed a comment card and 123 people submitted comments using the chamber's comment card. In addition, 62 emails and 21 letters were received. Again, TDOT provided various methods in which comments could be shared and some individuals commented using more than one method. Table 4-5 summarizes the comments received during the comment period.

Table 4-5: Summary of Comments from 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.

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.

Table 4-5: Summary of Comments from February 19, 2008, Public Meeting (continued)

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.

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.

Table 4-5: Summary of Comments from February 19, 2008, Public Meeting (continued)

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).

During the comment period, the City of Rockford and the Blount County Chamber of Commerce each submitted resolutions relating to this project.

- The City of Rockford, in a resolution dated January 10, 2008, stated its 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 Board of Directors of the Blount County Chamber of Commerce, in a resolution dated November 75, 2007, stated its support 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 completed by individuals and mailed in after the workshop. 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, seven people stated they were not in support of the extension, and one person did not indicate support or opposition.

Input from all the public meetings has been considered in the refinement of the Pellissippi Parkway alternatives and in the evaluation of environmental impacts.

4.4.2 Project Database

During the course of the study, TDOT developed and maintained a database with the names and contact information of agencies, organizations, and persons with an interest in the project. The database initially contained the names of those agencies, organizations, and individuals on the TDOT Environmental Division's initial coordination list. TDOT supplemented the list with the names of persons and organizations who attended the scoping meetings or who provided comments on the project. The database grew with additional names of members of the public who signed in at subsequent project meetings or provided comments throughout the study. Anyone who requested to be added to the list was added.

Following the DEIS, TDOT added the addresses of all occupied lots in the Kensington Place mobile home community to the database as well as the names of property owners along the Preferred Alternative.

4.4.3 Project Newsletters

During the course of the project study, two project newsletters have been prepared.

TDOT prepared the first project newsletter in October 2008 and distributed it to individuals whose names were included in the project's public involvement database. The newsletter included information such as the status of the project, a summary of the public involvement activities to date, a description of technical studies underway, and an explanation of criteria used in refining the corridors and alternatives for consideration in the NEPA process.

The second project newsletter was distributed in June 2012 to announce and explain the selection of DEIS Alternative A as the Preferred Alternative.

4.4.4 Project Website

TDOT developed a project website and updated it routinely in order to provide the public with the most up-to-date project information available (http://www.tdot.state.tn.us/pellissippi/).

Listed below are examples of the type of information made available to the public on the website.

- Project description
- Public involvement plan
- Project timeline/schedule
- Description of project alternatives
- Public involvement materials—meeting displays, presentations, comment cards, handouts, and public comments received
- Project contacts
- Notices of public meetings/hearings and locations for review of project documents
- Approved DEIS
- Preferred Alternative and modifications
- Approved technical studies

4.5 Public Involvement Activities following Circulation of DEIS

4.5.1 Distribution of the DEIS

The DEIS comment period began on May 7, 2010, when EPA published a Notice of Availability (NOA) of the DEIS in the *Federal Register*.

TDOT mailed copies of the DEIS to approximately 40 agencies, organizations, and individuals on May 10, 2010. Included with the DEIS was a transmittal letter informing individuals of the upcoming public hearing to be held on Tuesday, July 20, 2010.

TDOT posted the DEIS on the project website and placed copies of the DEIS for public inspection at the following locations:

- Blount County Public Library in Maryville
- Blount County Chamber of Commerce in Maryville
- TDOT Region 1 Office in Knoxville

4.5.2 Advertisement of the Public Hearing

TDOT published a combined public hearing notice and NOA of the approved DEIS in the *Maryville Daily Times* on Friday, June 18, 2010, and Tuesday, July 13, 2010. The notice was also placed on the project website.

TDOT mailed 687 notices and emailed 404 notices to individuals and organizations listed in the project's public participation database.

Following the notice distribution to those in the public participation database, a follow-up distribution was made to the residents of the Kensington mobile home community. Public notices were mailed to the management office located in the mobile-home community for distribution to the residents of the community.

4.5.3 Public Hearing, July 2010

TDOT held a public hearing on the DEIS at Heritage High School on East Lamar Alexander Parkway on Tuesday, July 20, 2010, from 5:00 to 8:00 p.m. Approximately 400 members of the public and local officials attended.

The format of the hearing included formal and informal sessions:

- Informal session (5:00 to 5:45 p.m.)—Attendees had the opportunity to look at exhibits of the alternative concepts, talk with the TDOT and consultant project team, and sign up to speak during the formal portion of the hearing.
- Formal session (5:45 to 7:30 p.m.)—Introductions and a brief PowerPoint presentation of the project and the DEIS findings were given, followed by a comment/question session. To speak on the record during the comment/question session, speakers had to register ahead of time. The moderator then called each speaker to the microphone in the order that they had registered. Speakers were given up to 3 minutes to make their comment or ask questions.
- Informal session (7:30 to 8:00 p.m.)—Attendees were able to view exhibits and talk with TDOT and consultant representatives.

Throughout the hearing, court reporters were available to transcribe oral comments of individuals. Comment forms were also available as another format for providing comments.

Handouts provided information on the hearing format as well as a summary of the purpose and need of the project, alternatives evaluated in the DEIS, potential environmental impacts of the project, the relocation assistance program, and the next steps in the environmental review process.

4.5.4 Comments Received from the Public Hearing

The original comment period was to end on August 11, 2010. However, on July 9, 2010, at the request of a community group, TDOT extended the comment period by 20 days, to August 30, 2010.

The public had several ways in which to provide comments on the DEIS:

- As a speaker during the formal comment session as a part of the public hearing.
- Providing an oral statement to a court reporter at the public hearing.
- Completing the TDOT-provided comment form (included in the public hearing handout and posted on the project website).
- Sending letters, postcards, and emails to TDOT.

During the comment period (May 7, 2010, to August 30, 2010), TDOT received comments from 561 individuals and organizations. Again, TDOT provided various methods in which comments could be shared and some individuals commented using more than one method. Table 4-6 summarizes alternative preferences and the method(s) used to share the comment.

Table 4-6: Summary of Public Hearing Comments—Alternative Preference

	No-Build Alternative	Build	Alternative A (Preferred Alternative)	Alternative C	Alternative D	Other[1]	No Preference[2]	Total
Comments made during formal portion of hearing	25	1	0	0	0	0	2	28
Oral statements made to court reporter	17	8	4	2	1	0	3	28
TDOT-supplied comment forms	62	171	126	32	20	4	0	233
Individual letters	53	11	4	1	4	0	7	71
Emails	4	6	1	1	0	0	5	15
Preprinted postcards[3]	245	0	0	0	0	0	0	245
Minus duplicate individual comments	-50	-6	-2	0	0	0	-4	-60
Total responses	**356**	**191**	**132**	**35**	**24**	**4**	**14**	561

[1] Other—Improve existing roads (other than that provided for in Alternative D).
[2] No Preference—No preference among Build Alternatives.
[3] Postcards—A preprinted postcard on which individuals wrote their names and addresses in support of the statement on the postcard.
Note: Numbers do not aggregate since some respondents chose more than one alternative or No-Build Alternative and Alternative D.

Public Comments Made during Formal Portion of Hearing

Following the PowerPoint presentation, which provided a description of the alternatives evaluated in the DEIS and a summary of potential impacts, TDOT allowed persons to make a public comment or ask a question. During the time period allotted, 28 people spoke; six others were unable to speak before the end of the designated time for comments. Of the 28 speakers, 25 expressed their preference for the No-Build Alternative (or expressed their opposition to the proposed Build Alternatives). One speaker spoke in support of the project. Other speakers did not indicate a preference. Those who were not able to speak during the formal portion of the hearing were encouraged to make a statement to the court reporters.

Oral Statements to Court Reporter

The court reporters received 28 individual statements after the formal portion of the hearing. Eight people made statements supporting the extension of Pellissippi Parkway Extension as Alternative A or C. Seventeen people made a statement opposing the project; two of the 17 people made a similar statement during the formal session. Three of the people making a statement to the court reporter did not indicate their position for or against the Build Alternatives or were unclear in their statement.

TDOT-Supplied Comment Forms

TDOT provided a structured comment form during the public hearing and on the project website. In total, 233 completed comment forms were returned. The majority of the comment forms received (171) indicated support for the project; 126 of those supported Alternative A.

On July 26, 2010, CAPPE, through its attorney, sent a letter to TDOT asserting that the TDOT-supplied comment form was misleading and inaccurate regarding the description of the No-Build Alternative and by not including "economic and fiscal impacts" in the list of issues that people could check to indicate their concerns. CAPPE insisted that TDOT correct and reissue the form, sending it to everyone who attended the meeting, and discarding completed forms already received. On July 30, 2010, TDOT responded to CAPPE that the form was provided as a courtesy and was not intended to limit comment, be the sole vehicle for written comments, or be a representation of the contents of the DEIS. TDOT noted that people may choose to disregard the form and submit written comments concerning any aspect of the DEIS.

Emails and Letters

TDOT received 71 letters and 15 emails during the comment period. The majority of the letters (53) expressed opposition to the Build Alternatives.

Preprinted Postcards

TDOT received postcards from 245 people addressed to the TDOT Commissioner, stating a preference for the No-Build Alternative. The statement was preprinted on the card, and people signed their names and provided contact information. Some of those sending the postcard also submitted completed comment forms, letters, or emails.

Resolutions

During this comment period, the Blount County Chamber of Commerce submitted a signed resolution dated July 12, 2010, in support of the completion of the Pellissippi Parkway Extension from SR 33 to US 321. The resolution is included in Attachment C-1.

Summary of Comments

Table 4-7 presents common themes expressed in the letters, emails, and comment forms and during the public hearing and TDOT responses. The hearing transcript and comments received are contained on the project website.

Table 4-7: Summary of DEIS Public Comments

Comment	TDOT Disposition
Support the No Build Alternative—The No-Build Alternative is compatible with the plan to maintain the rural nature of Blount County.	The *Blount County Policies Plan* (2008) focuses largely on preserving the rural and suburban residential nature of the larger part of Blount County. 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 further indicates that the area surrounding the proposed Pellissippi Parkway Extension is expected to develop given its proximity to Maryville and Alcoa. The construction of Pellissippi Parkway is envisioned in the Plan.
Purpose and Need—None of the proposed Build Alternatives will independently achieve the purpose and need for the project.	The project's Build Alternatives would address the need to improve the county's road network that radiates out of Maryville by implementing a non-radial alternative in the northeastern quadrant of the county and would complete the originally envisioned road link between Oak Ridge and eastern Blount County. They would also provide a new connection east of Alcoa and Maryville for motorists to travel between SR 33 and US 321 and thus substantially reduce travel times of the roadway. The four-lane alternatives would address safety concerns by allowing motorists the option of using 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 Maryville and Alcoa. They would also improve the level of delay experiences at key intersections. Section 2.3.1 in this FEIS provides a more detailed discussion on how the Preferred Alternative achieves the purpose and need statement.
Traffic Operations—The extension would not substantially improve traffic congestion and levels of service on the existing road network.	The traffic operations analyses conducted for this project identified both corridor and intersection LOS evaluations. The analysis shows reductions in the amount of delay experienced at key existing intersections along the north/south corridors for the Preferred Alternative. This includes reducing the delay at the following intersections: SR 33/Wildwood Road, SR 33/E. Broadway Avenue, Hall Street (SR 35), Washington Street/US 73 & US 321, and US 129/US 321. The reductions in delay are documented in more detail in the 2014 *Addendum to the Traffic Operations Technical Report,* which is discussed in this FEIS.
Fix Existing Roads—Use the money set aside for the project to fix existing roads that are deficient and unsafe.	The extension of Pellissippi Parkway from SR 33 to SR 321 in Blount County was designated a high priority project (HPP) in the Transportation Equity Act for the 21st Century (TEA-21) in 1998. According to the Knoxville Regional TPO, there may be some flexibility in modifying an HPP project within a corridor if the modifications still met the intent of the HPP project as approved by Congress. Final decisions on any changes related to the HPP project are made by the State DOT and FHWA with input from the Metropolitan Planning Organization and likely with input from the U.S. Representative from that district. In many cases, it may require approval of Congress. The *Regional Mobility Plan 2040* includes other projects that would address improvements to US 411, SR 33, US 129, and other roads in the vicinity. Fixing existing roads does not meet the purpose and need of this project. Alternative D including using some existing roads and the impacts were found to be detrimental in terms of relocations and capacity.

Table 4-7: Summary of DEIS Public Comments (continued)

Comment	TDOT Disposition
Traffic Impact on Townsend and Walland—The project would encourage more traffic and development in Townsend and Walland.	Traffic forecasts for the project indicate that by 2040, the amount of traffic that would be expected along US 321 near Walland and the Foothills Parkway would only be about 15 percent higher (about 4,300 more vehicles per day) with the project in place than without it. The roadway by itself would not bring more development. The communities would have to decide whether to provide the necessary services for the development.
Southern Loop—DEIS fails to address impacts from the proposed Southern Loop.	The concept of a four-lane southern and western loop around Maryville (a Maryville/Alcoa Bypass) had been discussed in the past to potentially relieve some of the congestion through Maryville. By the time the DEIS was being prepared, the concept of the Southern Loop was reduced to a two-lane road on existing or new alignment extending from the proposed intersection of Pellissippi Parkway Extension with US 321 to Old Niles Ferry Road at the proposed William Blount Drive (SR 335 extension). In the previous 2009–2034 *Regional Mobility Plan*, the concept was not anticipated to be completed until the 2025 to 2034 timeframe. The current *Regional Mobility Plan 2040* does not include a Southern Loop.
Alcoa Highway Bypass (Relocated Alcoa Highway)—The DEIS does not address impacts from this road.	The Relocated Alcoa Highway project was a part of the regional travel demand model that was in effect when the DEIS traffic forecasts and analysis were prepared. The proposed roadway is also in the current travel demand model that has been used to prepare the updated traffic analysis. The traffic analysis assumes that the Relocated Alcoa Highway would be constructed.
Crash Analysis Safety—Analysis is contradictory and inadequate; offers no finding as to the level of improvement in safety.	For the FEIS, TDOT has updated the crash analysis, using the latest available data (2010–2012). The updated crash analysis provides additional analysis to address the level of improvement in safety.
Cost of the Project—The costs of the project are underestimated because of mitigation required for karst, rising costs of materials, and costs of land within Pellissippi Place Research and Development (R&D) Park.	The cost estimates for the Build Alternatives were developed based on functional level plans, using standard TDOT cost estimating methodologies, including those that account for constructability constraints and known bridge and interchange locations. ROW costs were determined using Blount County property assessment data and averages of square-footage costs. The cost estimates will be refined as more detailed design is conducted. The functional level plans do not anticipate a below grade and tunneled section through the Pellissippi Place development.
Farmlands—The project would destroy prime farmlands, removing land from agricultural production.	During the design of the project, TDOT will work with affected farm owners to reduce the impact on farmlands as much as possible based on available design solutions. TDOT will seek to minimize the amount of division of farms and ensure that remnants are viable. TDOT will meet with the farming community either through individual meetings or through community meetings.
Karst Topography—The role of karst geology (sinkholes) is not adequately addressed.	The 2009 *Ecology Report* identified the presence of numerous sinkholes within the proposed alignments and concluded that, at the time of the 2008 field surveys, the sinkholes did not appear to be associated with any watercourses. The *Ecology Report* also noted that sinkholes are often associated with underground streams, and a potential to introduce pollutants through these streams may result from the proposed project and related land development. The *Preliminary Geological Report* (February 2009) recommended that a subsurface program with auger drilling be conducted upon the selection of an alignment and prior to construction. The subsurface program will allow for further assessment of surface water and groundwater connectivity to the area streams.

Table 4-7: Summary of DEIS Public Comments (continued)

Comment	TDOT Disposition
Noise—The project would cause substantial noise impacts to persons now living in the rural area.	An updated noise abatement analysis (2014) in compliance with TDOT's current Noise Policy has been conducted. Based on the preliminary assessment, only one area along the project is potentially eligible for a noise barrier—the Kensington Place mobile home park, an EJ community. TDOT has already committed to construct a noise barrier in the Kensington Place mobile home park to mitigate noise impacts associated with the Preferred Alternative. Once final design details are developed, the noise analysis and associated feasibility and reasonableness determinations will be updated again. Final decisions regarding the construction of noise barriers will be made during final project design. TDOT will continue public involvement during design and construction phases to encourage input from affected property owners. The public involvement process will include local outreach with the affected residents and a design public hearing at which residents and other members of the public will be encouraged to provide input.
Economic Impact—The project would bypass Maryville and Alcoa, affecting businesses' livelihood and tax revenue.	No quantitative analysis of potential impacts to existing commercial enterprises in Maryville and Alcoa was conducted. Existing studies of the effects of highway bypasses on local economies were consulted, and the consensus is that in most communities highway bypasses have no significant adverse impact on overall economic activity in the community.
Economic Impact—The economic and fiscal impact analysis underestimates the degree to which the project will lead to growth and its resulting fiscal impact; assumptions of the study are "flawed." The project will encourage urban sprawl and uncontrolled growth that will tax the county's budget to provide new services for new residents and destroy the valuable rural scenery.	The *Economic and Fiscal Impacts Analysis* (PB 2009c) conducted for the DEIS was based on methodologies that have been used across the country. The study did not assume that the project would help (or hinder) the County's ability to limit growth to areas already identified for suburbanization. Instead, the study estimated the fiscal effects of two future land use scenarios. The "Business As Usual" scenario assumed that 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. In contrast, the "Smart Growth" case assumes 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 method was selected to illustrate a range of potential fiscal outcomes associated with the proposed project. The fiscal effect of growth that is forecast to occur irrespective of the proposed project was not evaluated in the study. As part of the FEIS evaluation, an updated Economic and Fiscal Impact Analysis was conducted (Addendum to the 2009 Economic and Fiscal Analysis) since a major update of the Knoxville Regional Travel Demand Model in 2013 means that some of the underlying inputs utilized for the initial study are no longer valid. As such, using the same methodology but with more current assumptions, the updated report presents an updated analysis for economic and fiscal effects of the project. One change in the approach for the study is that updated analysis does not assume a Smart Growth scenario; since the original study was prepared, the County has not made progress toward updating its local growth policies to promote or implement Smart Growth techniques. The study states that a four-lane Build Alternative has moderate potential to spur land use changes in the study area. However, the study found that the new residential and non-residential-induced development would not be extensive. The study predicted 27 to 49 new residences along with 13,300 to 24,100 square feet of commercial development as the total induced development from this project to 2025. Other factors are anticipated to contribute to residential and non-residential development in this portion of the county. This portion of Blount County is already experiencing growth with the conversion of farmland to new subdivisions.

Table 4-7: Summary of DEIS Public Comments (continued)

Comment	TDOT Disposition
Indirect and Cumulative Impacts—The indirect and cumulative impact assessment in the DEIS is inadequate in terms of the Southern Loop and the Relocated Alcoa Highway, as well as economic and fiscal impact analysis (unrealistic time and distance limits), terrestrial and aquatic resources, water quality, safety, and quality of life).	The *Indirect and Cumulative Effects Analysis Methodology and Background Information Technical Memorandum* (PB 2009e) was prepared as part of the study and was made available for public review during the DEIS comment period. The background report was updated for the FEIS in 2015 to reflected new information since the DEIS was circulated. The Relocated Alcoa Highway is identified as a reasonably foreseeable future project for the cumulative impact assessment since it is part of the region's current TIP. The Southern Loop was not specifically addressed in the cumulative impact assessment in the DEIS since it was not envisioned until the 2025 to 2034 timeframe of the previous *2009-2034 Regional Mobility Plan*. The project is no longer included in the current *Regional Mobility Plan 2040*. The geographic limits (a 5-mile impact area) for the economic and fiscal impact analysis was selected, in part, based on a review of forecast travel time savings for selected transportation analysis zones in the region and on land markets research. The methods used to delineate the impact area were in accordance with national best practices as outlined by the Oregon Department of Transportation's *A Guidebook for Evaluating the Indirect Land Use and Growth Impacts of Highway Improvements* (2001). The time limit of analysis was determined based on empirical findings showing that the time between adding transportation capacity and the occurrence of induced development would likely be 2 to 3 years. The source of these findings is "Road Expansion, Urban Growth, and Induced Travel: A Path Analysis," (Cervero 2003). The discussions of the indirect and cumulative effects for the Preferred Alternative have been reviewed and updated as appropriate in the FEIS.
Public Involvement—The public input process was flawed: technical memoranda were not posted early. The comment form was seriously flawed by an incorrect description of the No-Build Alternative and did not include economic and fiscal impacts as a choice for concerns.	The DEIS that was distributed to the public as early as May 7, 2010, lists on page 3-1 the technical reports prepared for the project and states that they are on file with the TDOT Environmental Division Office in Nashville. Upon request, copies of technical reports (with the exception of the Archaeology Report) have been provided. Following a request at the public hearing on July 20, 2010, TDOT placed the technical reports on the TDOT website on July 21, 2010. The comment period for the DEIS was extended to August 30, 2010. The comment form made available to the public at the hearing was intended to provide the public with a format to register their comments. It was not the only way members of the public could provide input. The handout and the PowerPoint presentation at the hearing clearly listed several ways a person could register comments, including use of a comment form, oral comments to the court reporter, comment during the hearing, and in a letter or email to TDOT. The questions on the comment form were intended to solicit the commenter's opinions but were not intended to be the only source of information about the project. These questions assumed that the commenter had read the DEIS or the handout or had listened to the presentation. The description of the No-Build Alternative was not intentionally misleading or inaccurate. There would be no action to improve the local roadways or to extend Pellissippi Parkway. Separate projects have been planned to improve other roadways. The comment form listed as examples several types of environmental impacts that might be of concern, but the list of issues provided was not intended to be comprehensive, and space was provided for the commenter to enter other issues of concern.

4.6 Additional Coordination for the Preferred Alternative

4.6.1 Coordination with Local Officials and Organizations

On September 1, 2011, TDOT met with local officials of Maryville, Alcoa, and Blount County to provide project information. TDOT also emphasized the importance of local government commitment and public support toward achieving the proposed transportation solution that would support community goals while minimizing the impacts to the natural and cultural environment. The TDOT Commissioner requested that the local governments provide TDOT with their preference for a Preferred Alternative.

Subsequently, TDOT received resolutions by the governing bodies of the cities of Maryville and Alcoa and Blount County (dated October 4, October 11, and October 20, 2011, respectively). Each resolution expressed support for Alternative A as the Preferred Alternative. Copies of these resolutions are in Attachment C to this FEIS.

In addition on October 5, 2011, TDOT officials met with members of CAPPE. The TDOT Commissioner listened to the group's concerns about the project and explained the process that is followed for selecting a Preferred Alternative. TDOT committed to providing status updates to keep stakeholders informed of the selection of the Preferred Alternative and future meetings via website, local media outlets, newsletters, and other sources. The Commissioner stated his expectation that the local officials will involve the interest groups and all citizens when discussing future growth plans for the area and communities.

4.6.2 Announcement of the Preferred Alternative in 2012

In June 2012, TDOT announced that Alternative A had been selected as the Preferred Alternative for the project. In order to inform the public of this decision, TDOT distributed a newsletter to all citizens whose names were included in the project's public participation database and posted information on the project website.

A project newsletter (dated June 2012) was prepared and distributed to more than 800 individuals and organizations included in the database. The newsletter announced the selection of Alternative A as the Preferred Alternative, gave reasons as to how the selection was made, explained how the Preferred Alternative met the purpose and need for the project, included results of the additional traffic analysis that had been completed since approval of the DEIS, and explained the process for preparation of the FEIS.

4.6.3 Community Briefing, May 2013

TDOT held a community briefing on May 30, 2013, from 5:00 to 7:00 p.m. at the Rio Revolution Church in Maryville. The purpose of the community briefing was for TDOT to discuss with the public two potential minor shifts in the route of the Preferred Alternative and the possible impacts of those shifts. In addition to providing updated project information, TDOT sought comments, interests, and concerns from those potentially affected by the shifts. Approximately 136 persons in attendance.

Prior to the community briefing, approximately 1,000 flyers were mailed to residents announcing the briefing. In addition to the mailings, TDOT officials distributed 97 handouts to residents located in the Kensington Place Mobile Home Community.

On site at the Rio Revolution Church, information tables were set at the main entrance lobby. On the tables a community briefing handout, comment cards, and facts sheet were available in both English and Spanish. Members of the public attending the meeting were also greeted and given a concise description of what to expect at the meeting and where information was located. No formal presentation was given; however, a looped slideshow was provided to give the community information about

the project. This slideshow was presented in both English and Spanish. TDOT representatives were stationed in three breakout rooms with project location maps to answer questions posed by individuals. For non-English speaking attendees, TDOT provided a Spanish translator to ensure full understanding of the concepts presented. Two families made use of the translator's availability.

The deadline for comments to be received by TDOT was originally June 10, 2013. To provide the public additional time to respond to the information presented at the Community Briefing, TDOT extended the deadline to June 15, 2013. To make people aware of the comment period extension, TDOT posted a notice on the project website, mailed postcards to everyone who signed in at the briefing, and sent emails to persons who had provided their email addresses.

TDOT received 157 comments by mail (letter or comment card), email, or comment cards submitted at briefing. All comments were noted in the project database. Several people submitted comments in various formats. TDOT also received a letter from the City of Maryville, dated June 10, 2013, expressing support for the East Shift; the letter is contained in Attachment C-2.

Comments were divided into topics based on content. The comments primarily centered on overall support of the project, alternative preference, overall traffic and safety concerns, environmental impacts (archaeology, noise), additional information on technical studies and alternative selection criteria, and need for additional environmental studies and documentation. Table 4-8 summarizes the topics addressed by the citizen comments as well as a representative comment. Based on specific comments received, 18 persons were in support of the West Shift, while 12 persons were in support of the East Shift.

In addition to the comments noted on comment cards turned in at the meeting, in emails, or by mail, general comments and questions were made to TDOT representatives during the meeting. As with the comments submitted in written form, the questions and areas of interest encompassed a wide range of topics. Representatives answered numerous questions from those in attendance, including the following:

- How should I let my comments be known to TDOT?
- I live at this location, how will the project impact me?
- When will the project be built?
- What type of archaeological site did TDOT find?
- If my house is in the proposed right-of-way, should I make improvements to it?
- How does the right-of-way purchasing process work and what is the timeline for purchasing?
- When will I know how far the road is going to be from my house (when will right-of-way and design plans be complete)?
- What are the next steps in the environmental and design process?
- Why did right-of-way acquisition stop?
- Why is TDOT looking at Alternative D again?

Questions and comments to TDOT representatives came from citizens who expressed support both for and against the project. Some comments and questions were answered by explaining the processes TDOT uses in project development since the design and ROW stages of the project are not complete.

Table 4-8: Summary of Public Comments—May 30, 2013 Community Briefing

Topic	Representative Comment	Response
Support for extension	The project will serve the greater good with minimal impact to environment or persons displaced or affected.	Comment noted.
Opposed to project	The project will not be beneficial for Blount County and the East Tennessee region. It will not solve problems, will lead to additional traffic issues and increased sprawl, and will harm long term resources of productive farmland, wildlife habitat, and watershed protection.	Comment noted.
Prefer West Shift	A number of commenters supporting the western shift indicated that it would be more pleasing visually to property owners in Sweetgrass Plantation and would reduce noise impacts for the Sweetgrass Plantation neighborhood.	Comments noted.
Prefer East Shift	The east shift would have the least environmental impact on the surrounding community.	Comment noted.
Improve current roads	TDOT should maintain and improve existing roads.	Comment noted.
Traffic	The extension will not address the fundamental traffic challenges in Blount County and will make some of them worse, especially on US 411 N. The project is too expensive and destructive for the amount of time that will be saved.	Comment noted.
Archaeology	What is the environmentally sensitive area? Is it an Indian burial ground?	The site is an archaeology site that has been determined eligible for the NRHP. It does not contain human remains or burial sites. Based on the identification, testing, and coordination with the SHPO, it has been determined that the site contains information that has yielded or may be likely to yield information important in prehistory or history.
	What steps has TDOT taken to inform Native American Tribes and the SHPO of the identified site?	The Phase II Archaeological Report (Panamerican 2013a), which documented one archaeological site as eligible for listing on the National Register, has been coordinated with the SHPO. The SHPO concurred with TDOT's eligibility recommendation. Additional investigations of proposed shifts to avoid the site have been conducted and documented in two addenda to the 2012 Phase II report. The addenda were coordinated with the SHPO and the Native American tribes that have expressed an interest in the project. The SHPO concurred with the findings in the addenda, and no responses were received from the Tribes. TDOT is following procedures defined in its own policies, as well as the requirements of Section 106 of the NHPA as amended.

Table 4-8: Summary of Public Comments—May 30, 2013 Community Briefing (continued)

Topic	Representative Comment	Response
Impacts to mobile home community	An owner of a home that will be relocated by the west shift expressed opposition to the shift because of the financial worry and burden.	Owners of the mobile homes that would be relocated by the proposed project will receive relocation assistance, including assistance to secure a comparable residence that meets current standards for safe and decent housing. While mobile home owners will be able to choose where they want to live, there are numerous vacant parcels in this mobile home community.
	A resident of the community expressed support for the west shift; the person stated they would like to be bought out so that they could move out of the community.	Comment noted.
Impacts to Sweetgrass Plantation	Owners of homes or lots in Sweetgrass Plantation express opposition to the east shift due to concerns over visual and noise impacts. They were concerned that sound barrier walls would not be built for their subdivision.	The preliminary noise analysis conducted for the two avoidance shifts was prepared in compliance with the requirements of FHWA guidance for the identification of highway traffic noise impacts and the TDOT Policy on Highway Traffic Noise Abatement. The results of the barrier analysis for the eastern shift demonstrated that the area does not qualify for a noise barrier based on the information currently available. The conclusions derived from the current noise analysis are preliminary, and final decisions regarding noise abatement measures will be based on a subsequent noise study that will be completed using the design plans for the project. The public will have the opportunity to comment on the results of that analysis at the design public hearing.
Request extension for comments	CAPPE and several commenters stated that the links on the webpage were not updated to allow the public to gain access materials from the May 30, 2013, meeting as of June 1, and they requested that the comment deadline be a minimum of two weeks after all the links are corrected. They also asked how people potentially affected by the two possible realignments will be notified about the extension and the new deadline.	The link to the website was corrected and the deadline for comments was extended 5 days to June 15, 2013. A notice was placed on the website and postcards were mailed to persons who attended the community briefing. Emails were also sent to those persons who had provided email addresses.
Release of technical studies	Several comments asked that TDOT release the technical studies and evaluation so that the decision is as transparent as possible.	The technical study updates prepared in 2013 and 2014 for the modifications to the Preferred Alternative as well as the alternatives considered in the DEIS were posted in July 2014 following FHWA's approval of the DEIS reevaluation. TDOT is prohibited by the provisions of the NHPA, as amended, from releasing the archaeology reports to the public in order to protect the resource.
Explain selection criteria	Several comments asked what criteria TDOT will use to consider the results of the environmental screening and the comments provided in selecting the alignment shift.	TDOT determined that the west shift should be incorporated into the previously selected Preferred Alternative based on the assessment of the environmental screening conducted for the east and the west shifts and taking into consideration input received from the Community Briefing.

Table 4-8: Summary of Public Comments—May 30, 2013 Community Briefing (continued)

Topic	Representative Comment	Response
Need for a written reevaluation	Before TDOT can decide not to prepare Supplement DEIS, a written reevaluation must be prepared due to the passage of time since the DEIS was circulated.	TDOT conducted a NEPA reevaluation of the project in accordance with FHWA regulations (23 CFR 771.129). The reevaluation considered impacts to the alternatives evaluated in the DEIS as well as the modifications to the 2012 Preferred Alternative. The reevaluation, approved by FHWA July 17, 2014, found that: • The changes to the alternatives considered in the DEIS as well as modifications to the Preferred Alternative would not result in significant environmental impacts that were not evaluated in the DEIS. • The new information or circumstances relevant to environmental concerns and bearing on the alternatives considered in the DEIS as well as modifications to the Preferred Alternative would not result in significant environmental impacts that were not identified in the DEIS. Therefore, a supplement to the approved 2010 DEIS is not required.
Need for Supplemental EIS	Since the DEIS was circulated in 2010, TDOT has taken a number of actions that affect analysis of the impacts of the proposed PPE. In view of the actions and changes listed below, we believe a Supplemental Environmental Impact Statement is necessary: a. Revised traffic forecasting, as evident in the September 2011 Addendum to Traffic Operations Technical Report. b. Shift in emphasis from improvements in LOS to intersection delay. c. Community briefing on the possible change in alignment to avoid an environmentally sensitive area. d. Updated technical studies and evaluations as stated in the materials distributed at the May 30, 2013, community briefing: “Hazardous Materials, Noise, Ecology, Safety, Archaeology” and evaluations of the two ‘avoidance’ shifts.	The July 17, 2014 reevaluation provided the basis for determining that a Supplemental DEIS is not required for this project. Based on the results presented in the reevaluation, TDOT concluded that the Preferred Alternative with the west shift selected in 2013 continues to be the Preferred Alternative.

4.6.4 Frequently Asked Questions

In addition to the community briefing, TDOT also prepared a Frequently Asked Questions (FAQ) handout. The FAQ included commonly-asked questions like "what has been happening with the project since approval of the DEIS" and "what are the project's next steps." The handout was printed in English and Spanish and was distributed at the community briefing and posted to the project website.

4.6.5 Announcement of Modification of Preferred Alternative in 2013

In July 2013, TDOT informed the public of the selection of the west alignment shift to be incorporated into the Preferred Alternative. TDOT posted the notice on the project website (www.tdot.state.tn.us/pellissippi/) and mailed postcards to those persons and organizations that attended the briefing or had provided a comment. TDOT also issued a press release on July 29, 2013, to announce the selection of the alignment shift; several television and radio stations and the *Maryville Daily Times* newspaper ran coverage on the announcement.

4.6.6 Announcement of DEIS Reevaluation

FHWA approved the reevaluation of the 2010 DEIS on July 17, 2014. The announcement of the approval of the reevaluation, as well as the reevaluation document and the supporting technical studies, were posted on the project website on July 22, 2014. In addition, an email message was sent to the list of interested parties to announce the approval of the reevaluation and provide a link to the documents on the project website.

4.7 Next Steps

Upon approval of the FEIS, FHWA will publish a NOA in the *Federal Register* and TDOT will publish an announcement in the local newspapers identifying the location of copies of the FEIS available for public inspection. Public availability notices will also be sent to those individuals and organizations on the project mailing list. A copy of the FEIS and supporting studies will be placed on the project website.

Following the 30-day public availability period for the FEIS, FHWA will issue a Record of Decision (ROD) for the proposed project. The ROD confirms the selected alternative for the proposed project and identifies all alternatives considered, the environmental factors evaluated, measures to avoid and minimize harm, mitigation commitments, as well as substantive comments received on the FEIS.

Following the issuance of the ROD, FHWA will request that the present pending legal injunction be dissolved so that the project may move forward into final design, ROW acquisition and construction.

5.0 List of FEIS Preparers

TDOT has prepared this FEIS for the FHWA under a consultant agreement with Parsons Brinckerhoff, Inc. The following persons have contributed substantially to preparation of the document.

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Byron Pirkle Noise Specialist	B.A. in Marketing with 23 years of experience in air quality analysis and highway-generated noise abatement procedures
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Bowlby and Associates	
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Geoffrey R. Pratt, P.E. Air Quality and Noise Specialist	Masters in Civil Engineering with a focus on transportation with 15 years of experience in transportation and noise and air quality analysis
Civil and Environmental Consultants, Inc.	
Jose Garcia, QHP Project Manager II and Ecology Report Lead	Bachelors in Animal Biology with 16 years of experience in transportation ecological surveys, wetland and stream delineations and mitigation, and environmental analysis
Panamerican Consulting	
C. Andrew Buchner, RPA Principal Investigator	Master of Mid-South Cultural Resources Management (CRM) with 23 years of experience in all phases of CRM work (Phase I, II, and III)
KS Ware and Associates	
Mike Tharpe Environmental Scientist	B.S. in Environmental Science with 8 years of experience in hazardous materials investigations and testing.

6.0 List of FEIS Recipients

The following agencies and organizations will receive copies of the FEIS.

Federal Agencies

Tennessee Valley Authority, Environmental Policy and Planning
U.S. Army Corps of Engineers, Nashville District
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

State Agencies

Tennessee Department of Environment and Conservation
Tennessee Historical Commission, State Historic Preservation Office
Tennessee State Library and Archives
Tennessee Wildlife Resources Agency

Local/Regional Government Agencies

Blount County Planning Department
Blount County Public Library
East Tennessee Development District
James D. Hoskins Library, University of Tennessee
Knoxville Regional Transportation Planning Organization
NAACP—Knoxville Chapter

Local Officials

Blount County Mayor
Mayor of City of Alcoa
Mayor of City of Maryville
Mayor of City of Rockford
Mayor of City of Townsend

Local/Regional Organizations

Blount County Chamber of Commerce
Citizens Against Pellissippi Parkway Extension
Sierra Club, Harvey Broome Group
Tennessee Chapter of the Sierra Club
Tennessee Environmental Council
Tennessee Trails Association
Tennessee Wildlife Federation
The Nature Conservancy
World Wildlife Fund, Southeast Rivers and Streams Project

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TDOT 2011	Tennessee Department of Transportation (TDOT). *Policy on Highway Traffic Noise Abatement.* July 2011.
TDOT 2013	Tennessee Department of Transportation (TDOT). *Biological Assessment for Snail Darter, Marbled Darter, Fine-Rayed Pigtoe, Indiana Bat, Ashy Darter, Longhead Darter.* June 2013.
TDOT 2014	Tennessee Department of Transportation (TDOT). *Conceptual Stage Relocation Plan.* May 2014.
Tennessee 1986	State of Tennessee. *Tennessee Better Roads Program.* 1986.
THC&UT 1984	Tennessee Historical Commission (THC) and University of Tennessee (UT). *Blount County Architectural Survey.* 1982-1984.
USACE 2012	U.S. Army Corps of Engineers (USACE). *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Eastern Mountains and Piedmont Region.* April 2012.
USDA 2008	U.S. Department of Agriculture (USDA) in cooperation with the Tennessee Department of Agriculture. *Tennessee Farm Facts.* 2008.

Attachment A
Transportation Planning

1. Knoxville TPO TIP 2014-2017—Project Sheet

2. *Regional Mobility Plan 2040*—Project Page

3. Summary of Changes in the 2013 Regional Travel Demand Model, June 9, 2014

4. Blount County Projects in *Regional Mobility Plan 2040*

5. Parsons Brinckerhoff Memorandum, Update to 2009 Travel Trends Evaluation between Blount and Knox County Update, February 25, 2015

1. Knoxville TPO TIP 2014-2017—Project Sheet

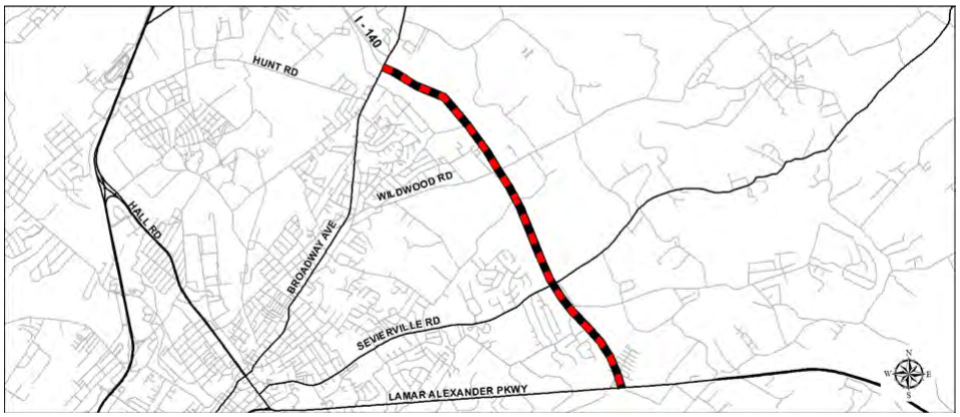
Knoxville Regional Transportation Planning Organization
TRANSPORTATION IMPROVEMENT PROGRAM FY 2014-2017

TIP No.	2014-025	Revision No.	0
TDOT PIN	101423.00	Mobility Plan No.	09-232
Project Name	Pellissippi Pkwy. (SR-162) Extension		
Lead Agency	TDOT		
Total Project Cost	$49,440,200		
Project Description	HPP #TN053 (Section 1602-TEA21). Construct new 4 lane.		
Termini/Intersection	Old Knoxville Hwy (SR-33) to SR-73 (US-321)		
Counties	Blount		
City/Agency	Alcoa		
Length	4.4 (miles)	Conformity Status	Non-Exempt
Additional Details			

Programmed Funds

FY	Type of Work	Funding Type	Total Funds	Federal	State	Local	Other
2014	PE-D	HPP	$2,500,000	$2,000,000	$500,000	$0	$0
2016	ROW	HPP	$7,590,163	$6,072,130	$1,518,033	$0	$0
2016	ROW	NHPP	$1,700,000	$1,360,000	$340,000	$0	$0
		Total	$11,790,163	$9,432,130	$2,358,033	$0	$0

Revision Date	
Revision Details	
Previous TIP No.	2002-030, 2004-020, 2006-017, 2008-039, 2011-025



Knoxville Regional TPO 90

2. Regional Mobility Plan 2040—Project Page

TPO'S LONG RANGE REGIONAL MOBILITY PLAN 2040

Chapter 8

RMP#	Jurisdiction	Project Name	Termini	Length (mi.)	Project Description	Priority	Horizon Year	Total Horizon Year Cost	Funding Source	Federal Share (%)	State Share (%)	Local Share (%)
13-103	Oak Ridge	New Signalized Intersection at Lafayette Dr	Half way between Midway Rd and Midland Rd	0.0	Construction would include right-of-way acquisition of private property from Midway across the CSX railroad to Lafayette.	5	2019	$372,429	Local	0%	0%	100%
09-208	Maryville	Maryville Streetscaping	Various locations	0.0	Street-scaping and "Complete Street" types of projects throughout Maryville	4	2019	$319,225	TA	80%	0%	20%
09-209	Blount Co	Ellejoy Rd Reconstruction	River Ford Rd to Jeffries Hollow Rd	3.7	Reconstruct 2-lane section with shoulders	4	2019	$12,894,015	HSIP	80%	0%	20%
09-211	Blount Co	Morganton Rd Reconstruction, Phase 1	Foothills Mall Dr to William Blount Dr (SR 335)	2.2	Reconstruct 2-lane section with shoulders	1	2019	$10,095,479	HSIP	80%	0%	20%
09-213	Blount Co	Old Niles Ferry Rd Reconstruction	Maryville City Limit (Willis Rd) to Calderwood Hwy (US 129 / SR 115)	3.3	Reconstruct 2-lane section with shoulders	4	2019	$15,143,219	HSIP	80%	0%	20%
09-214	Maryville	Sevierville Rd (US 411 / SR 35) Widening and Bridge Replacement	Washington St (SR 35) to Walnut St	0.4	Widen 2-lane to 3-lane with curb and gutters, sidewalks, new bridge over Browns Creek, 2 business relocations, and new entrance for Blount Memorial Hospital	1	2019	$6,070,589	NHPP	80%	20%	0%
09-216	Blount Co / Alcoa	Alcoa Hwy (US 129 / SR 115) Widening	Pellissippi Pkwy (SR 162) to Knox / Blount Co Line	2.4	Widen 4-lane to 6-lane with 2 auxiliary lanes between Singleton Station Rd and Topside Rd (SR 333)	2	2019	$50,650,311	NHPP	80%	20%	0%
09-218	Alcoa	Alcoa Hwy Parkway (US 129 / SR 115) New Road Construction	From south of Airport Rd to proposed Interchange serving McGhee Tyson Airport	1.3	Construct new 8-lane highway	3	2019	$53,204,108	NHPP	80%	20%	0%
09-221	Blount Co	Burnett Station Rd Reconstruction	Sevierville Rd (US 411 / SR 35) to Chapman Hwy (US 441 / SR 71)	4.4	Reconstruct 2-lane section with shoulders	4	2019	$15,333,424	HSIP	80%	0%	20%
09-232	Blount Co	Pellissippi Pkwy (SR 162) Extension / New Road Construction	Old Knoxville Hwy (SR 33) to Lamar Alexander Pkwy (US 321 / SR 73)	4.4	Construct new 4-lane freeway	2	2019	$52,608,434	NHPP	80%	20%	0%
09-237	Maryville	E Broadway Ave (SR 33) / Eagleton Rd / Brown School Rd Intersection Improvements	From south of Brown School Rd to north of Eagleton Rd		Re-align Eagleton Rd with Brown School Rd to remove offset and create 4-leg, signalized intersection. Widening to include left-turn lanes at all approaches with curb & gutter and sidewalk.	1	2019	$2,427,171	STP	80%	20%	0%
09-257	Alcoa	Alcoa Hwy Parkway (US 129 / SR 115) New Road Construction	From Proposed Interchange serving McGhee Tyson Airport to Pellissippi Pkwy (SR 162)	2.4	Construct new 8-lane highway	2	2019	$53,736,149	NHPP	80%	20%	0%
09-258	Alcoa	Alcoa Hwy Parkway (US 129 / SR 115) New Road Construction	From Pellissippi Pkwy (SR 162) to Existing Alcoa Hwy near Singleton Station Rd	1.4	Construct new 8-lane highway	2	2019	$53,204,108	NHPP	80%	20%	0%
09-262	Maryville	Montvale Rd (SR 336) Widening	Montvale Station Rd to Lamar Alexander Pkwy (SR 73 / US 321)	0.6	Widen from 2-lane to 3-lane	1	2019	$13,620,252	STP	80%	20%	0%
13-207	Alcoa	Louisville Rd (SR 334) Reconstruction	W Hunt Rd to Alcoa city limits (Liberty St)	1.3	Reconstruct existing 2-lane facility with shoulders	3	2019	$6,149,065	STP	80%	20%	0%

8–9

3. **Summary of Changes in the 2013 Regional Travel Demand Model**

Pellissippi Parkway Extension
Summary of Changes in the 2013 Approved Travel Demand Model
Prepared by Becky White, Sain Associates and Mike Conger, Knoxville TPO
6/9/14

The Knoxville Transportation Planning Organization (TPO) adopted an updated travel demand model for horizon year 2034 in June 2013. The new model included several process improvements that have resulted in more accurate calibration. The validated model was approved by the Knoxville TPO as a reasonable approximation of current and future conditions on the Knoxville region's transportation system.

This memorandum explains differences in the prior Knoxville travel demand model (Base Year 2009 / Horizon Year 2030) and the new model (Base Year 2010 / Horizon Year 2034). The new model projects less traffic on the Pellissippi Parkway Extension than the prior travel demand model. The following paragraphs provide a summary of changes that were made during the update process for the Knoxville model that are connected to the reduction in forecasted traffic for the Pellissippi Parkway Extension.

New Socio Economic Forecasts
The updated model includes new socio economic forecasts for Blount County that have a direct influence on traffic projections in the area roadway network. One of the changes in the socio economic forecasts was directly related to the traffic analysis zone (TAZ) containing the Pellissippi Place Research Park development. In the former model, a large amount of the employment growth for Blount County was concentrated in that TAZ. Recently, other development areas in Blount County have been identified, such as the Alcoa West Plant Redevelopment that necessitated a spreading of the employment growth projections over a wider number of TAZs. Reducing the concentration of new jobs in the Pellissippi Place Research Park resulted in lower traffic volumes on State Route 33 and the Pellissippi Parkway Extension.

In addition to changes in the employment projections for the Pellissippi Place Research Park TAZ, the population and employment projections were lowered in the updated model for all of Blount Count and especially for a subarea that is influenced by the Pellissippi Parkway Extension. The table below shows population and employment projections for the year 2030 in the prior model and the updated new model. Since the new model is for horizon year 2034, a linear interpolation between the new model forecast years of 2024 and 2034 was used to define a year 2030 TAZ layer to compare with the 2030 TAZ layer used in the original model. The table shows the comparison for Blount County as a whole as well as a sub-area that is shown in Figure 1 that will generally be most directly impacted by the Pellissippi Parkway Extension.

Socio-Economic Assumptions for Blount County

	Prior Model	New Model	% Change
2030 Population	171,907	161,959	-5.8%
2030 Employment	81,035	75,593	-6.7%

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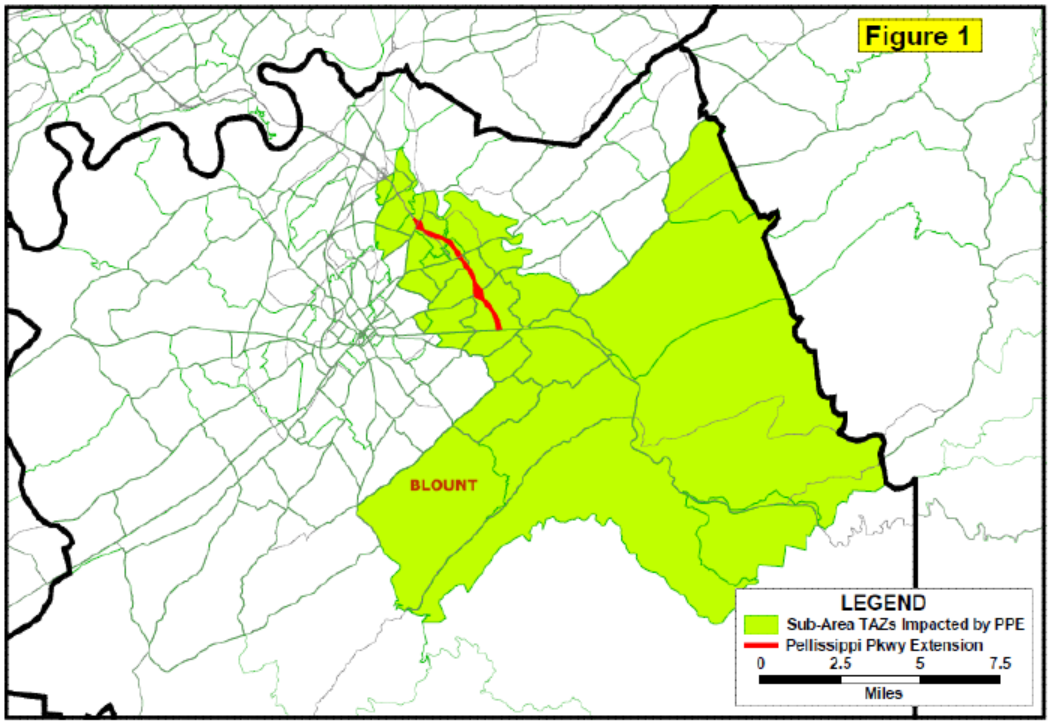
Socio-Economic Assumptions for Pellissippi Parkway Extension Subarea

	Prior Model	New Model	% Change
2030 Population	40,201	31,960	-20.5%
2030 Employment	17,184	11,263	-34.5%

As shown in the above table, the reduction of population and employment at the county level is somewhat modest at less than 10%, but the reduction in the area most impacted by the Pellissippi Parkway Extension is much greater at more than 20% and 30% for population and employment respectively.



The socioeconomic forecasts used in the Knoxville travel demand model are typically updated as part of each major Long Range Transportation plan effort, which is on a 4-year cycle. The prior model's population and employment forecasts were derived from Woods & Poole, a company that does national-level forecasts which can be purchased at a county-level. For the updated model, a consultant working for the Knoxville TPO developed socioeconomic forecasts that were reviewed with individual jurisdictions.

Employment forecasts in the updated model were affected by the economic recession. Job losses in the model's study area resulted in a lowering of baseline year 2010 estimates of employment. Even with little change in the overall growth rate, a lower baseline year as a starting point results in lower horizon year employment forecasts.

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Improved Calibration

The prior travel demand model was not well calibrated on local routes in the vicinity of the Pellissippi Parkway Extension alignment located east of State Route 33. A comparison of 2009 base year outputs with actual ground count data revealed that the model was overloading certain routes. With that model, manual adjustments had to be made in the traffic forecasting effort for Pellissippi Parkway Extension to resolve the calibration issues.

The new travel demand model has much better calibration of local routes as determined by a comparison of 2010 base year volumes with actual ground counts. With this improved calibration, very few manual adjustments were needed in the forecasting effort.

Overall, there have been several major improvements to the overall modeling structure and process since the original Pellissippi Parkway Extension forecasts were made. The number of TAZ's in Blount County has been increased from 117 in the prior model up to 165 in the new model. The additional TAZ detail generally improves the ability to model roadway network changes and additions of new routes in terms of how the network is being loaded.

The new model includes a new "Hybrid" activity/trip based model platform that allows the model to better reflect realistic trip-making. The new platform's disaggregate design and improved destination-choice trip distribution framework eliminates the use of "K-factors" for adjusting distribution of trips as were used in the previous model.

Alignment Shift

In the updated travel demand model, the Pellissippi Parkway Extension was shifted slightly eastward as shown in Figure 2 to better match the most current alignments as documented in the DEIS, dated May 2010. The shift in alignment lengthened the route by approximately 0.2 miles and in turn reduced the volumes from the original alignment by roughly 2,000 vehicles per day. This reduction in volume assignment is likely due to the effects of a longer travel time on the longer route. Also, the adjusted alignment is further away from downtown Maryville which might influence its attractiveness as a route choice.

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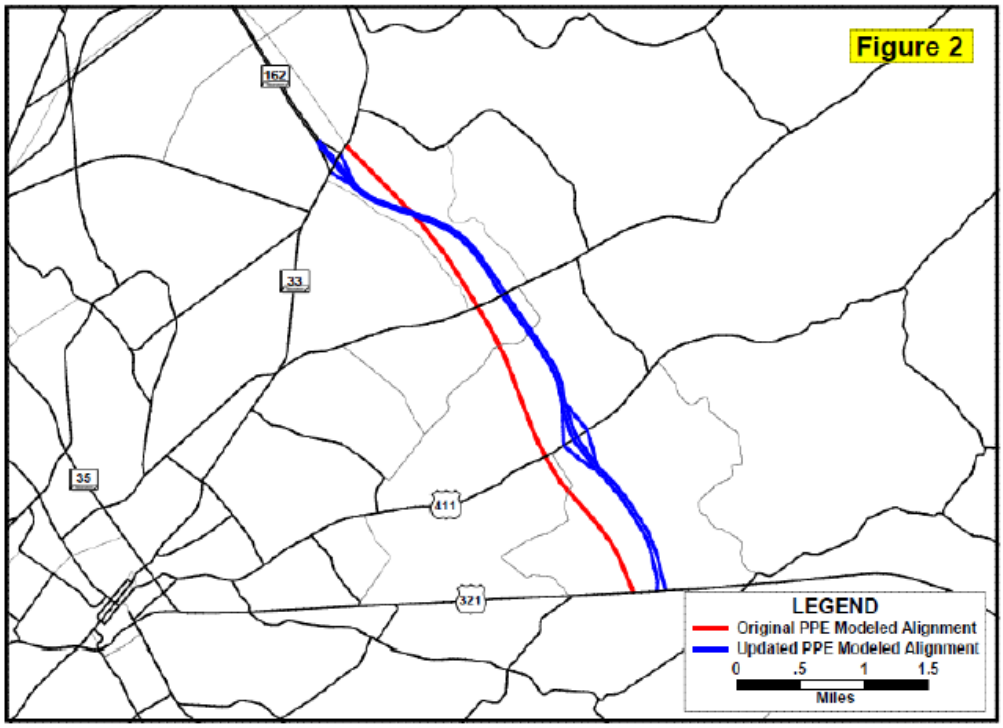

Network Changes

The new model includes a new access road (Pellissippi Place Access Road) for trips associated with the Pellissippi Place Research Park development. The access road, which will ultimately connect the research park to State Route 33 and Wildwood Road, was not included in the prior model. It produces some effect on traffic patterns by dispersing research park traffic between State Route 33 and Wildwood Road. In the prior model, the research park was modeled with access only via State Route 33.

Conclusions

- The Knoxville travel demand model update that was approved in 2013 included significant revisions to the model's structure, network, socio-economic assumptions, and calibration. The changes were enhancements aimed at improving the accuracy of the model's forecasts.
- Combined, the changes in the model have resulted in lower forecasted traffic volumes for the Pellissippi Parkway Extension but those forecasts are based on a sound modeling process that was reviewed and approved by the Knoxville MPO.
- As previously documented, the change in forecasted traffic on the Pellissippi Parkway Extension does not alter the need for the project, the selection of the Preferred Alternative with West Shift, or the conclusion that Alternative D performs poorly and needs no further evaluation.

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4. Blount County Projects in *Regional Mobility Plan 2040*

LRMP #	Project	Location	Description	Horizon Year
Horizon Year 2016-2019				
09-208	Maryville Streetscaping	Various	Streetscaping and "Complete Streets" types of projects throughout Maryville	2019
09-209	Ellejoy Road Reconstruction	River Ford Road to Jefferies Hollow Road	Reconstruct 2-lane section with shoulders	2019
09-211	Morganton Road Reconstruction, Phase I	Foothills Mall Drive to William Blount Drive (SR 335)	Reconstruct 2-lane section with shoulders	2019
09-213	Old Niles Ferry Road Reconstruction	Maryville City Limits (Wills Road) to Calderwood Highway (US 129/SR 115)	Reconstruct 2-lane section with shoulders	2019
09-214	Sevierville Road (US 411/SR 35) Widening and Bridge Replacement	Washington Street (SR 35) to Walnut Street	Widen 2-lanes to 3-lanes with curb and gutters, sidewalks, new bridge over Browns Creek, 2 business relocations and new entrance for Blount Memorial Hospital	2019
09-216	Alcoa Highway (US 129/SR 115) Widening	Pellissippi Parkway (SR 162) to Knox/Blount County Line	Widen 4-lanes to 6-lanes with 2 auxiliary lanes between Singleton Station Road and Topside Road (SR 333)	2019
09-218	Alcoa Highway Parkway (US 129/SR 115) New Road Construction	From south of Airport Road to proposed interchange serving McGhee Tyson Airport	Construct new 8-lane highway	2019
09-221	Burnett Station Road Reconstruction	Sevierville Road (US 411/SR 35) to Chapman Highway (US 441/SR 71)	Reconstruct 2-lane section with shoulders	2019
09-232	Pellissippi Parkway (SR 162)/New Road Construction	Old Knoxville Highway (SR 33) to Lamar Alexander Parkway (US 321/SR 73)	Construct new 4-lane freeway	2019
09-237	E Broadway Avenue (SR 33) /Eagleton Road /Brown School Road intersection improvements	From south of Brown School Road to north of Eagleton Road	Realign Eagleton Road with Brown School Road to remove offset and create 4-leg signalized intersection. Widening to include left-turn lanes at all approaches with curb & gutter and sidewalks	2019
09-257	Alcoa Highway Parkway (US 129/SR 115) New Road Construction	From proposed interchange serving McGhee Tyson Airport to Pellissippi Parkway (SR 162)	Construct new 8-lane highway	2019
09-258	Alcoa Highway Parkway (US 129/SR 115) New Road Construction	From Pellissippi Parkway (SR 162) to existing Alcoa Highway near Singleton Station Road	Construct new 8-lane highway	2019
09-262	Montvale Road (SR 336) Widening	Montvale Station Road to Lamar Alexander Parkway (US 321/SR 73)	Widening from 2-lanes to 3-lanes	2019
13-207	Louisville Road (SR 334) Reconstruction	W Hunt Road to Alcoa city limits (Liberty Street)	Reconstruct 2-lane section with shoulders	2019
13-208	Harvest Lane Extension/New Road Construction	Harvest Lane (cul-de-sac) to Louisville Road	Extend existing 2-lane road to connect to Louisville Road	2019

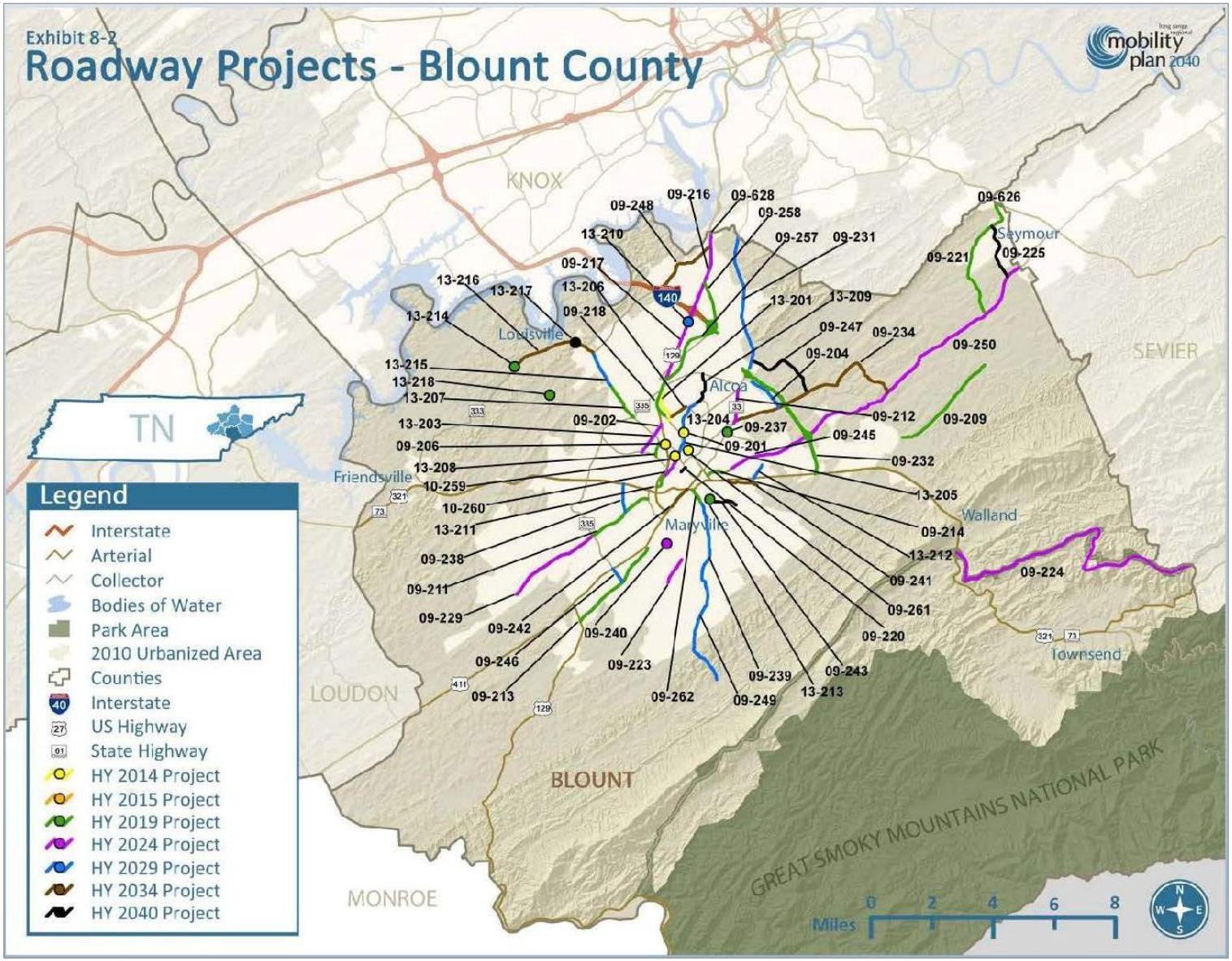
LRMP #	Project	Location	Description	Horizon Year
13-211	Foothills Mall Drive Extension/New Road Construction	US 129 Bypass (SR 115) to Foch Street	Extend Foothills Mall Drive across US 129 Bypass on new alignment to Foch Street modification of existing traffic signal to accommodate 4th leg and additional left and right turn lanes	2019
13-213	Court Street at Boardman Avenue intersection improvements	Intersection at Boardman Avenue	Widen Court Street to accommodate left turn lane onto Boardman Avenue and install signal	2019
13-214	Old Lowes Ferry Road at Louisville Road (SR 333) intersection improvements	Intersection at Old Lowes Ferry Road (SR 333)	Realignment of intersection	2019
13-218	Middlesettlements Road at Miser Station Road intersection	Intersection at Middlesettlements Road	Realignment of intersection	2019
Horizon Year 2020-2024				
09-202	Robert C. Jackson Drive Extension / New Roadway Construction	Middlesettlements Road to Louisville Road (SR 334)	New 4-lane road with center turn lane and/or median	2024
09-212	Old Knoxville Highway (SR 33) Reconstruction	Wildwood Road to McArthur Road	Reconstruct 2-lane section with shoulders	2024
09-217	Alcoa Highway (US 129/SR 115) intersection improvements	Singleton Station Road to Hunt Road (SR 335)	Improve intersections including signals, turn lanes, pedestrian infrastructure upon completion of Alcoa Parkway	2024
09-223	Carpenters Grad Road Reconstruction and Intersection Improvements	Raulston Road to Kirkland Estates Boulevard	Widen 2-lane to 2-2' lanes with curb and gutter, sidewalk, and auxiliary turn lanes where needed. Reconstruct intersection with Peterson Lane, Cochran Road, Raulston Road to roundabout	2024
09-229	Morganton Road Reconstruction, Phase 2	William Blount Drive (SR 335) to Walker Road	Reconstruct 2-lane section with shoulders	2024
09-240	Sandy Springs Road at Montgomery Lane Intersection Improvements	Intersection at Montgomery Lane	Sandy Springs Road: add left turn lane and NB right turn lane. Montgomery Lane: add left turn and right turn approaches. Install new traffic signal.	2024
09-245	Sevierville Road (US 411/SR 35) Widening	Everett High Road to Swanee Drive (Maryville City Limits)	Widen 2 lanes to 3 lanes with curb and gutter, and sidewalks to section recently widened by the City of Maryville	2024
09-250	Sevierville Road (US 411/SR 35) Reconstruction	Swanee Drive (Maryville City Limits) to Chapman Highway (US 441/SR 71)	Reconstruct 2-lane section with shoulders	2024
10-260	McCammon Avenue Extension / New Road Construction	Foch Street to existing McCammon Avenue	Construction of 2-3 lanes of new roadway on new alignment. This roadway would complete a new corridor parallel to the US 129 Bypass and support new commercial development along the City of Maryville's high intensity retail zone.	2024

LRMP #	Project	Location	Description	Horizon Year
13-203	Robert C. Jackson Drive Extension / New Roadway Construction, Phase 2	Louisville Road (SR 334) to US 129 Bypass	Extension of Robert C. Jackson Drive, Phase 1. Construct new 4-lane section and grade-separated interchange connecting US 129 and Associates Boulevard	2024
Horizon Year 2025-2029				
09-204	Pellissippi Place Access Road Extension/New Road Construction	Pellissippi Place existing termini to Wildwood Road	Extend 2-lane and 4-lane road with center median lane	2029
09-231	Old Knoxville Highway (SR 33) Reconstruction and Bridge Replacement	Pellissippi Parkway (SR 162) to Knox County Line (Co Op Road)	Reconstruct 2-lane section with shoulders	2029
09-238	Robert C. Jackson Drive Extension / New Roadway Construction	Lamar Alexander Parkway (US 321/SR 73) to Morganton Road	Construct new 2-lane road	2029
09-239	Montvale Road (SR 336) Widening	Montvale Station Road to Maryville South City Limits (south of Southview Drive)	Add center turn lane	2029
09-246	William Blount Drive (SR 335) Extension /New Construction	US 411 (SR 33) to Old Niles Ferry Road	Construct new 2-lane road with auxiliary turn lanes where needed	2029
09-249	Montvale Road (SR 336) Reconstruction	Maryville South City Limits (Southview Drive) to Six Mile Road	Reconstruct 2-lane section with shoulders	2029
13-304	Bessemer Boulevard Widening, Phase I	Hall Road (SR 35) to N Wright Road	Widen 2-lanes to 4-lanes with raised median	2029
13-205	Bessemer Boulevard Widening, Phase 2	Hamilton Crossing Road/McCammon Avenue to Hall Road (SR 35)	Widen 2-lanes to 4-lanes with raised median or center turn lane	2029
13-210	N Park Boulevard at Airbase Road Intersection Improvements	Intersection at Airbase Road	Realign N Park Boulevard to Airbase Road	2029
13-212	Merritt Road Reconstruction	Lamar Alexander Parkway (US 321/SR 73) to Fielding Road	Widen existing 2-lane to 2-2' lanes with curb and gutter, sidewalk, and auxiliary turn lanes where needed.	2029
13-215	Louisville Road (SR 334) Reconstruction, Phase I	Alcoa city limits (Liberty Street) to Topside Road	Reconstruct 2-lane section with shoulders	2029
Horizon Year 2030-2034				
09-215	I-140 Interchange Ramps at McGhee Tyson Airport	Airport Terminus to Pellissippi Parkway (I-140/SR 162)	Add new interchange ramps for direct access to future terminal and cargo area	2034
09-234	Wildwood Road Reconstruction and Bridge Replacement	Maryville City Limit (Brown School Rd) to Sevierville Road (US 411/SR 35)	Reconstruct 2-lane section with shoulders, reconstruct Wildwood Bridge over the Little River	2034
09-421	Tuckaleechee Pike Reconstruction	Lamar Alexander Parkway (US 321/SR 73) to Grandview Drive	Reconstruct 2-lane to 2-2' lanes with curb and gutter, sidewalk, and auxiliary turn lanes where needed.	2034
09-242	W Broadway Avenue (US 411/SR 33) Widening	Old Niles Ferry Road to Lamar Alexander Parkway (US 321/SR 73)	Widen 2 lanes to 3 lanes with curb and gutter, auxiliary turn lanes where needed, modify signal at Magnolia Avenue	2034

LRMP #	Project	Location	Description	Horizon Year
09-248	Topside Road (SR 333) Widening	Alcoa Highway (US 129/SR 115) to Wrights Ferry Road	Reconstruct 2 lanes to 5 lanes	2034
13-206	Associates Boulevard Extension/New Road	Associates LIC Project to Springbrook Road	4-lane section with median	2034
13-216	Louisville Road (SR 334) Reconstruction, Phase 2	Topside Road (SR 333) to Lowes Ferry Road	Reconstruct 2-lane section with shoulders	2034
Horizon Year 2035-2040				
09-220	Home Avenue Extension/New Road Construction	McCammon Avenue to Calderwood Street	Extend 3-lane Home Avenue through existing shopping center to line up with Lindsay Street at Calderwood Street. Replace bridge crossing at Pistol Creek	2040
09-225	Hinkle Road Reconstruction	Sevierville Road (US 411/SR 35) to Burnet Station Road	Reconstruct 2-lane section with shoulders	2040
09-243	Wilkinson Pike Widening	Court Street to Maryville city limits (Old Whites Mill Road)	Widen 2-lane to 3-lane with curb and gutter, auxiliary turn lanes where needed	2040
09-247	Sam Houston School Road Widening	Old Knoxville Highway (SR 33) to Wildwood Road	Add center turn lane, bike lane, and shoulder	2040
13-209	Bessemer Boulevard Widening, Phase 3	N Wright Road to E Hunt Road (SR 335)	Widen 2-lanes to 4-lanes with raised median or center turn lane (0.22 mi). Extension with raised median or center turn lane (0.87 mi)	2040
13-217	Louisville Road (SR 333) Lackey Creek Bridge	Lackey Creek Bridge	Reconstruction of	

Source: Regional Mobility Plan 2040

Exhibit 8-2 – Roadway Projects, Blount County



Source: Regional Mobility Plan 2040

5. Update to 2009 Travel Trends Evaluation between Blount and Knox County Update, February 25, 2015

Parsons Brinckerhoff

Project Memorandum

TO: Project File

FROM: Lindsay Walker, PE, PTOE, AICP

DATE: February 25, 2015

SUBJECT: Pellissippi Parkway Extension: Update to 2009 Travel Trends Evaluation between Blount and Knox County Update

Purpose of Updated Evaluation

For the Draft Environmental Impact Statement (DEIS), in 2009 Parsons Brinckerhoff prepared an evaluation of the travel trends between the Maryville/Alcoa area and Knoxville/Oak Ridge, Tennessee. Of particular interest was whether there were substantial travel volumes between eastern Blount County to Knox County that would demonstrate a user base for the extension of Pellissippi Parkway. The results were reported in a memorandum dated May 14, 2009. Based on the age of the data used in the 2009 evaluation and the recently updated Knoxville Regional Travel Demand Model (TDM) (2013), an update to the travel trend analysis has been conducted and the results will be reported in the Final Environmental Impact Statement (FEIS).

Background

The 2009 analysis used a license plate survey conducted in 2006 to assist in the calibration of the original traffic forecast for this study. The results of the 2006 license plate survey indicated that of the traffic originating in eastern Blount County, approximately 4 to 6 percent used US 129 / SR 115 and approximately 2 percent used SR 33 to reach Knox County.

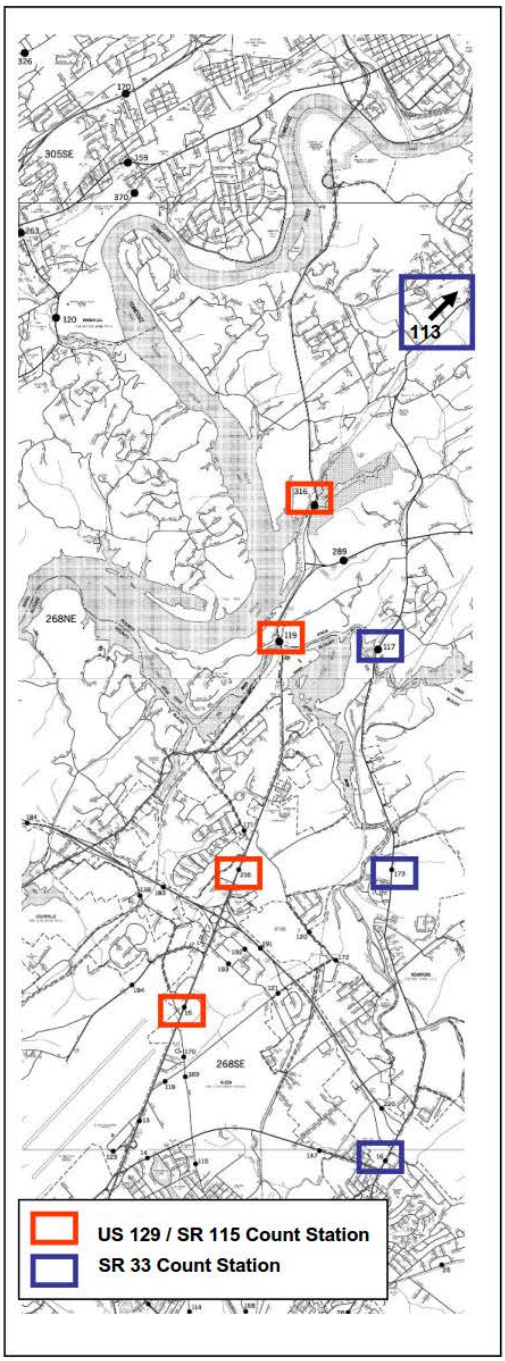
To determine the actual traffic volumes on roadways connecting the Maryville / Alcoa and the Knoxville area, a review was conducted historic traffic counts for the period 1998 to 2008. Traffic counts were obtained through the Tennessee Department of Transportation (TDOT) Project Planning Division.

Since US 129 / SR 115 and SR 33 are the major north / south routes that connect these two areas, the evaluation focused on these two routes. Traffic volumes were obtained for four count stations along US 129 / SR 115 and SR 33:

- Just south of the intersection of both roadways with Pellissippi Parkway
- Between Pellissippi Parkway and the Blount / Knox County Line
- Just north of the Blount / Knox County Line
- Closer to the Knoxville area

Figure 1 shows the specific count station locations.

Figure 1: Count Station Locations



Current Analysis

The current update adds the most recent years available (2009 – 2012) for the traffic count review. Counts for the years 1998 through 2012 were plotted by year and count station to determine the relative changes in traffic volume traveling between Maryville / Alcoa and Knoxville as well as the average volume of traffic. **Figures 2** and **3** illustrate the data for US 129 / SR 115 and SR 33 respectively.

As shown in Figures 2 and 3, there has generally been little fluctuation year-to-year for traffic volumes at each count station (i.e. no major increases or decreases). The overall range of traffic volumes based on the most recent count (2012) for US 129 / SR 115 is 41,100 to 58,900 ADT. In general, volumes level off to around 50,000 vehicles per day between Maryville / Alcoa and the Knoxville region. The peak volume years appear to be 2004 to 2006, with slightly lower volumes in the more recent years.

Along SR 33, the overall range of traffic volumes based on the most recent count (2012) is 5,400 to 15,400 ADT. The station between Pellissippi Parkway (I-140) and Hunt Road (SR 335) reports the highest volume along this route of the stations evaluated. Volumes have generally been increasing at this station while the other stations have seen some volume reductions between 2005 and 2011.

Select Link Analysis

Another method to analyze the extent of travel between the eastern portion of Blount County and Knox County / Oak Ridge is to use the Knoxville Regional TDM developed by the Knoxville Regional Transportation Planning Organization (Knoxville Regional TPO). Information derived from the TDM provides a relative reference range of travel patterns but does not replace data that would be obtained for a true origin - destination study.

The latest version of the Knoxville Regional TDM has a base year of 2010 and future years of 2034 and 2040. As the latest update to the traffic operations in the FEIS is based on the future year of 2040, that is the analysis year considered for the model output for this analysis as well. To provide travel patterns, the Knoxville Regional TPO was asked to conduct a select link analysis that considered specific links along the routes in consideration (US 129 / SR 115 and SR 33). A select link analysis shows where the traffic is coming from and where it is going to along a specific roadway link.

Select link analyses were conducted along SR 33 and US 129 / SR 115 for the 2040 existing plus committed projects network. This includes projects in the Long Range *Regional Mobility Plan 2040* minus the Pellissippi Parkway Extension. Based on the output of the new travel demand model, the following interpretations are made relative to identifying the origins and destinations of the trips (or users) that use the current road network:

- Approximately 5 percent of trips have an origin / destination between Knox County and Wildwood Road via SR 33.
- Approximately 4 percent of trips have an origin / destination between Knox County and US 411 via SR 33.

Figure 2: US 129 / SR 115 Traffic Volume Count Comparisons (1998 – 2012)

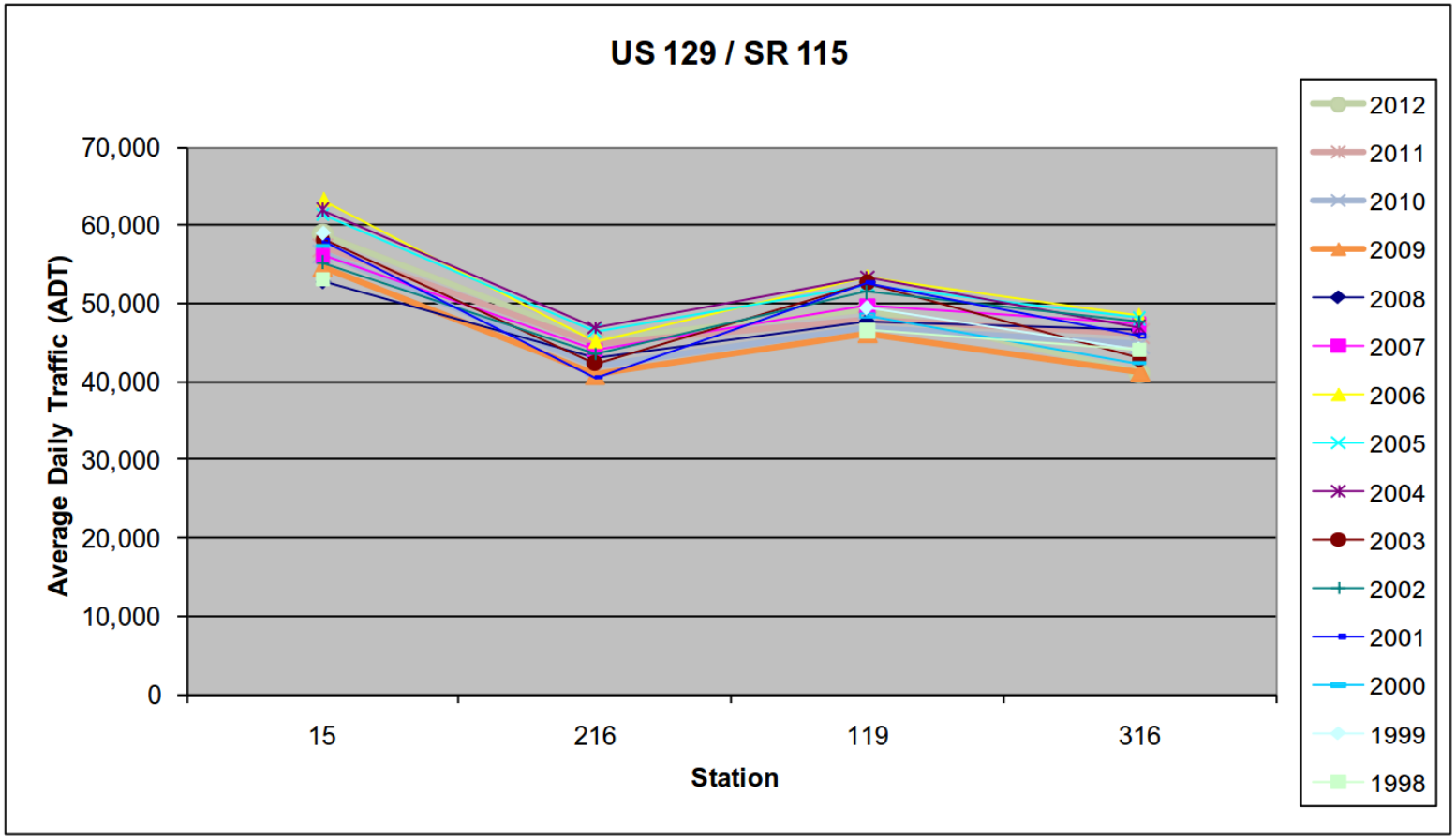
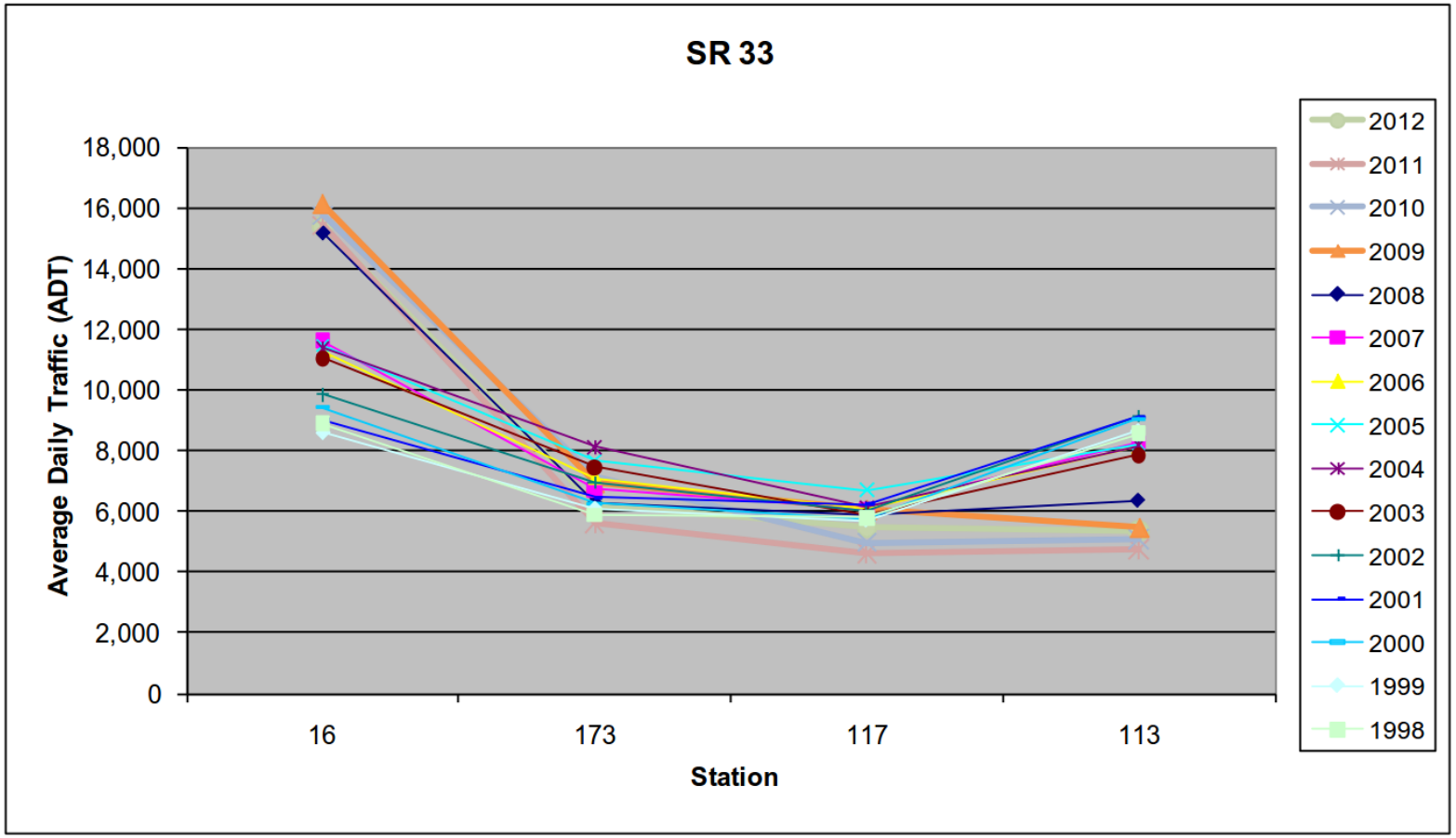


Figure 3: SR 33 Traffic Volume Count Comparisons (1998 – 2012)



- Approximately 3 percent of trips have an origin / destination between Knox County and US 321 via SR 33.
- Very little traffic (less than 1 percent) utilizes US 129 / SR 115 to travel between Knox County and areas east of Maryville and Alcoa.

These percentages are shown in **Table 1** below.

Table 1: Select Link Analysis

	US 129 / SR 115		SR 33	
	Total ADT	%	Total ADT	%
Select Link	82,769	--	10,955	--
Wildwood	163	0.3%	276	4.7%
US 411	271	0.6%	213	3.6%
US 321	395	0.8%	176	3.0%

Summary

The actual traffic count volumes indicate a substantial amount of traffic traveling between Maryville / Alcoa and the Knoxville region on US 129 / SR 115 (58,900 ADT in 2012) and SR 33 (15,400 ADT in 2012) which is the base of traffic volume that could be served be a new roadway to the east. The previous license plate survey indicated that approximately up to 6 percent of the traffic on US 129 / SR 115 comes from the east; therefore applying this percentage to the average daily traffic on US 129 / SR 115 (approximately 50,000 vehicles per day) would indicate that 3,000 vehicles may travel from the east to the Knoxville region. With up to 2 percent traveling from the east to SR 33, this would translate into 120 vehicles for a total of just over 3,000 vehicles per day.

The select link analysis notes very little traffic flow along US 129 / SR 115 to areas east of Maryville and Alcoa. There is slightly more demand from Knox County to Wildwood Road, US 411, and US 321.

As a final note as provided in the previous memorandum, this evaluation should be taken as approximate since a formal origin – destination study was not conducted to evaluate this travel pattern; rather the information was determined by approximation through available sources.

Attachment B

Blount County Residential Development Trends

Blount County Residential Development Trends 1950-2009

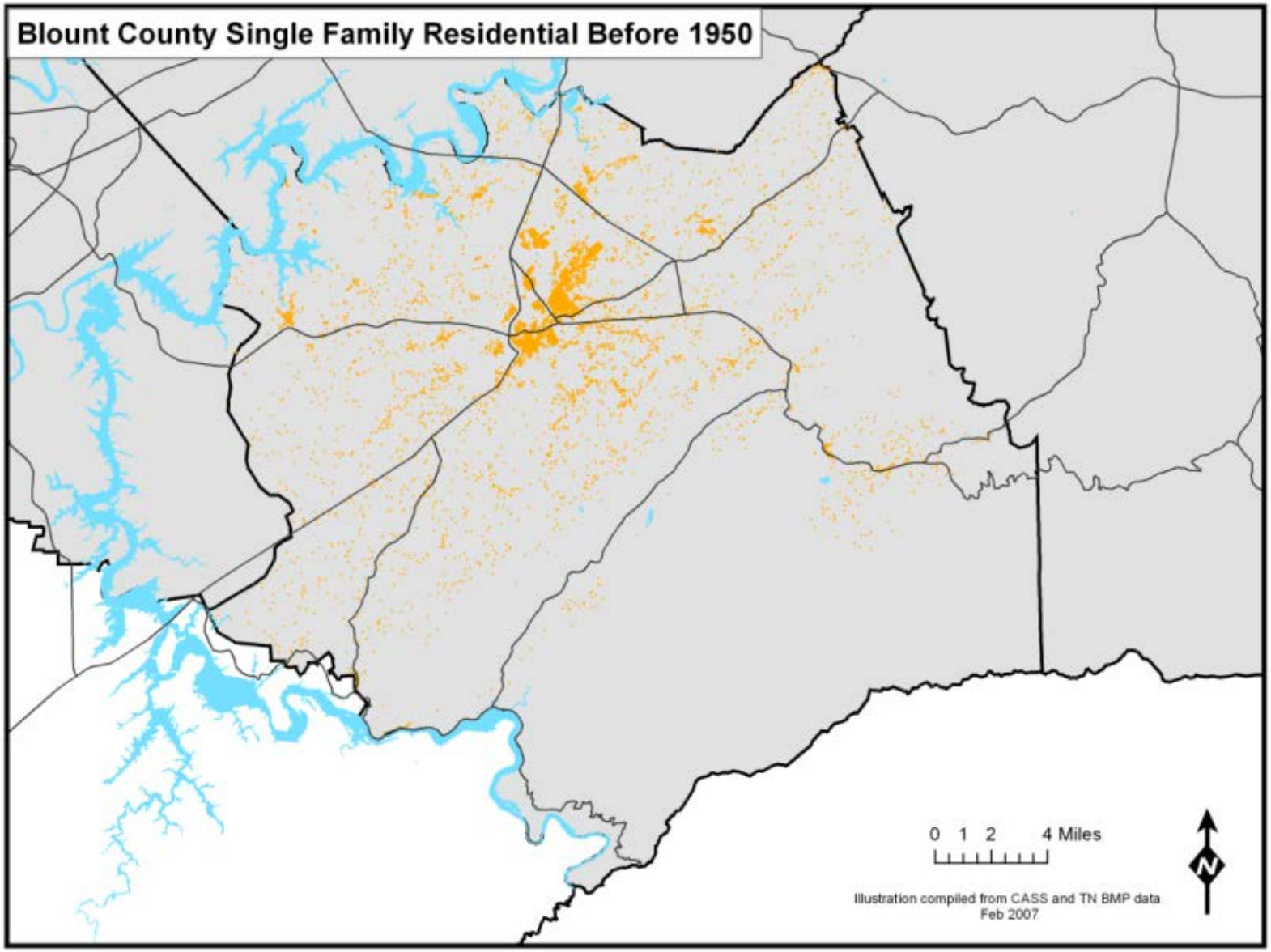
Blount County's Planning Department has tracked residential development in the County since the 1950's. The Planning Department has prepared graphical representations of the residential development between 1950 and 2009, which are provided in Figures B-1 through B-8. This series of maps captures about 85 percent of current housing units (multiple units in a structure and mobile home parks were not included – older housing units from the past could have been destroyed and thus not of current record). The maps portray first the pattern of residential structures at the end of 1949, and progress by highlighting additional residential structures by decade in red from 1950 to 2009. The dots for each residential structure are exaggerated to highlight pattern.

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 60 years:

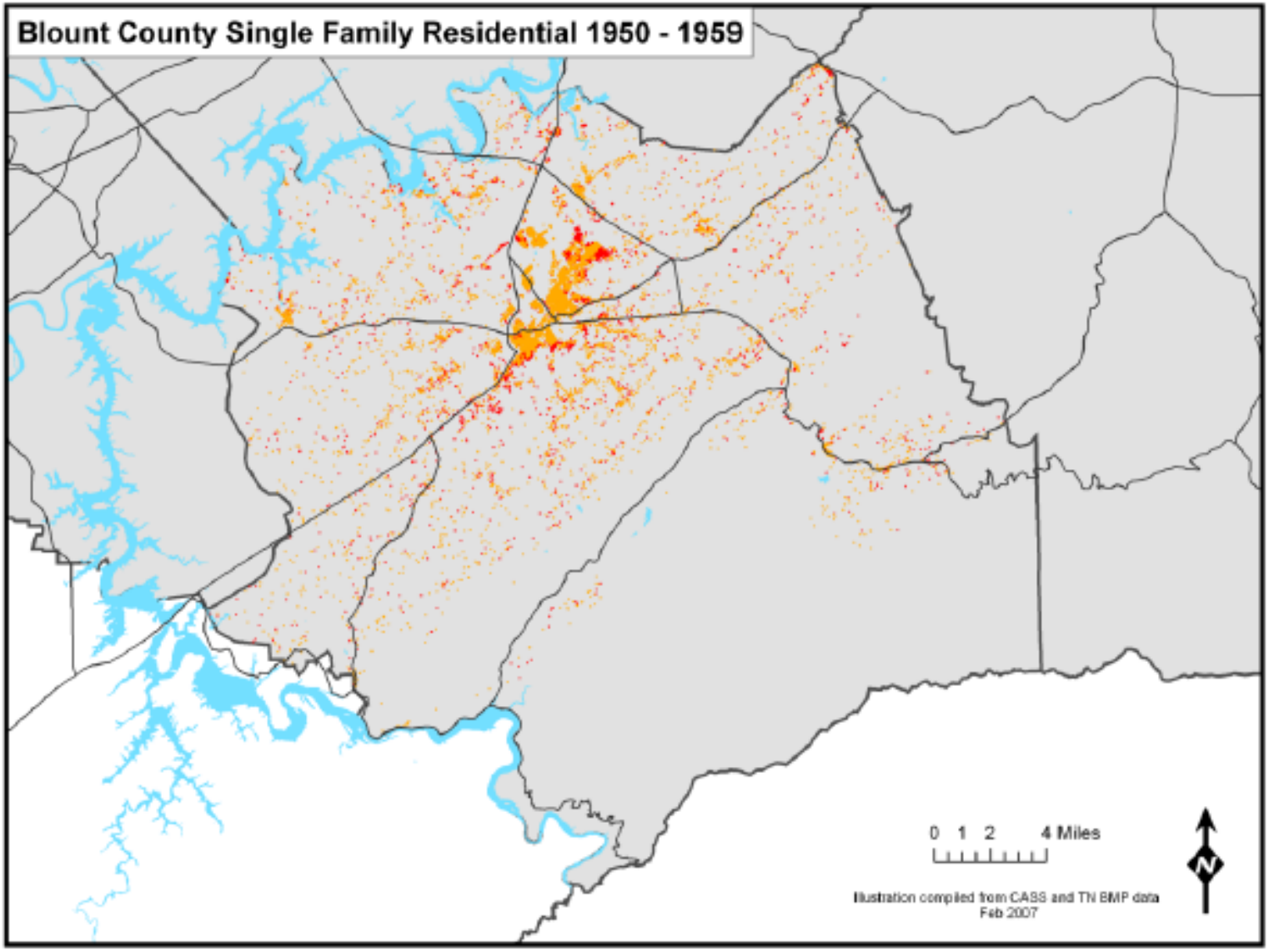
- Prior to 1950 (Figure B-1) - Before 1950, the pattern of residential structures was concentrated in the cities of Alcoa and Maryville, and such pattern was characterized by grid street layout, small lots and higher density. Scattered and low density development was present in the rural areas, much of it related to agriculture
- 1950s (Figure B-2)—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.
- 1960s (Figure B-3)—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.
- 1970s (Figure B-4)—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.
- 1980s (Figure B-5)—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.
- 1990s (Figure B-6)—Residential growth continues east along Sevierville Road and south along US 411.
- 2000 to 2005 (Figure B-7)—Residential growth continues to extend along major corridors.
- By end of 2009 (Figure B-8)—The area between SR 33 and US 321/SR 73 east of downtown Maryville continues to infill and extend eastward.

Figure B-1: Single-Family Residential Structures Built Before 1950



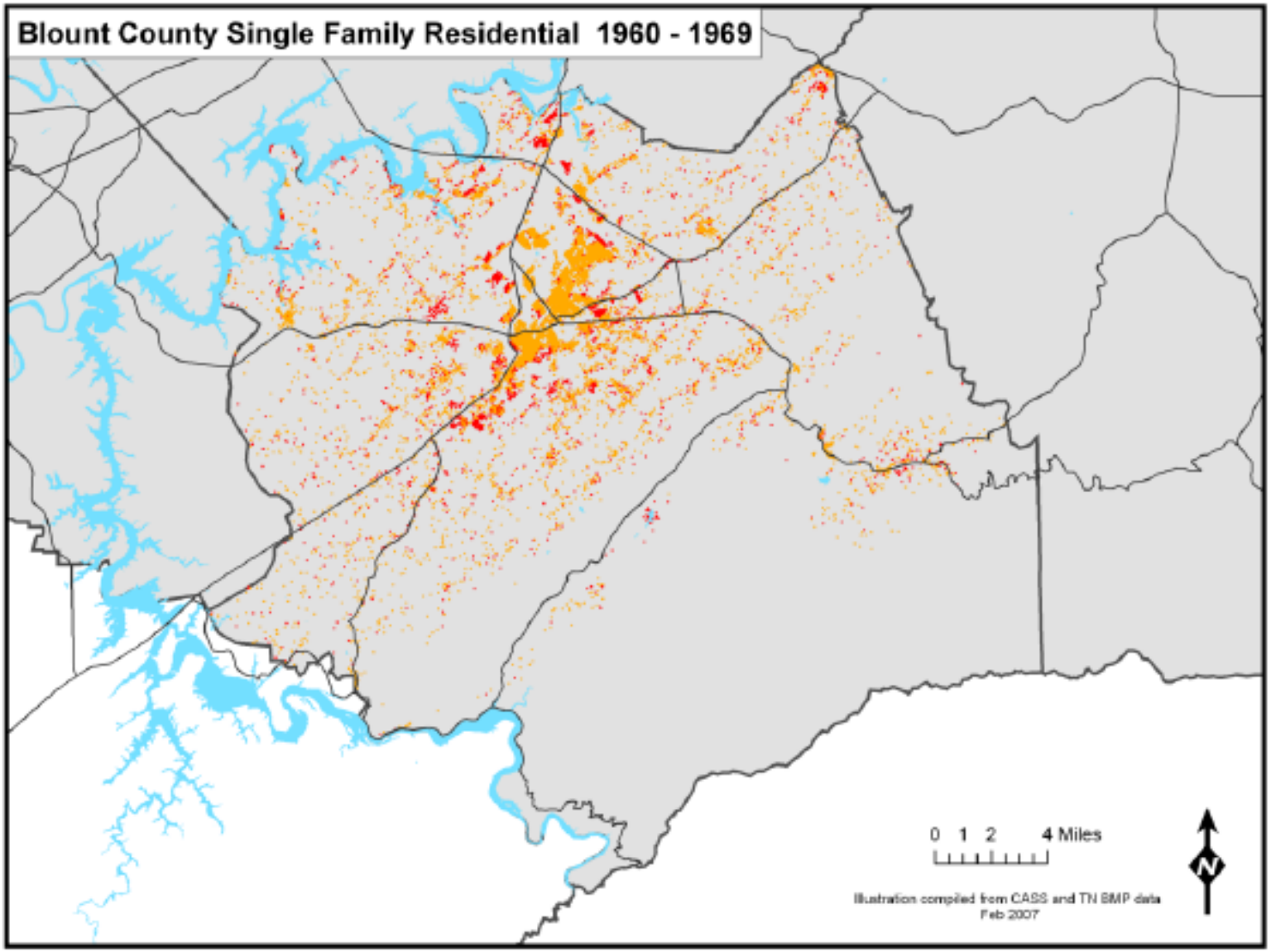
Note: Orange dots represent homes that already existed prior to 1950.

Figure B-2: Single-Family Residential Structures Added in 1950s



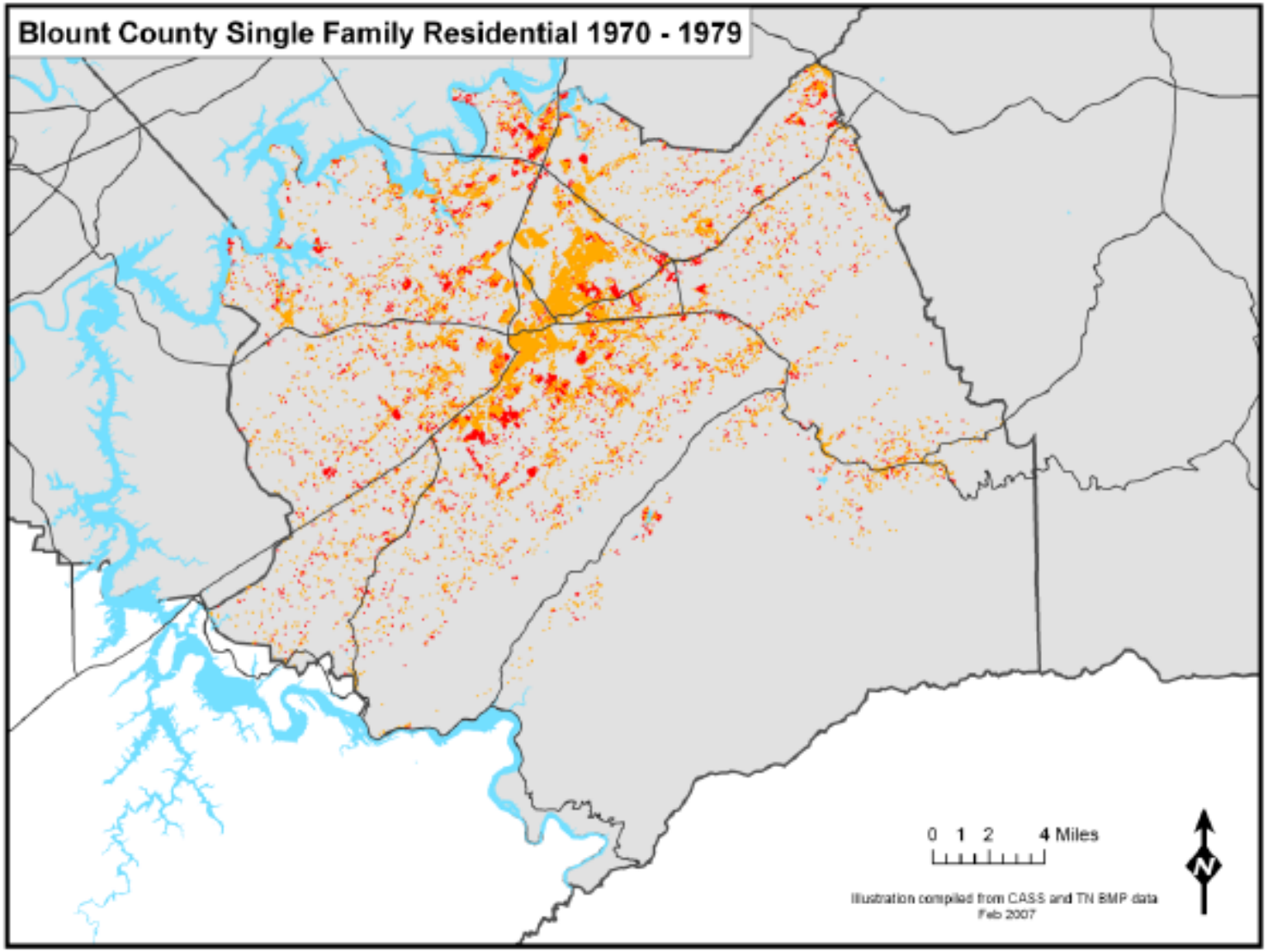
Note: Orange dots represent homes that already existed, while the red dots represent new residential structures that were constructed during the decade.

Figure B-3: Single-Family Residential Structures Added in 1960s



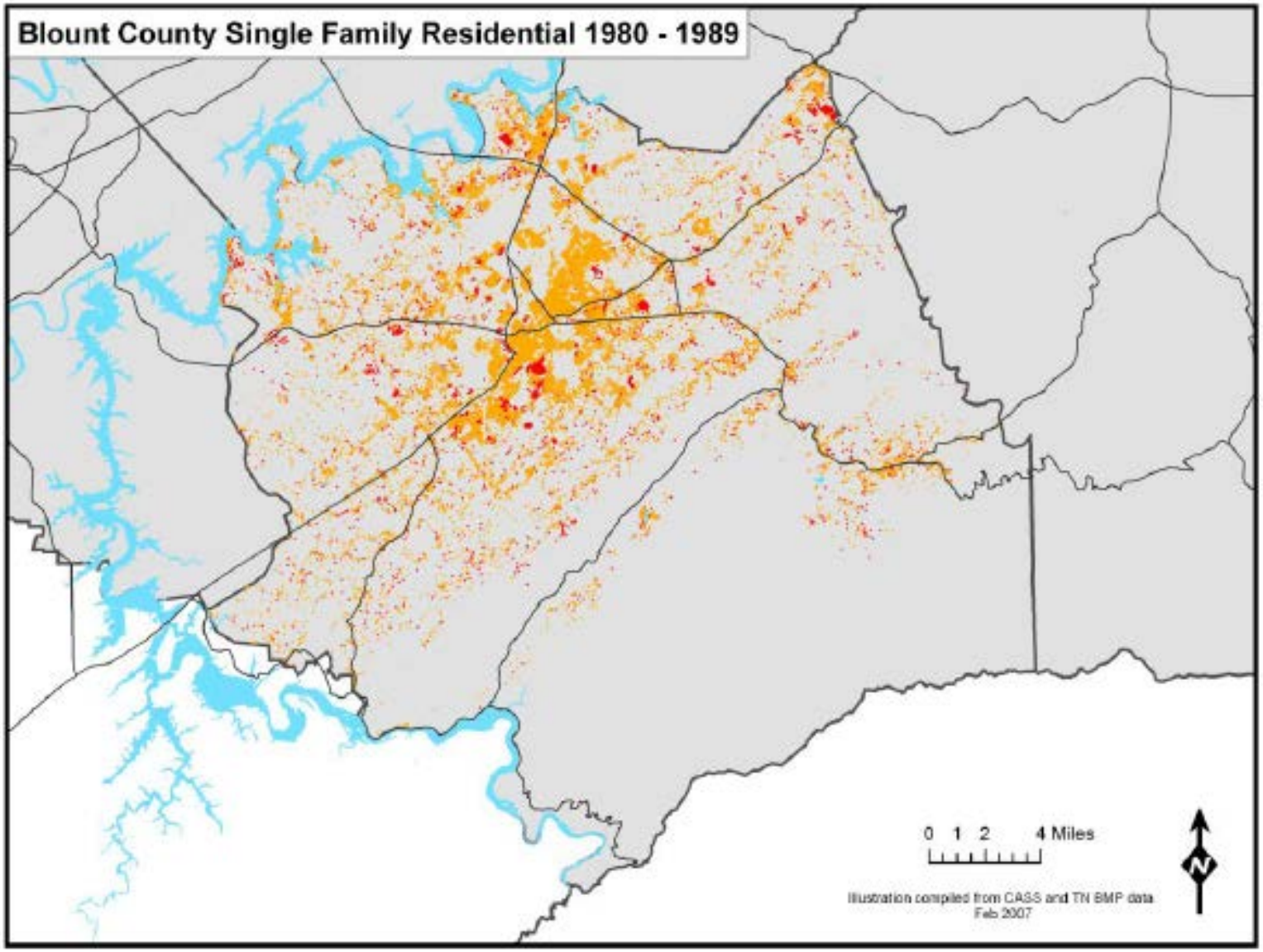
Note: Orange dots represent homes that already existed, while the red dots represent new residential structures that were constructed during the decade.

Figure B-4: Single-Family Residential Structures Added in 1970s



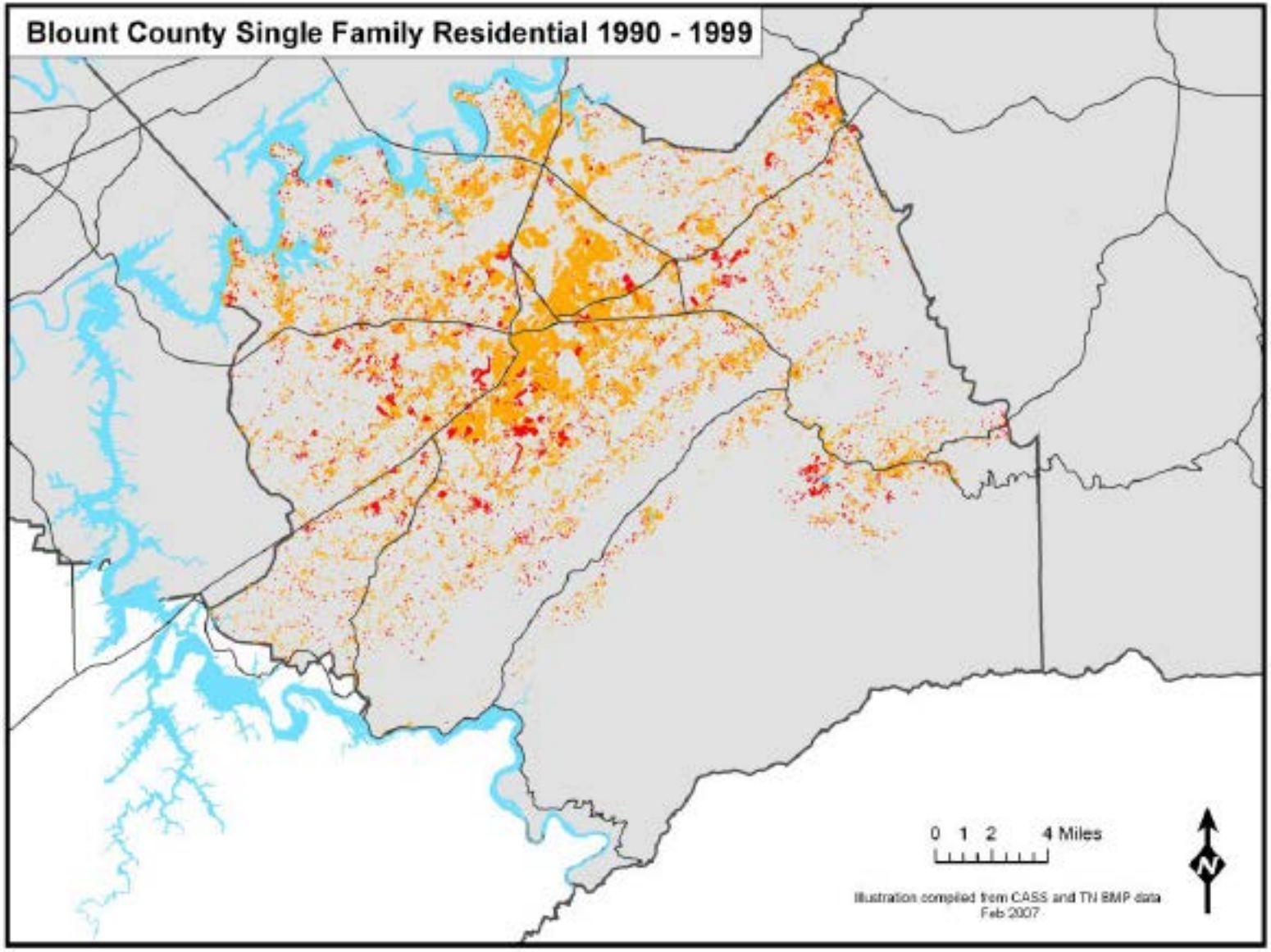
Note: Orange dots represent homes that already existed, while the red dots represent new residential structures that were constructed during the decade.

Figure B-5: Single-Family Residential Structures Added in 1980s



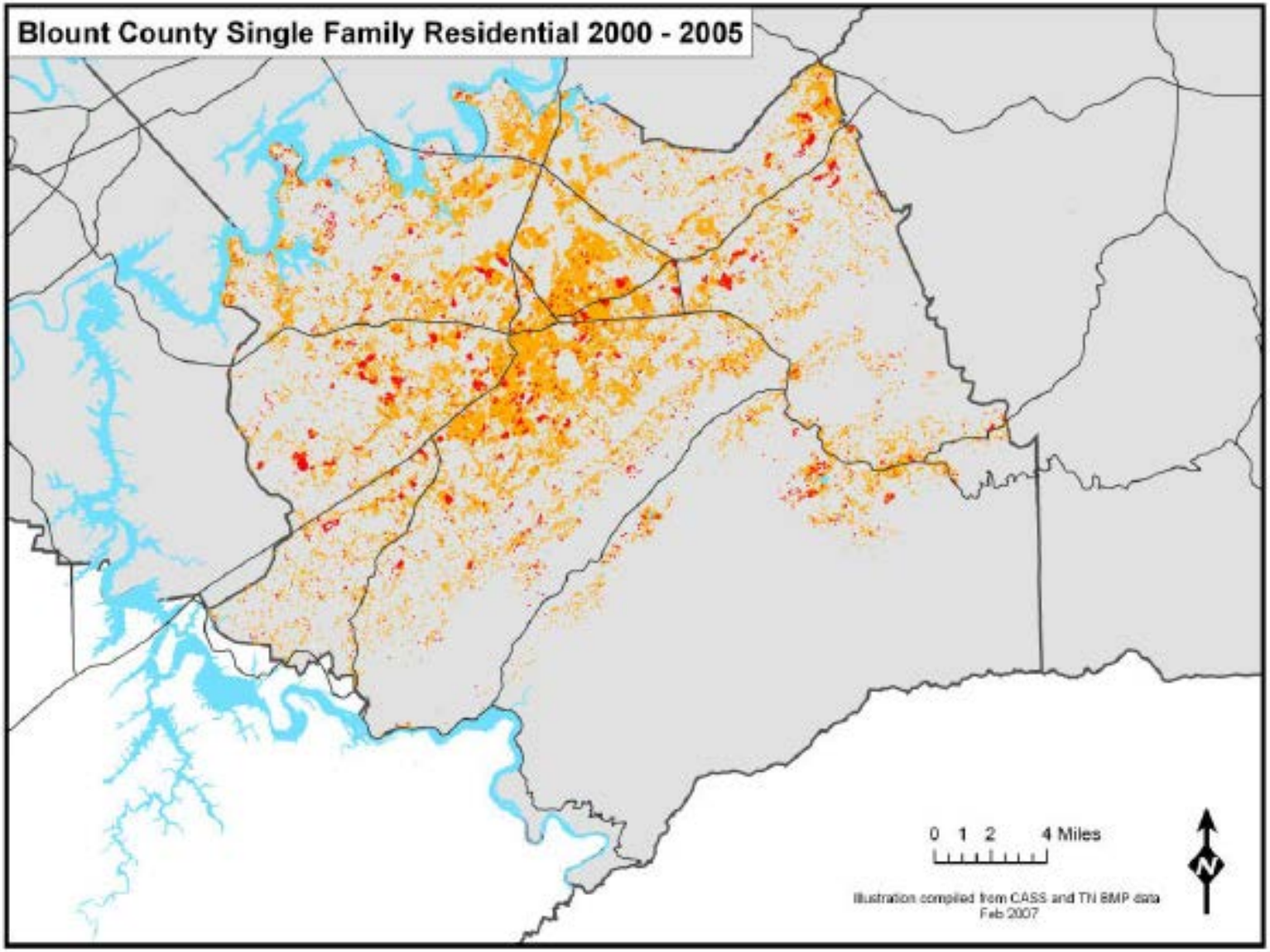
Note: Orange dots represent homes that already existed, while the red dots represent new residential structures that were constructed during the decade.

Figure B-6: Single-Family Residential Structures Added in 1990s



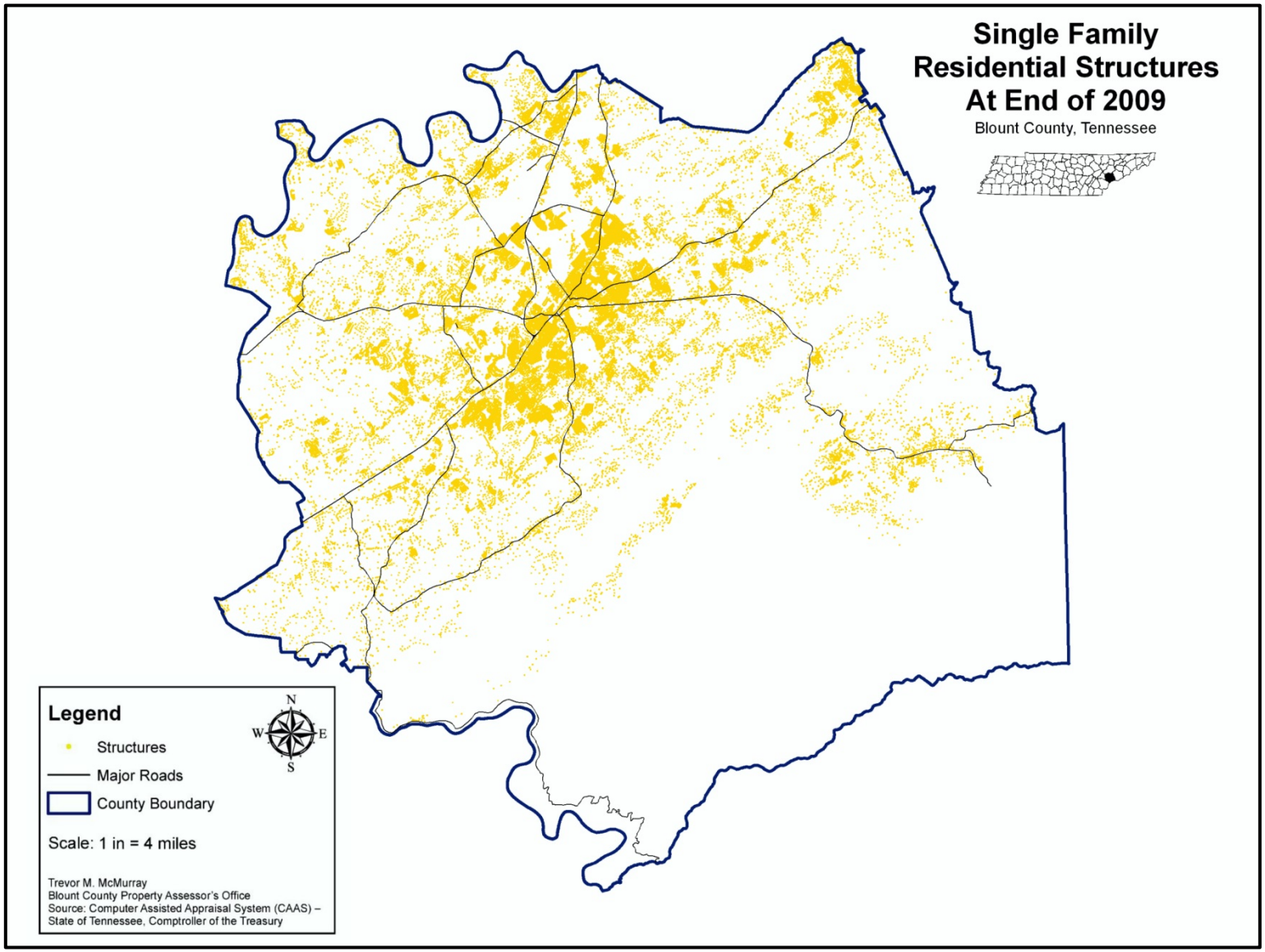
Note: Orange dots represent homes that already existed, while the red dots represent new residential structures that were constructed during the decade.

Figure B-7: Single-Family Residential Structures Added Between 2000 and 2005



Note: Orange dots represent homes that already existed, while the red dots represent new residential structures that were constructed during the decade.

Figure B-8: Blount County Single-Family Residential Structures at the end of 2009



Note: Yellow dots show the concentrations of residential development in Blount County.

Attachment C

Agency Coordination Since DEIS

Attachment C-1—Agency Comments on DEIS

Attachment C-2—Other Agency Correspondence Since the DEIS

Attachment C-3—Interagency Coordination

Attachment C-1

Agency Comments on the DEIS

Agency Comments on DEIS

Summary of Agency Comments on DEIS and TDOT/FHWA Responses

United States Department of the Interior

FISH AND WILDLIFE SERVICE
446 Neal Street
Cookeville, TN 38501

July 30, 2010

Mr. Tom Love
Tennessee Department of Transportation
Environmental Planning and Permits Division
Suite 900, James K. Polk Building
505 Deaderick Street
Nashville, Tennessee 37243-0334

Subject: Request for comments on the Draft Environmental Impact Statement for the Pellissippi Parkway Extension from State Route 33 to State Route 73 in Blount County, Tennessee.

Dear Mr. Love:

The Tennessee Department of Transportation (TDOT) has prepared a *Draft Environmental Impact Statement* (DEIS) for the extension of Pellissippi Parkway from State Route 33 to State Route 73 in Blount County, Tennessee. The DEIS was developed by TDOT to document the impacts of the subject project in accordance with the National Environmental Policy Act and the Tennessee Environmental Streamlining Agreement (TESA). In accordance with TESA, TDOT has requested that the U.S. Fish and Wildlife Service review this document and provide any additional comments.

In previous concurrence points, our office mentioned four federally listed species that occur within the study area and may be impacted by this project. These species include the Indiana bat (*Myotis sodalis*), snail darter (*Percina tanasi*), duskytail darter (*Etheostoma percnurum*), and fine-rayed pigtoe (*Fusconaia cuneolus*). In sections 3.14.3.2 and 3.14.3.3 of the *Draft Environmental Impact Statement*, TDOT addressed the potential for harm to these species and provided measures to avoid impacting them. Tree removal would be limited to the time period of October 15 to March 31 to avoid active Indiana bat roost and maternal trees. In addition, stringent best management practices, including erosion and siltation control measures, would be implemented during construction to minimize potential for harm to aquatic species.

Upon review of this document, we believe that impacts to the snail darter, duskytail darter, and fine-rayed pigtoe have been adequately addressed. Therefore, based on the best information available at this time, we believe that the requirements of section 7 of the Endangered Species Act of 1973, as amended, are fulfilled for these species. 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.

The potential to adversely affect the Indiana bat (*Myotis sodalis*) was addressed in the DEIS by proposing to restrict tree clearing to the period of October 15 through March 31. In a letter to TDOT dated December 1, 2009, we concurred with your determination of "not likely to adversely affect" for the Indiana bat. However, our office no longer believes that a timeframe restriction on tree cutting properly addresses indirect and cumulative impacts to the Indiana bat. Therefore, our concurrence is no longer in effect and further coordination with our office would be required under Section 7 of the Endangered Species Act, as amended, prior to removal of trees for this project.

If you have any questions regarding our comments, please contact John Griffith of my staff at 931/528-6481 (ext. 228) or by email at john_griffith@fws.gov.

Sincerely,

Mary E. Jennings
Field Supervisor

DEPARTMENT OF THE ARMY
NASHVILLE DISTRICT, CORPS OF ENGINEERS
3701 Bell Road
NASHVILLE, TENNESSEE 37214

July 8, 2010

RECEIVED
JUL 21 2010
TDOT Environmental Division
Permits Section

REPLY TO
ATTENTION OF:

Regulatory Branch

SUBJECT: File No. 990003730; Proposed Pellissippi Parkway Extension (SR-162) from SR-33 (Old Knoxville Highway) to SR-73 (US-321/Lamar Alexander Parkway), in Blount County, TN [TDOT PIN #101423.00, Project #05097-1226-04]

Mr. Tom Love
Tennessee Department of Transportation
Environmental Planning and Permits Division
Suite 900 – James K. Polk Building
505 Deaderick Sreet
Nashville, Tennessee 37243-0334

Dear Mr. Love:

This is in response to your request for Corps of Engineers comments on the Draft Environmental Impact Statement (DEIS) prepared for the Pellissippi Parkway (SR-162) Extension project in Blount County, Tennessee. The DEIS was approved by the Federal Highway Administration (FHWA) on April 14, 2010. Please refer to File No. 990003730 in any future correspondence to this office concerning the subject project.

The DEIS evaluated four alternatives to the proposed project. These are no-build alternative, Alignment A, Alignment C, and Alignment D. The three alignment alternatives would impact jurisdictional waters of the United States; thus, a Department of the Army (DA) permit would be required for any discharge of fill material into jurisdictional waters, including wetlands, pursuant to Section 404 of the Clean Water Act (CWA).

Our review of the DEIS reveals that the document covers all areas of interest and/or programs administered by our agency. However, if possible, please incorporate any stream and/or wetland environmental commitments discussed in the DEIS in the Summary section (on Page S-7). Also, this could include any stream and/or wetland mitigation commitments.

Typically, the Corps of Engineers usually recommends practicable alternatives based on the alignment that would impact and/or minimize the amount of impacts on aquatic resources.

Your letter indicated that a Public Hearing would be held for public comments to the DEIS on July 20, 2010. The Corps of Engineers plans to attend this public hearing. If additional comments are revealed during the public hearing process, the Corps of Engineers would provide

an additional letter addressing these concerns at that time.

In addition, since DA permits would be required for the proposed work, you should submit applications, plans of the work, locations of the crossings, stream and wetland impacts, proposed mitigation, and any additional supporting environmental documentation in a timely manner to obtain the necessary permits for the work.

I am available to participate in any onsite inspections of the construction corridor in an effort to identify waters of the United States that would be subject to Corps regulatory authority. We are also available to attend preapplication meetings to discuss aquatic resource impact avoidance and minimization.

Thank you for coordinating the DEIS with this office for our comments. If we can be of further assistance or if you have any questions regarding DA permit requirements, please contact me at the above address, telephone number 615-369-7509, or email at amy.m.robinson@usace.army.mil.

Sincerely,

Amy M. Robinson
Project Manager
Operations Division

TENNESSEE WILDLIFE RESOURCES AGENCY

ELLINGTON AGRICULTURAL CENTER
P. O. BOX 40747
NASHVILLE, TENNESSEE 37204

August 9, 2010

Tom Love
State of Tennessee
Department of Transportation
Environmental Division
Suite 900, James K. Polk Building
505 Deaderick Street
Nashville, TN 37243-0334

Re: Request for Comments, 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

Dear Mr. Love:

The Tennessee Wildlife Resource Agency (TWRA) has received and reviewed the information your office provided to us regarding the proposed project listed above. We understand that the U.S. Fish and Wildlife Service no longer believes that a timeframe restriction on tree cutting properly addresses indirect and cumulative impacts to the state and federally endangered Indiana bat (*Myotis sodalist*). We suggest further coordination with the U.S. Fish and Wildlife Service and our agency on methods to further minimize impacts to the Indiana bat due to this proposed project. We look forward to working with the Tennessee Department of Transportation to further avoid, minimize, and mitigate for potential impacts to streams, wetlands, and floodplains once a preferred alternative is selected.

We thank you for the opportunity to participate during the coordination process for this proposed project.

Sincerely,

Robert M. Todd

Robert M. Todd
Fish and Wildlife Environmentalist

cc: Rob Lindbom, Region IV Habitat Biologist
John Gregory, Region IV Manager
Vincent Pontello, East Tennessee Transportation Biologist

The State of Tennessee

IS AN EQUAL OPPORTUNITY, EQUAL ACCESS, AFFIRMATIVE ACTION EMPLOYER

TDE (Eductation) no comment on DEIS.txt
From: Tom Love [Tom.Love@tn.gov]
Sent: Thursday, July 15, 2010 9:19 AM
To: Skinner, Nancy T.
Subject: Fwd: Environmental Impact Statement Project

fyi
>>> Edward Beyman 7/15/2010 7:35 AM >>>
Mr. Love,

The Department of Education does not intend to submit comments, on the Draft Environmental Impact Statement Project pertaining to Pellissippi Parkway Extension (SR162) from SR33 to US321/SR73/Lamar Alexander Parkway, Blount County TN.

Regards,
Edward Beyman
Office of Operations
Department of Education
710 James Robertson PKWY
6th Floor
Nashville TN 37243
(615) 253-4647

Page 1

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 4
ATLANTA FEDERAL CENTER
61 FORSYTH STREET
ATLANTA, GEORGIA 30303-8960

RECEIVED
JUN 22 2010
Environmental Division

June 17, 2010

Ms. Suzanne B. Herron, P.E., CPESC
Director
Environmental Division
Tennessee Department of Transportation
505 Deaderick Street, Suite 900
Nashville, TN 37243

SUBJECT: Pellissippi Parkway Extension (SR162), from SR 33 (Old Knoxville Highway to US 321/SR73/Lamar Alexander Parkway, Blount County, Tennessee

Ms. Herron:

The U.S. Environmental Protection Agency (EPA) has reviewed the referenced Draft Environmental Impact Statement (DEIS) in accordance with its responsibilities under Section 309 of the Clean Air Act and Section 102(2) (C) of the National Environmental Policy Act (NEPA). The U.S. Department of Transportation (USDOT), Federal Highway Administration (FHWA) and Tennessee Department of Transportation (TDOT) proposes to extend and construct the Pellissippi Parkway (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. The new parkway would extend the existing eastern terminus to Lamar Alexander Parkway 4.38 miles to 5.77 miles (depending on the selected alternative).

The current action was evaluated as an Environmental Assessment (EA) in January 1999. The FHWA approved the EA in October 2001 and signed the Finding of No Significant Impact (FONSI) in April 2002. In June 2002, the Citizens Against the Pellissippi Parkway Extension (CAPPE) filed suit against USDOT, FHWA and TDOT in the US District Court for the Middle District of Tennessee. CAPPE alleged that TDOT did not properly comply with NEPA and should have prepared an EIS than an EA. In July 2002, the District Court filed an injunction on planning, financing, contracting, land acquisition and construction of the project. FHWA withdrew the FONSI and sought voluntary remand to allow the agency to reconsider its decision, but the District Court denied that motion. Following an appeal by the FHWA, the District Court issued an order modifying its previous injunction in August 2004. This order allowed FHWA and TDOT to reconsider and reissue the relevant environmental documents. In September of 2004, TDOT announced its decision to begin preparation of an EIS.

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The alternatives considered include one No Build Alternative and three Build Alternatives (Alternatives A, C and D). Under the No-Build Alternative, the current Pellissippi Parkway would not be extended east beyond its current terminus of SR 33. Both Build Alternatives A and C would extend Pellissippi Parkway as a new four-lane divided roadway, with interchanges at SR 33, SR 35/US411/SR35 and SR 73/US321. Alternatives A and C would share a common alignment from SR 33 to the vicinity of Brown School Road south of Wildwood Road. At this point, Alternative C would diverge to the east of Alternative A. Alternative A would be approximately 4.38 miles while Alternative C would be approximately 4.68 miles. Build Alternative D would use portions of existing roads (Sam Houston School Road, Peppermint Road, Hitch Rod and Helton Road). Under Alternative D, an improved two lane roadway would be constructed using existing roadway alignment when possible. The length of this corridor would be approximately 5.77 miles.

Based on our review of the DEIS, EPA's primary environmental concerns are related to the project purpose and need, farmland impacts, noise and mobile source air toxics (MSATs). EPA is concerned that TDOT hasn't adequately documented the purpose and need for this project especially given its contentious and controversial background and the level of impacts to the local rural, farmland nature of the community. TDOT readily admits within the DEIS, "…this analysis does not demonstrate that any of the Build Alternatives would substantially improve the level of service for the existing highway network." Additionally, the vehicle miles traveled (VMT), safety and travel time savings data all seem insufficient to support the justification for constructing the build alternatives.

EPA is also concerned with the project's impact to the rural farming community. TDOT recognizes the cumulative impacts to the local farming community, but doesn't offer any project specific remedies to lesson these impacts. EPA recommends that TDOT identify mitigation measures to lessen impacts to the farming community and conduct an aggressive outreach effort to the farming community to solicit their input. EPA is equally concerned with the noise impacts to the community and requests that TDOT commit to provide noise abatement measures within the environmental comments section of the Executive Summary (commonly referred to as the "green pages").

The discussion of mobile source air toxics (MSATs) in the Draft EIS and in the air quality technical report presents information that is not consistent with the findings of many air quality studies. In general, air toxics impacts for highway projects should be evaluated based on emissions, dispersion modeling, and screening level risk assessment in locations where people work and reside. A discussion should be included regarding the near-roadway health impacts and the potential for such impacts during and following completion of this project. EPA recommends TDOT more thoroughly consider air toxics in their alternative analysis, quantify construction and operational emissions of MSATs, discuss dispersion emissions and exposure levels and identify appropriate avoidance, minimization, and/or mitigation opportunities.

We rate this document EC-2 (Environmental Concerns-with additional information requested for the above and below comments). Enclosed is a summary of definitions for EPA ratings and the detailed comments.

We appreciate the opportunity to review the proposed action. Please contact Jamie Higgins at (404) 562-9681 if you want to discuss our comments.

Sincerely,

Heinz J. Mueller, Chief
NEPA Program Office
Office of Policy and Management

Enclosures

cc: Tom Love – Tennessee Department of Transportation

SUMMARY OF RATING DEFINITIONS AND FOLLOW UP ACTION [1]

Environmental Impact of the Action

LO-Lack of Objections
The EPA review has not identified any potential environmental impacts requiring substantive changes to the proposal. The review may have disclosed opportunities for application of mitigation measures that could be accomplished with no more than minor changes to the proposal.

EC-Environmental Concerns
The EPA review has identified environmental impacts that should be avoided in order to fully protect the environment. Corrective measures may require changes to the preferred alternative or application of mitigation measures that can reduce the environmental impacts. EPA would like to work with the lead agency to reduce these impacts.

EO-Environmental Objections
The EPA review has identified significant environmental impacts that must be avoided in order to provide adequate protection for the environment. Corrective measures may require substantial changes to the preferred alternative or consideration of some other project alternative (including the no action alternative or a new alternative). EPA intends to work with the lead agency to reduce these impacts.

EU-Environmentally Unsatisfactory
The EPA review has identified adverse environmental impacts that are of sufficient magnitude that they are unsatisfactory from the standpoint of public health or welfare or environmental quality. EPA intends to work with the lead agency to reduce these impacts. If the potential unsatisfactory impacts are not corrected at the final EIS sate, this proposal will be recommended for referral to the CEQ.

Adequacy of the Impact Statement

Category 1-Adequate
The EPA believes the draft EIS adequately sets forth the environmental impact(s) of the preferred alterative and those of the alternatives reasonably available to the project or action. No further analysis or data collecting is necessary, but the reviewer may suggest the addition of clarifying language or information.

Category 2-Insufficient Information
The draft EIS does not contain sufficient information for the EPA to fully assess the environmental impacts that should be avoided in order to fully protect the environment, or the EPA reviewer has identified new reasonably available alternatives that are within the spectrum of alternatives analyzed in the draft EIS, which could reduce the environmental impacts of the action. The identified additional information, data, analyses, or discussion should be included in the final EIS.

Category 3-Inadequate
EPA does not believe that the draft EIS adequately assesses potentially significant environmental impacts of the action, or the EPA reviewer has identified new, reasonably available alternatives that are outside of the spectrum of alternatives analyzed in the draft EIS, which should be analyzed in order to reduce the potentially significant

[1] From EPA Manual 1640 Policy and Procedures for the Review of the Federal Actions Impacting the Environment.

Pellissippi Parkway Extension (SR 162) From SR 33 (Old Knoxville Highway) to US 321/SR 73/Lamar Alexander Parkway, Blount County, TN

U.S. Environmental Protection Agency Detailed Comments:

NEPA Office Comments:

1. Purpose and Need: Overall, EPA is concerned regarding the purpose and need for this project. TDOT states on page 3-3 (Corridor Level of Service (LOS)), "Overall, this analysis does not demonstrate that any of the Build Alternatives would substantially improve the level of service for the existing highway network." TDOT goes on to state, "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…". LOS analyses are usually the backbone of most transportation studies and EPA is concerned that the level of analyses doesn't support the stated project purpose and need. Below are specific concerns regarding the purpose and need:

a. LOS Analysis: TDOT has not conducted LOS analysis for several roads in the Maryville/Alcoa area. These roads should be better analyzed to determine the "Purpose and Need" for the project. Overall, TDOT has not provided convincing data to fulfill the project objective (Page S-2 and re-stated in Section 1.3 Purpose of the Project, page 1-6) of "Assist in achieving acceptable traffic flows (LOS) on transportation network or not adversely affect traffic flows on the existing transportation network." In fact, in the Corridor LOS section on page 3-4, TDOT states, "Overall, this analysis does not demonstrate that any of the Build Alternatives would substantially improve the level of service for the existing highway network." Below are specific concerns regarding the LOS analysis as relating to the project purpose.

1. In Table 1-1: Traffic Level of Service (2006, 2015, 2035 cont.), page 1-13, TDOT lists existing and projected LOS for various stretches of roads in the vicinity of the proposed Pellissippi Parkway. Several roads (Washington Street, US 411, E. Broadway/Old Knoxville Highway, Sam Houston School Road, Peppermint Road, Hitch Road and Helton Road) did not display projected LOS. The LOS ties back into the Purpose and Need of the project as stated on Page S-2, "Achieve acceptable traffic flows (level of service) on the local transportation network…". This data is vital in justifying the need to build Pellissippi Parkway. It seems that the proposed project would not relieve traffic volume of workday commuters traveling to their workplaces North of Maryville/Alcoa to Knoxville. EPA recommends that 1) TDOT further evaluate the Northbound weekday (toward Knoxville) commuter LOS trends to determine if the Pellissippi Parkway will in fact improve LOS along these commuter corridors and 2) EPA recommends that TDOT evaluate the traffic East/West bound traffic patterns (toward Oak Ridge National Laboratory) and 3) Compare the two analysis (East/West bound to ORNL and North/South to Knoxville) to determine if the Pellissippi Parkway will improve the existing roads LOS.

2. Looking at Figure 1-7: Existing Levels of Service, page 1-15, the poor LOS corridors (US 129/SR 115, SR 33, Sam Houston School Road, Peppermint Road, SR 35/US 411/Sevierville Rd) are North-South corridors that run through or adjacent to subdivisions. It would seem more practicable to improve these roads since these are the roads with poor LOS. What is the LOS for Old Knoxville Highway? Without LOS data for Old Knoxville Road, it is hard to determine the traffic patterns. EPA recommends TDOT evaluate the LOS for the Broadway/Old Knoxville Highway corridor to better understand traffic patterns and LOS.

3. In Figure 1-8 and Figure 1-9, page 1-15 and 1-6, the LOS for US 129/115 improves. As stated on page 1-14, "The section of Alcoa Highway between Hunt Road and Pellissippi Parkway would increase from LOS E to LOS C, likely because of Relocated Alcoa Highway". This would indicate that the higher volumes of traffic are North and South not East and West. How would the proposed Pellissippi Parkway improve the North/South roads LOS and relieve the weekday volume of traffic along the North/South corridors? Also, what is the projected LOS for all the vicinity roads with the Build Alternatives? EPA recommends that TDOT conduct similar analysis and depiction of the LOS for all the Build Alternatives to determine the traffic flow.

4. On page 3-4, Intersection LOS, TDOT's analysis states that only two intersections would benefit from the Build Alternatives (A or C). Could these intersections be improved by other less environmentally impacting and expensive improvements?

5. In comparing Figure 1-7: Existing Level of Service (page 1-16) and Figure 3-1: 2015 Build Alternatives Corridor Level of Service, it seems that there isn't much difference between the current LOS and the future Build alternatives LOS. The only LOS that would be improved is US 129/SR 115, but this LOS will most likely be improved because of the building of the Relocated Alcoa Highway or Alcoa Bypass. EPA recommends that TDOT better describe the relationship between the existing LOS, No Build Alternative and the Build Alternatives.

6. Several LOS forecasts (Washington St and E. Broadway/Old Knoxville Hwy) in Section 1-1: Traffic Level of Service (2006, 2015, 2035) (page 1-12-1-13) were not calculated. A LOS analysis along these roads is important in determining if workday commuters would utilize the proposed project if built. EPA requests TDOT forecast the LOS for these roads to better understand the traffic flow and traffic volume of the Alcoa/Maryville community.

7. In Table 1-1: Traffic Level of Service (2006, 2015 and 2035) on page 1-13, there are several roads that were not evaluated for LOS. On page 1-7, 5th paragraph, TDOT states, "Special traffic counts were conducted to determine current volumes on several two-lane local roadways in the eastern portion of the study area (Sam Houston School Road, Peppermint Road, Hitch Road, and Helton Road) since they are not part of the state-maintained system. No build volumes were forecasted to the base year and design year." It is vital that TDOT determine the LOS and volume forecasts for these roads to better compare the No Build Alternative to the Build Alternatives. EPA recommends TDOT

conduct LOS and volume forecasts for these roads especially considering Alternative D is the improvement of Sam Houston School Road.

b. Vehicle Miles Travel (VMT): In Section 1.4.1.2 Note on Recent Trends in Vehicle Miles Traveled, page 1-10, EPA disagrees with TDOT's assumption that VMT trends will increase despite data that proves otherwise. EPA recommends TDOT provide further analysis that substantiates the claim that VMT will increase. TDOT also asserts that recreational traffic near the Great Smokey Mountain National Park (GSMNP) will increase and states, "…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." TDOT does statistically project an overall increase in VMT in the Region (Table 1-1); however, there is no data to substantiate their claim that VMT will increase because of recreational traffic to GSMNP.

c. Travel Between Study Area: There is good information in Section 1.4.1.1 Travel between Study Area and Knox County on page 1-10, but TDOT doesn't draw any conclusions. This discussion and Figure 1-5: Travel Volume between Knox and Blount County seem to indicate that the predominant flow of traffic is North/South along US 129 and SR 33. What are the volumes of traffic along the East/West routes toward Oak Ridge and I-40? EPA recommends TDOT better describe the conclusions from Section 1.4.1.1 and Figure 1-5. EPA would also like to see more data and discussion regarding the East/West volumes of traffic toward I-40.

d. Travel Time Savings. In Table 3-3 and Table 3-4, TDOT determines the travel time savings. Even in the best case scenario, Build Alternative A and C would only decrease travel time by 11 minutes and the worse case scenario (Alternative D) would only decrease travel time by 7 minutes. Wouldn't other less contentious and less environmentally and socially impacting alternatives accomplish the same travel time savings as the proposed Build Alternatives? EPA requests that TDOT consider and further analyze the worthiness of the proposed build alternatives.

e. Safety: TDOT states that, "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." Safety is listed as a project purposes; however, none of the studied roadway sections have a critical crash rate ratio (A/C) that exceeds the TDOT threshold of 3.5 (reference Section 1.4.3, page 1-19). Four roadway sections have critical crash rate that exceeds 2.0. TDOT states, "…that while these routes do not have a statistical certainty of being high crash rate locations, they may still have some safety issues." How will the Build Alternatives improve these four roadway sections? Can other less environmentally impacting improvements be made to these specific roadways to improve roadway safety without building Pellissippi Parkway? EPA recommends TDOT provide further information to support the project's safety purpose and need.

3

3. Farmland Impacts: The Natural Resources Conservation Service (NRCS) has determined that each of the build alternatives would impact prime farmlands (page 3-40). Depending on the alternatives, 120-187 farm acres (reference Table 3-14, page 3-41) would be directly impacted. Additionally, TDOT recognizes the cumulative impacts of this project combined with other industrial and residential developments in the community and states, "Cumulative impacts on farmland could be substantial, particularly if the local growth polices are not enforced." Considering that TDOT recognizes the "substantial" cumulative impacts to farmland, EPA requests that a more thorough analyses be completed to determine these direct, indirect and cumulative impacts. Additionally, EPA requests that TDOT outreach to farmers and the NRCS to determine the least impacting alternative to farmlands. EPA also requests that farmer and NRCS input should be solicited and more thoroughly discussed in the Final EIS.

4. Noise: EPA is concerned about the noise impacts to residences. Depending on the build alternative selected, 64-110 residences will be impacted by noise and 25-86 residences will have substantial increases in noise impacts (since residences would have resultant levels elevated above the TDOT threshold of greater than 10 dBA). In the Noise Abatement section page 3-66, there is a discussion regarding the noise abatement measures. TDOT has determined that constructing of noise barriers is not feasible and states, "Final decisions regarding the construction of noise barriers will be made during final project design and following the public involvement process." EPA understands that final decisions will be made during the design phase, but we would like to be assured that noise abatement measures would be carried out. TDOT Policy 520-1 defines 'reasonableness' as "one of two criteria (also see "feasibility") used to evaluate a noise abatement measure" and that it "generally pertains to the cost effectiveness of noise abatement measures and the views/desires of the public."

Additionally, FHWA noise regulations under 23 CFR 772.11(f) requires "the views of the impacted residents will be a major consideration in reaching a decision on the reasonableness of abatement measures to be provided." EPA agrees with such public outreach; however, no analysis or discussion regarding the views of the impacted residences or general public is found in the Draft EIS. Further, 23 CFR 722.13 discusses more than just noise barriers as noise abatement measures that should be considered in the noise abatement analysis. As cited in 772.11(d), "When noise abatement measures are being considered, every reasonable effort shall be made to obtain substantial noise reductions."

Also, 722.13(d) states:

> "There may be situations where (1) severe traffic noise impacts exist or are expected, and (2) the abatement measures listed above are physically infeasible or economically unreasonable. In these instances, noise abatement measures other than those listed in 722.13(c) of this chapter may be proposed for Types I and II projects by the highway agency and approved by the Regional Federal Highway Administrator on a case-by-case basis when the conditions of 772.13(a) of this chapter have been met."

4

EPA recommends that TDOT commit to provide noise abatement measures (as practicable and within authorities of TDOT) within the Environmental Comments Section of the Executive Summary or commonly referred to as the "green pages".

5. Inclusion of Mitigation Measures in Environmental Commitments Section (Green Pages): TDOT has proposed several reasonable mitigation measures throughout the EIS; however, many of these mitigation measures have not been included within the Green Pages. EPA recommends that these mitigation measures be included within the Green Pages to further strengthen TDOT's commitment to lessen social and environmental impacts. Specifically, EPA requests the inclusion of the following mitigation measures within the Green Pages:

a. Farmland Impacts: On page 3-41, Section 3.6.2 Potential Mitigation Measures, TDOT states, "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." EPA recommends that TDOT describe possible mitigation measures within this section and include a farmland impact mitigation statement within the Green Pages.

b. Floodplain Impacts: On Page 3-71, Section 3.13.2 Floodplains and Hydrology, TDOT states, "Because the proposed alignments run generally perpendicular to the floodplains, avoidance of all floodplains is not possible." TDOT further describes potential mitigation measures; however, these mitigation measures have been omitted from the Green Pages. Floodplains are vital to the health of the aquatic and terrestrial ecosystem. Given the environmental importance of the floodplains to the health of the ecosystem, EPA recommends that TDOT included floodplain mitigation measures within the Green Pages.

c. In a memo dated, May 15, 2006 (Appendix A, Page A-7), the Tennessee Department of Environment and Conservation (TDEC) discusses special measures to be taken to protect sinkholes. Although TDOT has included a Karst Topography commitment statement within the Green Pages, it is unclear as to whether this will include the mitigation measures outlined in this TDEC letter. EPA requests that TDOT clarify and either include a specific environmental commitment to address sinkhole mitigation or revise the Karst Topography commitment statement to reflect sinkhole mitigation.

Water Protection Division Comments:

1. On page 2.18-19, The Public Transit, Fixed Route Local Bus Service and Bus RapidTransit Institute for Transportation Engineers (ITE) Toolbox should be evaluated with the projected population numbers that were provided earlier, 2015 & 2025.

2. On page 2.20, fixed-route public transit should be considered in conjunction with Alternative D or road improvements.

3. On page 3.15, the map is mislabeled. Alt. B should be Alt C in Figure 3.4

could be increased levels of drinking water treatment for public water supplies and private well owners in an area with grazing cattle are major concerns. The impacts on underground sources of drinking water need to be discussed and analyzed.

14. On Page 3.88, (mitigation cont'd from previous page) – there should be much more detail on the mitigation measures.

15. On page 3.98, (cont'd from previous page 3.15.7 Water Quality & Erosion Control) – Construction activities could have an impact on underground sources of drinking water. See earlier comment on pg 3.87.

16. On page 3.99, 3.16.1.1 - Indirect Effects – It is not clear if commercial developments are being considered among these bullets???

17. In the last paragraph (3.16.1.1-Indirect Effects): A project could have a small effect and resulting development a very large effect. For instance, building a road may have a very small effect, but commercial development (or even residential) that may follow (often happens) could mean a large impact that would not have occurred without the roadway. This should be acknowledged and included in the EIS study.

18. On page 3.100, 3.16.2 Methodology- Indirect Effects: This should be discussed by Alternative, especially since Alt D would be expected to have a much smaller indirect effect due to much of the roadway is already in place.

19. On page 3.112, Water Quality, 2nd sentence- at the end of the sentence …….other surface waters, **add** or groundwater in karst geology. **Also, add another sentence**, i.e., Decreased recharge of groundwater would also result from increased amounts of impervious surfaces.

20. On page 3.118, Water Quality, 2nd sentence, at the end of the sentence …….other surface waters, **add** including groundwater.

21. On page 3.120, Table 3.35 Summary of Effects, consideration of effects based upon earlier comments need to be added to this table. See above comment on page 3.87

22. On page 3.123, Table 3.35 Summary of Effects - See above comment on page 3.79 - ** Wet Weather Conveyances (linear feet affected), Alt D – 1,424 and Ponds (Acres), Alt D – 2.

23. On page 4.7, Table 4.1: Agency Responses to Initial Coordination (Cont'd), 2nd row, TDEC – Division of Water Supply (Groundwater management section, Responses on BMPs). TDOT needs to identify and discuss what BMPS will be required.

7

Air Toxics Assessment and Implementation Section Comments

1. Page 3-4 (Figures 3-1 and 3-2, Table 3-1) The Intersection LOS section addresses the level of service that is anticipated in 2015 and 2035. While the LOS for alternatives A and C seems to range between LOS A and LOS D for the year 2015 (the year following the anticipated opening of the road), by the design year of 2035, alternatives A and C are operating at an unacceptable LOS E ("…operations are unstable because there are virtually no gaps in the traffic stream…" page 1-12) and LOS F ("The number of vehicles entering the highway section exceeded the capacity." Page 1-12). Is there a broader plan into which this highway extension fits, such that the purpose of the proposed action (page S-2: "assist in achieving acceptable traffic flows (LOS) on the transportation network or nor adversely affect traffic flows on existing transportation network") will be realized?

2. Page 3-96 Section 3.15.3 focuses on dust suppression as a mitigation measure for air quality impacts during construction. There are many more mitigation measures that should be carried out. During construction and for the final project design, every effort should be made to avoid air quality impacts, including, but not limited to:

- A ban on open burning – all materials that would normally be burned should be recycled to the extent feasible to avoid health and visibility impacts.
- Minimizing dust and debris generated during construction.
- Construction limited to the smallest footprint feasible to avoid environmental degradation and reduce the amount of dust generated during construction.
- Maintenance of the maximum amount of trees feasible within the project right-of-way during construction to reduce footprint, noise and dust dispersion during construction.
- Installation of the latest air pollution control devices on all construction equipment (see EPA's Verified Technologies List for diesel engines at http://www.epa.gov/otaq/retrofit/verif-list.htm).
- Use of ultra low sulfur fuel exclusively for construction equipment.
- Restriction on the time that engines involved in construction may be left to idle.

3. Page 3-111 Air Quality: This section notes that the parkway extension would result in some induced residential and commercial development. This is in an area that is already experiencing rapid growth.

> Page 1-21 notes, "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 te state as a whole."
>
> Page 3-116 notes, "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 … 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." The February 2010 Air Quality Technical Report makes a similar argument.

Projected emission reductions resulting from EPA rules do not absolve the FHWA and the project sponsor from their responsibility to protect public health from emissions associated with this project by using appropriate mitigation measures. Furthermore, the future reductions in emissions resulting from EPA rules do not inform the decision concerning which alternative to select. The purpose of the DEIS is to compare the impacts of the alternatives being considered against one another at some point in the future, not to evaluate the impact of the EPA regulations between today and some point in the future.

4. The February 2010 Air Quality Technical Report states (page 2-21)

> Under each alternative there may be localized areas where VMT would increase, and other areas where VMT would decrease. Therefore, 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 for the proposed Pellissippi Parkway 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.

Given that this project is likely to be built in a populated area, the potential impact of locally elevated levels of MSAT should be evaluated. The DEIS has appropriately identified several locations of sensitive populations. It would be helpful to estimate the concentrations of MSATs at these locations, to estimate the locations where higher concentrations of MSATs resulting from construction and operation of the different alternatives are likely to occur, and to identify these locations, concentrations, and potential health effects in the FEIS. Many reports published in peer reviewed journals have linked proximity to high volume traffic with health effects. This literature should also be discussed in the FEIS.

5. Pages G-1 and G-2 and the February 2010 Air Quality Technical Report state that there are technical shortcomings that prevent reliable comparisons of MSAT emissions and potential effects at the project level. Page 2-25 of the Air Quality Technical Report states, " …available technical tools do not enable prediction of the project-specific health impacts of the emission changes associated with the detailed study alternatives." While it is correct that these tools do not predict health impacts, they do allow a comparison of potential impacts among alternatives. The thrust of the text in the report is at variance with the common practice of air quality and environmental health professionals, as reflected in the body of peer-reviewed literature employing these various models. The Pellissippi Parkway Extension appears to be a project in which there is considerable community interest. The FEIS should provide the public with a more complete analysis

of the potential impacts of air toxics associated with the construction and operation of this extension project.

U.S. Department
of Transportation
Federal Aviation Administration

Memphis Airports District Office
2862 Business Park Dr, Bldg G
Memphis, TN 38118-1555
Phone: 901-322-8180

June 2, 2010

Mr. Tom Love
State of Tennessee
Department of Transportation
Environmental Planning and Permits Division
Suite 900, James K. Polk Building
505 Deaderick Street
Nashville, TN 37243

Re: Pellissippi Parkway (SR 162) Extension
Blount County, TN

Dear Mr. Love:

The Federal Aviation Administration (FAA) was identified as an agency that may have an interest in reviewing the Draft Environmental Impact Statement (DEIS) for the above proposal. We have reviewed the information provided by your office for the Pellissippi Parkway Extension planned in Blount County, TN.

Our office reviewed the proposal for possible impacts to airports surrounding the project site. The closest airport facility to the project site would be McGhee-Tyson Airport located approximately 2 miles west of the proposed project site.

This office originally responded to the project in a letter dated July 30, 2008. The original response requested submittal of detailed layout drawings and elevations if the chosen project alternative is within 6 miles of the nearest airport facility. As the project moves forward please submit available drawings for our review.

Thank you for the opportunity to comment on this project.

Sincerely,

Stephen Wilson, Environmental Specialist
Memphis Airports District Office

United States Department of the Interior

OFFICE OF THE SECRETARY
Washington, DC 20240

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DEC - 3 2010

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DEC 08 2010
Environmental Division

Ms. Suanne Herron
Director, Environmental Division
Tennessee Department of Transportation
505 Deaderick Street, Suite 900
Nashville, Tennessee 37243

Dear Ms. Herron:

As requested, the Department of the Interior (Department) has reviewed the Draft Environmental Impact Statement (EIS) for **Pellissippi Parkway Extension (SR 162) From SR 33 (Old Knoxville Highway) to US 321/SR73/Lamar Alexander Parkway in Blount County, Tennessee.** The Department offers the following comments and recommendations for your consideration.

General Comments

The Department welcomes this opportunity to cooperate with the Tennessee Department of Transportation (TDOT). The purpose of the proposed project is to enhance regional transportation system linkages, improve circumferential mobility, enhance roadway safety and assist in achieving acceptable traffic flows in the northern portion of Blount County. Three alternatives are evaluated in the Draft EIS: Alternative A with an estimated 172 acres of new right-of-way. Alternative C with estimated 187 acres of new right-of-way, and Alternative D with 120 acres of new right-of-way. A Preferred Alternative was not identified in the Draft EIS.

Endangered Species

Four federally-listed species occur within the study area and may be impacted by this project. These species include the Indiana bat (*Myotis sodalist*), snail darter (Percina tanasi), dusky-tail darter (*Etheostoma percnurum*), and fine-rayed pigtoe (*Fusconaia cuneolus*). TDOT sent out the Preliminary Draft EIS on November 6, 2009, which addressed potential impact to these species. TDOT proposed to cut trees from October 15 to March 31, to avoid active Indiana bat roosts. They provided assurance of stringent best management practices to include erosion and siltation control measures to avoid impacting aquatic species. In a letter to TDOT dated December 7, 2009, the Fish and Wildlife Service (FWS) responded that concerns had been adequately

addressed and that TDOT should proceed to the development of the Tennessee Environmental Streamlining Agreement Concurrence Point 4, Preferred Alternative and Preliminary Mitigation Package. With regard to protective measures for the Indiana bat, FWS no longer believes that the timeframe restriction on tree cutting properly addresses indirect and cumulative impacts. Therefore, further coordination with FWS will be required under Section 7 of the Endangered Species Act, as amended, prior to removal of trees for this project. Please contact John C. Griffith, Transportation Biologist, with the FWS, Tennessee Field Office at 931-528-6481 ext. 228.

Section 4(f) Comments

A Section 4(f) Evaluation was not prepared for this project, but because of the project's potential involvement with several historic and archaeological resources in the area, the project has been processed as a Section 4(f) case. Build Alternatives A and C would each affect five archaeological sites that are potentially eligible for the National Register of Historic Places (NRHP), while Alternative D would affect one potentially eligible archaeological site. According to the Draft EIS more detailed archaeological and engineering studies will be conducted after a Preferred Alternative is selected.

There are nine archaeological sites within the area of potential effect that are recommended as potentially eligible for the NRHP: 40BT202, 40BT203, 40BT205, 40BT207, 40BT208, 40BT 209, 40BT100, 40BT122, 40BT125. According to the Draft EIS in Alternative A, it may be possible to avoid intrusion into Site 40BT100 by a design shift to the west. However, 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. In Alternative C, Sites 40BT209, 40BT205, 40BT100, 40BT207 may be avoidable by design shifts. However, sites 40BT208 would not be avoidable since the corridor bisects the site and the site extends beyond the boundaries of this alternative. In Alternative D, Site 40BT209 is on the western edge of Alternative D, and it may be possible to avoid this site by shifting the alignment slightly eastward. Current alignments avoid Site 40BT214 (a cemetery), which is situated between Alternative C and D north of Centennial Church Road and should be avoided during realignment shifts.

In a 2000 Historic Architectural Resource report, two historic properties were determined to be in the area of potential effect: Sam Houston Schoolhouse and Mack Hitch Farm. In a letter dated May 4, 2009, the State Historic Protection Officer (SHPO) concurred that the proposed project would not adversely affect the Sam Houston Schoolhouse. Since 2000, TDOT has revised the locations for the project alternatives, resulting in the area of potential effect evaluated in the 2008 Historical Architectural Survey and Assessment of Effect under 36 CFR 800. Due to these revisions, the Mack Hitch Farm, which is eligible for listing in the National Register, is located more than one-half mile from the project's area of potential effect.

At this time, the Department cannot concur that there is *no* feasible and prudent alternative to the proposed use and that all possible planning has been done to

minimize harm to the Section 4(f) lands/archeological sites. Phase II testing must be completed and a report or avoidance strategy must be submitted to the SHPO for review. Section 106 consultation of the National Historic Preservation Act has begun but is not yet complete.

Summary Comments

The Department recommends further analysis of design shifts to avoid, minimize, and mitigate potential impacts to archeological sites and continued coordination with the SHPO to develop a Memorandum of Agreement for sites that cannot be avoided.

The Department has a continuing interest in working with the FHWA and TDOT to ensure that impacts to resources of concern to the Department are adequately addressed. For matters related to Section 4(f) resources, please contact Anita Barnett with the National Park Service, Southeast Regional Office; Atlanta Federal Center, 1924 Building; 100 Alabama Street, SW; Atlanta, Georgia, 30303; telephone 404-507-5706.

We appreciate the opportunity to provide these comments.

Sincerely,

Willie R. Taylor
Director, Office of Environmental
Policy and Compliance

CITY OF ALCOA

ASSISTANT CITY MANAGER
G. William Hammon, Jr.

223 Associates Boulevard, Alcoa, Tennessee 37701-1948

Office: (865) 380-4795 Fax: (865) 380-4797
E-mail: bhammon@cityofalcoa-tn.gov

August 27, 2010

Mr. Michael W. Russell
TDOT Region 1
7345 Region Lane
Knoxville, TN 37914

Re: Comments, Pellissippi Parkway Extension
The City of Alcoa, Tennessee

Dear Mr. Russell:

The City of Alcoa would like to reinforce its affirmative position on the extension of the Pellissippi Parkway extension, from Highway 33 to Highway 321. The City feels it is in the best interest of the regional transportation system to connect this vital link of Interstate I - 140. The extension of the Pellissippi Parkway will not only assist in reliving existing local congestion but set the stage for addressing future demands as the traffic continues to grow in the region.

We have prepared the following comments on the Draft Environmental Impact Statement (DEIS) for the proposed project. Should we need to provide additional information or clarification, please do not hesitate to call.

Comments on the DEIS
Pellissippi Parkway Extension

1. Page 1-8, in the last paragraph the 2035 AADT on SR 33 is listed at 65,860 while on the illustration on page 1-9, it is listed at 68,850.

2. Page 1-4, under paragraph 1.2.1 **Initial Planning for Pellissippi Parkway**, the second paragraph indicates that the section of the Pellissippi Parkway between US 129 and Cusick Road opened in 2003. That section was actually opened in the same era as the section to 129 and was the result of negotiations between TDOT and the City of Alcoa in an effort to relieve the anticipated influx of traffic being forced to exit onto the already over-crowded US 129 (Alcoa Highway). Therefore, 1993 would be a more likely date for the opening of this section rather than 2003.

3. Page 3-13, in the fourth paragraph, it is stated that Alcoa's 1997 Subdivision Regulations do not mention sidewalks. The 1997 Regulations do require sidewalks and that is mentioned in both the section describing street construction and the section addressing the site plan approval process.

4. Page 3-21, in the section **Parks and Recreation,** the first reference to "John Sevier Park" should be changed to "Eagleton Park".

5. Page 3-20, **Figure 3-7** incorrectly labels Alternate "C" as Alternate "B".

6. General Traffic Projection Comments:

   a. Traffic is projected to increase on the Alcoa Highway from Pellissippi Parkway to the Hall Road split ranging from 31,570 - 56,100 in 2015 to 40,280 – 61,120 in

b. 2035. Also it is stated that the heavier traffic will occur South of Hunt Road. At the same time, there is no projected increase for Hall Road or the By-Pass South of the Hall Road split in 2035. Since those are the only two roadway sections connecting to the Alcoa Highway between the Hall Road split and the Hunt Road interchange, the question becomes; "where did that increase on traffic on US 129 come from or go to?"

c. Hall Road and Washington Street are basically the same corridor running through Alcoa and then Maryville. Hall Road is projected to have no increase in traffic while at the same time Washington Street is projected by over 13,000 cars per day which is an increase of almost 54%. It is difficult to understand how one section of the Hall Road/Washington corridor can be assigned a substantial growth in projected traffic volumes while another section remains stagnant. The study attempt to address that by stating the reason traffic is not projected to increase on Hall Road is "because of the built-out nature of development along the road." However, there are several undeveloped or redeveloping areas along Hall Road in addition to the 350 acre former Aluminum Company West Plant site which is nearing the final stages of planning that will transform it into a mixed use development.

Thank you for the opportunity to comment on the DEIS. Again, the extension of the Pellissippi Parkway from Hwy 33 to Highway 321 is integral to the basic operation of the overall regional transportation system. Knox, Blount and Sevier counties will need this critical addition to service the growing demand for improved access to the region.

Sincerely,

G. William Hammon, Jr.
Assistant City Manager

C: Mark Johnson, City Manager, City of Alcoa
Mayor, Don Mull, City of Alcoa
Ms. Nancy Skinner
Electronic, Mr. Michael W. Russell, TDOT, Region 1
Project Meeting Comments, TDOT

CITY of MARYVILLE
PEOPLE are the KEY

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September 15, 2010

Mike Russell
TDOT Region 1
7345 Region Lane
Knoxville, TN 37914

Re: State Route 162 (Pellissippi Parkway Extension)

Dear Mr. Russell:

By this letter, the City of Maryville would like to express continued support of the completion of the Pellissippi Parkway Extension. From the inception of this project, the City of Maryville City Council representing 28,000 citizens have supported this extension with numerous resolutions. The City Council and City Staff have also participated in many public and private discussions with TDOT and the community regarding the need for this project to improve the traffic flow in and around our city.

The City of Maryville appreciates TDOT's deliberate processes to determine the viability of each project. Our City Councilmen attended the public presentation of the Draft Environmental Impact Statement and were pleased with the report. Based on all studies, workshops, and findings, the City of Maryville believes Alternate A is the preferred route. Per TDOT's Project Timeline, we are looking forward to the selection of the preferred alternative route which is scheduled to occur this Fall.

The City of Maryville is excited to move forward with the next phases of this project.

If you would like to discuss this further, do not hesitate to call me at (865) 273-3401.

Sincerely,

Greg McClain
City Manager

BLOUNT COUNTY MAYOR
Ed Mitchell
341 Court Street, Maryville, TN 37804-5906
Phone: (865) 273-5700
Fax: (865) 273-5705
Email: emitchell@blounttn.org

September 17, 2010

Mr. Mike Russell
TDOT Region 1
7345 Region Lane
Knoxville, TN 37914

RE: State Route 162 (Pellissippi Parkway Extension)

Dear Mr. Russell:

As Mayor of Blount County, I would like to express continued support of the completion of the Pellissippi Parkway Extension. From this project's inception, Blount County Government has supported this extension with numerous resolutions. We have also participated in many public and private discussions with TDOT and the community regarding the need for this project to improve the traffic flow in and around Blount County.

The Blount County Mayor's Office appreciated TDOT's deliberate processes to determine the viability of each project. I attended the public presentation of the Draft Environmental Impact Statement and was pleased with the report. Based on all the studies, workshops, and findings, we look forward to the selection of the preferred alternative route, scheduled to occur this Fall.

Blount County is excited to move forward with the next phases of this project.

If I can be of any assistance to you, please do not hesitate to contact me.

Sincerely,

Ed Mitchell
Blount County Mayor

pj

Chamber of Commerce
Blount Partnership

201 S. Washington St., Maryville, Tennessee 37804-5728
Ph: 865-983-2241 • Fax: 865-984-1386
http://blountchamber.com
E-Mail: info@BlountChamber.com

25 years accredited Chamber of Commerce

July 15, 2010

Mr. Mike Russell
TN Department of Transportation
7345 Region Lane
Knoxville, TN 37914

Dear Mr. Russell:

On behalf of the Blount County Chamber of Commerce representing over 1350 businesses in East Tennessee, please find enclosed a Resolution in support of the completion of the Pellissippi Parkway transportation project located in Blount County, Tennessee. Public support for the project began as early as the 1970's when local public officials and community leaders began their efforts to encourage the state to extend Pellissippi Parkway from west Knox County to what is now U.S. 321. This effort has been universally and consistently supported by the legislative bodies of Blount County, City of Maryville and the City of Alcoa.

Not only has the Pellissippi Parkway extension received the unflagging support of the legislative bodies in Blount County; it has also received the strong support of the business community. We have adopted numerous resolutions in support of the project, as has the Blount County Industrial Board and Metropolitan Knoxville Airport Authority. Not only does the project have government and business support, the local newspaper has endorsed the project for over a quarter of a century.

In summary, we request the Tennessee Department of Transportation to move forward on the completion of the Pellissippi Parkway extension to Highway 321 in Blount County. Please contact my office at 983-2241 should you need further assistance.

Respectfully,

Kathy DeLozier

Kathy DeLozier
Executive Vice President

Enclosure

Chamber of Commerce
Blount Partnership

Resolution of the Board of Directors
Of
The Blount County Chamber of Commerce

WHEREAS, the completion of the Pellissippi Parkway(S.R. 162) from I-40 in west Knox County to U.S. Highway 321 in Blount County, was included in Tennessee's 1986 Highway Program, and

WHEREAS, Pellissippi Parkway is complete from north I-40/75 Interchange to S.R. 33, and

WHEREAS, the current proposal was identified in 1995 Regional Long Range Transportation Plan and included in the 1998 Transportation Equity Act for the 21st Century (TEA-21) as a high priority project, and

WHEREAS, the completion of Pellissippi Parkway between S.R. 33 and U.S. Highway 321 is considered necessary to improve regional and local mobility for the public as well as emergency vehicles, improve traffic capacity and safety conditions on the existing road system, and to provide system linkage for the regional transportation system, and

WHEREAS, the Blount County Chamber of Commerce constitutes a central forum for the business interests throughout the region and has been on record in support of the Pellissippi Parkway completion since March of 1977, and

WHEREAS, the Blount County Chamber of Commerce has cooperated with the cities of Alcoa and Maryville, Blount County Government, Knoxville Region Transportation Planning Organization, and the Metropolitan Knoxville Airport Authority in an effort to develop consensus and thoughtfully prioritize a transportation plan that will yield continued economic vitality with consideration of those aesthetic features on which the tourism industry depends, and

WHEREAS, the completion of the Parkway has received widespread support throughout the entire regional economic trading area with endorsements from the following: Knoxville Area Chamber Partnership, Oak Ridge Chamber, Roane Alliance, Loudon County Chamber, Anderson County Chamber, Farragut/West Knox Chamber of Commerce, Monroe County Chamber, Jefferson County Chamber, Gatlinburg Chamber and Union County Chamber, and

WHEREAS, it is in the interest of the business community and the community at large to provide a transportation infrastructure that saves lives, boosts the local economy, creates jobs, lowers user costs, and reduces air pollution, and

NOW, THEREFORE, BE IT RESOLVED, The Blount County Chamber of Commerce supports the completion of the Pellissippi Parkway (S.R. 162) from S.R. 33 to U.S. Highway 321 in Blount County.

ADOPTED BY THE BOARD, THIS the 12th day of July, 2010.

James D. Horn

James D. Horn, Chairman

Table C-1: Agency Comments on DEIS and TDOT Responses

Agency Date of Comment	Number	Summary of Agency Comments	Responses
Federal Aviation Administration June 2, 2010	FAA-1	Requests that TDOT submit available drawings for review as the project moves forward.	TDOT will submit detailed design plans for the Preferred Alternative to FAA, following the issuance of the Record of Decision and the initiation of final design.
U.S. Environmental Protection Agency June 17, 2010			
EPA—Letter	EPA-L-1	TDOT had not adequately documented the purpose and need for the project, given its contentious and controversial background and the level of impacts to the local rural, farmland nature of the community. TDOT readily admits within the DEIS that "… this analysis does not demonstrate that any of the Build Alternatives would substantially improve the level of service for the highway network." Additionally vehicle miles traveled (VMT), safety, and travel time savings data all seem insufficient to support the justification for constructing the build alternatives.	Improving traffic flow is one of several transportation purposes for the project as documented in Section 1.3, Purpose of the Project, in this FEIS document. This project has been considered in the regional planning process since the 1980s and is consistent with local plans. Enhancing regional transportation system linkages, improving mobility around Maryville and Alcoa and enhancing roadway safety are other transportation purposes. The statements quoted from the DEIS are representative of the results of the corridor level of service (LOS) analysis, which is one measure of traffic operations. It is often the most cited measure; however, the statements are not reflective of the results of the intersection levels of service. Intersection delay and travel time savings are other valid measures of traffic operations. The 2011 intersection delay analysis conducted for this project demonstrated improvement for the Preferred Alternative and the other four-lane alternatives over the No-Build Alternative for several key intersections. The 2011 analysis revealed that under Alternative D, most of the intersections in the Maryville core experience would increase increased delay. The updated traffic analysis in the 2014 *Addendum to t*he *Traffic Technical Report* supports the conclusions for the four-lane alternatives. No intersection LOS was conducted in 2014 for Alternative D since this alternative would exceed the carrying capacity of a two-lane road. Additional discussion is included in Chapter 3 of this FEIS to more fully describe the intersection levels of improvement that are expected, and levels of improvement in traffic volumes.
EPA—Letter	EPA-L-2	Concerned with impacts to the rural farming community. TDOT needs to offer mitigation measure to lessen the	During the final design of the project, TDOT will meet with the farming community, either through individual meetings or community meetings, to determine how best to minimize the impacts on existing farmlands in the

Table C-1: Agency Comments on DEIS and TDOT Responses

Agency Date of Comment	Number	Summary of Agency Comments	Responses
		cumulative impacts on the local farming community and conduct an aggressive outreach program to the farming to solicit their input.	corridor.
EPA—Letter	EPA-L-3	EPA is concerned about noise impacts to the community, and requests that TDOT commit to provide noise abatement measures within the green pages section of the FEIS summary.	An updated noise abatement analysis in compliance with TDOT's new Noise Policy has been conducted and is included in this FEIS. Once final design details are developed, the noise analysis and associated feasibility and reasonableness determinations will be updated again. Final decisions regarding the construction of noise barriers will be made during final project design. TDOT will continue a public involvement process during design and construction that will encourage input from affected property owners. TDOT has committed to build a noise wall in the Kensington Place mobile home community to mitigate noise and visual impacts for that community. This commitment is included in the Environmental Commitments sheet.
EPA—Letter	EPA-L-4	Air toxics impacts for highway projects should be evaluated based on emissions, dispersion modeling, and screening level risk assessments in locations where people work and reside. A discussion should be included regarding the near-roadway health impacts and the potential for such impacts during and following completion of the project. EPA recommends TDOT more thoroughly consider air toxics in their alternative analysis, quantify construction and operation emissions of MSATs, discuss dispersion emissions and exposure levels and identify appropriate avoidance, minimization and/or mitigation opportunities.	In FHWA's view, information is incomplete or unavailable to predict in any creditable way the project-specific health impacts due to changes in MSAT emissions associated with a proposed set of highway alternatives. FHWA has standard guidance concerning MSATs, which TDOT has been using since February 2006. This guidance provides prototype language, which TDOT has been including in its documentation. EPA disagrees with parts of the FHWA guidance, and discussions between the agencies have taken place to attempt to resolve the differences.
EPA—Letter	EPA-L-5	Document is rated EC-2 (Environmental concerns with additional information	Comment noted.

Table C-1: Agency Comments on DEIS and TDOT Responses

Agency Date of Comment	Number	Summary of Agency Comments	Responses
		requested—to be included in FEIS.)	
EPA Detailed Comments—NEPA Office Comments			
EPA—NEPA office	EPA-NEPA-1	**Purpose & Need**—EPA is concerned regarding the purpose and need for the project. TDOT states on page 3-3 (Corridor Level of Service) "Overall, this level of service does not demonstrate that any of the Build Alternatives would substantially improve the level of service for the existing highway network." TDOT also states "It should be noted that while the LOS ratings along may not justify this project from a traffic flow perspective, other analyses support the need and purpose for this project, including travel time savings, reduction in crash exposure, regional linkages and system enhancements…" LOS analyses are usually the backbone of most transportation studies and EPA is concerned that the level of analyses does not support the stated project purpose and need.	The first statement EPA refers to is representative of the results of the LOS corridor analysis prepared for the project. However, the statement does not reflect the results of the intersection levels of service that were also prepared. Additional discussion has been added to Chapter 3 in the FEIS to more fully describe the intersection levels of improvement that are expected, and levels of improvement in traffic volumes. While the level of service rating does not change substantially among alternatives, it should be noted that the LOS rating is only one means for categorizing traffic operations. Additional measures are used to quantify traffic congestion, including delay, and are described in Chapter 3 of this FEIS. As EPA mention, this project has several purposes, one of which is to "Assist in achieving acceptable traffic flows (LOS) on the transportation network or not adversely affect traffic flows on existing transportation network." The other stated purposes have also been evaluated. The Preferred Alternative and other four-lane alternatives would substantially meet the purpose and need for the project, while Alternative D would partially address the purpose and need. The No-Build Alternative would not meet the purpose and need for the project. The Purpose and Need statement was reviewed with the agencies participating in the TESA process. The TESA agencies concurred with the Concurrence Point 1, 2, 3 and 4 Packages (Purpose and Need, Alternatives Considered, and Draft Environmental Document, and Preferred Alternative and Preliminary Mitigation Measures). Each of these Concurrence Point packages discussed the purpose and need for the project. In addition the public, organizations and local officials were provided several opportunities to comment on the purpose and need statement.
EPA—NEPA office	EPA-NEPA-1.a	**LOS Analysis—**TDOT has not conducted LOS analysis for several roads in the Maryville/Alcoa area. These roads should	Based on the public and agency comments received on the DEIS, TDOT determined that an LOS analysis should be conducted for Alternative D (enhanced two-lane) to provide a comparable level of analysis with the

Table C-1: Agency Comments on DEIS and TDOT Responses

Agency Date of Comment	Number	Summary of Agency Comments	Responses
		be better analyzed to determine the Purpose and Need for the project. Overall TDOT has not provided convincing data to fulfill the project objective of "Assist in achieving acceptable traffic flows (LOS) on [the] transportation network or not adversely affect traffic flows on existing transportation network." In fact, the in Corridor LOS section on page 3-4, TDOT states, "Overall, this analysis does not demonstrate that any of the Build Alternatives would substantially improve the level of service for the existing roadway network."	Alternatives A and C. This additional analysis was conducted in 2011, prior to the selection of the Preferred Alternative. This additional analysis demonstrated that the Preferred Alternative (A) and Alternative C would result in substantial improvements in delay at five key intersection on the existing network, which Alternative D would have a moderate increase in delay at most of the intersections by 2035. This finding was upheld in the updated traffic analysis performed in 2013-2014 based on the updated regional travel demand model. While some of the existing road segments would remain at LOS E or F with the additional infrastructure projects, LOS is only one indicator of traffic operations and provides a relative rating scale. For two-lane highway analysis, LOS is based on percent time-spent following and average travel speed. For a multilane highway, LOS is based on speed-flow and density-flow relationships. For intersections, LOS is determined by control delay per vehicle. Improvements in these additional measures related to the Build Alternatives can be identified by reviewing the more detailed tables in the 2011 *Addendum to the Traffic Operations Technical Report*. The 2014 *Addendum to* the *Traffic Technical Report* contains updated information on LOS for the roadway segments and intersections (including delay) based on the 2013 updated regional travel demand model. Chapter 3 of this FEIS present the major changes in improvement (such as the reduction of multiple minutes in delay) have for clarification on the full impact of an alternative. An additional measure for evaluating traffic flow is travel times savings. It has been documented from a travel times savings analysis in Section 3.1.1.2 in the DEIS that travel time savings are in the range of 43% to 65%; the updated analysis for the FEIS (Section 3.1.4) finds that travel times savings would be between 56% and 65% for the four-lane alternatives, and 33% and 43% for Alternative D. Additional discussion of traffic and other measures of analysis have been included in the FEIS.
EPA—NEPA office	EPA-NEPA-1.a.1	**Table 1-[2]**: Traffic Level of service (2006, 2015, and 2035) does not display projected LOS for several roads (Washington Street, US 411, E Broadway/Old Knoxville Highway,	Sections of Washington Street, US 411, E. Broadway / Old Knoxville Highway, Sam Houston School Road, Peppermint Road, Hitch Road and Helton Road operate as urban streets as opposed to a two-lane or multilane highway. On an interrupted flow facility such as urban streets, the intersection signals

Table C-1: Agency Comments on DEIS and TDOT Responses

Agency Date of Comment	Number	Summary of Agency Comments	Responses
		Sam Houston School Road, Peppermint Road, Hitch Road and Helton Road). This data is vital in justifying the need to build Pellissippi Parkway.	govern traffic operations and as such it is not possible to calculate a general free-flow LOS. In addition, the HCS+ software will only evaluate traffic operations on a highway segment with a minimum free flow speed of 45 mph. As part of the June 30, 2011 *Addendum to the Traffic Operations Technical Report*, TDOT prepared forecasts (2015 and 2035) and calculated levels of service for the roadway segments of Sam Houston School Road, Peppermint Road, Hitch Road, and Helton Road. Based on the 2013 updated travel demand model, updated traffic volume forecast and traffic operations have been prepared. The updated traffic analysis looks at 2010, 2020 and 2040. The LOS for the roadway segments listed above has been provided. The results of this analysis have been included in the FEIS.
EPA—NEPA office	EPA-NEPA-1.a.1 (cont)	**Table 1-[2]—**It seems the proposed project would not relieve traffic volumes of workday commuters traveling to their workplaces north of Maryville/Alcoa to Knoxville. EPA recommends that 1) TDOT further evaluate the northbound weekday (toward Knoxville) commuter LOS trends to determine if the Pellissippi Parkway will in fact improve LOS along these commuter routes, 2) TDOT evaluate the east/west bound traffic patterns toward Oak Ridge National Labs; and 3) Compare the two analyses to determine if the Pellissippi Parkway will improve the existing roads' LOS.	The traffic operations analyses conducted for this project identified both corridor and intersection level of service evaluations. While the corridor LOS does not appear to show substantial improvements in LOS, the analysis does indicate reductions in the amount of delay experienced at key existing intersections along the north/south corridors. This includes reducing the delay at the following intersections: SR 33/Wildwood Road, SR 33/E. Broadway Avenue, Washington Street/High Street, Washington Street/US 73 & US 321, and US 129/US 321. The reductions in delay are documented in more detail in the 2014 *Traffic Technical Report,* and are discussed in this FEIS.
EPA—NEPA office	EPA-NEPA-	Looking at Figure 1-7: Existing Levels of	The roads cited by EPA are part of the existing radial roadway network

Table C-1: Agency Comments on DEIS and TDOT Responses

Agency Date of Comment	Number	Summary of Agency Comments	Responses
	1.a.2	Service, the poor LOS corridors (US 129/SR 115), SR 33, Sam Houston School Road, Peppermint Road, SR 35/US 411/Sevierville Road) are North/South corridors that run through or adjacent to subdivisions. It seems more practicable to improve these roads since they have a poor LOS.	extending from the central portion of Maryville. FEIS Section 1.4, *Purpose of the Project*, notes that the county's primarily radial road network limits mobility options, and notes the lack of a non-radial connection to the east of Maryville and Alcoa. Improving the north/south corridors would be beneficial to traffic using those routes but would not provide an alternative connection for traffic moving between Alcoa and points east of Maryville.
EPA—NEPA office	EPA-NEPA-1.a.3	Figure 1-8 and Figure 1-9 show the LOS for US 129/SR 115 improving. Page 1-14 states that "The section of Alcoa Highway between Hunt Road and Pellissippi Parkway would increase from LOS E to LOS C likely because of Relocated Alcoa Highway." This would indicate higher volumes of traffic are north and south, not east and west. How would the proposed Pellissippi Parkway improve the north/south roads' LOS and relieve the weekday volumes of traffic along the north/south corridors?	The proposed Relocated Alcoa Highway (referred to the *Regional Mobility Plan 2040* as the Alcoa Highway Parkway) is intended to relieve traffic using the US 129 corridor where the current roadway has extensive curb cuts that result in safety concerns. This project is included in the current *Regional Mobility Plan 2040* for Year 2019. This proposed project would provide more traffic relief on this section of Alcoa Highway (US 129) than would the PPE project. The PPE project is not expected to affect weekday traffic on US 129 between Hunt Road and Pellissippi Parkway The proposed PPE would reduce the amount of delay experienced at several intersections along the North/South corridors. This includes reducing the delay at the SR 33/Wildwood Road intersection and the SR 33/E. Broadway Avenue intersection. The reduction in delay has been documented in more detail in this FEIS.
EPA—NEPA office	EPA-NEPA-1.a.3 (cont)	Also, what is the projected LOS for all of the vicinity roads with the Build Alternatives? EPA recommends TDOT forecast the LOS for roads such as Washington Street, East Broadway/Old Knoxville Highway, and others, to better understand the traffic flow and traffic volumes.	As discussed above, TDOT has conducted a detailed traffic analysis for Alternative D and the study area network that would be served by Alternative D, including the Broadway/Old Knoxville road. For the roadways that operate as urban streets (such as Washington Street, East Broadway / Old Knoxville Highway) an LOS is not provided as the HCS+ software will only evaluate traffic operations on a highway segment with a minimum free flow speed of 45 mph. The intersection LOS will continue to govern as the indication of traffic flow on these roadways for the build alternatives.
EPA—NEPA office	EPA-NEPA-1.a.4	On page 3-4 Intersection LOS, TDOT states that only two intersections would benefit from the Build Alternatives (A or C). Could these intersections be improved by other	The updated traffic analysis using input from the 2013 regional travel demand model shows that operations at eight intersections would be improved by the proposed project (see Table 3-2 in the FEIS). In addition, the Preferred Alternative has substantial improvement in delay at most of the intersections

Table C-1: Agency Comments on DEIS and TDOT Responses

Agency Date of Comment	Number	Summary of Agency Comments	Responses
		less environmentally impacting & extensive improvements?	in the Alcoa/Maryville core. The improvements range from 8 to 50 percent reduction in delay (compared to the No-Build Alternative). In actual terms of seconds of delay, these improvements correspond to a reduction in delay of between 1 and 163 seconds over the No-Build Alternative (see Table 3-4 in the FEIS).
EPA—NEPA office	EPA-NEPA-1.a.5	In comparing Figure 1-7 Existing level of service and 2015 Build Alternative Corridor Level of Service, it seems there is not much difference between the current LOS and the future Build LOS. EPA recommends that TDOT better describe the relationship between the existing, No-Build and Build Alternatives	While the level of service rating does not change substantially between alternatives, additional measures are used to quantify traffic congestion, including delay. It has been shown that under the Preferred Alternative or Alternative C substantial reductions in delay are achieved through study area intersections. Given that the level of service analysis indicates that the forecast volumes for Alternative D would exceed the carrying capacity of a two-lane road, an intersection-level analysis is expected to yield poor results similar to the corridor LOS analysis. Even if some intersection movements would be acceptable with Alternative D, the overall corridor would provide poor traffic operations as demonstrated by the corridor LOS. Thus, an intersection level of service analysis is unnecessary to demonstrate that Alternative D is not a viable alternative from a traffic operations perspective.
EPA—NEPA office	EPA-NEPA-1.a.6	Several LOS forecasts (Washington St and E. Broadway/Old Knox Hwy) in [Table] 1.1 Traffic Level of Service (2006, 2015, and 2035) were not calculated. EPA requests that TDOT forecasts the LOS for these roads to better understand the traffic flow and volumes of the Alcoa/Maryville area.	As discussed above, for the roadways that operate as urban streets (such as Washington Street, East Broadway / Old Knoxville Highway) an LOS is not provided as the HCS+ software will only evaluate traffic operations on a highway segment with a minimum free flow speed of 45 mph. The intersection LOS will continue to govern as the indication of traffic flow on these roadways for the Preferred Alternative and Build Alternatives.
EPA—NEPA office	EPA-NEPA-1.a.7	In Table 1-1 Traffic Level of Service, on page 1-13, several roads (Sam Houston School Road, Peppermint Road, Hitch Road, and Helton Road) that are not part of the state-maintained system were not evaluated for	As discussed above, TDOT prepared traffic volume forecasts for Alternative D comparable to those prepared for the Preferred Alternative and Alternative C. A LOS analysis was prepared and is included in FEIS. The 2014 *Traffic Technical Report* documents the results of the additional analysis.

Table C-1: Agency Comments on DEIS and TDOT Responses

Agency Date of Comment	Number	Summary of Agency Comments	Responses
		LOS. EPA recommends TDOT conduct LOS and volume forecasts for these roads to better compare the No-Build to the Build Alternatives and especially considering that Alternative D is the improvement of Sam Houston School Road.	
EPA—NEPA office	EPA-NEPA-1.b	Vehicle Miles Traveled (VMT): Section 1.4.1.2 Note on Recent Trend in VMT—EPA disagrees with TDOT's assumption that VMT trends will increase despite data that proves otherwise and that the recreational traffic near the Great Smoky Mountains National Park will increase. TDOT projects an overall increase in VMT in the region (Table 1-1); however there is not data to substantiate the claim that VMT will increase because of recreational traffic to the GSMNP.	The latest Knoxville Regional Travel Demand Model is the source of the projected VMT increases for the region. The model is based on US Census data as well as household travel surveys conducted in the region. While this output may be in contrast to national trends, the region-specific data is viewed as a more accurate representation of future trends as it is based on regional trends and data. Additional descriptions related to the Travel Demand Model and the output is included in this FEIS.
EPA—NEPA office	EPA-NEPA-1.c	Travel Between Study Area: Section 1.4.1.1 Travel Between Study Area and Knox County—Good information but TDOT does not draw any conclusions. The discussion and Figure 1-5 seems to indicate that the predominant flow of traffic is north/south along US 129 and SR 33. What are the volumes of traffic along the East/West Routes toward Oak Ridge and I-40? EPA recommends TDOT better describe the conclusions from Section 1.4.1 and Figure 1-5. EPA would like see more data and discussion regarding East/West volumes of traffic toward I-40.	The analysis presented in Section 1.4.1.1 was not intended to draw conclusions regarding dominant traffic flow. This information was used solely to estimate the traffic flow from the eastern part of the study area to the northern part of the study area or rather towards Knoxville. Updated text has been included in the FEIS to provide a summary assessment of the volume of traffic travelling between the study area and Knox County.

Table C-1: Agency Comments on DEIS and TDOT Responses

Agency Date of Comment	Number	Summary of Agency Comments	Responses
EPA—NEPA office	EPA-NEPA-1.d	Travel Time Savings—In Tables 3-3 and 3-4, TDOT determines the travel time savings. Even in the best case scenario, Alts A & C would only decrease travel time by 11 minutes and Alt D by only 7 minutes. Wouldn't other less contentious and less disrupting alternatives accomplish the same travel time savings? EPA requests that TDOT consider and further analyze the worthiness of the proposed build alternatives.	The travel time savings for the proposed Build Alternatives presented in the DEIS are substantial savings when compared to the current travel time for the existing network (19 minutes). Each of the Build Alternatives would reduce the travel time generally by half. The travel time savings are based on decreasing intersection delay and increasing travel speed. By providing a path that has fewer intersections and a higher speed, the travel time savings listed in the DEIS would be achievable. Spot improvements at the existing intersections alone would not provide the same reduction in travel time since they would only address one of the functions of travel time savings (increase intersection capacity and therefore reduce intersection delay). Widening projects along the arterials would allow for an increase in travel speed but would cause major impacts to residences along these routes due to limited room to widen them and the fact that homes are immediately adjacent to these roads.
EPA—NEPA office	EPA-NEPA-1.e	Safety—Safety is listed as a project purpose; however, none of the studied roadways have a critical crash rate ratio (A/C) that exceeds the TDOT threshold of 3.5. Four sections have critical crash rates that exceed 2.0. How will the Build Alts improve these four roadway sections? Can other less environmentally impacting alternatives be made to these specific roadways to improve safety without building the extension? EPA recommends TDOT provide further information to support the project's safety purpose and need.	An updated crash analysis, for years 2010 through 2012, has been conducted and is documented in the 2014 *Crash Analysis Report*. None of the A/C ratios exceed TDOT threshold of 3.5 to receive Hazard Elimination Safety Program (HESP) funding. Ten roadway sections have a higher than average number of crashes (critical crash rate factors greater than 1). The existing transportation system requires travelers between the northwestern and eastern portions of Blount 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 Maryville core could help to reduce the number of crashes
EPA—NEPA office	EPA-NEPA-3	**Farmland Impacts**—Natural Resource Conservation Service (NCRS) has determined that each of the Build Alternatives would impact prime farmlands (page 3-40). TDOT recognizes the	Acknowledging that farmlands are an important issue in the study area, TDOT has addressed potential direct, indirect and cumulative impacts to farmlands in Chapter 3 of the DEIS and the FEIS, and had coordinated with the NRCS on the project on several occasions. The project is within the designated Urban Growth Boundary for Maryville and Alcoa, and it is anticipated that future

Table C-1: Agency Comments on DEIS and TDOT Responses

Agency Date of Comment	Number	Summary of Agency Comments	Responses
		cumulative impacts of the project on farmlands. EPA requests that a more thorough analysis to be completed to determine direct, indirect and cumulative impacts. Also, TDOT should reach out to farmers and the NCRS to determine the least impacting alternative to farmlands. Farmer and NRCS input should be solicited and more thorough discussed in the Final EIS.	developments (private and public) are likely to convert much of the existing agricultural lands between the existing city boundaries and the Little River to residential and/or commercial use, which is consistent with the Blount County Conceptual Land Use Plan. The Preferred Alternative and other project alternatives would result in the conversion of farmland to a transportation use, and indirectly/cumulatively to other uses. TDOT has committed to work with farmers during the final design to reduce the impacts on farmlands as much as possible based on available design solutions (this is included in the Environmental Commitments Sheet).
EPA—NEPA office	EPA-NEPA-4	Noise—EPA is concerned about noise impacts to residents; between 64 and 110 residences will be impacted by noise, and 25-86 residences will have substantial increased in noise. EPA understands that the final decision on noise barriers will be made during the design phase, but would like to be assured that noise abatement measures would be carried out.	In 2014 an updated Noise Analysis was conducted, based on model output from the new regional travel demand model. Based on that analysis one noise barrier has been preliminarily identified as feasible and reasonable. TDOT has committed to construct that noise barrier as mitigation for the Kensington Place mobile home community, provided that the majority of benefited residents and property owners give their approval. TDOT is required to update the noise analysis and associated feasibility and reasonableness determinations for the project during final design. Final decisions regarding the use of noise abatement measures will be made following the public involvement process (including a design public hearing). TDOT is following its Noise Policy.
EPA—NEPA office	EPA-NEPA-4 (cont)	Additionally, FHWA noise regulations (23 CFR 772.11(f) require "the views of the impacted residents will be a major consideration in reaching a decision on the reasonableness of abatement measures to be provided." EPA notes that no analysis of discussion of the views of the impacted residents or general public is found in the DEIS.	TDOT will conduct outreach with the affected residents during final design. A design public hearing will be held at which residents and the general public will be encouraged to provide input. This commitment has been added to the Environmental Commitments Sheet.

Table C-1: Agency Comments on DEIS and TDOT Responses

Agency Date of Comment	Number	Summary of Agency Comments	Responses
EPA—NEPA office	EPA-NEPA-4 (cont)	Further, 23 CFR 722.13 discusses more than just noise barriers as noise abatement measures that should be considered. 23 CFR 772.11(d) states "When noise abatement measures are being considered, every reasonable effort shall be made to obtain substantial noise reductions." Also, 722.13(d) refers to instances in which noise abatement measures other than those listed in 722.13(c) may be proposed for Types I and II projects by the highway agency and approved by the Regional FHWA Administrator on a case by case basis.	The DEIS *Noise Technical Report* (July 2009) included a preliminary consideration of the applicability of the following strategies for noise abatement: alteration of roadway horizontal or vertical alignments; traffic management measures; acquisition of property rights (either for fee or lesser interest) for construction of noise barriers; sound insulation of public use or non-profit institutional structures; and construction of noise barriers (noise walls). As part of this FEIS, TDOT has updated the noise abatement analysis to conform to it 2011 Noise Policy. TDOT is required to update the noise analysis and associated feasibility and reasonableness determinations during final design. Final decisions regarding the use of noise abatement measures will be made following the public involvement process (including a design public hearing). The commitment to follow a public involvement process will be added to the Environmental Commitments Sheet.
EPA—NEPA office	EPA-NEPA-4 (cont)	EPA recommends that TDOT commit to provide noise abatement measures (as practicable and within authorities of TDOT) in the Green Sheet (Environmental Commitment Section)	TDOT is required to provide noise abatement measures (as practicable and within TDOT's authority) by its noise policy; this applies to all projects, and is not a project-specific commitment.
EPA—NEPA office	EPA-NEPA-5	Inclusion of Mitigation Measures in Environmental Commitments Section—TDOT has proposed several reasonable mitigation measures throughout the EIS; however, many of these measures have not been included within the Green Sheet. EPA recommends that the measures be included in the Green Sheets.	The preliminary mitigation measures have been incorporated in this FEIS, and listed in the Environmental Commitments Sheet. See responses to specific impacts below.
EPA—NEPA office	EPA-NEPA-5.a	Farmland Impacts—In Section 3.6.2, TDOT states that it will work with farm owners to reduce the impacts on farmlands as much as possible based on available design	TDOT has added to the Environmental Commitments the statement, "During final design, TDOT will work with farm owners to reduce the impacts on farmlands as much as possible based on available design solutions." In Section 3.6.4, potential mitigation measures are mentioned, including

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		solutions. EPA recommends TDOT describe potential mitigation measures within this section, and include a farmlands mitigation statement within the Green Sheet.	minimizing the amount of division of farms to ensure that farm remnants are viable.
EPA—NEPA office	EPA-NEPA-5.b	Floodplain impacts—In Section 3.13.2 Floodplains and Hydrology, TDOT states that because the proposed alignments run generally perpendicular to the floodplains, avoidance of all floodplains is not possible. Potential mitigation measures were described but were omitted from the Green Sheets. EPA recommends the floodplain mitigation measures addressed in this section be included in the Green Pages.	During the preparation of this FEIS, TDOT has confirmed floodplain mitigation measures that would be appropriate for this project. These are standard procedures and as such are not included separately in the Environmental Commitments.
EPA—NEPA office	EPA-NEPA-5.c	Karst Topography. In a memo dated May 15, 2006, TDEC discussed special measures to be taken to protect sinkholes. Although TDOT has included a Karst Topography commitment statement in the Green Pages, it is unclear whether this commitment includes the mitigation measures outlined in the TDEC letter. TDOT should clarify, and either include a specific environmental commitment to address sinkhole mitigation or revise the Karst topography commitment statement to reflect sinkhole mitigation.	TDOT has expanded the list of potential mitigation measures in Section 3.13.1. The Environmental Commitment has been revised to read: "During final design and during construction, TDOT will take special care to minimize unnecessary impacts to the habitat of the numerous karst features (specifically sinkholes) in the study area. TDOT will abide by all permit terms, including those through the UIC program."
EPA Detailed Comments—Water Protection Division			
EPA—Water Protection	EPA—WPD- 1	Pg 2.18-19—public transit, fixed route local bus service and bus rapid transit Institute	Since the Preferred Alternative has been selected, detailed discussion of the alternatives previously considered and dismissed from evaluation in the DEIS

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		for Transportation Engineers Tool Box should be evaluated with the 2015 and 2025 population projections that were provided earlier in the chapter.	has been eliminated in the FEIS.
EPA—Water Protection	EPA—WPD- 2	Pg 2.20 –fixed route public transit service should be considered in conjunction with Alternative D or road improvements.	The concept of fixed route public transit service was not advanced for further study for the reasons listed on page 2-20 of the DEIS. While local bus service is a desirable transportation alternative, it would not resolve the needs identified for this project.
EPA—Water Protection	EPA—WPD- 3	Pg 3.15—Figure 3.4—Alternative B should be correctly labeled as Alternative C.	This error has been corrected in the FEIS – the figure is now 3.5.
EPA—Water Protection	EPA—WPD- 4	Pg 3.20—Figure 3.7—Alternative B should be correctly labeled as Alt C. Doesn't part of the cemetery being built over essentially eliminate Alternative C from consideration? Also Sam Houston Schoolhouse is not indicated on the map.	This Alt C label error and the missing Sam Houston Schoolhouse location has been added to Figure 3-8, Community Facilities, in the FEIS. Alternative C does not encroach into either cemetery shown on the map—the scale of the map makes detailed boundaries difficult to see.
EPA—Water Protection	EPA—WPD- 5	Pg 3.70—Potential Mitigation measures [for soils and geology]—the last sentence needs more detail regarding the design for protecting groundwater and aquatic species during and after construction.	Based on coordination from TDEC Division of Water Supply in 2006 and 2010, the requirements for erosion control in the vicinity of sinkholes are basically the same as the erosion control plan around streams required by the Division of Water Resources. In the FEIS, TDOT has expanded the Section 3.13.1, Soils and Geology, Potential Mitigation Measures, to include TDEC's Division of Water Supply's requirements as listed in the Mary 15, 2006, coordination letter and confirmed in the January 6, 2010, TDEC response to the Concurrence Point 3 package.
EPA—Water Protection	EPA—WPD- 6	Pg 3-79, Impacts to Streams, Springs, Seeps, etc. Doesn't Alternative D already cross these streams (2 in Table 3.26) because of existing roadway? Are there any new crossings that would be created with Alternative D?	An updated Ecology Study for Alternative D was conducted in 2014. During the 2014 field surveys some of the non-wetland waters that had been identified as wet weather conveyances (WWC) in 2008 field surveys were now determined to be more representative of a wetland, intermittent stream, or a perennial stream. Additional wet weather conveyances were identified where there were previously none. These changes are most likely due to the fact that in

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			2008 precipitation was well below average for the region resulting in no water flow in watercourses that, under normal conditions, may have intermittent to continuous water flow. Alternative D would cause a new impact to Stream 7 (formerly 5) due to the extension of the existing culvert to accommodate the road widening. Alternative D would cross Stream 10 (formerly 7) in a new location, east of the existing roadway. The existing roads along Alternative D cross two 303(d) listed streams.
EPA—Water Protection	EPA—WPD- 7	Pg 3-79, Table 3.26—Wet Weather Conveyances (WWC) (linear feet affected), Alternative D—1424. This is unclear. Is this increase because of the old ditches along side or existing roadways affected? Needs further discussion in the Impacts to Streams, Springs, Seeps and Other Waterbodies section [Section 3.14.2.1].	Based on the 2014 field surveys, the impact of Alternative D on WWCs is 650 feet rather than the 1,424 feet reported in the DEIS. The reported impact is due to the widening of the existing roadway, which would cause impacts to WWCs that are currently not impacted by the existing roadway. These WWCs either run parallel to the existing roadway or they begin/end beyond the current toe of slope of the existing roadway.
EPA—Water Protection	EPA—WPD- 8	Pg 3.80-81, Tables 3.27 & 3.28, Summary of Alternatives A and C impacts to aquatic resources. In the Potential Impacts—Type of Impacts—Entire column. Any these that have construction activities, including culverts, would likely have sediment runoff.	Updated Ecology Reports were prepared in 2013 and 2014. The updates detailed tables summarizing impacts to the Preferred Alternatives and other alternatives considered are now presented in Attachment I. These tables present the "known" amount of impacts from structures and/or fill material. The actual linear footage impact from sediment run-off is difficult to predict and may also vary, depending on the conditions of the site. However, TDOT has accounted for the potential impact to streams from sediment run-off, which is discussed in Section 3.14.2 *Aquatic Resources and Water Quality*. The potential impacts from sediment run-off will be avoided and/or minimized by the implementation of best management practices, which are discussed in the mitigation section.
EPA—Water Protection	EPA—WPD- 9	Pg 3.82, Table 3.29 Summary of Alternative D Impacts to Aquatic Resources, WWC 1-4, Legal Designation column. Is this an existing roadside ditch? If so, wouldn't this be considered natural aquatic resources	DEIS WWC-2 is the only existing roadside ditch; the 2013 ecology study determined that this resource is an intermittent stream (STR-3). Impacts to Alternative D's water resources are now described in Table I-3 in Attachment I.

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		that should be counted among the impacts?	
EPA—Water Protection	EPA—WPD- 10	Pg 3.85 Measures to Avoid or Minimize Impacts to Aquatic Resources. 2nd paragraph—what specific measures will be taken and how will they minimize the impacts. 3rd [4th] paragraph—who will conduct the inspections? 4th [5th] paragraph—provide more specific detail regarding erosion and control failures and standards; in particular the standards that will be followed for erosion and control should be included.	Additional details regarding mitigation have been added to the *Preliminary Mitigation Measure for Aquatic Resources* subsection of Section 3.14.2: Long-term impacts to aquatic organisms can occur through the loss of natural streambed by culvert construction, bank clearing, the placement of rip-rap, and the removal of trees lining the channel. TDOT will make every effort to avoid or minimize impacts to perennial streams at highway crossings. Construction of culverts will be staged during the drier portions of the year, where and when possible, typically late summer and fall, when stream flows are reduced. If bridges are constructed, they will be designed to span the entire stream channel, where possible. The fording of streams by construction equipment at bridge locations will be prohibited. Stream channels requiring relocation or channelization will be replaced on-site to the practical extent possible, using techniques that will maintain existing stream characteristics such as channel profile, elevation, gradient, and tree canopy. Use of "Natural Channel Design" may be required if the portion of affected stream is generally greater than 200 feet long. Stream or water body impacts that cannot be mitigated on-site—such as impacts of culverts greater than 200 feet or impacts to springs or seeps that require rock fill to allow for movement of water underneath the roadway—will be mitigated off-site by either improving a degraded system or by making a comparable payment to an in-lieu-fee program or mitigation bank. The particular program or bank used will perform the required off-site mitigation under the direction of state and federal regulatory and resource agencies. TDOT will provide the USACE with a copy of the Environmental Boundaries Study and Mitigation Memorandum prior to submitting the permit application. Prior to submitting a permit application, TDOT will invite the USACE to participate in a field review to make jurisdictional determinations for any of the streams and/or wetlands that will be impacted by the project, at the USACE's discretion. TDOT will carry out any required mitigation for

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			jurisdictional stream and wetland impacts as per condition of the permit.
EPA—Water Protection	EPA—WPD- 11	Pg 3.86—2nd para. TDOT should look at the measures that would be required by alternative [to avoid impacts to streams], the unavoidable impacts by alternative and the effectiveness of measures by alternative.	A comparison by alternative of measures to avoid impacts, unavoidable impacts and effectiveness of measures would not likely assist in determining the selection of the Preferred Alternative. During final design, TDOT will confirm and evaluate measures to avoid, minimize or mitigate impacts of the project on aquatic resources.
EPA—Water Protection	EPA—WPD- 12	Pg 3.87, Impacts to Water Quality, 1st para., 1st sentence needs clarification since Peppermint Branch and Gravelly Creek are already crossed by roads that comprise part of Alt D.	The level of detail in the first paragraph has been reduced, so no specific mention of Alternative D is contained in this paragraph. The additional language suggested has not been added.
EPA—Water Protection	EPA—WPD- 13	Pg 3.87, Impacts to Water Quality, 2nd paragraph. These land disturbing activities can also contribute to degradation of groundwater quality by the disturbance author and removal of the overburden that would otherwise protect the underground sources of water; this is especially true in the case of karst geology. The impacts on underground sources of drinking water need to be discussed and analyzed.	The following paragraph has been added to this subsection: "The land disturbing activities can also contribute to degradation of groundwater quality by the activities and removal of overburden that would otherwise protect the underground sources of water, particularly in the case of karst geology. The result could be increased levels of drinking water treatment for public water supplies and could be a major concern for private well owners in an area with grazing cattle."

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EPA—Water Protection	EPA—WPD- 14	Pg 3.88—mitigation for water quality—there should be much more detail on the mitigation measures.	Some of the BMPs that would be implemented to avoid and minimize impacts to water quality may include: installing silt fencing, biodegradable mats/blankets, straw bales, applying temporary grass seed in disturbed areas, covering soil piles during rain events and at the end of each work day, fueling of equipment away from aquatic resources, installing check dams, where appropriate, installing retention/detention basins, where appropriate, and preserving riparian vegetation, when possible. Mitigation would also be achieved by restoring the impacted streams and wetlands on-site and/or by purchasing stream and wetland mitigation credits within the watershed. This additional discussion has been added to the *Preliminary Mitigation Measures for Water Quality* subsection in Section 3.14.2.
EPA—Water Protection	EPA—WPD- 15	Pg 3.98—(in Section 3.15.7 Water Quality & Erosion Control) -Construction activities could have any impact on underground sources of drinking water (see comment 13 above)	A sentence has been added to Section 3.15.7 to acknowledge that construction activities can have an impact on surface and underground sources of drinking water.
EPA—Water Protection	EPA—WPD- 16	Pg 3.99 Section 3.16.1.1. Indirect Effects—It is not clear if commercial developments are considered among the bulleted items.	The bulleted list in Section 3.16.1.1 was not intended to list specific projects. Planned commercial developments are included among the types of reasonably foreseeable actions or projects.
EPA—Water Protection	EPA—WPD- 17	Pg 3.99, Section 3.16.1.1 Indirect Effects. Last paragraph. A project could have a small effect and the resulting development (such as commercial or residential) could have a very large effect…that could mean a large impact that would not have occurred without the roadway. This should be acknowledged and included in the EIS.	New or expanded development coming in after a road project could have its own direct and indirect effects on various resources. The 2009 *Economic and Fiscal Impact Analysis* and the 2015 *Addendum to the 2009 Economic and Fiscal Impact Analysis* for this project determined that the amount of additional development as a result of this project would be small.
EPA—Water Protection	EPA—WPD- 18	Pg 3-100, Section 3.16.2 Methodology—Indirect Effects, This should be discussed by	The methodology used to conduct the indirect impact assessment is consistent across all alternatives. The analysis in Section 3.16.5.2 subsection, *Potential*

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		alternative since Alternative D would be expected to have a much smaller indirect effect due to much of the roadway already being in place.	*Indirect Impacts*, identifies when the anticipated indirect effects of Alternative D are different from those the Preferred Alternative and the other four-lane alternatives considered.
EPA—Water Protection	EPA—WPD- 19	Pg 3-112. Water Quality, to end of 2nd sentence—add "or groundwater in karst geology." Also add another sentence—"Decreased recharge of groundwater may also result from increased amounts of impervious surfaces.	The text has been revised as requested.
EPA—Water Protection	EPA—WPD- 20	Pg 3-118—Water Quality, to end of 2nd sentence, add "including groundwater."	The text has been revised as requested.
EPA—Water Protection	EPA—WPD- 21	Pg 3.120, Table 3.35 Summary of Effects—consideration of effects based on earlier comments (groundwater) need to be added to this table. (See comment 13 above.)	Table 3-37 (formerly 3-35) has been revised to include a line item for Water Quality that addresses this comment.
EPA—Water Protection	EPA—WPD- 22	Pg 3,123, Table 3.35 Summary of Effects—see above comments on page 3.79 related to wet weather conveyances and ponds (EPA WP comments 7 & 8 above)	Table 3-37 (formerly 3-35) has been revised to include the results of the 2013 and 2014 ecological studies including the impacts to WWCs and ponds.
EPA—Water Protection	EPA—WPD- 23	Pg 4.7 Table 4-1 Agency Responses to Initial Coordination, 2nd row, TDEC, Division of Water Supply. TDOT needs to identify and discuss what BMPs will be required.	The letter from TDEC was sent in 2006, during project scoping. Based in part on the TDEC scoping comments BMPs for water quality during construction were discussed in DEIS Section 3.15.7, Water Quality and Erosion Control.
EPA Detailed Comments—Air Toxics Assessment and Implementation Section			
EPA-Air Toxics	EPA-AT-1	Page 3-4 (Figures 3-1 and 3-2), Table 3-1). The Intersection LOS section addresses LOS in 2015 and 2035. While the LOS for Alternatives A and C seem to range	The Knoxville *Regional Mobility Plan* includes an array of transportation improvements in Blount County that together with the proposed Pellissippi Parkway Extension, are intended to address the transportation needs of the county. Those projects are part of the regional model that has been used to

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		between LOS A and D for 2015, by the design year of 2035, Alternatives A and C are operating at an unacceptable LOS E and LOS F. Is there a broader plan into which this highway extension fits such that the purpose of the proposed action ("assist in achieving acceptable traffic flows (LOS) of the transportation network or not adversely affect traffic flows on existing transportation network") will be realized?	evaluate the Build Alternatives in the DEIS. However, the proposed project is being evaluated as a standalone project. As discussed in earlier responses, the proposed project has a number of purposes, of which the goal of "assist in achieving acceptable traffic flows" is one but not the only one. The updated traffic forecasts (2013) and traffic operations (2014), based on the 2013 approved regional travel demand model, show the Preferred Alternative and the other four-lane alternatives considered (including Alternative C) will operate at acceptable LOS through 2040.
EPA-Air Toxics	EPA-AT-2	Page 3-96, Section 3.15.3 [Construction Impacts, Air Quality] focuses on dust suppression as a mitigation measure but there are many more mitigation measures that should be carried out.	This section has been revised to read: "This project will result in the temporary generation of construction-related pollutant emissions and dust that could result in short-term air quality impacts. These construction-related impacts will be mitigated through the implementation of Best Management Practices, which are included in TDOT's *Standard Specifications for Road and Bridge Construction*. All construction equipment shall be maintained, repaired and adjusted to keep it in full satisfactory condition to minimize pollutant emissions." This language reflects TDOT's commitment to follow its Standard Specifications.
EPA-Air Toxics	EPA-AT-3	Pg 3-111, Air Quality. This section notes that the parkway extension would result in some induced residential and commercial development. This is an area that is already experiencing rapid growth (see page 1-21). The discussion of MSAT emissions on page 3-116 notes that the magnitude of EPA-projected reductions is so great…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.	The FHWA acknowledges that the project may result in increased exposure to MSAT emissions in certain locations. The FHWA also acknowledges the concentrations and duration of exposures are uncertain, and because of this uncertainty, the health effects from these emissions cannot be credibly determined. 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 Health Effects Institute (HEI). 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 particulate matter. The EPA and the HEI have not established a basis for quantitative risk assessment of diesel particulate matter in ambient settings.

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		Projected emission reductions resulting from EPA rules do not absolve the FHWA and the project sponsor from their responsibility to protect public health from emissions associated with this project by using appropriate mitigation measures. Furthermore, the future reductions in emissions resulting from EPA rules do not inform the decision concerning which alternative to select. The purpose of the DEIS is to compare the impacts of the alternatives being considered against one another at some point in the future, not to evaluate the impact of the EPA regulations between today and some point in the future.	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 the 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 here 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 US 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. Decision makers would need to weigh the 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.
EPA-Air Toxics	EPA-AT-4	Feb 2010 Air Quality Technical Report (page 2-21). The report states that under each alternative there may be localized areas where VMT would increase, and other areas where VMT would decrease. Therefore it is possible that localized	As discussed above in the response to Air Toxics Assessment Comment # 3, there are limitations in forecasting health impacts and considerable uncertainties associated with the existing estimates of toxicity of the various MSATs. 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 particulate matter. The EPA and the HEI have not

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		increases and decreases in MSAT emissions may occur…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. Given that this project is likely to be built in a populated area, the potential impact of locally elevated levels of MSAT should be evaluated. The DEIS has appropriately identified several locations of sensitive populations. It would be helpful to estimate the concentrations of MSATS at these locations, to estimate the locations where higher concentrations of MSATS resulting from construction and operation of the different alternatives are likely to occur, and to identify their locations, concentrations and potential health effects in the FEIS. Many reports published in peer reviewed journals have linked proximity to high volume traffic with health effects. This literature should also be discussed in the FEIS.	established a basis for quantitative risk assessment of diesel particulate matter in ambient settings. There is also the lack of a national consensus on an acceptable level of risk.
EPA-Air Toxics	EPA-AT-5	Pg G-1 and G-2 and Feb 2010 Air Quality Technical Report (page 2-25). These pages state that there are technical shortcomings that prevent reliable comparisons of MSAT emissions and potential effects at the project level. EPA states that while it is correct that available technical tools do not predict health impacts, they do allow a comparison of the potential impacts among	As discussed above in the response to Air Toxics Assessment comment #3, 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 or the public. The decision makers would need to weigh the 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.

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		alternatives. The thrust of the text in the report is at variance with the common practice of air quality and environmental health professionals, as reflected in the body of peer-reviewed literature employing these various models. The Pellissippi Parkway Extension appears to be a project in which there is considerable community interest. The FEIS should provide the public with a more complete analysis of the potential impacts of air toxics associated with the construction and operation of this extension project.	
US Department of the Interior—Fish and Wildlife Service July 30, 2010	FWS-1	Section 7 Endangered Species Act requirements fulfilled for three species (snail darter, duskytail darter and fine-rayed pigtoe), Obligations under Section 7 may be reconsidered if 1) new information reveals impacts of the project that may affect listed species or critical habitat in a manner not previously considered, 2) the proposed action is subsequently modified to included activities that were not considered during this consultation, or 3) new species are listed or critical habitat designated that might be affected by the proposed action.	Comment noted.
	FWS-2	The potential to adversely affect the Indiana bat was addressed in the DEIS by proposing to restrict tree cutting to the period of October 15 through March 31. In a letter to TDOT dated December 1, 2009, we concurred with your determination of	In response to the USFWS's concerns about the Indiana bat, during the 2012 summer season TDOT conducted a mist net and acoustical survey in the project area. No Indiana bats were captured or acoustically detected during the survey. The results are documented in the 2012 *Indiana Bat Mist Net and Acoustical Survey Report*. The USFWS concurred with the findings of the report in a letter dated October 11, 2012. Thus the proposed project is "not likely to

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		"not likely to adversely affect for the Indiana bat." However, our office no longer believes that a timeframe restriction on tree cutting properly addresses indirect and cumulative impacts to Indiana bat. Therefore our concurrence is no longer in effect and further coordination with our office would be required under Section 7, prior to removal of trees for this project.	adversely affect" the Indiana bat. In 2013, TDOT updated its Biological Assessment for the project. The USFWS concurred with TDOT's species determination calls of "Not Likely to Adversely Affect" for all of the federally listed species in a letter dated July 26, 2013. In addition, the USFWS stated that in light of TDOT's commitments to improved water quality measurers and negative surveys for Indiana bats in the project area, that the requirements under the Section 7 of the ESA of 1973, as amended, are fulfilled.
US Army Corps of Engineers (USACE) July 9, 2010	USACE-1	The 3 alternative alignments would impact jurisdictional waters of the US; therefore a Department of the Army (DA) permit would be required for any discharge of fill material into jurisdictional waters, including wetlands, pursuant to Section 404 of the Clean Water Act.	Comment noted.
	USACE-2	Our review of the DEIS reveals that the document covers all areas of interest and/or programs administered by our agency. However, if possible, please incorporate any stream and/or wetland environmental or mitigation commitments discussed in the DEIS in the Summary section (page S-7).	The following has been added to the Environmental Commitments sheet. **Wetlands and Streams** - TDOT will provide USACE with copies of the Environmental Boundaries Study and Mitigation Memorandum prior to submitting the permit application. TDOT will invite USACE to participate in a field review to make a jurisdiction determination for any of the streams and wetlands that will be impacted by the project, at USACE's discretion. TDOT will carry out any required mitigation for jurisdictional stream and wetland impacts, which is a condition of the permit.
	USACE-3	Typically, the COE usually recommends practicable alternatives based on the alignment that would impact and/or minimize the amount of impacts on aquatic resources.	Comment noted.
	USACE-4	In addition, since DA permits would be required for the proposed work, you should	Comment noted. Permits will be applied for during the early stages of the

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		submit applications, plans of the work, locations of crossings, stream and wetland impacts, proposed mitigation, and any additional supporting environmental documentation in a timely manner to obtain the necessary permits for the work.	design process.
USDOI, Office of the Secretary December 3, 2010	DOI-1	Endangered Species—With regard to protective measures for the Indiana bat, the USFWS no longer believes that a timeframe restriction on tree cutting properly addresses indirect and cumulative impacts to Indiana bat. Further coordination with USFWS is required under Section 7 prior to removal of trees for this project. Contact John C. Griffin, Transportation Biologist with the USFWS Tennessee Field Office.	See response to USFWS July 30, 2010—comment # 2. The requirements under the Section 7 of the ESA of 1973, as amended, are fulfilled.
	DOI-2	Section 4(f) Comments—A Section 4(f) Evaluation was not prepared for this project, but because of the project's potential involvement with several historic and archaeological resources in the area, the project has been processed as a Section 4(f) case. At this time the Department (US DOI) cannot concur that there is no feasible and prudent alternative to the proposed use and that all possible planning has been done to minimize harm to the Section 4(f) lands/ archaeological sites. Phase II testing must be completed and a report or avoidance strategy must be submitted to	For the Preferred Alternative, TDOT has conducted a Phase II archaeological testing program on five potentially eligible sites and submitted a report of the Section 106 findings to the SHPO; the report recommended one site as National Register eligible. The SHPO concurrence with that eligibility recommendation for site 40T122 in a letter dated December 17, 2012 and stated that the project as currently configured may adversely affect the site. TDOT subsequently considered two minor alignments shifts (East and West Shifts) between Davis Ford Road and US 321/SR 73 to avoid the National Register-eligible site. TDOT determined that the Preferred Alternative was best modified by the West Shift. Thus the eligible site has been avoided and there is not taking of a Section 4(f) resource. No Section 4(f) Evaluation is necessary.

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		the SHPO for review. Section 106 consultation of the NHPA has begun but is not yet complete.	
	DOI-3	Summary Comments—DOI recommends further analysis of design shifts to avoid, minimize and mitigate potential impacts to archaeological sites and continued coordination with the SHPO to develop and MOA for sites that cannot be avoided.	See response to DOI-2 above.
Tennessee Wildlife Resources Agency August 9, 2010	TWRA-1	We understand that the FWS no longer believes that a timeframe restriction on tree-cutting properly addresses indirect and cumulative impacts to the Indiana bat. We suggest further coordination with the FWS on methods to further minimize impacts to Indiana Bat due to this project. We look forward to working with TDOT on further avoid, minimize and mitigate for potential impacts to streams, wetlands and floodplains once a preferred alternative is selected.	See response to USFWS July 30, 2010—comment # 2. The requirements under the Section 7 of the ESA of 1973, as amended, are fulfilled.
City of Alcoa, TN August 27, 2010	A-1	Reaffirmed its support for the extension of Pellissippi Parkway.	Comment noted.
	A-2	The city pointed out several errors in label and place names, and provided corrected information on the section of PPE between US 129 and Cusick Road, and on the 1997 Alcoa Subdivision Regulations related to sidewalks	The corrections identified have been in this FEIS.

Table C-1: Agency Comments on DEIS and TDOT Responses

Agency Date of Comment	Number	Summary of Agency Comments	Responses
	A-3	General Traffic Projection comments: 6a. Traffic is projected to increase on Alcoa Highway from Pellissippi Parkway to the Hall Road split, ranging from 31,570—56,100 in 2015 to 40,280—61,120 in 2035. It is also stated that the heavier traffic will occur south of Hunt Road. At the same time there is no projected increase for Hall Road or the By-Pass South of the Hall Road split in 2035. Since those are the only two roadway sections connecting to the Alcoa Hwy between the Hall Road split and the Hunt Road interchange, the question becomes: "where did that increase on traffic on US 129 come from or go to?	These corrections were incorporated in the June 30, 2011 *Addendum to the Traffic Operations Technical Report.* However, in response to the adoption of the 2013 regional travel demand model, new traffic forecasts and traffic operational analysis were prepared and are described in Chapters 1 and 3 of the FEIS.
	A-4	6c. Hall Road and Washington Street are basically the same corridor running through Alcoa and then Maryville. Hall Road is projected to have no increase in traffic while at the same time Washington Street is projected by over 13,000 cars per day, which is an increase of almost 54%. It is difficult to understand how one section of the Hall Road—Washington corridor can be assigned a substantial growth in projected traffic volumes while another section remains stagnant. The study attempt[s] to address that by stating the reason traffic is not projected to increase on Hall Road "because of the built-out nature of development along the road." However, there are several undeveloped or redeveloping areas along Hall Road in	See response to A-3 above.

Table C-1: Agency Comments on DEIS and TDOT Responses

Agency Date of Comment	Number	Summary of Agency Comments	Responses
		addition to the 350 acre former Aluminum Company West Plant site which is nearing the final stages of planning that will transform it into a mixed use development.	
City of Maryville, TN September 14, 2010	M-1	Reiterated its continued support of the completion of the Pellissippi Parkway Extension. Indicated preference for Alternative A.	Comment noted.
Blount County Mayor , Ed Mitchell September 17, 2010	BC-1	Reiterated continued support from the Mayor's Office of the completion of the Pellissippi Parkway Extension.	Comment noted.

Attachment C-2

Other Agency Correspondence since the DEIS

CERTIFICATION

STATE OF TENNESSEE)
)ss
COUNTY OF BLOUNT)

I, RAY E. RICHESIN, do hereby certify that I am the Recorder of the City of Alcoa and that the attached document is a true, correct and exact copy of Resolution number R11-199, adopted by the Alcoa Board of Commissioners on October 11, 2011.

WITNESS my hand and the seal of said City on this the 12th day of October, 2011.

Ray E. Richesin
City Recorder

KIMBERLY J. WADE
STATE OF TENNESSEE
NOTARY PUBLIC
COUNTY OF BLOUNT

Subscribed and sworn to before me this the 12th day of October, 2011.

Kimberly J. Wade
Notary Public

My Commission Expires: August 14, 2013

RESOLUTION NO. R11-199

A RESOLUTION SELECTING THE PREFERRED ALTERNATE FOR THE PELLISSIPPI PARKWAY EXTENSION

WHEREAS, the Tennessee Department of Transportation has issued a Draft Environmental Impact Statement for the extension of the Pellissippi Parkway from its current terminus at SR 33, the Old Knoxville Highway, to US 321, Lamar Alexander Parkway; and

WHEREAS, the Draft Environmental Impact Statement examined numerous options which have been narrowed down to four alternates, including:

1. No build
2. Alternate A, new four-lane controlled-access highway
3. Alternate C, new four-lane controlled-access highway
4. Alternate D, geometric and width improvements to existing two-lane roadways; and

WHEREAS, the Commissioner has determined that a build alternative is necessary to meet the needs of the citizens of Blount County and the state of Tennessee and that a preferred route must be determined prior to expending additional funds for completing the archeological and other environmental studies; and

WHEREAS, the Commissioner has indicated that the apparent preferred route is Alternate A; however, he has requested input into this decision from the governments of Blount County and the cities of Alcoa and Maryville prior to making a final determination.

NOW, THEREFORE, BE IT RESOLVED by the Board of Commissioners of the City of Alcoa, Tennessee, as follows:

SECTION 1. That Build Alternative A as depicted in the Draft Environmental Impact Statement is the preferred alternate of the City of Alcoa, Tennessee.

SECTION 2. That this resolution shall take effect from and after its adoption, the public welfare requiring it.

Adopted this 11th day of October, 2011.

Mayor

ATTEST:

Recorder

APPROVED AS TO FORM:

City Attorney

BLOUNT COUNTY MAYOR
Ed Mitchell
341 Court Street, Maryville, TN 37804-5906
Phone: (865) 273-5700
Fax: (865) 273-5705
Email: emitchell@blounttn.org

November 7, 2011

Mr. John Schroer
TDOT Commissioner
James K. Polk Building
505 Deaderick St., Suite 700
Nashville, TN 37243

Re: Pellissippi Parkway Extension (SR 162)
Blount County, PIN 101423.00

Dear Mr. Schroer:

Please be advised that the Blount County Board of Commissioners passed a Resolution at their October 20, 2011, meeting endorsing Route A relative to the above referenced project. I have attached a copy of that Resolution hereto for your records.

Please feel free to contact me if you have any questions or need further information. My office number is (865) 273-5700. My e-mail address is emitchell@blounttn.org. I look forward to receiving updates or further instruction on the status of this matter from your office.

Thank you for your assistance in this matter.

With kindest regards,

Ed Mitchell
Blount County Mayor

/amc
cc: Nancy Skinner (via email)

IN RE: RESOLUTION RECOMMENDING ALTERNATIVE "A" CONCERNING PELLISSIPPI PARKWAY EXTENSION (SR 162) BLOUNT COUNTY, PIN 101423.00.

Commissioner Farmer made a motion to approve the resolution. Commissioner Lambert seconded the motion.

Commissioner Murrell made a motion to postpone until representatives from the Tennessee Department of Transportation can answer questions. Commissioner French seconded the motion.

A vote was taken on the motion to postpone:

Burchfield – absent	French – yes	Kirby – no	Murrell – yes
Burkhalter - yes	Gamble – no	Lail – no	Samples – yes
Carver – yes	Greene – yes	Lambert – yes	Wright – no
Caylor – no	Harrison – no	Lewis – no	
Farmer – no	Hasty – yes	Melton – no	
Folts – no	Helton – no	Moon – no	

There were 8 voting yes, 12 voting no, and 1 absent. Chairman Moon declared the motion to postpone to have failed.

Commissioner Folts made a motion to lay the resolution on the table. Commissioner Murrell seconded the motion.

A vote was taken on the motion to table:

Burchfield – absent	French – yes	Kirby – no	Murrell – yes

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County Commission October 20, 2011

Burkhalter - no	Gamble – no	Lail – no	Samples – no
Carver – no	Greene – yes	Lambert – no	Wright – no
Caylor – no	Harrison – no	Lewis – no	
Farmer – no	Hasty – no	Melton – no	
Folts – yes	Helton – no	Moon – no	

There were 4 voting yes, 16 voting no, and 1 absent. Chairman Moon declared the motion to table to have failed.

Commissioner Farmer called for the previous question. Commissioner Wright seconded.

A vote was taken on the call for the previous question:

Burchfield – absent	French – no	Kirby – yes	Murrell – no
Burkhalter - yes	Gamble – yes	Lail – yes	Samples – no
Carver – yes	Greene – yes	Lambert – yes	Wright – yes
Caylor – yes	Harrison – yes	Lewis – yes	
Farmer – yes	Hasty – yes	Melton – yes	
Folts – no	Helton – yes	Moon – yes	

There were 16 voting yes, 4 voting no, and 1 absent. Chairman Moon declared the motion to have passed.

A vote was taken on the call for the original motion:

Burchfield – absent	French – no	Kirby – yes	Murrell – no
Burkhalter - yes	Gamble – no	Lail – yes	Samples – yes
Carver – yes	Greene – no	Lambert – yes	Wright – yes
Caylor – yes	Harrison – yes	Lewis – yes	
Farmer – yes	Hasty – yes	Melton – yes	
Folts – no	Helton – yes	Moon – yes	

There were 15 voting yes, 5 voting no, and 1 absent. Chairman Moon declared the motion to have passed.

RESOLUTION NO. 11-10-009

SPONSORED BY COMMISSIONERS JEROME MOON, GARY FARMER, GERALD KIRBY, AND GORDON WRIGHT

A RESOLUTION RECOMMENDING ALTERNATIVE "A" CONCERNING PELLISSIPPI PARKWAY EXTENSION (SR 162) BLOUNT COUNTY, PIN 101423.00.

WHEREAS, John C. Schroer, Commissioner of the State of Tennessee Department of Transportation, has made a request to the Blount County Mayor and other local officials, for input and opinions regarding the preferred alternative of one of four alternatives concerning the Pellissippi Parkway Extension (SR 162) Blount County, PIN 101423.00; and

WHEREAS, the Blount County Mayor has forwarded to the Blount County Legislative Body a recommendation of Alternative "A" as the preferred alternative; and

WHEREAS, the officials of the City of Alcoa, Tennessee, and the City of Maryville, Tennessee, in Blount County, Tennessee, have given support and recommendations of Alternative "A".

NOW, THEREFORE, BE IT RESOLVED by the Blount County Board of Commissioners, meeting in regular session on this the 20th day of October, 2011, that the recommendation of Alternative "A", concerning the Pellissippi Parkway Extension (SR 162) Blount County, PIN 101423.00, is hereby endorsed.

Duly authorized and approved the 20th day of October, 2011.

CERTIFICATION OF ACTION: **ATTEST:**

Commission Chairman County Clerk

Approved: ✓
Vetoed: _____

County Mayor Date 10-24-11

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RESOLUTION NO. 2011-11

A RESOULTION IN REGARD TO THE PREFERRED PELLISSIPPI PARKWAY EXTENSION ROUTE

WHEREAS, the construction and completion of the Pellissippi Parkway is a priority for the State of Tennessee and the City of Maryville, and;

WHEREAS, the completion of the Parkway will provide economic growth for Blount County and the surrounding region, and;

WHEREAS, The Tennessee Department of Transportation has put in place a process to expedite environmental and regulatory review of the proposed extension, and;

WHEREAS, said process does not preempt or ignore any identification, evaluation, and resolution of any environmental and regulatory issue associated with the project, and;

WHEREAS, federal, state and local agencies have been invited to provide input on the development of the purpose and need statement and alternatives considered in the Draft Environmental Impact Statement, and;

WHEREAS, the City of Maryville has been requested to declare it's preference as to which alternative route it supports, as part of this process.

NOW, THEREFORE BE IT RESOLVED BY THE COUNCIL OF THE CITY OF MARYVILLE, TENNESSEE, the following;

SECTION 1. That the City Council of the City of Maryville, Tennessee supports and recommends the construction of the Pellissippi Parkway Extension's Alternative "A".

SECTION 2. That this resolution take effect immediately upon it's passage, the public welfare requiring it.

ADOPTED this 4th day of Oct., 2011.

Thomas W. Taylor
Mayor

Attest:

City Recorder

Approved as to form:

City Attorney

From: Slabaugh, Doug - NRCS, Nashville, TN
To: Skinner, Nancy T.
Subject: RE: Pellissippi Parkway Extension (SR 162) Blount County TN - Request for Updated CPA-106
Date: Wednesday, December 10, 2014 11:34:59 AM
Attachments: Blount LESA Groups with RV & muname12-10-14.pdf

Nancy;

Attached is the current LESA worksheet for Blount Co. At the end of the list are Soil Survey Area totals for farmable land, prime farmland (including farmland of local & Statewide importance), and total land acres. Note that the Blount County Soil Survey Area does not include acres in the Great Smoky Mtns. National Park.

I hope this helps.

Doug Slabaugh
State Soil Scientist
USDA – Natural Resources Conservation Service
801 Broadway; RM 675
Nashville, TN 37203

(615) 277-2550

From: Skinner, Nancy T. [mailto:SkinnerN@pbworld.com]
Sent: Wednesday, December 10, 2014 10:07 AM
To: Slabaugh, Doug - NRCS, Nashville, TN
Subject: RE: Pellissippi Parkway Extension (SR 162) Blount County TN - Request for Updated CPA-106

Hi Doug,

Thanks for all of your help on this project.

I am trying to finalize the FEIS for the project, and need to update a statement from the 2010 DEIS on farmlands in Blount County and am wondering if you can help me by providing the information or pointing me in the right direction. Below is the paragraph I am trying to update:

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 for the production of food, feed, fiber, forage, or oil-seed crops

In the 2013 updates for farmland coordination, NRCS provided information on the number of acres of statewide and local important farmlands that would be affected by each alternative. Can you provide the acres of prime farmland and the acres of statewide or locally significant farms in the county?

Thank you so much!!

areasymbol	musym	muname	slope	nirrcapclass	farmclass	muacres	Group No.	Group RV	% of SSA
TN609	**Blount County Area, Tennessee**								
	Aa	Alcoa loam, eroded gently sloping phase	2-5	2e	All areas are prime farmland	249	4	80	0.09%
	Ab	Alcoa loam, eroded sloping phase	5-12	3e	Farmland of local importance	1578	6	70	0.60%
	Ac	Alcoa loam, eroded moderately steep phase	12-20	4e	Not prime farmland	339	7	65	0.13%
	Ae	Allen clay loam, severely eroded moderately steep phase	12-25	6e	Not prime farmland	131	7	65	0.05%
	Ah	Allen cobbly fine sandy loam, moderately steep phase (nella)	12-25	6e	Not prime farmland	721	12	40	0.27%
	AIRPT	Airport			Not prime farmland	1306	NR	0	0.49%
	Al	Allen cobbly silt loam, moderately steep phase (nella)	12-25	6e	Not prime farmland	356	13	35	0.13%
	An	Allen fine sandy loam, eroded sloping phase	5-12	3e	Farmland of local importance	293	5	75	0.11%
	Ao	Allen fine sandy loam, moderately steep phase	12-25	4e	Not prime farmland	283	8	60	0.11%
	Ap	Allen silt loam, eroded sloping phase	5-12	3e	Farmland of local importance	763	6	70	0.29%
	Ar	Allen silt loam, moderately steep phase	15-25	6e	Not prime farmland	1005	8	60	0.38%
	At	Allen silty clay loam, severely eroded moderately steep phase	15-25	6e	Not prime farmland	463	8	60	0.17%
	Ba	Barbourville fine sandy loam, gently sloping phase	2-5	2e	All areas are prime farmland	2169	5	75	0.82%
	Bb	Barbourville silt loam, gently sloping phase	2-5	2e	All areas are prime farmland	2835	5	75	1.07%
	Bc	Barbourville silt loam, sloping phase	5-12	3e	Farmland of local importance	260	6	70	0.10%
	Bd	Bland silt loam, sloping phase	5-12	4e	Not prime farmland	464	10	50	0.18%
	Be	Bland silt loam, steep phase	25-50	7e	Not prime farmland	1148	15	25	0.43%

areasymbol	musym	muname	slope	nirrcapclass	farmclass	muacres	Group No.	Group RV	% of SSA
	Bf	Bland silty clay loam, eroded steep phase	25-50	7e	Not prime farmland	418	16	20	0.16%
	Bg	Bruno loamy fine sand	0-3	5w	Not prime farmland	366	15	25	0.14%
	Ca	Christian clay loam, severely eroded sloping phase	5-12	4e	Not prime farmland	515	8	60	0.19%
	Cb	Christian clay loam, severely eroded moderately steep phase	12-25	6e	Not prime farmland	1439	10	50	0.54%
	Cc	Christian loam, eroded gently sloping phase	2-5	2e	Not prime farmland	198	6	70	0.07%
	Cd	Christian loam, eroded sloping phase	5-12	3e	Not prime farmland	1368	7	65	0.52%
	Ce	Christian loam, moderately steep phase	15-25	6e	Not prime farmland	339	10	50	0.13%
	Cf	Christian loam, eroded moderately steep phase	12-25	6e	Not prime farmland	744	10	50	0.28%
	Cg	Colbert silty clay loam, eroded sloping phase (carbo)	5-12	3e	Not prime farmland	164	11	45	0.06%
	Ch	Cumberland silty clay, severely eroded sloping phase	5-12	4e	Not prime farmland	379	4	80	0.14%
	Ck	Cumberland silty clay, severely eroded moderately steep phase	12-25	6e	Not prime farmland	1021	6	70	0.39%
	Cl	Cumberland silty clay loam, eroded gently sloping phase	2-5	2e	All areas are prime farmland	362	3	85	0.14%
	Cm	Cumberland silty clay loam, eroded sloping phase	5-12	3e	Farmland of local importance	1862	4	80	0.70%
	Cn	Cumberland silty clay loam, eroded moderately steep phase	12-25	4e	Not prime farmland	751	6	70	0.28%
	Da	Dandridge shaly silt loam, very steep phase	50-70	7e	Not prime farmland	976	20	0	0.37%
	Daa	Dunmore silty clay loam, eroded gently sloping phase	2-5	2e	All areas are prime farmland	1288	5	75	0.49%

areasymbol	musym	muname	slope	nirrcapclass	farmclass	muacres	Group No.	Group RV	% of SSA
	Dab	Dunmore silty clay loam, eroded sloping phase	5-12	3e	Farmland of local importance	7569	6	70	2.86%
	Dac	Dunmore silty clay loam, eroded moderately steep phase	12-25	4e	Not prime farmland	4124	8	60	1.56%
	Dad	Dunmore silty clay loam, eroded steep phase	25-50	7e	Not prime farmland	251	12	40	0.09%
	DAM	Dam			Not prime farmland	16	NR	0	0.01%
	Db	Dandridge shaly silty clay loam, eroded moderately steep phase	12-25	6e	Not prime farmland	1206	20	0	0.45%
	Dc	Dandridge shaly silty clay loam, eroded steep phase	25-50	7e	Not prime farmland	1020	20	0	0.38%
	Dd	Dandridge silt loam, sloping phase	5-12	6s	Not prime farmland	2444	18	0	0.92%
	De	Dandridge silt loam, moderately steep phase	12-25	6e	Not prime farmland	2872	18	0	1.08%
	Df	Dandridge silt loam, steep phase	25-50	7e	Not prime farmland	8389	18	0	3.16%
	Dg	Decatur silty clay, severely eroded sloping phase	5-12	4e	Not prime farmland	446	6	70	0.17%
	Dh	Decatur silty clay, severely eroded moderately steep phase	12-25	6e	Not prime farmland	1843	8	60	0.70%
	Dk	Decatur silty clay loam, eroded gently sloping phase	2-5	3e	All areas are prime farmland	1276	5	75	0.48%
	Dl	Decatur silty clay loam, eroded sloping phase	5-12	4e	Farmland of local importance	7069	6	70	2.67%
	Dm	Decatur silty clay loam, eroded moderately steep phase	12-15	6e	Not prime farmland	1519	7	65	0.57%
	Dn	Dewey silt loam, 6 to 15 percent slopes	6-15	3e	Farmland of local importance	1171	5	75	0.44%
	Do	Dewey silt loam, moderately steep phase	12-25	4e	Not prime farmland	568	8	60	0.21%
	Dp	Dewey silty clay, severely eroded sloping phase	5-12	4e	Not prime farmland	1168	6	70	0.44%

areasymbol	musym	muname	slope	nirrcapclass	farmclass	muacres	Group No.	Group RV	% of SSA
	Dr	Dewey silty clay, severely eroded moderately steep phase	12-25	6e	Not prime farmland	4608	9	55	1.74%
	Ds	Dewey silty clay loam, 2 to 6 percent slopes, eroded	2-6	2e	All areas are prime farmland	1690	5	75	0.64%
	Dt	Dewey silty clay loam, 6 to 15 percent slopes, eroded	6-15	3e	Farmland of local importance	12837	6	70	4.84%
	Du	Dewey silty clay loam, 15 to 25 percent slopes, eroded	15-25	4e	Not prime farmland	3316	8	60	1.25%
	Dv	Dunmore silt loam, sloping phase	5-12	3e	Farmland of local importance	1904	6	70	0.72%
	Dw	Dunmore silt loam, moderately steep phase	12-25	4e	Not prime farmland	2004	8	60	0.76%
	Dx	Dunmore silt loam, steep phase	25-50	7e	Not prime farmland	146	12	40	0.06%
	Dy	Dunmore silty clay, severely eroded sloping phase	5-12	4e	Not prime farmland	324	6	70	0.12%
	Dz	Dunmore silty clay, severely eroded moderately steep phase	12-25	6e	Not prime farmland	2430	8	60	0.92%
	Ea	Emory silt loam, 0 to 4 percent slopes, occasionally flooded	0-4	1	All areas are prime farmland	351	1	100	0.13%
	Eb	Emory silt loam, gently sloping phase	2-5	2e	All areas are prime farmland	8761	2	90	3.30%
	Ec	Emory silty clay loam, gently sloping phase	2-5	2e	All areas are prime farmland	1028	1	100	0.39%
	Ed	Etowah silt loam, eroded gently sloping phase	2-5	2e	All areas are prime farmland	420	3	85	0.16%
	Ee	Etowah silt loam, 5 to 12 percent slopes, eroded	5-12	3e	Farmland of local importance	611	5	75	0.23%
	Fa	Farragut silty clay, severely eroded sloping phase	5-12	4e	Not prime farmland	756	9	55	0.29%
	Fb	Farragut silty clay loam, eroded gently sloping phase	2-5	2e	All areas are prime farmland	1095	7	65	0.41%
	Fc	Farragut silty clay loam, eroded sloping phase	5-12	3e	Farmland of local importance	1729	8	60	0.65%

areasymbol	musym	muname	slope	nirrcapclass	farmclass	muacres	Group No.	Group RV	% of SSA
	Fd	Fullerton cherty silt loam, moderately steep phase	12-25	4e	Not prime farmland	371	12	40	0.14%
	Fe	Fullerton cherty silt loam, eroded moderately steep phase	12-25	4e	Not prime farmland	340	12	40	0.13%
	Ff	Fullerton cherty silt loam, steep phase	25-45	7e	Not prime farmland	358	15	25	0.14%
	Fg	Fullerton cherty silt loam, eroded steep phase	25-45	7e	Not prime farmland	288	15	25	0.11%
	Ga	Greendale silt loam, 0 to 6 percent slopes, occasionally flooded	0-6	2w	All areas are prime farmland	2278	4	80	0.86%
	Gb	Gullied land, limestone material			Not prime farmland	1040	NR	0	0.39%
	Gc	Gullied land, shale or sandstone material			Not prime farmland	2122	NR	0	0.80%
	Ha	Hamblen loam	0-2	2w	All areas are prime farmland	1077	2	90	0.41%
	Hb	Hamblen silt loam	0-2	2w	All areas are prime farmland	2374	2	90	0.90%
	Hc	Hamblen silt loam, local alluvium phase	0-2	2w	All areas are prime farmland	3620	2	90	1.37%
	Hd	Hayter silt loam, gently sloping phase	2-5	2e	All areas are prime farmland	336	7	65	0.13%
	He	Hayter silt loam, sloping phase	5-12	3e	Farmland of local importance	589	8	60	0.22%
	Hf	Hayter stony silt loam, gently sloping phase	2-5	2e	Not prime farmland	7	8	60	0.00%
	Hg	Hayter stony silt loam, sloping phase	5-12	6s	Not prime farmland	364	9	55	0.14%
	Hh	Hermitage silt loam, gently sloping phase (etowah)	2-5	2e	All areas are prime farmland	726	3	85	0.27%
	Hk	Hermitage silt loam, eroded gently sloping phase (etowah)	2-5	2e	All areas are prime farmland	1363	3	85	0.51%
	Hl	Hermitage silt loam, eroded sloping phase (etowah)	5-12	3e	Farmland of local importance	2251	4	80	0.85%

areasymbol	musym	muname	slope	nirrcapclass	farmclass	muacres	Group No.	Group RV	% of SSA
	Hn	Holston fine sandy loam, eroded sloping phase	5-12	3e	Farmland of local importance	423	7	65	0.16%
	Jc	Jefferson cobbly fine sandy loam, sloping phase	5-12	4e	Not prime farmland	1111	8	60	0.42%
	Jd	Jefferson cobbly fine sandy loam, moderately steep phase	12-25	6e	Not prime farmland	2048	10	50	0.77%
	Je	Jefferson fine sandy loam, gently sloping phase	2-5	2e	All areas are prime farmland	317	6	70	0.12%
	Jf	Jefferson fine sandy loam, eroded sloping phase	5-12	3e	Farmland of local importance	1185	8	60	0.45%
	Jg	Jefferson fine sandy loam, moderately steep phase	12-25	4e	Not prime farmland	487	9	55	0.18%
	Jh	Jefferson fine sandy loam, steep phase	25-50	7e	Not prime farmland	443	14	30	0.17%
	La	Leadvale silt loam, gently sloping phase	2-5	2e	All areas are prime farmland	605	5	75	0.23%
	Lb	Leadvale silt loam, eroded gently sloping phase	2-5	2e	All areas are prime farmland	345	6	70	0.13%
	Lc	Leadvale silt loam, eroded sloping phase	5-12	3e	Farmland of local importance	258	7	65	0.10%
	Ld	Lehew very fine sandy loam, very steep phase	45-70	7e	Not prime farmland	2079	19	0	0.78%
	Le	Lindside silt loam	0-2	2w	All areas are prime farmland	2011	1	100	0.76%
	Lf	Litz shaly silty clay loam, eroded sloping phase (armuchee)	5-12	4e	Not prime farmland	653	12	40	0.25%
	Lg	Litz shaly silty clay loam, eroded moderately steep phase (armuchee)	12-25	6e	Not prime farmland	1333	15	25	0.50%
	Lh	Litz silt loam, gently sloping phase	2-5	2e	Not prime farmland	334	10	50	0.13%
	Lk	Litz silt loam, sloping phase	5-12	3e	Not prime farmland	3170	11	45	1.20%

areasymbol	musym	muname	slope	nirrcapclass	farmclass	muacres	Group No.	Group RV	% of SSA
	Ll	Litz silt loam, moderately steep phase	12-25	4e	Not prime farmland	2423	14	30	0.91%
	Ma	Melvin silt loam	0-2	3w	Not prime farmland	497	10	50	0.19%
	Mb	Minvale silt loam, eroded gently sloping phase	2-5	2e	All areas are prime farmland	286	5	75	0.11%
	Mc	Minvale silt loam, eroded sloping phase	5-12	3e	Farmland of local importance	782	6	70	0.29%
	Md	Montevallo shaly silt loam, moderately steep phase	12-25	7e	Not prime farmland	705	20	0	0.27%
	Me	Montevallo shaly silt loam, steep phase	25-45	7e	Not prime farmland	2674	20	0	1.01%
	Mg	Muse silt loam, eroded moderately steep phase	12-25	4e	Not prime farmland	1	13	35	0.00%
	Mh	Muse silt loam, eroded gently sloping phase	2-5	2e	All areas are prime farmland	470	8	60	0.18%
	Mk	Muse silt loam, eroded sloping phase	5-12	3e	Farmland of local importance	1115	9	55	0.42%
	Ml	Muse silt loam, eroded moderately steep phase	12-25	4e	Not prime farmland	130	13	35	0.05%
	Na	Neubert loam	2-5	2e	All areas are prime farmland	2383	2	90	0.90%
	Pa	Pace silt loam, gently sloping phase (tasso)	2-5	2e	All areas are prime farmland	603	5	75	0.23%
	Pb	Pace silt loam, eroded sloping phase (tasso)	5-12	3e	Farmland of local importance	257	6	70	0.10%
	Pc	Prader silt loam (melvin)	0-2	3w	Not prime farmland	1609	10	50	0.61%
	QUARRY	Quarry			Not prime farmland	23	NR	0	0.01%
	Ra	Ramsey slaty silt loam, steep	25-50	7s	Not prime farmland	6770	20	0	2.55%
	Rb	Ramsey slaty silt loam, very steep phase	50-70	7s	Not prime farmland	20104	20	0	7.58%
	Rc	Ramsey stony fine sandy loam, very steep phase	50-70	7s	Not prime farmland	22513	20	0	8.49%

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areasymbol	musym	muname	slope	nirrcapclass	farmclass	muacres	Group No.	Group RV	% of SSA
	Rd	Rockland, limestone, sloping	5-12		Not prime farmland	652	NR	0	0.25%
	Re	Rockland limestone, moderately steep	12-50		Not prime farmland	4085	NR	0	1.54%
	Rf	Rockland slate or quartzite, steep	40-75		Not prime farmland	36	NR	0	0.01%
	Sb	Sequatchie fine sandy loam	1-3	2e	All areas are prime farmland	393	3	85	0.15%
	Sc	Sequatchie loam	1-3	2e	All areas are prime farmland	569	3	85	0.21%
	Sd	Sequatchie silt loam	1-3	2e	All areas are prime farmland	961	3	85	0.36%
	Se	Sequoia silty clay, severely eroded sloping phase	5-12	6e	Not prime farmland	2212	10	50	0.83%
	Sf	Sequoia silty clay loam, eroded gently sloping phase	2-5	3e	Not prime farmland	3313	9	55	1.25%
	Sg	Sequoia silty clay loam, eroded sloping phase	5-12	4e	Not prime farmland	6709	10	50	2.53%
	Sh	Staser fine sandy loam	0-2	2w	All areas are prime farmland	1008	1	100	0.38%
	Sk	Staser loam	0-2	2w	All areas are prime farmland	881	1	100	0.33%
	Sl	Staser silt loam	0-2	2w	All areas are prime farmland	767	1	100	0.29%
	Sm	Stony colluvial land (tusquitee)	2-25	4s	Not prime farmland	1104	9	55	0.42%
	Ta	Talbott silt loam, moderately steep phase	12-25	6e	Not prime farmland	214	11	45	0.08%
	Tb	Talbott silty clay, severely eroded sloping phase	5-12	6e	Not prime farmland	541	9	55	0.20%
	Tc	Talbott silty clay, severely eroded moderately steep phase	12-25	6e	Not prime farmland	747	12	40	0.28%
	Td	Talbott silty clay loam, eroded sloping phase	5-12	4e	Not prime farmland	1239	9	55	0.47%
	Te	Talbott silty clay loam, eroded moderately steep phase	12-25	6e	Not prime farmland	257	12	40	0.10%
	Tf	Talbott-Colbert very rocky silty clay loams, eroded sloping phases	4-12	4e	Not prime farmland	1309	9	55	0.49%

areasymbol	musym	muname	slope	nirrcapclass	farmclass	muacres	Group No.	Group RV	% of SSA
	Tg	Talbott-Colbert very rocky silty clay loams, eroded moderately steep phases	12-25	6e	Not prime farmland	1719	12	40	0.65%
	Th	Teas loam, steep phase (calvin)	20-45	6e	Not prime farmland	476	16	20	0.18%
	Tl	Tellico clay loam, severely eroded moderately steep phase	12-25	6e	Not prime farmland	2181	13	35	0.82%
	Tm	Tellico clay loam, severely eroded steep phase	25-50	7e	Not prime farmland	1541	16	20	0.58%
	Tn	Tellico loam, eroded sloping phase	5-12	3e	Farmland of local importance	2684	10	50	1.01%
	To	Tellico loam, eroded moderately steep phase	12-25	4e	Not prime farmland	1655	12	40	0.62%
	Tp	Tellico loam, steep phase	25-50	7e	Not prime farmland	1409	16	20	0.53%
	Tr	Tellico loam, eroded steep phase	25-50	7e	Not prime farmland	2919	16	20	1.10%
	Ts	Tellico loam, very steep phase	50-90	7e	Not prime farmland	1468	15	25	0.55%
	W	Water			Not prime farmland	5500	NR	0	2.07%
	Wa	Waynesboro loam, eroded gently sloping phase	2-5	2e	All areas are prime farmland	219	4	80	0.08%
	Wb	Waynesboro loam, eroded sloping phase	5-12	3e	Farmland of local importance	1111	5	75	0.42%
	Wc	Waynesboro loam, eroded moderately steep phase	12-25	4e	Not prime farmland	521	8	60	0.20%
	Wd	Whitesburg silt loam, gently sloping phase	1-5	2w	All areas are prime farmland	1155	3	85	0.44%
	We	Whitwell loam	0-2	2w	All areas are prime farmland	380	2	90	0.14%

Average Farm Size (from Ag Census)				Farmable Acres and %		Prime Farmland Acres and %		Total Survey Area Acres
County 1-	85	County 2-	0	139102	52.47%	94952	35.82%	265100

United States Department of Agriculture

NRCS
Natural Resources Conservation Service
9737 Cogdill Road; Suite 152C
Knoxville, TN 37932
Phone 865-671-3830 x. 112
rick.livingston@tn.usda.gov

May 30, 2013

Ms. JonnaLeigh Stack
Tennessee Department of Transportation
Suite 900, James K. Polk Bldg.
505 Deaderick Street
Nashville, TN 37243-0334

Project: Pellissippi Parkway Extension (SR 162) from SR 33 to US 321(SR 73)
Blount County, TN: (PIN 10774.00)

Dear Ms. Stack,

Please find the attached form NRCS-CPA-106 for this project. As a courtesy, polygon files were created from the line files that were sent on May 24. Areas of the project which are within the city limits of Alcoa and within the census designated area of Eagleton Village were excluded from the area and acreage totals. If you do not agree the acreage estimates or any part of this assessment, please furnish polygon files which only include areas where the Farmland Protection Policy Act applies and a new assessment will be completed using the data furnish by your office. No site visit was made in the completion of the requested information.

Corridor A (preferred route) will convert about 30.6 acres of Prime Farmland and 48.5 acres of Farmland of Local importance to non-farmland use. Additionally, approximately 1.8 acres of Hydric Soils will be impacted. For Corridor B (east shift), about 30.4 acres of Prime Farmland and 49.9 acres of Farmland of Local importance will be converted to non-farmland use. Corridor B will also impact about 3.3 acres of Hydric Soils. Corridor C (west shift) will convert an estimated 33.6 acres of Prime Farmland and 48.4 acres of Farmland of Local Importance to non-farmland use. This corridor will also impact about 3.1 acres of Hydric Soils.

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,

Richard L. Livingston
Resource Soil Scientist

Attachment

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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 **6/4/13**	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	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 **NA** / Average Farm Size **81**
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: **54,050** % **15**
8. Name Of Land Evaluation System Used **LESA**	9. Name of Local Site Assessment System	10. Date Land Evaluation Returned by NRCS 5/30/2013

PART III *(To be completed by Federal Agency)*	Alternative Corridor For Segment			
	Preferred Alt	East Shift	West Shift	Corridor D
A. Total Acres To Be Converted Directly	107	107	110	
B. Total Acres To Be Converted Indirectly, Or To Receive Services	0	0	0	
C. Total Acres In Corridor	107	107	110	0
PART IV *(To be completed by NRCS) Land Evaluation Information*				
A. Total Acres Prime And Unique Farmland	31	30	34	
B. Total Acres Statewide And Local Important Farmland	49	50	48	
C. Percentage Of Farmland in County Or Local Govt. Unit To Be Converted	0	0	0	
D. Percentage Of Farmland in Govt. Jurisdiction With Same Or Higher Relative Value	20	20	20	
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)*	67	67	68	

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	5	5	
3. Percent Of Corridor Being Farmed	20	15	14	14	
4. Protection Provided By State And Local Government	20	0	0	0	
5. Size of Present Farm Unit Compared To Average	10	6	6	6	
6. Creation Of Nonfarmable Farmland	25	25	25	25	
7. Availablility Of Farm Support Services	5	3	3	3	
8. On-Farm Investments	20	10	10	10	
9. Effects Of Conversion On Farm Support Services	25	0	0	0	
10. Compatibility With Existing Agricultural Use	10	10	10	10	
TOTAL CORRIDOR ASSESSMENT POINTS	160	74	73	73	0
PART VII *(To be completed by Federal Agency)*					
Relative Value Of Farmland (From Part V)	100	67	67	68	
Total Corridor Assessment (From Part VI above or a local site assessment)	160	74	73	73	0
TOTAL POINTS *(Total of above 2 lines)*	260	141	140	141	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:

Notes:
Corridor A = Preferred
Corridor B = East Shift
Corridor C = West Shift

Signature of Person Completing this Part: | DATE

NOTE: Complete a form for each segment with more than one Alternate Corridor

From: Slabaugh, Doug - NRCS, Nashville, TN
To: Skinner, Nancy T.
Cc: Adkins, Jenny - NRCS, Cookeville, TN; Margaret Slater; Hartz, Mary E. (Emery); Livingston, Rick - NRCS, Knoxville, TN
Subject: RE: Pellissippi Parkway Extension (SR 162) Blount County TN - Request for Updated CPA-106
Date: Wednesday, May 21, 2014 6:54:33 AM
Attachments: Pell_ext_correspondence_1-9-09_5-30-13.pdf

Nancy;

Please see reply below and attachment from Rick Livingston, which indicates that there are no changes to the FPPA evaluation that he provided to TDOT for this project in 2009.

Please let me know if you need more information about this evaluation.

Thanks.

Doug Slabaugh
State Soil Scientist
USDA – Natural Resources Conservation Service
801 Broadway; RM 675
Nashville, TN 37203

(615) 277-2550

From: Livingston, Rick - NRCS, Knoxville, TN
Sent: Friday, May 16, 2014 6:06 AM
To: Slabaugh, Doug - NRCS, Nashville, TN
Cc: Adkins, Jenny - NRCS, Cookeville, TN
Subject: RE: Pellissippi Parkway Extension (SR 162) Blount County TN - Request for Updated CPA-106

Doug,
Please find the attached scans of correspondence to TDOT concerning the subject project.
It appears the spatial data included with this recent request is identical to the data used for the 01/09/2009 evaluation.
There should be no need to update any of the information for this project.
Sincerely,
Rick Livingston

From: Slabaugh, Doug - NRCS, Nashville, TN
Sent: Tuesday, May 13, 2014 8:42 AM
To: Livingston, Rick - NRCS, Knoxville, TN
Cc: Adkins, Jenny - NRCS, Cookeville, TN
Subject: FW: Pellissippi Parkway Extension (SR 162) Blount County TN - Request for Updated CPA-106

Rick;

The TDOT contractor has requested through Kevin that we update the FPPA assessment for their

Pellissippi Parkway extension project (again - I think this is the third time now!).

Please look over their new changes (attached) and let them know if there are any significant differences to the FPPA assessment.

Thanks.

Doug

(615) 277-2550

From: "Skinner, Nancy T." <SkinnerN@pbworld.com>
To: "Brown, Kevin - NRCS, Nashville, TN" <kevin.brown@tn.usda.gov>
Cc: "Margaret Slater" <Margaret.Slater@tn.gov>
Subject: Pellissippi Parkway Extension (SR 162) Blount County TN - Request for Updated CPA-106

Hello,

On behalf of TDOT, I am submitting this request for an updated NRCS CPA-106 review for two previously considered Build Alternatives, C and D for the Pellissippi Parkway Extension project in Blount County (from SR 33 to US 321). In December 2008 TDOT sent a CPA-106 request for the three Build Alternatives (A, C and D) in the Draft Environmental Impact Statement (DEIS). Following the circulation of the DEIS in 2010, TDOT selected a Preferred Alternative (DEIS Alternative A). In 2013, TDOT identified two alignment shifts to avoid impacts to a National Register eligible archaeological site within the Preferred Alternative. In response to TDOT's request for additional coordination, the NRCS responded on May 30, 2013 with an updated CPA-106 for the two alignment shifts.

Now, TDOT is preparing a written reevaluation of the DEIS prior to the preparation of the Final EIS and the FHWA has requested that TDOT also update technical studies for the two previous considered and dismissed DEIS Alternatives, C and D. We request your assistance in updating the farmland impacts for these two previously considered alternatives.

Once you and your staff have reviewed the attached material, please let us know if there is any additional information that you require.

Thank you!

Nancy T. Skinner, AICP
Technical Director, Environment (Americas) / Senior Planning Manager
Parsons Brinckerhoff
1900 Church Street, Suite 400

United States Department of Agriculture

NRCS

Natural Resources Conservation Service
9737 Cogdill Road, Suite 152C
Knoxville, TN 37932
Phone 865-671-3830 x 112

Mailed Reply on Jan 9, 2009 RLL

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,

Richard Livingston
Resource Soil Scientist

Enclosure

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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)*		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				
4. Protection Provided By State And Local Government	20	0	0	0	
5. Size of Present Farm Unit Compared To Average	10	4	1	1	
6. Creation Of Nonfarmable Farmland	25	25	25	25	
7. Availability Of Farm Support Services	5	3	3	3	
8. On-Farm Investments	20	10	10	10	
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	69	64	63	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	69	64	63	0
TOTAL POINTS *(Total of above 2 lines)*	260				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:

Signature of Person Completing this Part: | DATE

NOTE: Complete a form for each segment with more than one Alternate Corridor

United States Department of Agriculture

NRCS
Natural Resources Conservation Service
9737 Cogdill Road; Suite 152C
Knoxville, TN 37932
Phone 865-671-3830 x. 112
rick.livingston@tn.usda.gov

May 30, 2013

Ms. JonnaLeigh Stack
Tennessee Department of Transportation
Suite 900, James K. Polk Bldg.
505 Deaderick Street
Nashville, TN 37243-0334

Project: Pellissippi Parkway Extension (SR 162) from SR 33 to US 321(SR 73)
Blount County, TN: (PIN 10774.00)

Dear Ms. Stack,

Please find the attached form NRCS-CPA-106 for this project. As a courtesy, polygon files were created from the line files that were sent on May 24. Areas of the project which are within the city limits of Alcoa and within the census designated area of Eagleton Village were excluded from the area and acreage totals. If you do not agree the acreage estimates or any part of this assessment, please furnish polygon files which only include areas where the Farmland Protection Policy Act applies and a new assessment will be completed using the data furnish by your office. No site visit was made in the completion of the requested information.

Corridor A (preferred route) will convert about 30.6 acres of Prime Farmland and 48.5 acres of Farmland of Local importance to non-farmland use. Additionally, approximately 1.8 acres of Hydric Soils will be impacted. For Corridor B (east shift), about 30.4 acres of Prime Farmland and 49.9 acres of Farmland of Local importance will be converted to non-farmland use. Corridor B will also impact about 3.3 acres of Hydric Soils. Corridor C (west shift) will convert an estimated 33.6 acres of Prime Farmland and 48.4 acres of Farmland of Local Importance to non-farmland use. This corridor will also impact about 3.1 acres of Hydric Soils.

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,

Richard L. Livingston
Resource Soil Scientist

Attachment

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File copy

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 5/15/13	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, TN**	
PART II *(To be completed by NRCS)*	1. Date Request Received by NRCS	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 **N/A** / Average Farm Size **81**
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: **54,050** % **15**
8. Name Of Land Evaluation System Used **LESA**	9. Name of Local Site Assessment System	10. Date Land Evaluation Returned by NRCS **5/30/13**

PART III *(To be completed by Federal Agency)*	Alternative Corridor For Segment			
	Corridor A	Corridor B	Corridor C	Corridor D
A. Total Acres To Be Converted Directly	107	107	110	
B. Total Acres To Be Converted Indirectly, Or To Receive Services	0	0	0	
C. Total Acres In Corridor	107	107	110	
PART IV *(To be completed by NRCS) Land Evaluation Information*				
A. Total Acres Prime And Unique Farmland	30.6	30.4	33.6	
B. Total Acres Statewide And Local Important Farmland	48.5	49.9	48.4	
C. Percentage Of Farmland in County Or Local Govt. Unit To Be Converted	<0.1	<0.1	<0.1	
D. Percentage Of Farmland in Govt. Jurisdiction With Same Or Higher Relative Value	20	20	20	
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)*	67	67	68	
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			
2. Perimeter in Nonurban Use	10			
3. Percent Of Corridor Being Farmed	20			
4. Protection Provided By State And Local Government	20			
5. Size of Present Farm Unit Compared To Average	10			
6. Creation Of Nonfarmable Farmland	25			
7. Availablility Of Farm Support Services	5			
8. On-Farm Investments	20			
9. Effects Of Conversion On Farm Support Services	25			
10. Compatibility With Existing Agricultural Use	10			
TOTAL CORRIDOR ASSESSMENT POINTS	160	0	0	0	0
PART VII *(To be completed by Federal Agency)*					
Relative Value Of Farmland (From Part V)	100	67	67	68	0
Total Corridor Assessment (From Part VI above or a local site assessment)	160	0	0	0	0
TOTAL POINTS *(Total of above 2 lines)*	260	67	67	68	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:

Notes:
Corridor A = Preferred
Corridor B = East shift
Corridor C = West shift

Signature of Person Completing this Part: | DATE

NOTE: Complete a form for each segment with more than one Alternate Corridor

United States Department of the Interior

FISH AND WILDLIFE SERVICE
446 Neal Street
Cookeville, TN 38501

October 11, 2012

Mr. Keven Brown
Tennessee Department of Transportation
Environmental Planning and Permits
James K. Polk Building, Suite 900
505 Deaderick Street
Nashville, Tennessee 37243-0334

Subject: FWS #12-CPA-0855. Proposed construction of the State Route 162 Extension (Pellissippi Parkway) from State Route 33 to State Route 73; P.E. 05097-0229-14, PIN #101423.00, Blount County, Tennessee.

Dear Mr. Brown:

Thank you for your letter dated September 24, 2012, transmitting acoustic and mist netting survey results for the proposed construction of the State Route 162 Extension (Pellissippi Parkway) from State Route 33 to State Route 73 in Blount County, Tennessee. Surveys were conducted along the proposed corridor to determine if the area is being utilized as summer roosting habitat by the federally endangered Indiana bat (*Myotis sodalis*). Personnel of the U.S. Fish and Wildlife Service have reviewed the information provided and offer the following comments.

Joint mist netting and acoustical studies were performed from July 30 through August 1, 2012, at three sites determined to contain suitable habitat for the Indiana bat. The acoustical study resulted in the recording of 2,021 bat calls, of which none were identified as Indiana bats. The mist netting efforts resulted in the capture of three bats, representing two non-listed species. The Tennessee Department of Transportation (TDOT) has concluded that the project is "not likely to adversely affect" the Indiana bat because the no Indiana bats were recorded during the surveys.

Due to negative survey results for the Indiana bat, we concur with TDOT's finding of "not likely to adversely affect" for this species. Unless new information otherwise indicates Indiana bat use of the area, this survey will be valid until April 1, 2015. Although it is likely that this project would have an insignificant effect on the Indiana bat, we would appreciate consideration given to the removal of trees with a DBH (diameter at breast height) of five inches or greater from October 15 through March 31 to further minimize potential for harm to the Indiana bat. Based on the best information available at this time, we believe that the requirements of section 7 of the Endangered Species Act of 1973, as amended, are fulfilled. Obligations under 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 you have any questions regarding our comments, please contact John Griffith of my staff at 931/525-4995 or by email at *john_griffith@fws.gov*.

Sincerely,

Mary E. Jennings
Field Supervisor

STATE OF TENNESSEE

DEPARTMENT OF ENVIRONMENT AND CONSERVATION

Division of Natural Areas
Natural Heritage Program
7th Floor L&C Tower
401 Church Street
Nashville, Tennessee 37243
Phone 615/532-0431 Fax 615/532-0046

March 1, 2013

Meridith Krebs
Lead Environmental Planner, Project Manager
Parsons Brinckerhoff
1900 Church Street, Suite 400
Nashville, Tennessee 37203

Subject: Pellissippi Parkway Extension (SR-162)
From SR-33 to SR-73, TDOT PIN 101423.00
Blount County, Tennessee
Rare Species Database Review

Dear Ms. Krebs:

Thank you for your correspondence requesting a rare species database review for the Pellissippi Parkway Extension (SR-162) project, located in Blount County, Tennessee (TDOT PIN 101423.00). Given the time since the 2009 review, we feel it is appropriate to provide a current list extracted from the natural heritage database.

On reviewing the database with regard to the project boundaries, we find that the following rare species have been observed previously within one mile of the project:

Type	Scientific Name	Common Name	Global Rank	St. Rank	Fed. Prot.	St. Prot.	Habitat
Invertebrate Animal	Fusconaia cuneolus	Finerayed Pigtoe	G1	S1	LE	E	Riffles of fords and shoals of mod gradient streams in firm cobble and gravel substrates; middle & upper Tennessee River watershed.
Vertebrate Animal	Cryptobranchus alleganiensis	Hellbender	G3G4	S3	No Status	D	Rocky, clear creeks and rivers with large shelter rocks.
Vertebrate Animal	Etheostoma cinereum	Ashy Darter	G2G3	S2S3	--	T	Small to medium upland rivers with bedrock or gravel substrate and boulders.

TNNHP_2013-17, TDOT PIN 101423.00, Pellissippi Parkway Extension (SR-162), Blount County, TN
March 1, 2013
Page 2

Type	Scientific Name	Common Name	Global Rank	St. Rank	Fed. Prot.	St. Prot.	Habitat
Vertebrate Animal	Etheostoma marmorpinnum	Marbled Darter	G1	S1	LE	E	Pools and moderate runs with clean pebbles, cobble, & small boulders; lower Little River (Tennessee River drainage).
Vertebrate Animal	Percina aurantiaca	Tangerine Darter	G4	S3	--	D	Large-moderate size headwater tribs to Tennessee River, in clear, fairly deep, rocky pools, usually below riffles.
Vertebrate Animal	Percina burtoni	Blotchside Logperch	G2G3	S2	--	D	Large creeks and small-medium rivers with low turbidity and gravel-cobble substrates; Tennessee & Cumberland river watersheds.
Vertebrate Animal	Percina macrocephala	Longhead Darter	G3	S2	--	T	Clear, larger upland creeks and small-med rivers, usually in rocky flowing pools upst/dnst rubble riffles; Tenn & Cumb river watersheds.
Vertebrate Animal	Percina tanasi	Snail Darter	G2G3	S2S3	LT	T	Sand and gravel shoals of moderately flowing, vegetated, large creeks; upper Tennessee River watershed.

Within four miles of the project the following additional rare species have been reported:

Type	Scientific Name	Common Name	Global Rank	St. Rank	Fed. Prot.	St. Prot.	Habitat
Invertebrate Animal	Epioblasma capsaeformis	Oyster Mussel	G1	S1	LE	E	Shallow riffles in mod-swift current of small-medium rivers with coarse sand and gravel; Tennessee & Cumberland river systems.
Invertebrate Animal	Lasmigona holstonia	Tennessee Heelsplitter	G3	S2	--	Rare, Not State Listed	Spring runs, creeks, & small rivers, in subst of sand & mud; upper Tenn & Conasauga river watersheds; Blue Ridge & Ridge & Valley.
Nonvascular Plant	Radula voluta	A Liverwort	G3	S2	--	S	Shady Moist Boulders By Waterfalls Or Streams
Vascular Plant	Draba ramosissima	Branching Whitlow-grass	G4	S2	--	S	Calcareous Bluffs
Vascular Plant	Panax quinquefolius	American Ginseng	G3G4	S3S4	--	S-CE	Rich Woods
Vascular Plant	Pycnanthemum torrei	Torrey's Mountain-mint	G2	S1	--	S	Barrens

Type	Scientific Name	Common Name	Global Rank	St. Rank	Fed. Prot.	St. Prot.	Habitat
Vertebrate Animal	Hemitremia flammea	Flame Chub	G3	S3	--	D	Springs and spring-fed streams with lush aquatic vegetation; Tennessee & middle Cumberland river watersheds.
Vertebrate Animal	Ixobrychus exilis	Least Bittern	G5	S2B	--	D	Marshes with scattered bushes or other woody growth; readily uses artificial wetland habitats.
Vertebrate Animal	Rallus elegans	King Rail	G4	S2	--	D	Marshes, upland-wetland marsh edges, flooded farmlands, shrub swamps.
Vertebrate Animal	Tyto alba	Barn Owl	G5	S3	--	D	Open and partly open country, often around human habitation; farms.

Note that at least one name change is now in effect (*Etheostoma marmorpinnum*, formerly *E. percnurum*), but that protections remain the same. Should suitable habitat exist on or immediately downstream of the selected route, we ask that project plans provide for the protection of these species. We ask that you coordinate this project with the Tennessee Wildlife Resources Agency (Rob Todd, rob.todd@tn.gov , 615-781-6577) to ensure that legal requirements for protection of state listed rare animals are addressed. Additionally, we ask that you contact the U.S. Fish and Wildlife Service Field Office, Cookeville, Tennessee (931-525-4970) for comments regarding federally listed species. Based on the numerous proposed stream crossings, we anticipate that directed surveys for some of the above aquatic species may be necessary.

For stabilization of disturbed areas, the Tennessee Natural Heritage Program advocates the use of native trees, shrubs, and warm season grasses, where practicable. Care should be taken to prevent re-vegetation of disturbed areas with plants listed by the Tennessee Exotic Pest Plant Council as harmful exotic plants: http://www.tneppc.org/

Please keep in mind that not all of Tennessee has been surveyed and that a lack of records for any particular area should not be construed to mean that rare species necessarily are absent. For information regarding species protection status and ranks, please visit http://www.tn.gov/environment/na/pdf/Status&Ranks.pdf.

To assist in determining whether rare species are located at a given site, the Tennessee Natural Heritage Program has implemented a publicly accessible website where rare species data lists by county, quadrangle, watershed, and MS4 boundaries can be obtained: http://environment-online.state.tn.us:8080/pls/enf_reports/f?p=9014:3:3875605994273657.

Thank you for considering Tennessee's rare species throughout the planning of this project. Should you have any questions, please do not hesitate to contact David at (615) 532-0441 or david.withers@tn.gov .

Sincerely,

Chelsea L. Broach
Interim Data Manager

David Ian Withers
Natural Heritage Zoologist

TENNESSEE WILDLIFE RESOURCES AGENCY

ELLINGTON AGRICULTURAL CENTER
P. O. BOX 40747
NASHVILLE, TENNESSEE 37204

June 6, 2013

JonnaLeigh Stack
State of Tennessee
Department of Transportation
Environmental Division
Suite 900, James K. Polk Building
505 Deaderick Street
Nashville, TN 37243-0334

Re: Preferred Alternative and Alignment Shifts
Pellissippi Parkway Extension (SR 162) from SR 33 to US 321 (SR 73), Blount County, TN
PIN 101423.00, Project # 05097-1226-04

Dear Ms. Stack:

The Tennessee Wildlife Resource Agency has reviewed the information that you provided regarding the proposed alignment shifts for the Pellissippi Parkway Extension project that would address the issue of a National Register eligible archaeological site that has been identified within the proposed right-of-way of the Preferred Alternative near the southern terminus of the project. The Preferred Alternative was identified in the Concurrence Point 4 Package. It appears from the illustration in Figure 1 of the information packet that all the proposed avoidance alignments would impact the same streams; therefore would affect the same species but the habitat impacts would differ. Based upon the information that I requested and that you provided, it appears that the East Avoidance Alternative (1,541 linear feet of stream impacts and 6.40 acres of wetland impacts) would have less impacts to stream and wetland resources than would the West Avoidance Alternative (2,315 linear feet of stream impacts and 7.96 acres of wetland impacts); therefore we recommend that the East Avoidance Alternative be chosen as the new Preferred Alternative since the current Preferred Alternative (which has the least stream and wetland impacts of all the alternatives) may be eliminated in order to avoid the National Register eligible archaeological site.

Thank you for the opportunity to review and comment on the modification of this proposed project.

Sincerely,

Robert M. Todd

Robert M. Todd
Fish and Wildlife Environmentalist

The State of Tennessee

IS AN EQUAL OPPORTUNITY, EQUAL ACCESS, AFFIRMATIVE ACTION EMPLOYER

United States Department of the Interior

FISH AND WILDLIFE SERVICE
446 Neal Street
Cookeville, TN 38501

June 10, 2013

Ms. JonnaLeigh Stack
Tennessee Department of Transportation
Environmental Planning and Permits Division
Suite 900, James K. Polk Building
505 Deaderick Street
Nashville, Tennessee 37243-0334

Subject: FWS# 12-I-0454. Proposed alignment shift for the State Route 162 (Pellissippi Parkway Extension) from State Route 33 (Old Knoxville Highway) to State Route 73 (U.S. Highway 321/Lamar Alexander Parkway), Blount County, Tennessee.

Dear Ms. Stack:

The Tennessee Department of Transportation (TDOT) prepared a Draft Environmental Impact Statement (DEIS) for the extension of State Route (SR) 162 (Pellissippi Parkway) from SR 33 (Old Knoxville Highway) to SR 73 (U.S. Highway 321/Lamar Alexander Parkway) in Blount County, Tennessee. This project has completed Tennessee Environmental Streamlining Agreement review and was most recently coordinated with our office for potential impacts to the federally endangered Indiana bat (*Myotis sodalis*). Personnel of the U.S. Fish and Wildlife Service have reviewed the subject proposal and offer the following comments.

In previous correspondence, our office provided four federally listed species that may be impacted by this project. These species include the federally endangered Indiana bat, duskytail darter (*Etheostoma percnurum*), fine-rayed pigtoe (*Fusconaia cuneolus*), and the federally threatened snail darter (*Percina tanasi*). In sections 3.14.3.2 and 3.14.3.3 of the *Preliminary Draft Environmental Impact Statement*, TDOT committed to implementation of a winter tree cutting timeframe restriction to avoid direct impacts to the Indiana bat. For aquatic species protection, TDOT would implement stringent best management practices (BMPs), including erosion and siltation control measures.

Joint mist netting and acoustical studies were performed from July 30 through August 1, 2012, at three sites determined to contain suitable habitat for the Indiana bat. The acoustical study resulted in the recording of 2,021 bat calls, of which none were identified as Indiana bats. The mist netting efforts resulted in the capture of three bats, representing two non-listed species. We

concurred with TDOT's finding of "not likely to adversely affect" for this species at that time based on probable absence from the project area. Unless new information otherwise indicates Indiana bat use of the area, this survey will be valid until April 1, 2015.

The Preferred Alternative is proposed to be shifted near the southern terminus due to the presence of an environmentally sensitive site. Upon review of the ecological resource survey results, we prefer the East Avoidance Alternative because it would have fewer stream and wetland impacts (1,541 linear feet of stream impacts and 6.40 acres of wetland impacts) when compared to the West Avoidance Alternative (2,315 linear feet of stream impacts and 7.96 acres of wetland impacts).

It is our understanding that BMPs for Exceptional Tennessee Waters (ETWs) are designed to withstand a five-year rain event and that streams without this designation normally receive protection for up to a two-year rain event. While the Little River is designated as an ETW, the tributaries that would be impacted by the project are not. Construction would likely take years to complete and would almost certainly experience a two-year rain event or greater during that time period. Due to proximity of the stream crossings to listed species occurrences in the Little River, we request that TDOT commit to implementing a 5-year design for water quality BMPs on all project area stream crossings.

If you have any questions regarding our comments, please contact John Griffith of my staff at 931/528-6481 (ext. 228) or by email at *john_griffith@fws.gov*.

Sincerely,

Brad Bingham

Acting for Mary E. Jennings
Field Supervisor

United States Department of the Interior

FISH AND WILDLIFE SERVICE
446 Neal Street
Cookeville, TN 38501

July 26, 2013

Ms. Leigh Ann Tribble
Federal Highway Administration
404 BNA Drive, Suite 508
Nashville, Tennessee 37217

Subject: FWS #13-I-0454. Biological Assessment Addendum for the proposed construction of the State Route 162 Extension (Pellissippi Parkway) from State Route 33 to State Route 73; P.E. 05097-0229-14, PIN #101423.00, Blount County, Tennessee.

Dear Ms. Tribble:

Thank you for your letter dated June 27, 2013, transmitting a Biological Assessment (BA) Addendum for the proposed construction of the State Route (SR) 162 Extension from SR 33 to SR 73 in Blount County, Tennessee. The Tennessee Division Office agrees with the Tennessee Department of Transportation's (TDOT) findings of "not likely to adversely affect" for the federally endangered Indiana bat (*Myotis sodalis*), marbled darter (*Etheostoma marmorpinnum*), fine-rayed pigtoe (*Fusconaia cuneolus*), and the federally threatened snail darter (*Percina tanasi*) and requests our concurrence. Personnel of the U.S. Fish and Wildlife Service have reviewed the information provided and offer the following comments.

Bat surveys were conducted along the proposed corridor in the summer of 2012 to establish whether the area is being utilized as roosting habitat by the Indiana bat. Due to negative survey results for this species, we concurred with TDOT's determination of "not likely to adversely affect" in a letter dated October 11, 2012. Unless new information otherwise indicates Indiana bat use of the area, this survey will be valid until April 1, 2015. TDOT has committed, where possible, to removal of trees with a DBH (diameter at breast height) of five inches or greater from October 15 through March 31 to further minimize potential for impacts to the Indiana bat.

Stringent best management practices (BMPs), including erosion and sediment control measures, would be implemented to protect aquatic systems. Because the proposed crossings are all tributaries to the Little River, an Exceptional Tennessee Water, TDOT has departed from the standard two-year BMP design requirement and committed to BMPs designed for a five-year storm event. Because of this commitment to stringent water quality measures, we concur with the determination of "not likely to adversely affect" for federally listed aquatic species.

The document indicates that four wetlands could be impacted by the proposed project. The Corps of Engineers and Tennessee Department of Environment and Conservation (TDEC) should be contacted regarding the presence of regulatory wetlands and the requirements of wetlands protection statutes.

In light of TDOT's commitments to improved water quality measures and negative surveys for Indiana bats within the project area, we believe that the requirements of section 7 of the Endangered Species Act of 1973, as amended, are fulfilled for all species that currently receive federal protection under the Act. Obligations under 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 you have any questions regarding our comments, please contact John Griffith of my staff at 931/525-4995 or by email at *john_griffith@fws.gov*.

Sincerely,

Acting for Mary E. Jennings
Field Supervisor

xc: Keven Brown, TDOT, Nashville, TN

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

JOHN C. SCHROER
COMMISSIONER

BILL HASLAM
GOVERNOR

May 5, 2015

Ms. Mary Jennings
US Dept. of Interior
Fish and Wildlife Service
446 Neal St.
Cookeville, TN 38501

Subject: SR-162 EXT (Pellissippi Pkwy) from SR-33 to SR-73
Blount County, TN
PIN: 101423.00 PE #05097-0229-14

Dear Ms. Jennings:

The Tennessee Department of Transportation (TDOT) performed joint mist netting and acoustical surveys on the subject project from July 30 to August 1, 2012. A total of three (3) bats representing two (2) non-listed species were captured at the three sample sites. Just over 2,000 bat calls were recorded at the three sample sites, none of which were identified as Indiana bats. Based on the survey results, TDOT determinted the project was "not likely to adversely affect" the Indiana bat (*Myotis sodalis*). The U.S. Fish and Wildlife Service (USFWS) concurred with this finding in a letter dated October 11, 2012.

In addition, no northern long-eared bats (*Myotis septentrionalis*) were captured during this survey. Based on the negative survey results, it is the opinion of TDOT that the northern long-eared bat is "not likely to adversely affected" by the subject project.

In compliance with the U.S. Fish and Wildlife Coordination Act of 1958, and the Endangered Species Act of 1973, as amended, TDOT would like to request a project update and suggest that the finding of "not likely to adversely affect" be continued until the signing of the NEPA document by the Federal Highway Administration. Thank you for your assistance with this project. If you have any questions or need additional information, please do not hesitate to contact me at Keven.Brown@tn.gov or (865) 594-2437.

Sincerely,

Keven A. Brown

Digitally signed by Keven A. Brown
DN: cn=Keven A. Brown, o=TDOT, ou=Ecology Section, Region 1, email=Keven.Brown@tn.gov, c=US
Date: 2015.05.05 11:23:03 -04'00'

Keven Brown
Biologist, TDOT Region 1
Ecology Section

Xc: Mr. John Hewitt – TDOT Ecology/Permits, w/attach.
Ms. Carma Smith – TDOT Planning, w/attach.
Mr. Rob Todd – TWRA, w/attach.
Mr. Vince Pontello – TWRA w/attach.
ED Project File - FileNet

United States Department of the Interior

FISH AND WILDLIFE SERVICE
Tennessee ES Office
446 Neal Street
Cookeville, Tennessee 38501

May 28, 2015

Mr. Keven Brown
Tennessee Department of Transportation
Environmental Planning and Permits
James K. Polk Building, Suite 900
505 Deaderick Street
Nashville, Tennessee 37243-0349

Subject: FWS #12-I-0454. Proposal to construct the State Route 162 Extension (Pellissippi Parkway) from State Route 33 to State Route 73; P.E. 05097-0229-14, PIN #101423.00, Blount County, Tennessee.

Dear Mr. Brown:

Thank you for your letter dated May 5, 2015, requesting a project update for the proposed construction of the State Route (SR) 162 Extension from SR 33 to SR 73 in Blount County, Tennessee. The Tennessee Department of Transportation (TDOT) is requesting a continuation of our "not likely to adversely affect" concurrence for the federally endangered Indiana bat (*Myotis sodalis*) and concurrence of "not likely to adversely affect" for the threatened northern long-eared bat (NLEB) (*Myotis septentrionalis*) until the signing of the National Environmental Policy Act document. Personnel of the U.S. Fish and Wildlife Service have reviewed the information provided and offer the following comments.

Bat surveys were conducted along the proposed corridor in the summer of 2012 to establish whether the area is being utilized as roosting habitat by the Indiana bat. The acoustical study resulted in the recording of over 2,000 bat calls, of which none were identified as Indiana bats. The mist netting efforts resulted in the capture of three individuals, representing two non-listed species. In a letter dated October 11, 2012, we concurred with TDOT's determination of "not likely to adversely affect" the Indiana bat. Based on negative survey results for the NLEB, we additionally concur with the finding of "not likely to adversely affect" for this species.

Upon review of our records, we have no new information indicating presence of the Indiana bat or NLEB within the project area. TDOT has committed to recoordinating with our office for potential impacts to listed or proposed species prior to construction of the project. Therefore, based on the best information available at this time, we believe that the requirements of section 7 of the Endangered Species Act (Act) of 1973, as amended, are fulfilled for all species that currently receive

protection under the Act. Obligations under section 7 of the Act must be reconsidered if (1) new information reveals impacts of the proposed action that may affect listed species or critical habitat in a manner not previously considered, (2) the proposed action is subsequently modified to include activities which were not considered during this consultation, or (3) new species are listed or critical habitat designated that might be affected by the proposed action.

If you have any questions regarding our comments, please contact John Griffith of my staff at 931/525-4995 or by email at *john_griffith@fws.gov*.

Sincerely,

Mary E. Jennings
Field Supervisor

CITY of MARYVILLE
PEOPLE are the KEY

June 10, 2013

Office of the City Manager
404 West Broadway
Maryville, TN 37801
(865) 273-3401 phone
(865) 273-3424 fax
www.maryvillegov.com

Commissioner John Schroer
State of Tennessee
Department of Transportation
7th Floor, James K. Polk Building
505 Deaderick Street
Nashville, TN 37243

Re: Pellissippi Parkway Extension

Dear Commissioner Schroer:

This letter is in response to TDOT's request for input on the EIS being prepared for the Pellissippi Parkway Extension. The Maryville City Council met on June 4th council meeting and discussed the two options presented to shift the alignment of the Pellissippi Parkway. The opinion was unanimous that the **East Shift** appears to be the best option. The Maryville City Council appreciates TDOT's effort to minimize the impacts to the environment and at the same time be sensitive to the citizens living in the path of this proposed route.

If you would like to discuss this further, do not hesitate to call me at (865) 273-3401.

Sincerely,

Greg McClain
City Manager

Cc: Tom Taylor, Mayor
Andy White, Vice-Mayor
Joe Swann, Councilman
Tommy Hunt, Councilman
Fred Metz, Councilman

Attachment C-3
Interagency Coordination

May 14, 2015 TESA Meeting

- **Presentation Slides**

August 4, 2015 TESA Meeting

- **Presentation Slides**
- **Map of Alignment Shifts, 2013**
- **Summary of Impacts from 2014 Reevaluation of DEIS**

Environmental Impact Statement (FEIS)
SR 162/PELLISSIPPI PARKWAY EXTENSION
BLOUNT COUNTY, TENNESSEE

Past | Present | Future

Presented to the TESA Agency Meeting
May 14, 2015

SR-162 / Pellissippi Parkway Extension

Project Description

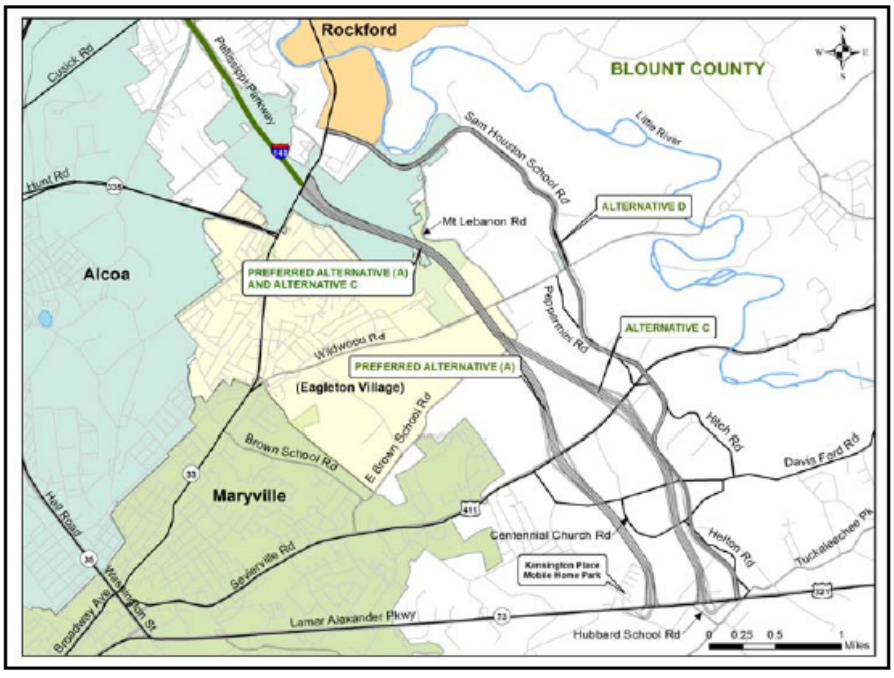
- Extend Pellissippi Parkway (SR 162) from terminus at SR 33 (Old Knoxville Hwy) to SR 73/US 321 (Lamar Alexander Pkwy)

1

SR-162 / Pellissippi Parkway Extension

TESA Concurrences

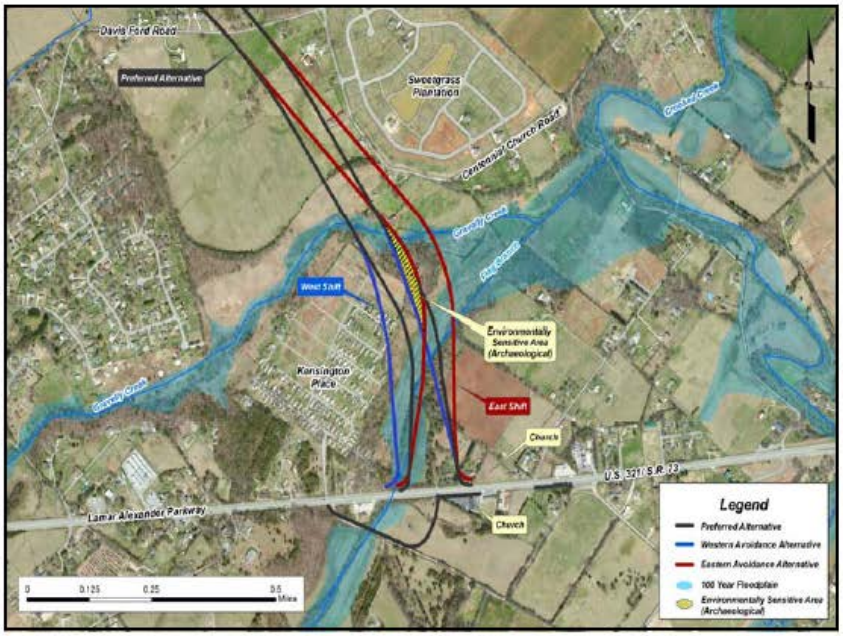
- CP 1 – Purpose and Need and Study Area - *February 2008*
- CP 2 – Alternatives to be Considered in DEIS - *July 2008*
- CP 3 – Preliminary DEIS - *January 2010*
- CP 4 – Preferred Alternative & Preliminary Mitigation – *May 2012*



SR-162 / Pellissippi Parkway Extension

Changes to Preferred Alternative

- **2013** – NRHP-eligible archaeological site identified within project footprint
  - Two alignment shifts proposed (300' east or 150' west)
  - Community Briefing held to present shifts (May 30, 2013)
  - West Shift selected to modify Preferred Alternative



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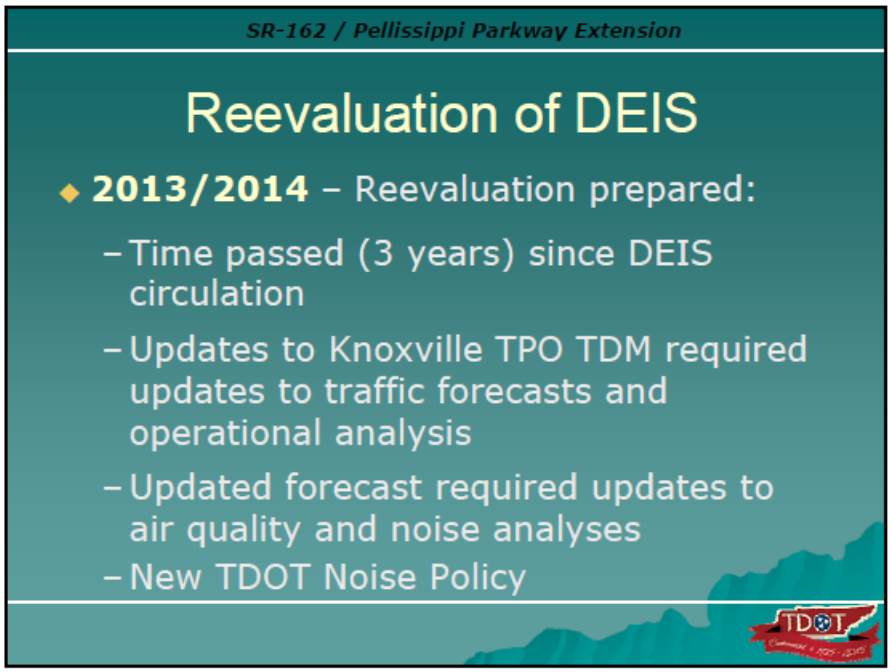
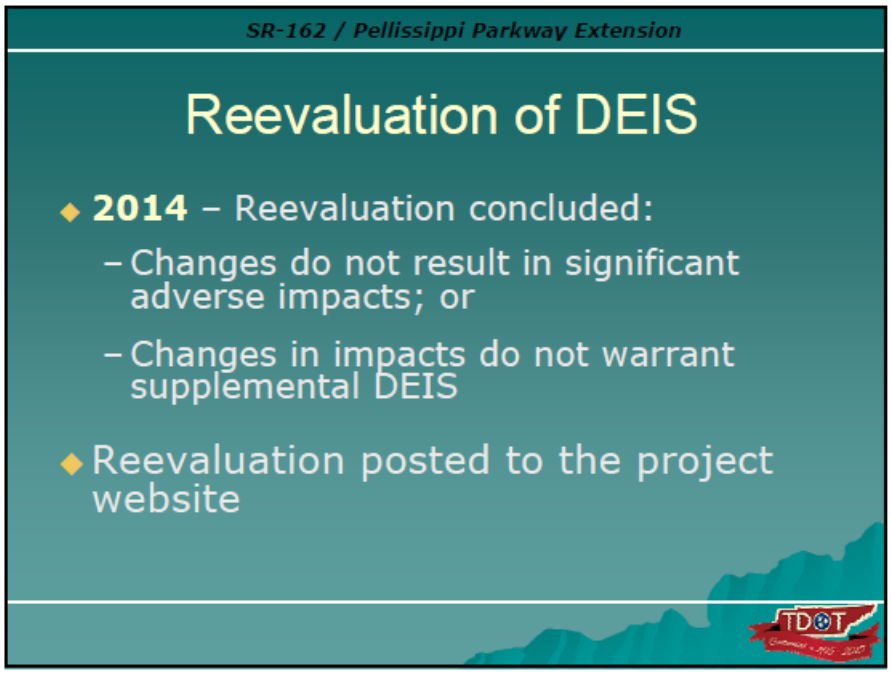

SR-162 / Pellissippi Parkway Extension
Reevaluation of DEIS
2013/2014 – Reevaluation prepared:
– Time passed (3 years) since DEIS circulation
– Updates to Knoxville TPO TDM required updates to traffic forecasts and operational analysis
– Updated forecast required updates to air quality and noise analyses
– New TDOT Noise Policy


SR-162 / Pellissippi Parkway Extension
Reevaluation of DEIS
2014 – Reevaluation concluded:
– Changes do not result in significant adverse impacts; or
– Changes in impacts do not warrant supplemental DEIS
Reevaluation posted to the project website

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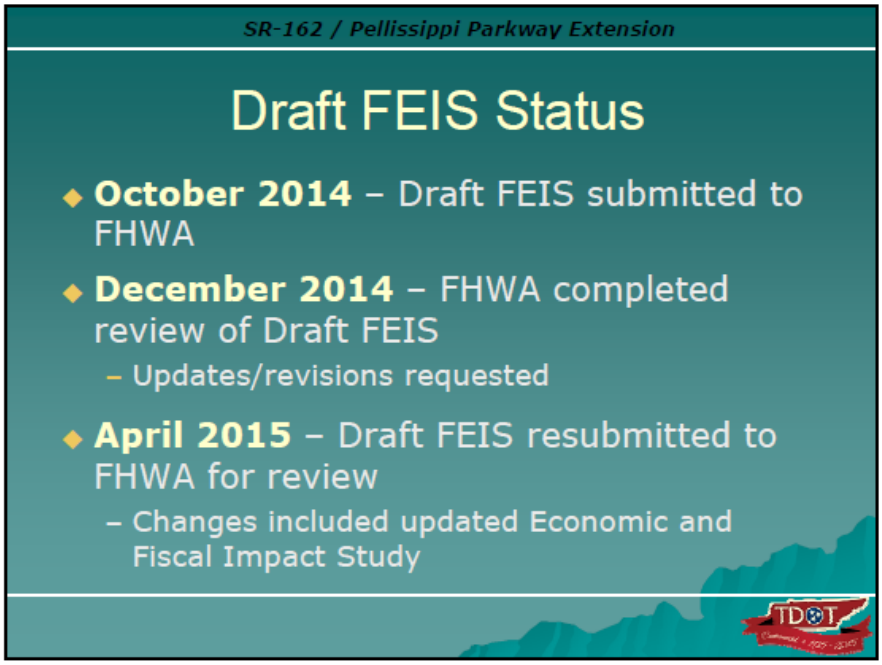
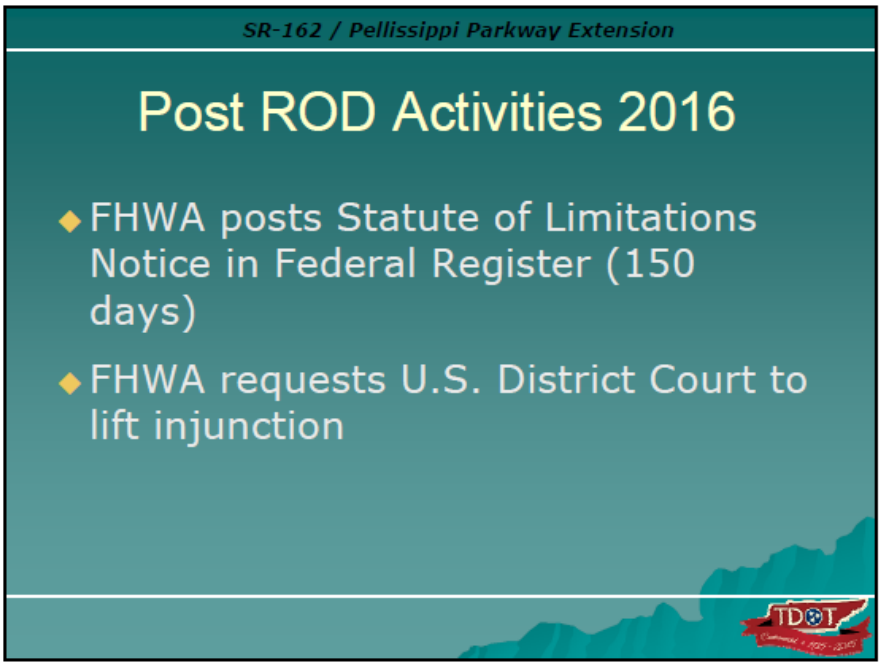
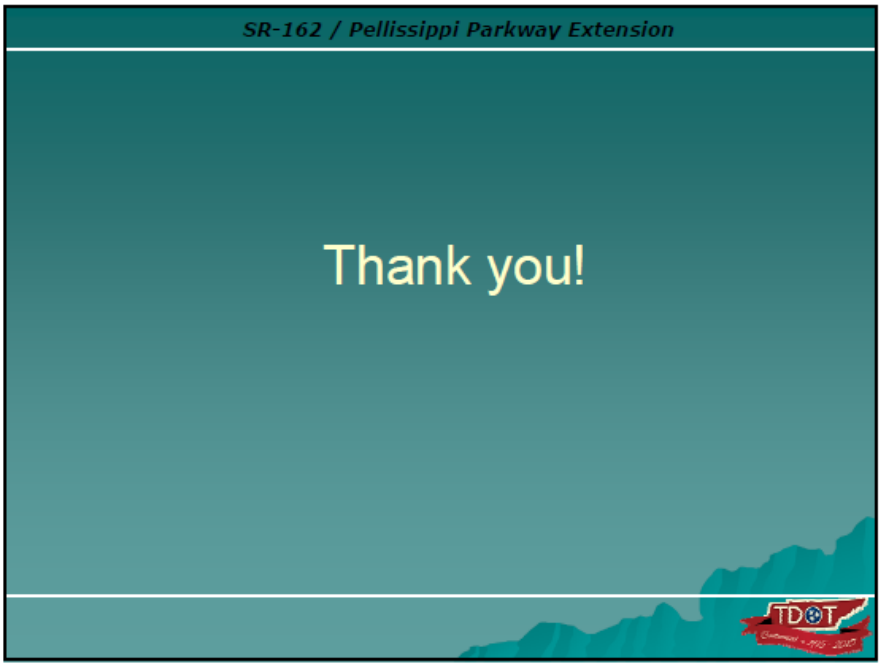

SR-162 / Pellissippi Parkway Extension
Draft FEIS Status
October 2014 – Draft FEIS submitted to FHWA
December 2014 – FHWA completed review of Draft FEIS
– Updates/revisions requested
April 2015 – Draft FEIS resubmitted to FHWA for review
– Changes included updated Economic and Fiscal Impact Study
TDOT

SR-162 / Pellissippi Parkway Extension
Next Steps
May to July 2015– Reviews and revisions
– Timeframe includes legal sufficiency review
– FEIS submittal to FHWA for approval
Summer 2015 – Anticipated approval of FEIS
End of 2015 – Anticipated ROD
TDOT

5


SR-162 / Pellissippi Parkway Extension
Post ROD Activities 2016
FHWA posts Statute of Limitations Notice in Federal Register (150 days)
FHWA requests U.S. District Court to lift injunction
TDOT


SR-162 / Pellissippi Parkway Extension
Thank you!
TDOT

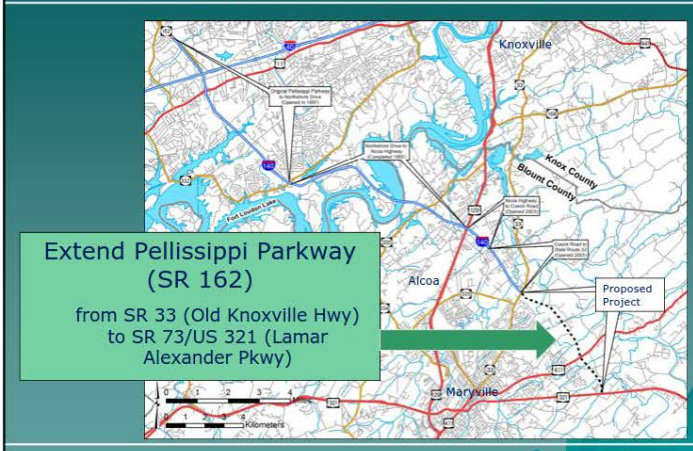
6

Environmental Impact Statement (FEIS)
SR 162/PELLISSIPPI PARKWAY EXTENSION
BLOUNT COUNTY, TENNESSEE

Summary of Environmental Evaluation since Concurrence Point 4

Presented to the TESA Agency Meeting
August 4, 2015

SR-162 / Pellissippi Parkway Extension



Extend Pellissippi Parkway (SR 162)

from SR 33 (Old Knoxville Hwy) to SR 73/US 321 (Lamar Alexander Pkwy)

1

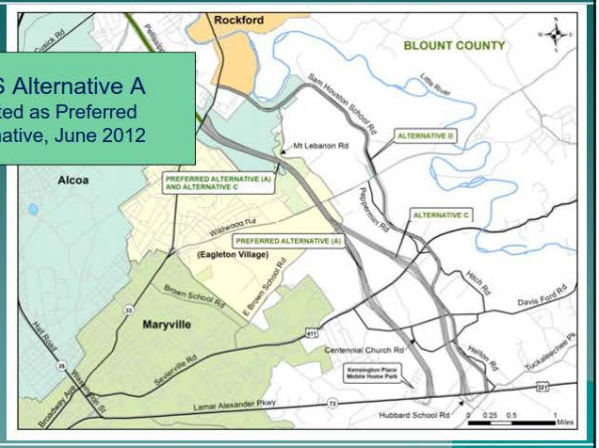
SR-162 / Pellissippi Parkway Extension

TESA Concurrences

- CP 1 – Purpose and Need and Study Area - *February 2008*
- CP 2 – Alternatives to be Considered in DEIS - *July 2008*
- CP 3 – Preliminary DEIS - *January 2010*
- CP 4 – Preferred Alternative & Preliminary Mitigation – *May 2012*

SR-162 / Pellissippi Parkway Extension

DEIS Alternative A selected as Preferred Alternative, June 2012



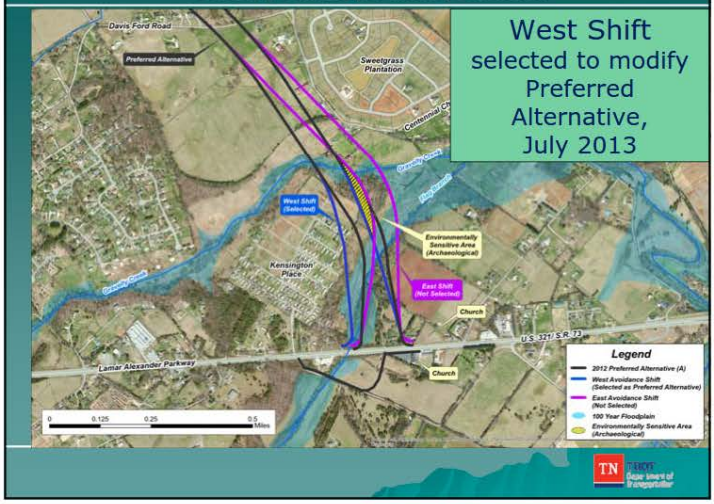
2

SR-162 / Pellissippi Parkway Extension

Changes to Preferred Alternative

- **2013** – To avoid National Register-eligible archaeological site in Project footprint
  - Two minor alignment shifts identified between Davis Ford Road and SR 73/US 321 (300' east or 150' west of proposed alignment)
  - Technical studies conducted
  - Coordination with resource agencies
  - Community Briefing held May 30, 2013

SR-162 / Pellissippi Parkway Extension



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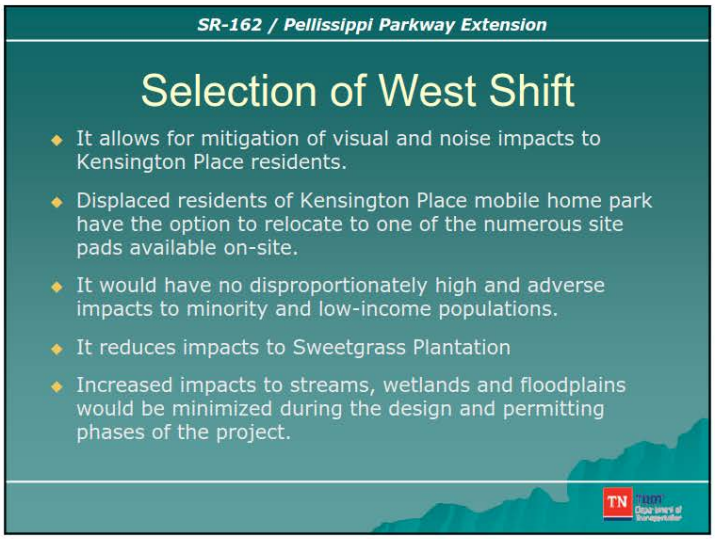
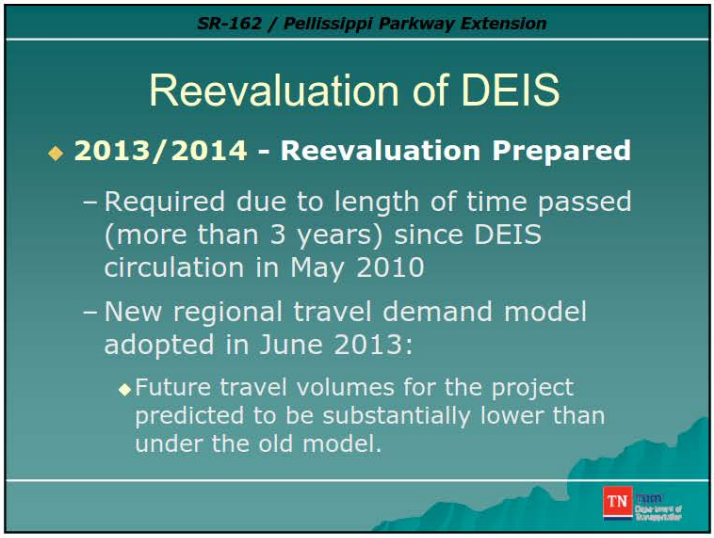
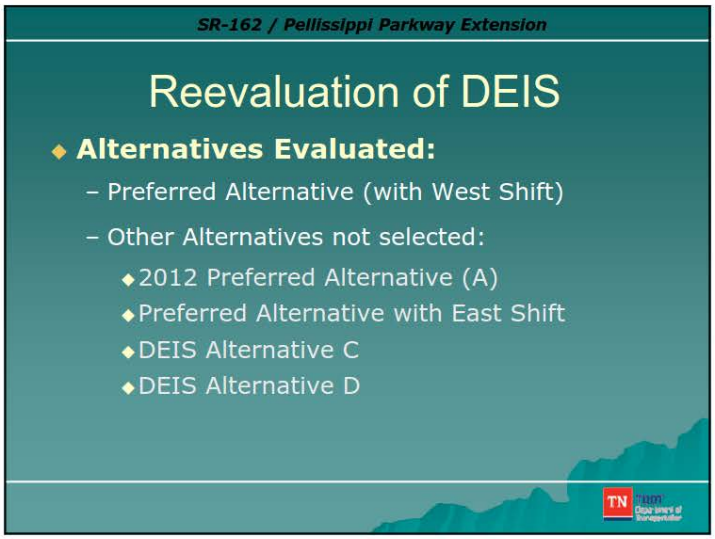
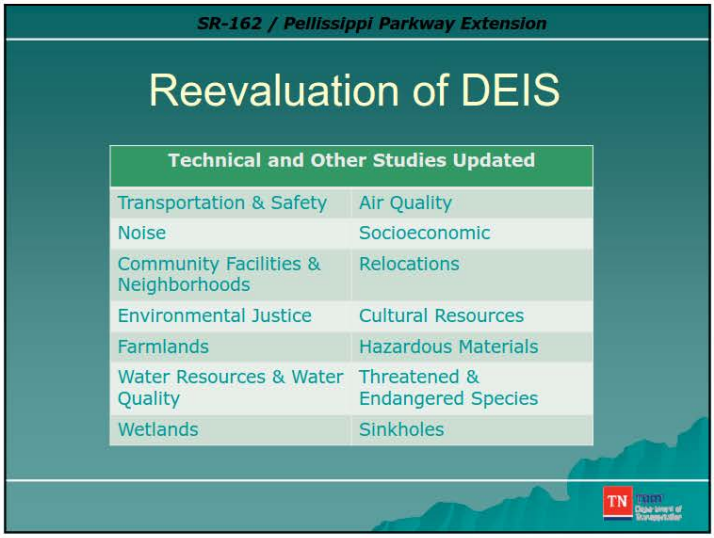

SR-162 / Pellissippi Parkway Extension
Selection of West Shift
It allows for mitigation of visual and noise impacts to Kensington Place residents.
Displaced residents of Kensington Place mobile home park have the option to relocate to one of the numerous site pads available on-site.
It would have no disproportionately high and adverse impacts to minority and low-income populations.
It reduces impacts to Sweetgrass Plantation
Increased impacts to streams, wetlands and floodplains would be minimized during the design and permitting phases of the project.


SR-162 / Pellissippi Parkway Extension
Reevaluation of DEIS
2013/2014 - Reevaluation Prepared
Required due to length of time passed (more than 3 years) since DEIS circulation in May 2010
New regional travel demand model adopted in June 2013:
Future travel volumes for the project predicted to be substantially lower than under the old model.

4


SR-162 / Pellissippi Parkway Extension
Reevaluation of DEIS
Alternatives Evaluated:
– Preferred Alternative (with West Shift)
– Other Alternatives not selected:
2012 Preferred Alternative (A)
Preferred Alternative with East Shift
DEIS Alternative C
DEIS Alternative D


SR-162 / Pellissippi Parkway Extension
Reevaluation of DEIS
Technical and Other Studies Updated
Transportation & Safety
Air Quality
Noise
Socioeconomic
Community Facilities & Neighborhoods
Relocations
Environmental Justice
Cultural Resources
Farmlands
Hazardous Materials
Water Resources & Water Quality
Threatened & Endangered Species
Wetlands
Sinkholes

5

SR-162 / Pellissippi Parkway Extension

Comparison of Impacts

Issues	2012 Preferred Alternative (A)	Preferred Alternative with East Shift	Preferred Alternative with West Shift	DEIS Alternative C	DEIS Alternative D
Traffic forecasts & operations	• Traffic volumes declined with new model. The LOS on proposed route is D or higher. The level of service and delay at key intersections is improved.				• While volumes have declined with new model, they still exceed the carrying capacity of a two-lane road.
Displacements	• 5 residences & 1 business	• 6 residences & 1 business	• 11 residences (including 6 mobile homes in Kensington Place) & 1 business	• 27 residences (affecting Tara Estates subdivision and Hubbard community) including & 1 business	• 41 residences (affecting Peppermint Hills community) & 2 businesses
Farmlands	• 107 acres in ROW / 54% of total acres	• 107 acres in ROW / 54% of total acres	• 110 acres in ROW / 55% of total acres	• 74 acres in ROW / 40% of total ROW	• 45 acres in ROW / 38% of total ROW
Environmental Justice (EJ) impacts	• No effect	• No effect	• Noise, visual and displacement impacts to Kensington Place mobile home park • Noise barrier will be constructed to mitigate impacts.	• No effect	• No effect
Noise impacts (receptors)	• 81	• 80	• 103	• 64	• 85
Noise impacts for EJ community, as-built	N/A	No barrier: • Substantial Increase – 28 • Approach NAC – 2 • Increase higher that West Shift – 8	With barrier: • Substantial Increase- 20 • Approach NAC – 2 • Increase higher that East Shift – 45	N/A	N/A
Floodplains	• 8.1 acres	• 7.4 acres	• 11.0 acres	• 9.0 acres	• 8.1 acres
Stream / wet weather conveyance impacts	• 4,525 / 0 linear feet	• 3,755 / 0 linear feet	• 4,962 / 0 linear feet	• 2,622 / 735 linear feet	• 1,695 / 650 linear feet
Wetland impacts	• 5.01 acres (due to beaver activity)	• 6.99 acres (due to beaver activity)	• 8.72 acres (due to beaver activity)	• 0.925 acres	• 0.025 acres
Sinkholes	• 0	• 0	• 0	• 0	• 1

SR-162 / Pellissippi Parkway Extension

Finding of Reevaluation

Changes to the alternatives considered in the DEIS and the modification of the Preferred Alternative with the West Shift

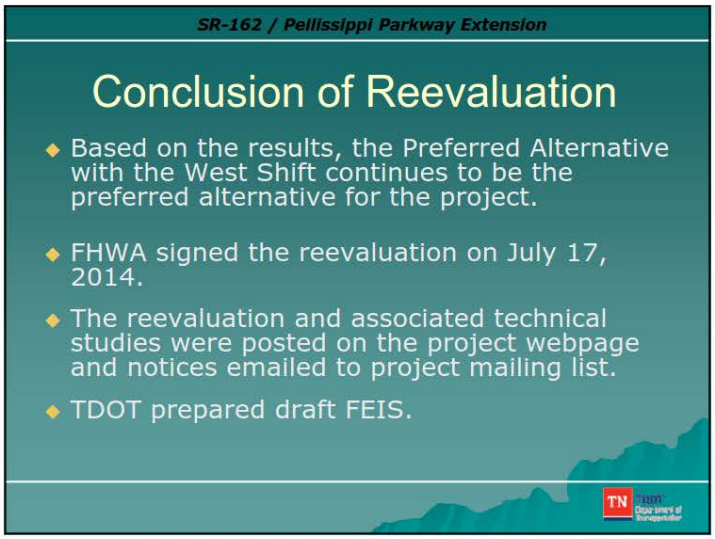
+

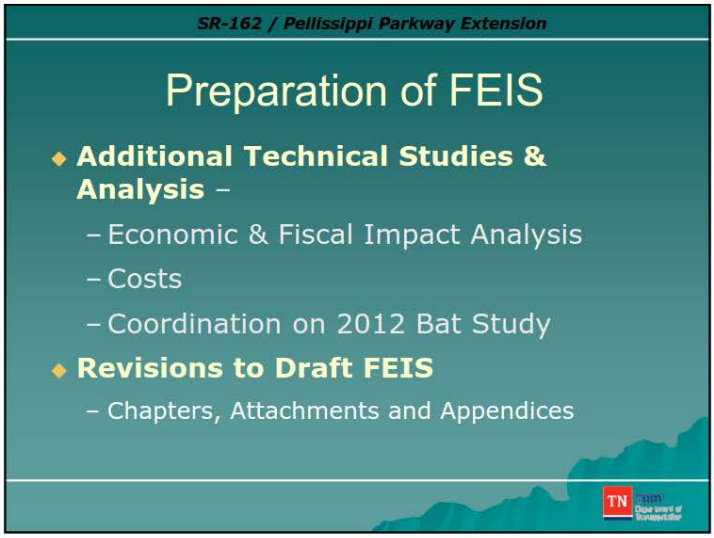
New information or circumstances identified in the reevaluation

→

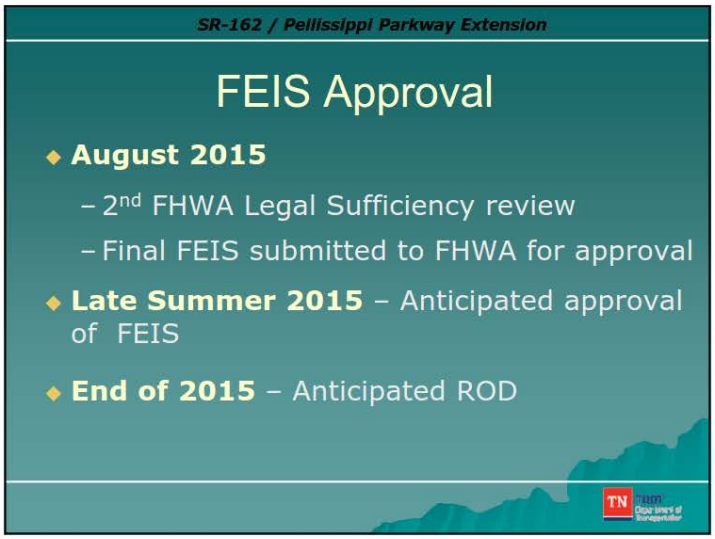
No significant environmental impacts that were not evaluated in the DEIS

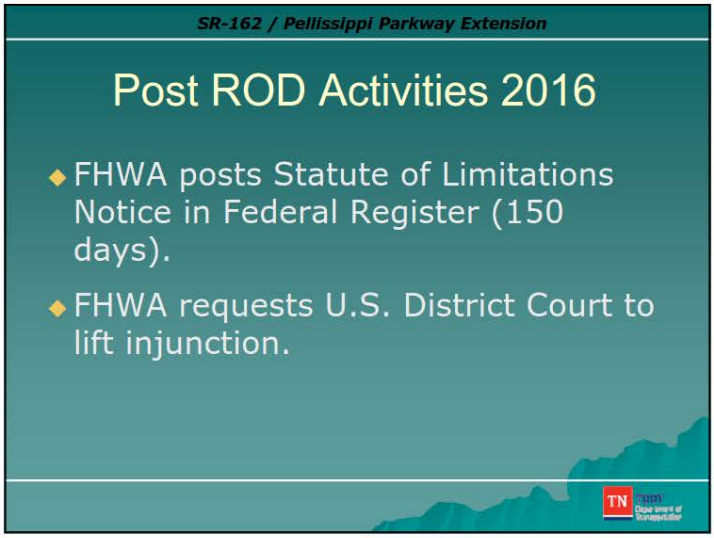
6


SR-162 / Pellissippi Parkway Extension
Conclusion of Reevaluation
Based on the results, the Preferred Alternative with the West Shift continues to be the preferred alternative for the project.
FHWA signed the reevaluation on July 17, 2014.
The reevaluation and associated technical studies were posted on the project webpage and notices emailed to project mailing list.
TDOT prepared draft FEIS.

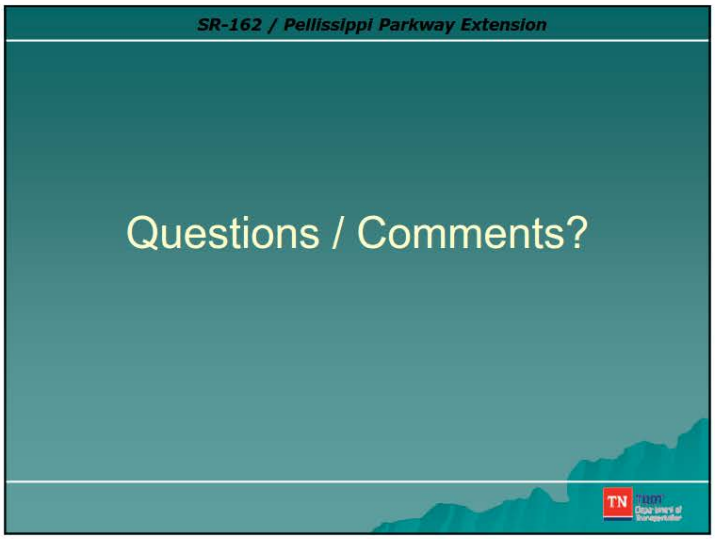

SR-162 / Pellissippi Parkway Extension
Preparation of FEIS
Additional Technical Studies & Analysis –
– Economic & Fiscal Impact Analysis
– Costs
– Coordination on 2012 Bat Study
Revisions to Draft FEIS
– Chapters, Attachments and Appendices

7


SR-162 / Pellissippi Parkway Extension
FEIS Approval
August 2015
– 2nd FHWA Legal Sufficiency review
– Final FEIS submitted to FHWA for approval
Late Summer 2015 – Anticipated approval of FEIS
End of 2015 – Anticipated ROD

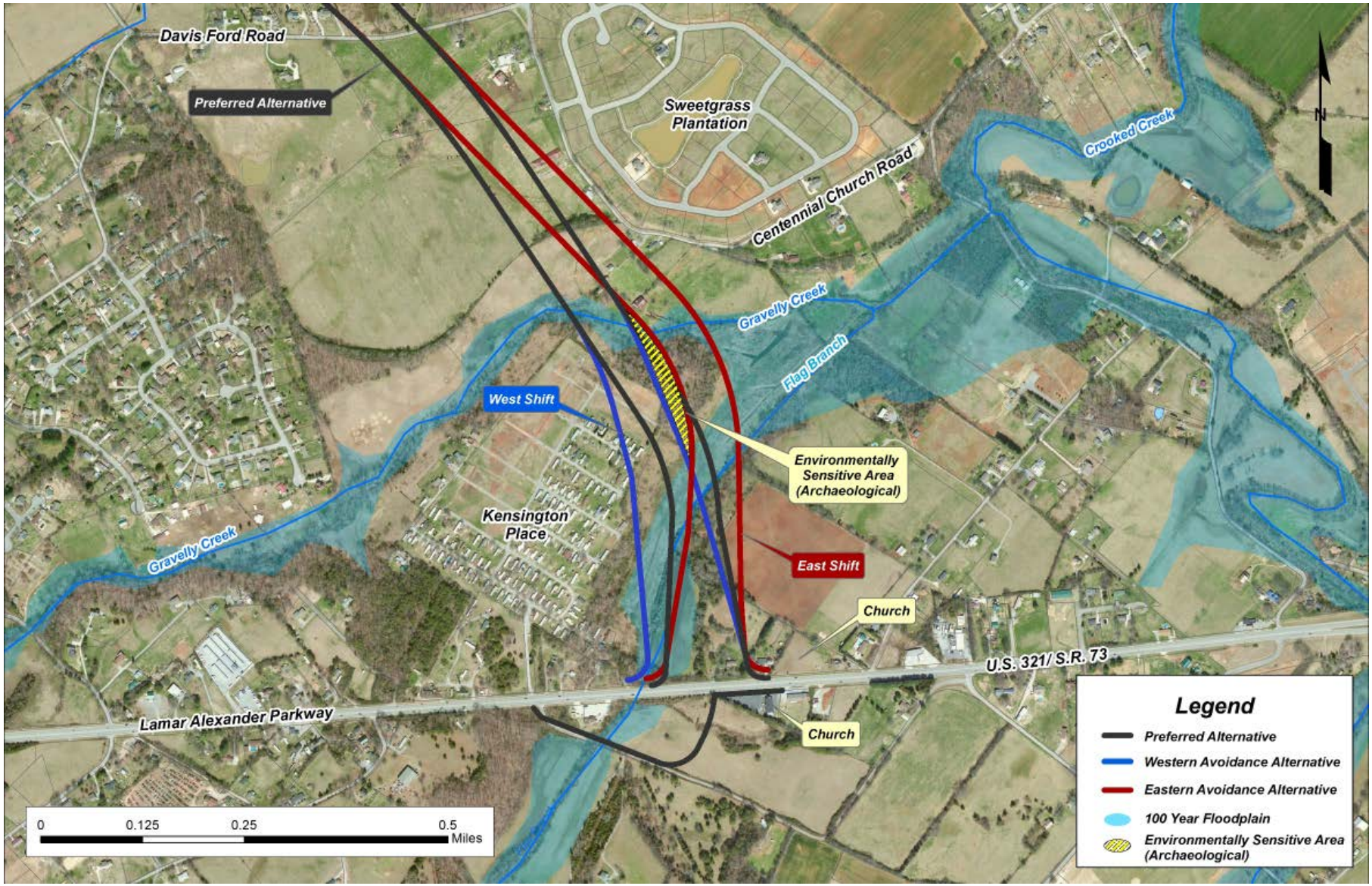

SR-162 / Pellissippi Parkway Extension
Post ROD Activities 2016
FHWA posts Statute of Limitations Notice in Federal Register (150 days).
FHWA requests U.S. District Court to lift injunction.

8


SR-162 / Pellissippi Parkway Extension
Questions / Comments?
TN

9

Pellissippi Parkway Extension Alignment Shifts, 2013



PELLISSIPPI PARKWAY EXTENSION DEIS REEVALUATION, JULY 2014
COMPARISON OF ALTERNATIVES

ISSUES	2012 PREFERRED ALTERNATIVE (A)	PREFERRED ALTERNATIVE WITH EAST SHIFT	PREFERRED ALTERNATIVE WITH WEST SHIFT	DEIS ALTERNATIVE C	DEIS ALTERNATIVE D
Traffic forecasts & operations	• Traffic volumes declined with new model. The LOS on proposed route is D or higher. The level of service and delay at key intersections is improved.				• While volumes have declined with new model, they still exceed the carrying capacity of a two-lane road.
Displacements	• 5 residences & 1 business	• 6 residences & 1 business	• 11 residences (including 6 mobile homes in Kensington Place) & 1 business	• 27 residences (affecting Tara Estates subdivision and Hubbard community) including & 1 business	• 41 residences (affecting Peppermint Hills community) & 2 businesses
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Environmental Justice (EJ) impacts	• No effect	• No effect	• Noise, visual and displacement impacts to Kensington Place mobile home park • Noise barrier will be constructed to mitigate impacts.	• No effect	• No effect
Noise impacts (receptors)	• 81	• 80	• 103	• 64	• 85
Noise impacts for EJ community, as-built	N/A	No barrier: • Substantial Increase – 28 • Approach NAC – 2 • Increase higher that West Shift – 8	With barrier: • Substantial Increase- 20 • Approach NAC – 2 • Increase higher that East Shift – 45	N/A	N/A
Floodplains	• 8.1 acres	• 7.4 acres	• 11.0 acres	• 9.0 acres	• 8.1 acres
Stream / wet weather conveyance impacts	• 4,525 / 0 linear feet	• 3,755 / 0 linear feet	• 4,962 / 0 linear feet	• 2,622 / 735 linear feet	• 1,695 / 650 linear feet
Wetland impacts	• 5.01 acres (due to beaver activity)	• 6.99 acres (due to beaver activity)	• 8.72 acres (due to beaver activity)	• 0.925 acres	• 0.025 acres
Sinkholes	• 0	• 0	• 0	• 0	• 1

Attachment D

Conceptual Stage Relocation Plan 2014

STATE OF TENNESSEE
DEPARTMENT OF TRANSPORTATION
RIGHT OF WAY DIVISION
SUITE 600, JAMES K. POLK BUILDING
505 DEADERICK STREET
NASHVILLE, TENNESSEE 37243-1402
(615) 741-3196

JOHN C. SCHROER
COMMISSIONER

BILL HASLAM
GOVERNOR

CONCEPTUAL STAGE RELOCATION PLAN

County: **Blount**
Route: **SR-162**
PIN: **101423.00**
State Project No. **PE-D 05097-1226-04**
Federal Project No. **HPP/NH-162(7)**

SR-162 (Pellissippi Parkway) from SR-33 to SR-73 (US 321)

Alternate "A" with West Alignment Shift
Alternate "A" with East Alignment Shift
Alternate "AC"
Alternate "D"

PROJECT INFORMATION: The Tennessee Department of Transportation (**TDOT**) is proposing to extend SR-162 (Pellissippi Parkway) in order to improve safety, relieve traffic congestion, and promote economic growth. SR-162 is a major connector between the city of Maryville and I-40 and I-75 12.5± miles to the northwest.

Altogether, four alternate routes are under consideration. The first three routes call for the extension of SR-162. The fourth route (Alternate "D"), calls for the upgrade of an existing network of two lane roads. Location maps of the proposed project showing each of the four alternate routes are shown on Pages 7 and 8 of this report.

Due to the preliminary nature of the submitted functional road plans, typical sections were not included.

Based on the submitted plans, it appears that the proposed right-of-way will vary according to construction requirements.

AREA INFORMATION: The subject area is located in the northern portion of Blount County and northeast of Maryville, the County Seat. Current land use in the project area includes a mixture of residential and agricultural, transitioning to residential.

According to the U. S. Census Bureau, the estimated population for Blount County in 2013 was 125,099. This reflects a 1.7% increase since the 2010 census. The population of Maryville in 2012 was estimated to be 27,914 and reflects a 1.1% increase since the 2010 census.

DISPLACEMENTS:

ANTICIPATED RELOCATIONS	ALTERNATE "A"		ALTERNATE "AC"	ALTERNATE "D"
	WEST ALIGNMENT SHIFT	EAST ALIGNMENT SHIFT		
SINGLE FAMILY RES.	5	5	25	39
MOBILE HOMES	6	1	2	2
BUSINESSES	1	1	1	2

DISPLACEMENT EFFECTS AND ANALYSIS

Single Family Residences

Alternate "A" with West Alignment Shift

Construction of this project is expected to result in the displacement of 5 (five) single family residences. Based on field observation, these single family residences appear to be typical for the area in terms of size and style. A majority of the single family displacees are expected to be owner occupants.

Alternate "A" with East Alignment Shift

Construction of this project is expected to result in the displacement of 5 (five) single family residences. Based on field observation, these single family residences appear to be typical for the area in terms of size and style. A majority of the single family displacees are expected to be owner occupants.

Alternate "AC"

Construction of this project is expected to result in the displacement of 25 (twenty-five) single family residences. Based on field observation, these single family residences appear to be typical for the area in terms of size and style. A majority of the single family displacees are expected to be owner occupants.

Alternate "D"

Construction of this project is expected to result in the displacement of 39 (thirty-nine) single family residences. Based on field observation, these single family residences appear to be typical for the area in terms of size and style. A majority of the single family displacees are expected to be owner occupants.

Mobile Homes

Alternate "A" with West Alignment Shift

Construction is expected to displace 6 (six) mobile home residences. Based on field observation, these mobile homes appear to be typical for the area in terms of size and style. The number of owner/tenant occupants of the mobile homes is unknown.

Alternate "A" with East Alignment Shift

Construction is expected to displace 1 (one) mobile home residence. Based on field observation, this mobile home appears to be typical for the area in terms of size and style. The number of owner/tenant occupants of this mobile home is unknown.

Alternate "AC"

Construction is expected to displace 2 (two) mobile home residences. Based on field observation, these mobile homes appear to be typical for the area in terms of size and style. The number of owner/tenant occupants of the mobile homes is unknown.

Alternate "D"

Construction is expected to displace 2 (two) mobile home residences. Based on field observation, these mobile homes appear to be typical for the area in terms of size and style. The number of owner/tenant occupants of the mobile homes is unknown.

Businesses

Alternate "A" with West Alignment Shift

Construction is expected to displace 1 (one) small business consisting of a thrift store occupying a building formerly used as a service station/convenience market. Based on field observation, it is estimated that this business has fewer than 10 employees.

Alternate "A" with East Alignment Shift

Construction is expected to displace 1 (one) small business consisting of a thrift store occupying a building formerly used as a service station/convenience market. Based on field observation, it is estimated that this business has fewer than 10 employees.

Alternate "AC"

Construction is expected to displace 1 (one) small business consisting of a golf driving range. Based on field observation, it is estimated that this business has fewer than 10 employees.

Alternate "D"

Construction is expected to displace 2 (two) small businesses consisting of a Dollar General Store and a service station/convenience market. Based on field observation, it is estimated that both businesses have fewer than 10 employees.

Other Relocation Types

No multi-family, farm, or non-profit displacements are located on any of the four proposed alternates.

Availability of Replacement Housing

A survey of the Blount County real estate market in the immediate project area was conducted to determine the availability of residential and commercial real estate for either sale or lease.

Results of the survey indicate that the supply of available property in the project area appears to be adequate to satisfy the relocation requirements of the six to eleven households and single business affected by the **Alternate "A" with West Alignment Shift** and **Alternate "A" with East Alignment Shift.**

Alternate "AC" and **Alternate "D"** will both have significantly greater impact with between 27 and 41 households requiring relocation. While research indicates that the supply of available housing should be adequate to meet the residential relocation requirements, Alternate "D" with the greatest number of families to relocate will take longer to absorb due to the anticipated surge in demand. No problems are anticipated with relocation of the single affected business on each of these alternate routes.

CONCURRENT PROJECTS: As shown on Sheet 2 of Alternate "A" with West Alignment Shift, Sheet 1 of Alternate "A" with East Alignment Shift, and Sheet C1 of Alternate "AC" of the CSRP Marked Plans, there is an active SIA project underway in Blount County to provide an industrial access road to serve ProNova Solutions, LLC in Alcoa, Tennessee. The PIN Number is 118665.00. State Project 05LPLM-S3-028. While this project does not involve any relocation activities, the plans do show potential conflict between the proposed rights-of-way.

ENVIRONMENTAL: As shown in the table on Page 2 of this report, **Alternate "A" with West Alignment Shift** and **Alternate "A" with East Alignment Shift** will potentially result in the displacement of between six and eleven families and one business each. As such, the immediate area should experience only minor impact. No neighborhoods will be disrupted nor will access from areas northeast of the roadway to areas southwest of the roadway be significantly affected.

Alternate "AC" and **Alternate "D"** will both have significantly greater impact with between 27 and 41 households requiring relocation.

As shown on Sheets C6 & 7 and C10 of Alternate "AC", two clusters of homes will be impacted by construction of the proposed improvement. Of the twenty-seven total anticipated residential

relocations, 23 are shown on these three sheets. For Alternate "D", 17 of the 41 anticipated residential relocations are shown on Sheet D8.

Potential Hazardous Waste Sites:

Alternate "A" with West Alignment Shift

As shown on Sheet 10 of the CSRP Marked Plans, the single business being displaced occupies a building formerly used as a service station/convenience market where underground fuel storage tanks may be present.

Alternate "A" with East Alignment Shift

As shown on Sheet 10A of the CSRP Marked Plans, the single business being displaced occupies a building formerly used as a service station/convenience market where underground fuel storage tanks may be present.

Alternate "AC"

No apparent environmentally hazardous locations observed.

Alternate "D"

As shown on Sheet D12 of the CSRP Marked Plans, the single business being displaced currently operates as a service station/convenience market.

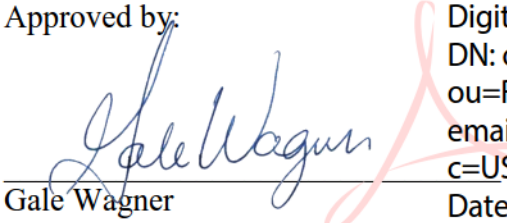
ASSURANCES: The Tennessee Department of Transportation will make relocation assistance available to all eligible persons impacted by this project, including residences, businesses, farm operations, non-profit organizations, and those requiring special services or assistance. The Regional Relocation Staff will administer the relocation program under the rules, policies, and procedures set forth in the Federal Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970 as amended, the Uniform Relocation Assistance Act of 1972, implementing federal regulations, TCA 13-11-101 through 119, The State of Tennessee Relocation Assistance Brochure and Chapter IX of the State of Tennessee Department of Transportation Right-of-Way Manual. TDOT's relocation program is practical and will allow for the efficient relocation of all eligible displaced persons in accordance with State and Federal Guidelines.

Prepared By:

David S. Goodman
Transportation Specialist 1

Digitally signed by David S. Goodman
DN: cn=David S. Goodman, o=Tennessee Department of Transportation, ou=Right-of-Way Office, email=David.S.Goodman@tn.gov, c=US
Date: 2014.05.05 13:08:20 -05'00'

Approved by:



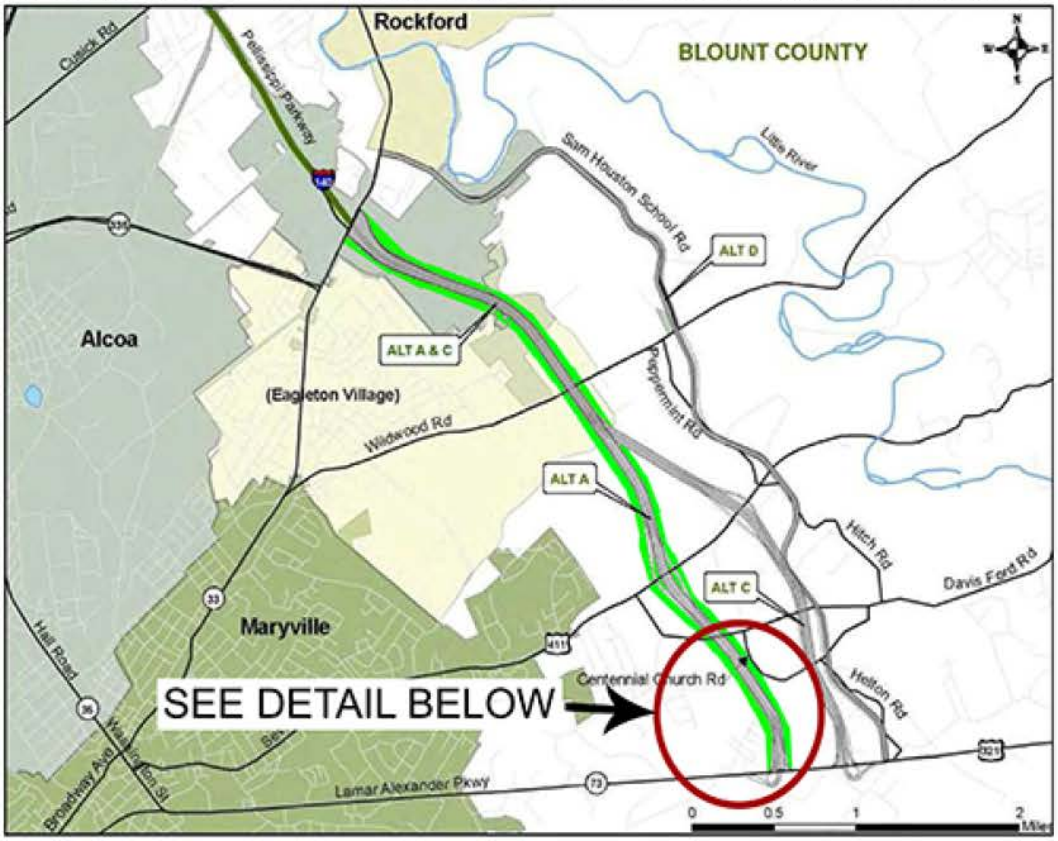
Gale Wagner
Transportation Manager 1

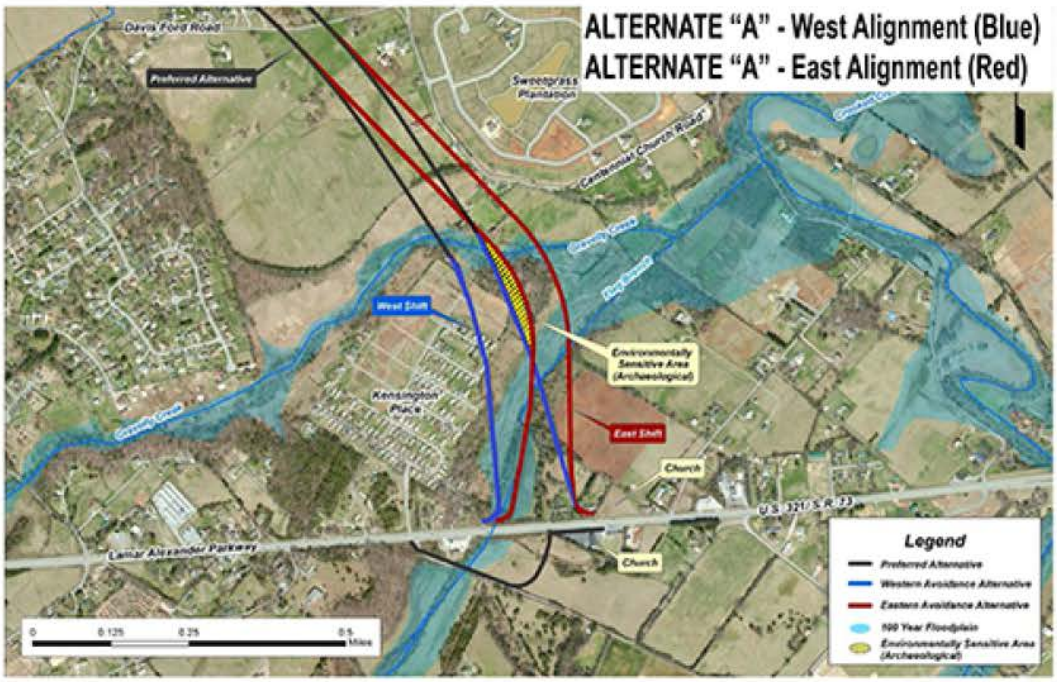
Digitally signed by Gale Wagner
DN: cn=Gale Wagner, o=TDOT, ou=ROW Division, email=gale.wagner@tn.gov, c=US
Date: 2014.05.05 14:37:05 -05'00'

LOCATION MAPS

(For Illustration Only)

ALTERNATE "A" WITH EAST AND WEST ALIGNMENTS



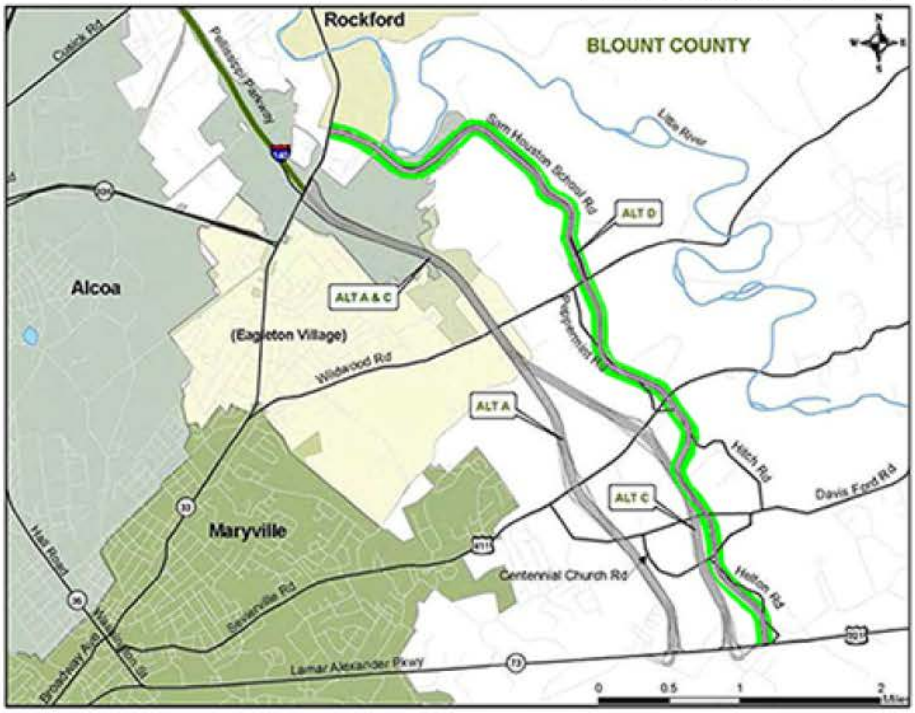


LOCATION MAPS

(For Illustration Only)

ALTERNATE "AC"

ALTERNATE "D"



Attachment E

Environmental Justice Analysis June 2014, with minor correction March 3, 2015

STATE OF TENNESSEE
DEPARTMENT OF TRANSPORTATION
ENVIRONMENTAL DIVISION
SUITE 900, JAMES K. POLK BUILDING
505 DEADERICK STREET

MEMORANDUM

Date: **June 10, 2014**

Project: **Pellissippi Parkway Extension (SR-162), Blount County, Tennessee**

Subject: **Updated Environmental Justice Analysis as Part of the Reevaluation of the Draft Environmental Impact Statement (DEIS)**

The focus of this memorandum is to update the Environmental Justice analyses previously prepared for the DEIS alternatives (No-Build, A, C and D) and for the Preferred Alternative (DEIS Alternative A) avoidance options (West Shift and East Shift).

Legislative and Regulatory Background

Executive Order (EO) 12898 on Environmental Justice (issued February 11, 1994) 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.

In 1997, the US Department of Transportation (USDOT) issued DOT Order 5610.2, *DOT Actions to Address Environmental Justice in Minority Populations and Low-Income Populations*, establishing procedures to be used by DOT agencies to comply with EO 12898. In 2012, the

Department issued DOT Order 5610.2(a) to update and clarify its Environmental Justice procedures.

In December 1998, the FHWA issued Order 6640.23 *FHWA Actions to Address Environmental Justice in Minority Populations and Low-Income Populations* to establish specific policies and procedures for the application of EO 12898 Environmental Justice principals to FHWA actions. The original FHWA Order was superseded in June 2012 by Order 6640.23A, *FHWA Actions to Address Environmental Justice in Minority Populations and Low-Income Populations.*

Background

The DEIS for the subject project evaluated the No-Build Alternative and three Build Alternatives (two four-lane alternatives – Alternatives A and C; and an improved two-lane alternative – Alternative D). TDOT held a Public Hearing on the DEIS in July 2010. Following consideration of the environmental evaluation and comments provided by the public and agencies, in May 2012 TDOT announced its selection of Alternative A as the Preferred Alternative for the project. Figure 1 shows the location of the DEIS alternatives and the Preferred Alternative.

To prepare the FEIS, TDOT updated several technical studies for the Preferred Alternative, including the Phase II archaeology for five sites identified as potentially eligible during the DEIS. As a result of these Phase II investigations, one site was determined eligible for the National Register of Historic Places. TDOT investigated ways to avoid or minimize adverse effect to the site, focusing on identifying potential avoidance options via minor alignment shifts in the vicinity of the sensitive portion of the eligible archaeology site, rather than major shifts of the alignment of the Preferred Alternative.

TDOT identified two potential shifts of the alignment to avoid impacts to the eligible archaeology site, both requiring additional archaeology, noise, ecology, geotechnical and Environmental Justice studies to determine if the potential shifts were prudent and feasible. The two minor alignment shifts (also referred to as “avoidance options”) are described below and illustrated in Figure 2.

- **East alignment shift** would shift the right-of-way (ROW) about 300 feet eastward in the vicinity of the Kensington Place Mobile Home Park (referred to in this memo as the mobile home community) near the southern terminus of the project.

- **West alignment shift** would shift the ROW about 150 feet to the west into the Kensington Place mobile home community.

Figure 1 – 2012 Preferred Alternative and DEIS Alternatives

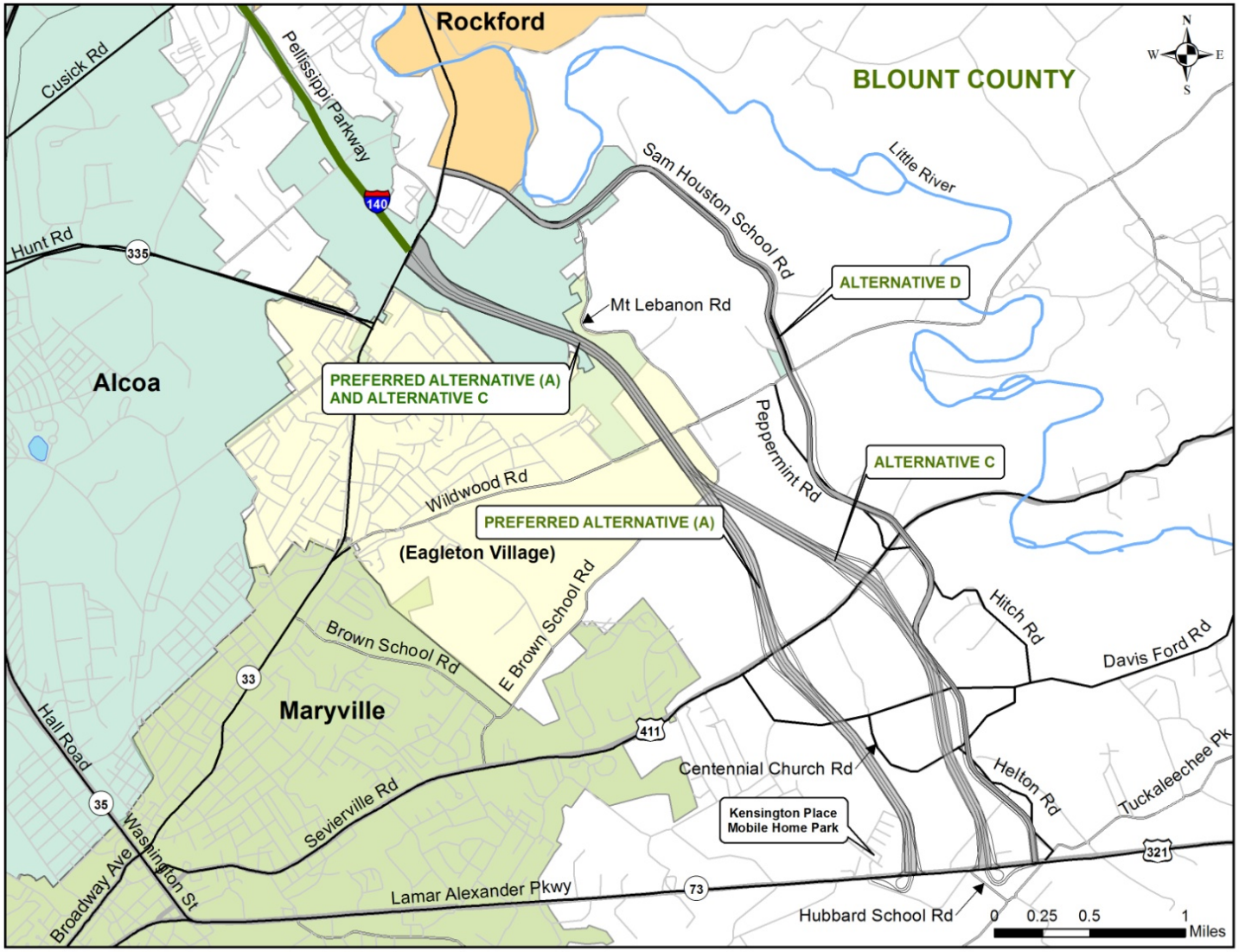
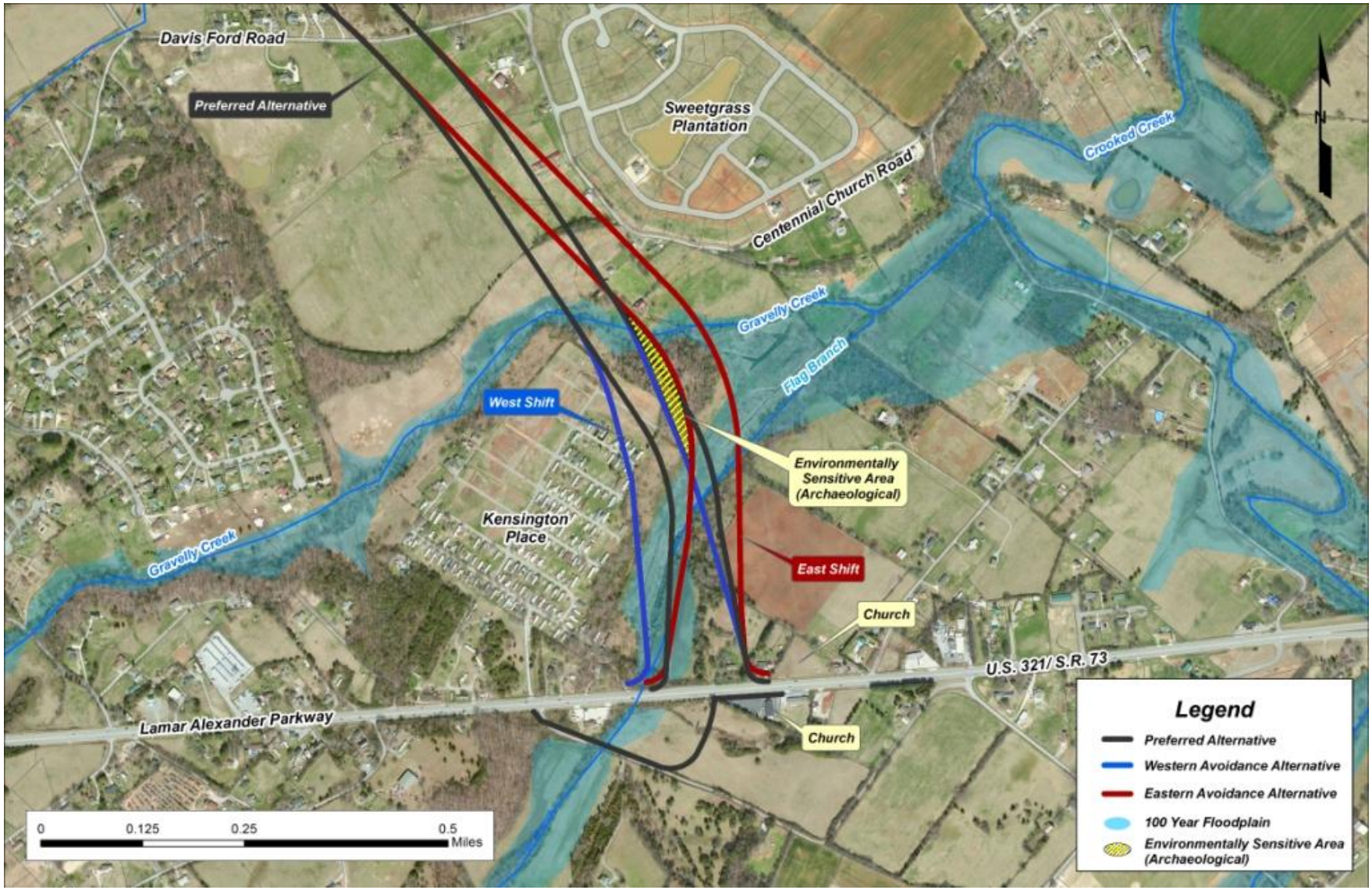


Figure 2 – 2012 Preferred Alternative and Avoidance Shifts



TDOT held a community briefing on Thursday, May 30, 2013 to engage those persons and businesses potentially affected by the proposed minor alignment shifts.

TDOT prepared an Environmental Justice Analysis Memorandum, dated June 21, 2013, to assess whether there is a disproportionately high and adverse impact to the low-income and minority residents in the mobile home community that would be affected by the two minor alignment shifts. The analysis concluded that low-income and minority residents will experience adverse impacts, likely due to increased noise, changes in the views, and displacements. To minimize the predicted noise impacts to the community, TDOT committed to construction of a noise barrier for the community. TDOT also committed to seek input from community residents regarding the landscaping and color/pattern of the barrier in order to minimize possible visual impacts to the community as a result of the barrier and the new roadway.

Following careful review of the public input from the community briefing, and consideration of the amount and type of impacts of each shift and the potential to mitigate adverse effects, TDOT selected the west shift to modify the Preferred Alternative. TDOT made a public announcement that the Preferred Alternative had been modified by the west alignment shift with a media advisory issued on July 29, 2013.

Due to the time that has elapsed (more than three years) since the approval and circulation of the DEIS (May 2010), in July 2013 TDOT initiated a reevaluation of the DEIS to determine whether a supplement to the DEIS or a new DEIS is necessary prior to approval of the FEIS.

This updated Environmental Justice Analysis Memorandum evaluates the DEIS alternatives as well as the Preferred Alternative with West Shift and the considered and dismissed Preferred Alternative with East Shift. This memo:

- Identifies potential low-income and minority populations in the project area defined in the DEIS;
- Describes potential impacts to identified Environmental Justice communities as well as mitigation measures to minimize impacts to those communities;
- Describes coordination activities to achieve public participation and input from low-income and minority persons; and
- Addresses alternatives considered to avoid or minimize impacts to the protected populations.

Identification of Potential Environmental Justice Communities in the Project Area

The legal and regulatory framework for Environmental Justice concerns focuses specifically on impacts to low-income populations and minority populations in the United States. Low-income persons are those whose median household income is at or below the Department of Health and Human Services poverty guidelines. Minority populations are specifically identified as persons who are:

1. Black: a person having origins in any of the black racial groups of Africa;
2. Hispanic or Latino: a person of Mexican, Puerto Rican, Cuban, Central or South American, or other Spanish culture or origin, regardless of race;

3. Asian American: a person having origins in any of the original peoples of the Far East, Southeast Asia or the Indian subcontinent;
4. American Indian and Alaskan Native: a person having origins in any of the original people of North America, South America (including Central America), and who maintains cultural identification through tribal affiliation or community recognition; or
5. Native Hawaiian and Other Pacific Islander: a person having origins in any of the original peoples of Hawaii, Guam, Samoa or other Pacific Islands.

To identify concentrations of low-income and/or minority populations that would be affected by any of the project alternatives, TDOT reviewed the most recently available US Census data (2010) and the most recent data from the American Community Survey (2012). The secondary data review was supplemented by visual inspections of the project area and interviews with local planners conducted during the DEIS evaluation.

Blount County's population as a whole is primarily white (92 percent). Hispanic persons constitute about 2.8 percent of the population and Black persons are about 2.7 percent of the population. About 11.7 percent of the county's population is considered low-income.

Based on the review of available data, visual reconnaissance and past conversations with area planners, there is one substantial concentration of low-income and minority populations in the project area; this concentration of protected populations is the Kensington Place mobile home community. This community is on the north side of US-321/SR-73, to the east of the Maryville city limits, at the southern end of the proposed project. This development, owned by the Kensington Place MHP, LLC, in Royal Oaks, Illinois, has 163 mobile home site pads with electric hook-ups. Over 70 percent of the site pads have a mobile home on the pad. Most of the mobile homes are occupied, and most are owner occupied, according to the mobile home park manager in a May 30, 2014 telephone conversation. Figure 3 illustrates the layout of the mobile home community.

The following sections present the data for low-income and minority persons in the project area. Also included in this analysis is information on Limited English Proficiency (LEP) populations; while LEP is not included as a protected category of persons covered by EO 12898, this information helps in understanding the ethnic composition of the minority communities, and in determining how best to communicate information about the project.

Figure 3 - Kensington Place Mobile Home Community

Low-Income Population

The 2010 Census of Population includes persons below the poverty level at the Census tract geography, but for reasons of privacy does not provide more detailed data at the block group or lower level. For a better idea of where low-income persons reside, this analysis uses information from the 2012 American Community Survey for the block group level. Table 1 and Figure 4 illustrate by block group the percent of persons living below the poverty level in the area of the DEIS and Preferred Alternatives.

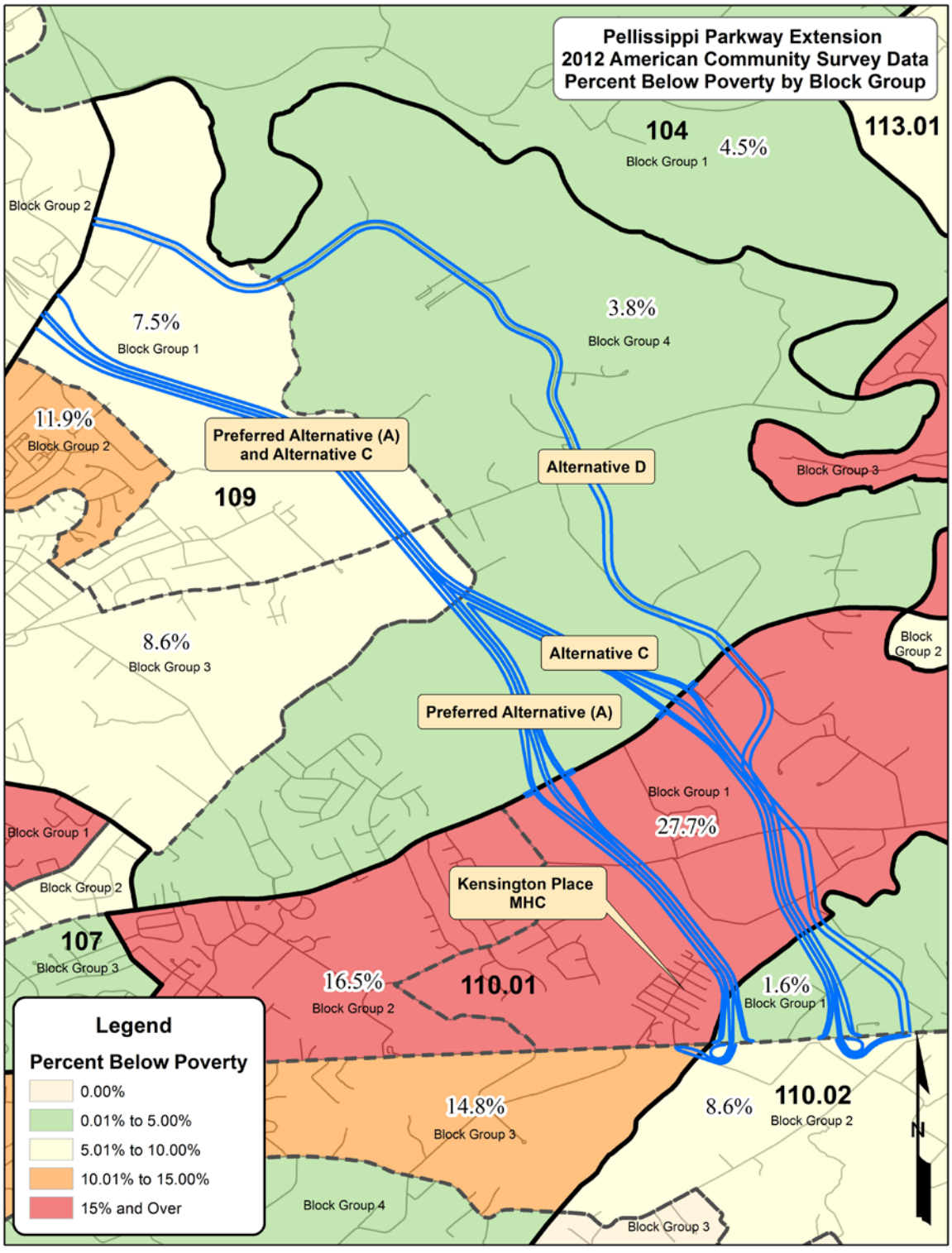
The southern end of the project area (where the Kensington Place mobile home community is located) has the higher concentration of persons below the poverty level compared with the rest of the project area and Blount County. The Census Block Group (CT 110.01, BG 1), which encompasses the mobile home community, has a substantially higher percentage of population below the poverty level (27.7 percent) compared with the county and most of the other block groups.

Table 1 – Persons below the Poverty Level, 2012

	Blount County	CT 109	CT 109 BG 1	CT 109 BG 2	CT 109 BG 3	CT 109 BG 4	CT 110.01	CT 110.01 BG 1	CT 110.01 BG 2	CT 110.01 BG 3	CT 110.02	CT 110.02 BG 1	CT 110.02 BG 2	CT 104 BG 1
Percent persons below poverty level	11.7%	5.4%	7.5%	11.9%	8.6%	3.8%	15.7%	27.7%	16.5%	14.8%	4.7%	1.6%	8.6%	4.5%

Source: 2012 American Community Survey

Figure 4 – Percent of Persons below the Poverty Level, 2012



Minority Populations

The 2010 US Census data provides block group level data for minority persons. Table 2 and Figure 5 illustrate the percentages of minority persons in the census tracts and block groups that comprise the general area of the DEIS and Preferred Alternative.

Census Tract 110.01, Block Group 2, which is not crossed by any of the project alternatives, has the highest percent of minority persons (10 percent). The next highest minority population (9.2 percent) is in Census Tract 109, Block Group 3, within the city of Maryville; this block group is crossed by the combined alignment of the Preferred Alternative and DEIS Alternative C. Census Tract 110.01, Block Group 1, which includes the Kensington Place mobile home community and is crossed by all project alternatives, has the third highest minority population (8.2 percent).

Figure 5 – Minority Population by Census Block Groups

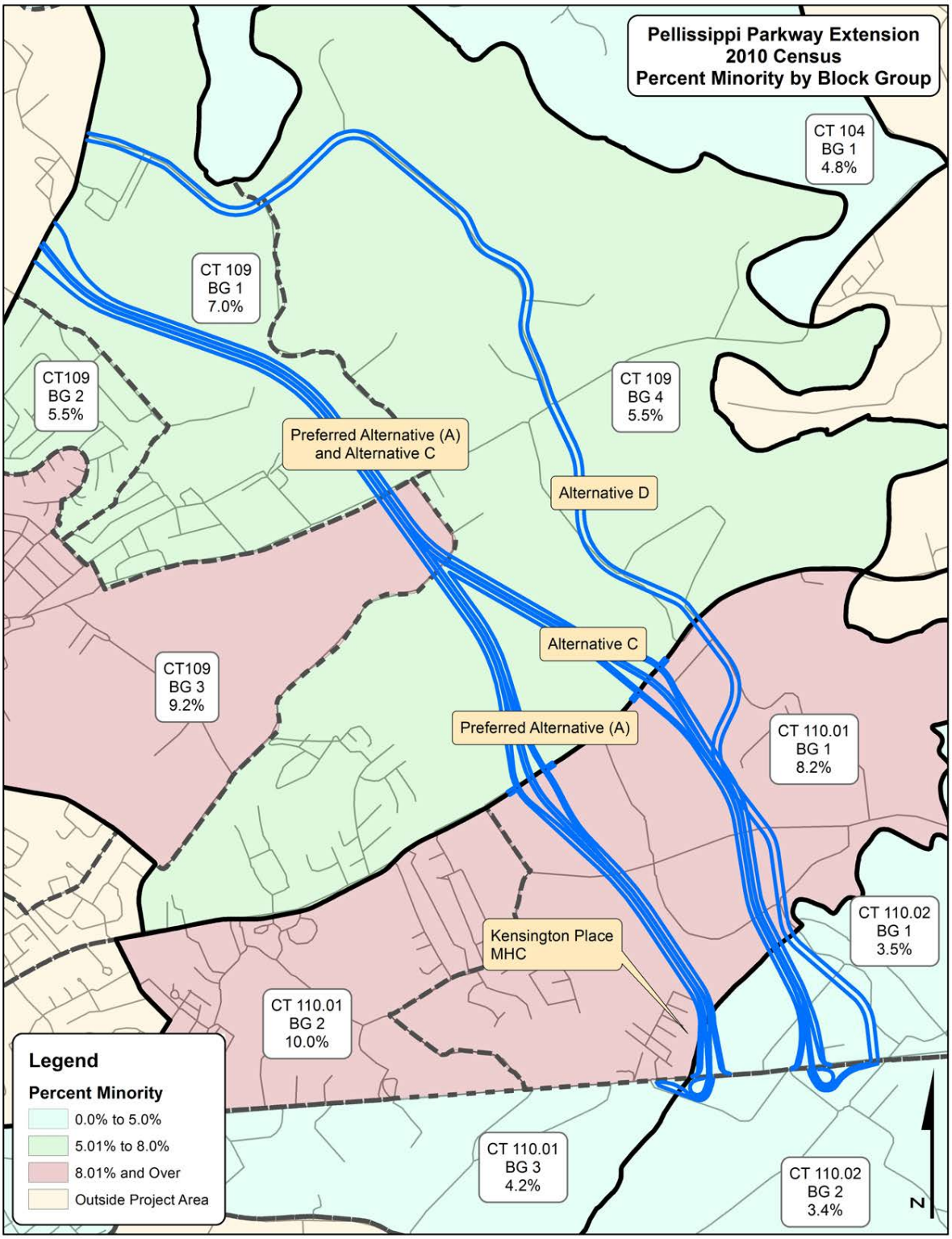


Table 2 - Minority Population, 2010

		Blount County	CT 104	CT 104 BG 1	CT 109	CT 109 BG 1	CT 109 BG 2	CT 109 BG 3	CT 109 BG 4	CT 110.01	CT 110.01 BG 1	CT 110.01 BG 2	CT 110.01 BG 3	CT 110.02	CT 110.02 BG 1	CT 110.02 BG 2
Total Population		123,010	3,217	1,781	5,812	1,018	1,031	1,829	1,934	5,524	1,410	1,829	1,431	3,986	1,450	1,232
Hispanic	#	3,441	74	26	170	32	30	82	26	160	84	42	22	53	17	12
	% of total	2.80%	2.30%	1.46%	2.92%	3.14%	2.91%	4.48%	1.34%	2.90%	5.96%	2.30%	1.54%	1.33%	1.17%	0.97%
White	#	113,240	2,987	1,695	5,410	947	974	1,661	1,828	5,131	1,295	1,646	1,371	3,847	1,399	1,190
	% of total	92.06%	92.85%	95.17%	93.08%	93.03%	94.47%	90.81%	94.52%	92.89%	91.84%	89.99%	95.81%	96.51%	96.48%	96.59%
Black	#	3,314	86	17	94	25	11	43	15	94	2	71	14	18	11	6
	% of total	2.69%	2.67%	0.95%	1.62%	2.46%	1.07%	2.35%	0.78%	1.70%	0.14%	3.88%	0.98%	0.45%	0.76%	0.49%
American Indian and Alaska Native	#	365	6	5	19	0	1	3	15	18	7	4	2	18	6	7
	% of total	0.30%	0.19%	0.28%	0.33%	0.00%	0.10%	0.16%	0.78%	0.33%	0.50%	0.22%	0.14%	0.45%	0.41%	0.57%
Asian	#	863	12	11	51	1	6	6	38	55	5	44	3	11	5	2
	% of total	0.70%	0.37%	0.62%	0.88%	0.10%	0.58%	0.33%	1.96%	1.00%	0.35%	2.41%	0.21%	0.28%	0.34%	0.16%
Native Hawaiian and Other Pacific Islanders	#	25	0	0	0	0	0	0	0	1	0	0	0	2	0	0
	% of total	0.02%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.02%	0.00%	0.00%	0.00%	0.05%	0.00%	0.00%
Some Other Race Alone	#	109	3	2	4	1	0	3	0	3	1	0	0	1	1	0
	% of total	0.09%	0.09%	0.11%	0.07%	0.10%	0.00%	0.16%	0.00%	0.05%	0.07%	0.00%	0.00%	0.03%	0.07%	0.00%
Two or More Races	#	1,653	49	25	64	12	9	31	12	62	16	22	19	36	11	15
	% of total	1.34%	1.52%	1.40%	1.10%	1.18%	0.87%	1.69%	0.62%	1.12%	1.13%	1.20%	1.33%	0.90%	0.76%	1.22%
Total Minority	#	9,770	230	86	402	71	57	168	106	393	115	183	60	139	51	42
	% of total	7.94%	7.15%	4.83%	6.92%	6.97%	5.53%	9.19%	5.48%	7.11%	8.16%	10.01%	4.19%	3.49%	3.52%	3.41%

Source: 2010 Census of Population.

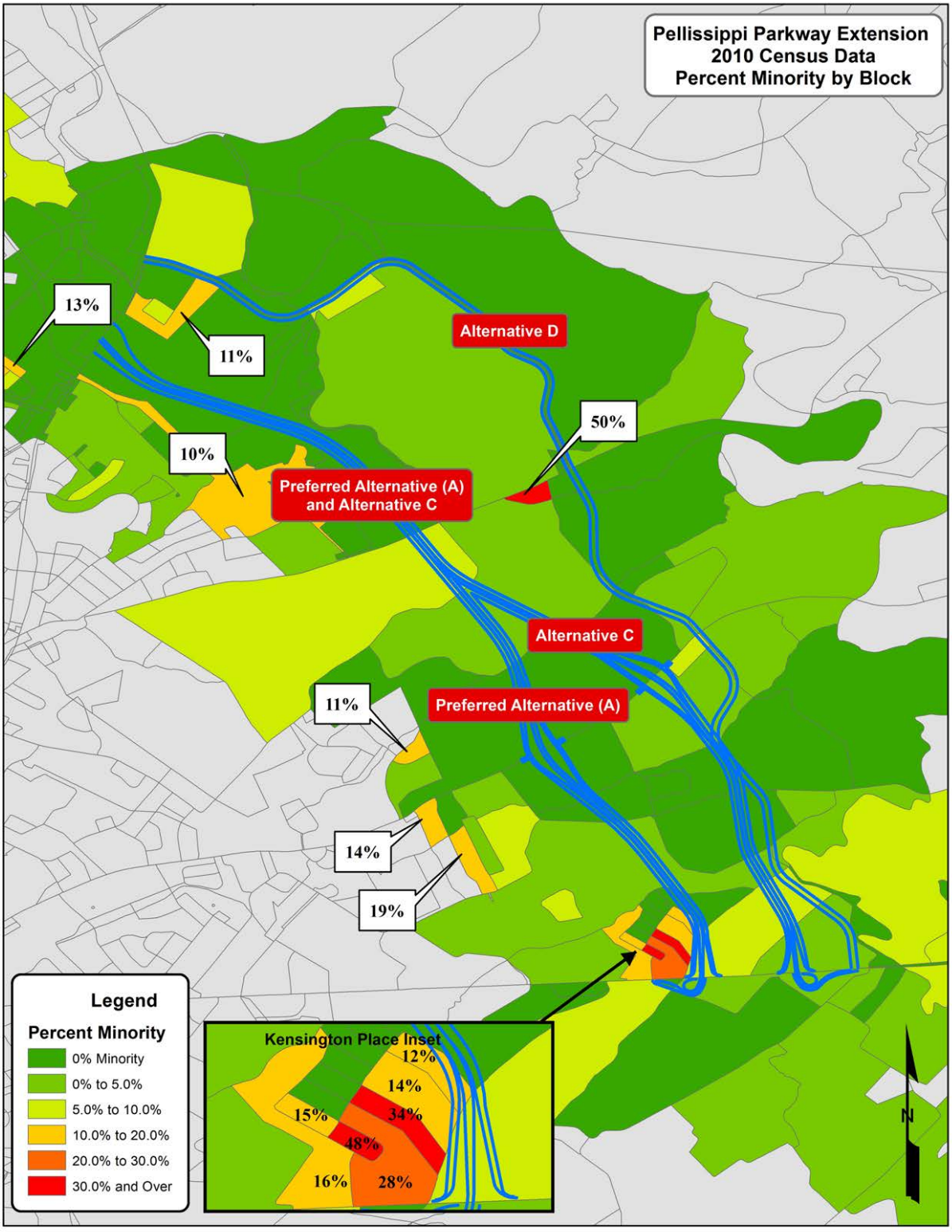
Figure 6 illustrates the minority composition of individual census blocks in the project area. There are scattered individual blocks with greater than 10 percent minority concentrations, and one block along Wildwood Road comprised of 50 percent minority residents. The blocks that comprise the Kensington Place mobile home community have a concentration of minority persons. As shown in Table 3, this community has a much larger share of minority residents (23.7 percent) compared with the vast majority of the surrounding area. Most of the minority population within the community is Hispanic. Overall Hispanic persons comprise about 20 percent of the total population of the community.

Table 3 – Minority Population for Kensington Place Mobile Home Community, 2010

		Blount County	CT 110.01	CT 110.01, BG 1	Blocks in mobile home park
Total Population		123,010	5,524	1,410	352
White	#	113,240	5,131	1,295	270
	% of total	92.1%	92.9%	91.8%	76.7%
Total Minority	#	9,770	393	115	82
	% of total	7.9%	7.1%	8.2%	23.3%
Total Hispanic	#	3,441	160	84	70
	% of total	2.8%	2.9%	6.0%	19.9%
Black	#	3,314	94	2	0
	% of total	2.7%	1.7%	0.1%	0.0%
Asian	#	863	55	5	3
	% of total	0.7%	1.0%	0.4%	0.85%
American Indian & Alaska Native	#	365	18	7	3
	% of total	0.3%	0.3%	0.5%	0.85%
Other Races	#	1,787	66	17	6
	% of total	1.5%	1.2%	1.2%	1.7%

Source: 2010 Census of Population.

Figure 6 – Percent Minority by Census Blocks, 2010



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Limited English Proficiency

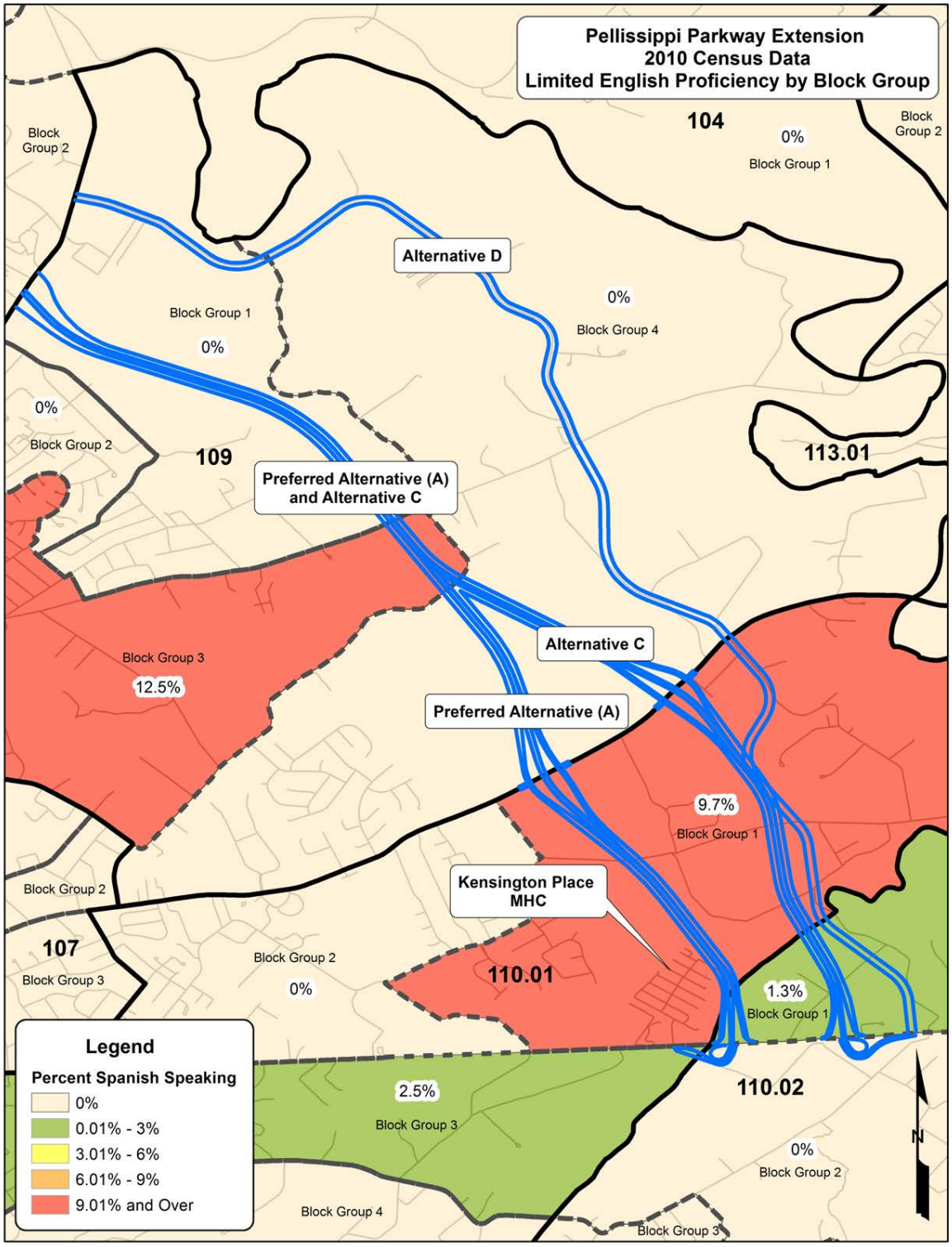
EO 12898 does not include persons with limited English proficiency (persons for whom English is not their primarily language) in the definition of minority persons. However, with the higher ethnicity reported in the southern portion of the project area, another indicator to consider is that of limited English proficiency. The 2010 Census data shows the number and percent of persons consider linguistically isolated by block groups. Table 4 and Figure 7 indicate that there are concentrations of Spanish speakers in two of the Census block groups in the vicinity of the Preferred Alternative. In the Census block group encompassing the Kensington Place mobile home community (CT 110.01, BG 1), 9.7 percent of people speak Spanish or Spanish Creole as their primary language. However, another Block Group in the project area (CT 109, BG 3) has a higher portion of persons speaking Spanish or Spanish Creole (12.5 percent) as their primary language. This block group also has the highest concentration of minority residents in the project area. While Census Tract 109, Block Group 3 is crossed by the combined alignment of the Preferred Alternative (DEIS Alternative A) and DEIS Alternative C, there are only scattered individual homes in the immediate vicinity of the combined alignment. The concentrations of limited English proficiency population of this block group are farther west, closer into Maryville.

Table 4 – Limited English Proficiency, 2010

	Blount County	CT 109	CT 109 BG 1	CT 109 BG 2	CT 109 BG 3	CT 109 BG 4	CT 110.01	CT 110.01 BG 1	CT 110.01 BG 2	CT 110.01 BG 3	CT 110.02	CT 110.02 BG 1	CT 110.02 BG 2	CT 104	CT 104 BG 1
Speaks only English	96.50%	95.0%	100%	100.0%	85%	100.0%	93.6%	87.6%	100.0%	97.5%	99.1%	98.7%	100.0%	99.2%	100.0%
Speaks Spanish or Spanish Creole	2.60%	4.2%	0.0%	0.0%	12.5%	0.0%	6.3%	9.7%	0.0%	2.5%	0.6%	1.3%	0.0%	0.7%	0.0%
Asian and Pacific Island languages	0.40%	0.5%	0.0%	0.0%	2.5%	0.0%	0.0%	0.0%	0.0%	0.0%	0.2%	0.0%	0.0%	0.0%	0.0%
Other languages	0.20%	0.2%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%

Source: 2010 Census of Population.

Figure 7 – Limited English Proficiency, 2010



Potential Impacts to Environmental Justice Communities

Within the project area there are scattered locations of low-income and/or minority persons. Only one area, however, has a concentration of the protected populations that would be directly affected by the project. The Environmental Justice community is the Kensington Place mobile home community.

This section describes the potential impacts of the No-Build, DEIS Alternatives C and D, the Preferred Alternative with East Shift and the Preferred Alternative with West Shift on the Kensington Place residents.

No-Build Alternative

The No-Build Alternative would not have a disproportionately high and adverse impact to low-income and/or minority persons residing in the Kensington Place mobile home community. There would be no changes in conditions within this community as a result of this alternative.

DEIS Alternatives C and D

The DEIS Alternatives C and D would not have a disproportionately high and adverse impact to low-income and/or minority persons residing in the Kensington Place mobile home community. There would be no changes in conditions within this community as a result of this alternative.

Preferred Alternative With West or East Shift

As analyzed in the DEIS, Alternative A (now Preferred Alternative) would have an effect on the low-income and minority mobile home community, taking about 1.5 acres of land from the northeastern edge of the community, but not acquiring any of the mobile homes. With the avoidance shifts proposed in 2013, the impact of the project on the mobile home community would be slightly different depending upon which avoidance alignment was selected. The West Shift would move the right-of-way of the Preferred Alternative farther into the mobile home community, taking about 4.8 total acres. This alternative would acquire six occupied mobile homes and result in substantial noise impacts for the community. The East Shift would move the right-of-way of the Preferred Alternative outside the community boundary but would continue to have a noise impact on the mobile home community.

The impacts associated with the Preferred Alternative with West Shift and the Preferred Alternative with East Shift to the Kensington Place mobile home community are primarily displacements, visual and noise.

Displacement – The Preferred Alternative with West Shift would take six homes in the mobile home community, about five percent of the occupied homes in the community. The residences to be relocated are in the rear (northwestern) portion of the community. There are numerous available lots within Kensington Place where displaced residents can relocate if they so choose. Refer to Figure 3 on page 7.

The Preferred Alternative with East Shift would not take any mobile homes within the Kensington Place community.

Table 5 summarizes the findings of the May 2014 Conceptual Stage Relocation Plan prepared by TDOT.

Table 5 – Displacements

	Preferred Alternative (A)	Preferred Alternative with East Shift	Preferred Alternative with West Shift
Entire Alternative			
Single Family Homes	5	5	5
Mobile Homes	0	1	6
Businesses	1	1	1
Within Kensington Place			
Single Family Homes	0	0	0
Mobile Homes	0	0	6
Businesses	0	0	0

Source: TDOT, Conceptual Stage Relocation Plan, May 2014.

Visual – The Preferred Alternative with West Shift would place a major new transportation facility within the northwestern corner of the Kensington Place community property. Some of the residents, primarily those in the northeastern portion of the mobile home community, would experience a substantial change in their existing view, from natural vegetation and agricultural activities to a new major roadway. The new edge of right-of-way would be within 10 to 50 feet of several mobile homes.

With the Preferred Alternative with East Shift, the new roadway would be outside of the community, and would be farther away both physically (about 400 feet) and visually from the mobile homes.

Noise – Both alternatives would result in noise impacts to the Kensington Place community. The East Shift would result in noise impacts to 28 residences in the Kensington Place community while the West Shift would impact 45 residences in the community, assuming a noise barrier would not be built.

Noise barriers were evaluated to mitigate the predicted noise impacts in the Kensington Place community. In order for noise barriers to be included in a project, they must be determined to be both feasible and reasonable in accordance with TDOT's 2011 Noise Policy. Noise Analysis Area 4, which includes the mobile home community, was evaluated for feasibility and reasonableness. Noise barriers under either shift are feasible since there are no cross streets or frequent driveway access points that would significantly decrease a sound barrier's acoustical effectiveness. Feasibility also includes a majority of impacted first row receptors receiving a 5 dB noise reduction (acoustic feasibility). Noise barriers for this area are acoustically feasible for both the East and West shifts.

Potential noise barriers must also pass a "reasonableness" test. For a noise barrier to be considered reasonable, the first test is that the noise barrier must provide at least a 7 dB noise reduction at 60 percent or more of the first-row benefited receptors (the noise reduction design goal). Table 6 illustrates that either alternative would meet the noise reduction design goal.

Table 6 - Noise Reduction Design Goal Analysis for Noise Analysis Area 4

Noise Analysis Area	First-Row Benefited Receptors			Noise Reduction Design Goal Met?
	Total	Receiving 7 dB IL	Percent	
Preferred Alternative (A)	1	3	33.3%	No
Preferred Alternative with East Shift	4	3	75%	Yes
Preferred Alternative with West Shift	4	4	100%	Yes

Source: Bowlby and Associates, *Noise Technical Report*, June 2014.

The noise analysis area was then tested to determine whether the noise barrier area per benefited residence is less than or equal to the allowable noise barrier area per benefited residence in each noise analysis area. Table 7 shows the results of the barrier design and reasonableness analysis. With the East Shift, the area per benefited residence is greater than the allowable area per benefited residence for Area 4; therefore, a noise barrier is not reasonable with the East Shift. With the West Shift, a noise barrier is reasonable.

Table 7 – Barrier Reasonableness Analysis

Area	Length (ft)	Average Height (ft)	Barrier Area (sf)	Benefitted Residences	Area Per Benefitted Residence (sf)	Allowable Area Per Benefitted Residence (sq)	Reasonable ?
Pref Alt with East Shift	1,870	22	41,628	11	3,784	1,900	No
Pref Alt with West Shift	1,268	16	19,646	11	1,747	1,900	Yes

Source: Bowlby and Associates, *Noise Technical Report*, June 2014.

In compliance with TDOT's 2011 Noise Policy, noise barriers were evaluated to mitigate the predicted noise impacts in the Kensington Place community. The results of this preliminary analysis indicate that a noise barrier would be feasible and reasonable at this community under the Preferred Alternative with West Shift. To minimize adverse impacts to the mobile home community, TDOT is committed to build a noise barrier for the community with the Preferred Alternative with West Shift, provided that benefited residences and property owners give their approval. TDOT will conclude that a community desires the construction

of a noise barrier unless a majority (at least 51 percent) of the benefited property owners and residents indicate that they do not want the proposed noise barrier.

Table 8 summarizes the as-built impacts expected to occur in the Kensington Place community with the East Shift (with no noise barrier) and the West Shift (with a barrier). Attachment A to this memo presents the detailed preliminary results of the analysis of the two alternatives, prepared by Bowlby and Associates, May 28, 2014. Included in Attachment A is a figure showing the location of noise receivers in Area 4. [Following the approval of the reevaluation in July 2014, minor revisions/corrections were made to the noise study. The revised as-built noise impacts to Kensington Place are presented in Table 8, and discussed in Attachment D of this report.]

Table 8 –As Built Noise Impacts

Alternative	Substantial Increase	Approach or Exceed NAC	Increases Higher than the Other Shift
West Shift (with barrier)	21	0	47
East Shift (no barrier)	25		8

Source: Bowlby and Associates, *Memorandum: Noise Effects on Kensington Place for Environmental Justice Evaluation,* March 3, 2015.

Under the West Shift with a noise barrier, 20 residences would experience a substantial increase in noise. With the East Shift, 28 homes within the community would experience a substantial noise increase without the benefit of a noise wall. Under either alternative, two homes would approach or exceed the Noise Abatement Criteria (NAC) of 67 dBA; that is, noise levels would be 66 dBA or higher. These two homes are along Lamar Alexander Parkway, not technically a part of the mobile home park, and their current noise levels are 62 to 63 dBA due to the existing noise on Lamar Alexander Parkway. Noise levels with either shift would be between 66 and 68 dBA.

Both alternatives would result in increased noise for residents of the mobile home community. Sound levels would be higher with the West shift with a barrier for 45 residences; under the East shift without a barrier sound levels would be higher for eight residences. The differences in noise level increases between the two alternatives is primarily 3 dBA or less; 3dBA is usually the smallest change in traffic noise levels that people can detect without specifically listening for the change. The West Shift would cause a higher increase (4 to 5 dBA) at three residences while the East Shift would cause a 4 to 5 dBA increase at four residences. Twelve of the residences would have the same level of increase for either alternative. Based on this assessment, the differences in the as-built noise impacts of the East and West Shifts do not appear to be significant.

Coordination, Access to Information and Participation

Throughout the EIS process there have been substantial efforts to achieve public participation along the proposed corridor and in the project area. These efforts include two public scoping meetings in 2006 and two public informational meetings (October 2007 and

February 2008) held to solicit public input into the purpose and need statement and the alternatives to be evaluated. The meetings were held at public schools within a mile of the corridor. A newsletter was prepared and circulated in October 2008, describing the alternatives to be evaluated in the DEIS and the next steps in the process; a second newsletter was circulated in June 2012 announcing the selection of the Preferred Alternative. Following the approval of the DEIS in April 2010, an announcement of the availability of the DEIS and the upcoming public hearing was published in the local newspaper and mailed to a broad list of property owners, residents, public officials and organizations. Presentations and handouts from the public meetings and the public hearing have been posted on the project website as well as in the Blount County Public Library and Blount County Chamber of Commerce office. A database of names from the public meetings and comments received has been prepared and used for distribution of public notices including the two project newsletters and announcement of the public hearing/meetings.

In 2010, copies of the announcement of the availability of the DEIS and the public hearing were hand delivered by TDOT's consultants to the Kensington Place mobile home community manager for distribution. Residents from the mobile home community attended the public hearing and three comments were received. Two people opposed the project and one person was in favor.

TDOT held a community briefing on Thursday, May 30, 2013 to engage those persons and businesses potentially affected by the proposed minor alignment shifts. The briefing was held from 5:00 to 7:00 p.m. at the Rio Revolution Church on US 321/SR 73 in the vicinity of the mobile home community. More than 1,000 notices, in English and Spanish, were mailed to persons and organizations on the project database, to property owners in the area, and to addresses in the potentially affected Kensington Place mobile home community. A total of 136 people signed in at the briefing.

TDOT representatives, including ROW representatives, were present to answer questions and explain project displays. Meeting materials and the slideshow presentation were available in both English and Spanish. A looped slideshow presentation was shown in both English and Spanish. A Spanish translator was available for those with limited English proficiency to sign in for the meeting and understand the concepts presented. The translator assisted several families and individuals during the meeting.

TDOT received more than 150 comments during the meeting and the comment period.. Attachment B contains the summary of the Community Briefing comments and TDOT responses.

[Note: Translators were not available at previous meetings, and mailings and handouts were only printed in English.]

Summary

Consistent with Executive Order 12898 on Environmental Justice and the Final DOT Environmental Justice Order 5610.2(a), FHWA must ensure that any of their respective programs, policies, or activities that may have a disproportionately high and adverse effect on populations protected by Title VI ("protected populations") will only be carried out if:

(1) A substantial need for the program, policy, or activity exists, based on the overall public interest; and

(2) Alternatives that would have less adverse effects on protected populations (and that still satisfy the need identified in part (1)), either

   a. Would have other adverse social, economic, environmental or human health impacts that are severe; or

   b. Would involve increased costs of extraordinary magnitude.

The analysis presented in the previous section of this memo demonstrates that the Preferred Alternative with West Shift would result in adverse impacts to the low-income and minority residents in the Kensington Place mobile home community. Residents of Kensington Place would experience adverse impacts due to increased noise, changes in the views, and displacements.

TDOT considered an alignment shift to avoid or minimize impacts to the protected population. TDOT determined that shifting the alignment to the east (Preferred Alternative with East Shift) to avoid the Environmental Justice community would result in other adverse social, economic, environmental or human health impacts that would be severe. These impacts include:

- Operations of two active farms. The East Shift would take five farm buildings and reduce access to agricultural fields in active production;
- A recently constructed church is on the north side of US 321 immediately east of the proposed on-ramp for the East Shift. The alignment would reduce access to the church by members during heavy traffic times and may result in increased visual and noise impacts to external activities of the church; and
- With either alignment shift, Kensington Place residents would experience increased noise levels. With the eastern shift, the mobile home community would not be eligible for a noise barrier.

The No-Build Alternative would avoid direct impacts to the protected populations in Kensington Place, but it would not meet the Purpose and Need for the project. The No-Build Alternative does 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 level of service (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 2040 under the No-Build Alternative.)

DEIS Alternative C would avoid direct impacts to the protected populations in Kensington Place, but it would result in other impacts that would be severe if the Environmental Justice community were avoided. Adverse impacts include:

- Displacing 25 single family homes and two mobile homes (total of 27 residences). Twenty-three of the 27 residences to be displaced are in two clusters. One cluster is in the footprint of the proposed interchange with Sevierville Road (US-411) in which 11 homes would be displaced. The second cluster is in the footprint of the proposed interchange with US 321, in which 12 residences would be displaced.
- Affecting more downstream reaches of larger tributaries of Little River than the Preferred Alternative with West Shift.

DEIS Alternative D would avoid direct impacts to the protected populations in Kensington Place, but it would result in other impacts that would be severe if the Environmental Justice community were avoided. Adverse impacts include:

- Displacing 39 single family residences and two mobile homes (total of 41 residences). The displaced residences are scattered along the alignment, but 17 of the 41 are clustered in the vicinity of the Peppermint Hills Drive community.
- The forecasted traffic volumes for Alternative D exceed the carrying capacity of a two-lane road; thus this alternative would not serve the traffic demands that are anticipated in future years.
- Proximity to the Little River, a designated Exceptional Tennessee Water that is Blount County's primary source for drinking water.

As the overall need for the project remains in the public interest and the Preferred Alternative with East Shift and the DEIS Alternatives C and D would result in other severe impacts, TDOT recommends carrying out the Preferred Alternative with West Shift for the proposed project. To mitigate for the adverse impacts to the protected population, TDOT commits to construction of a noise barrier for the Kensington Place mobile home community to mitigate the predicted noise impacts. TDOT also will seek input from community residents regarding the landscaping and color/pattern of the barrier in order to minimize possible visual impacts to the community as a result of the barrier and the new roadway.

The TDOT Civil Rights Office has reviewed this memo and found that the assessment and methodology used is in keeping with the laws that govern projects that are federally funded, specifically Title VI of the 1964 Civil Rights Act (letter dated June 10, 2014 in Attachment C).

Attachment A

Noise Analysis Results for West and East Shift

Noise Analysis Results of West Shift and East Shift by Receiver

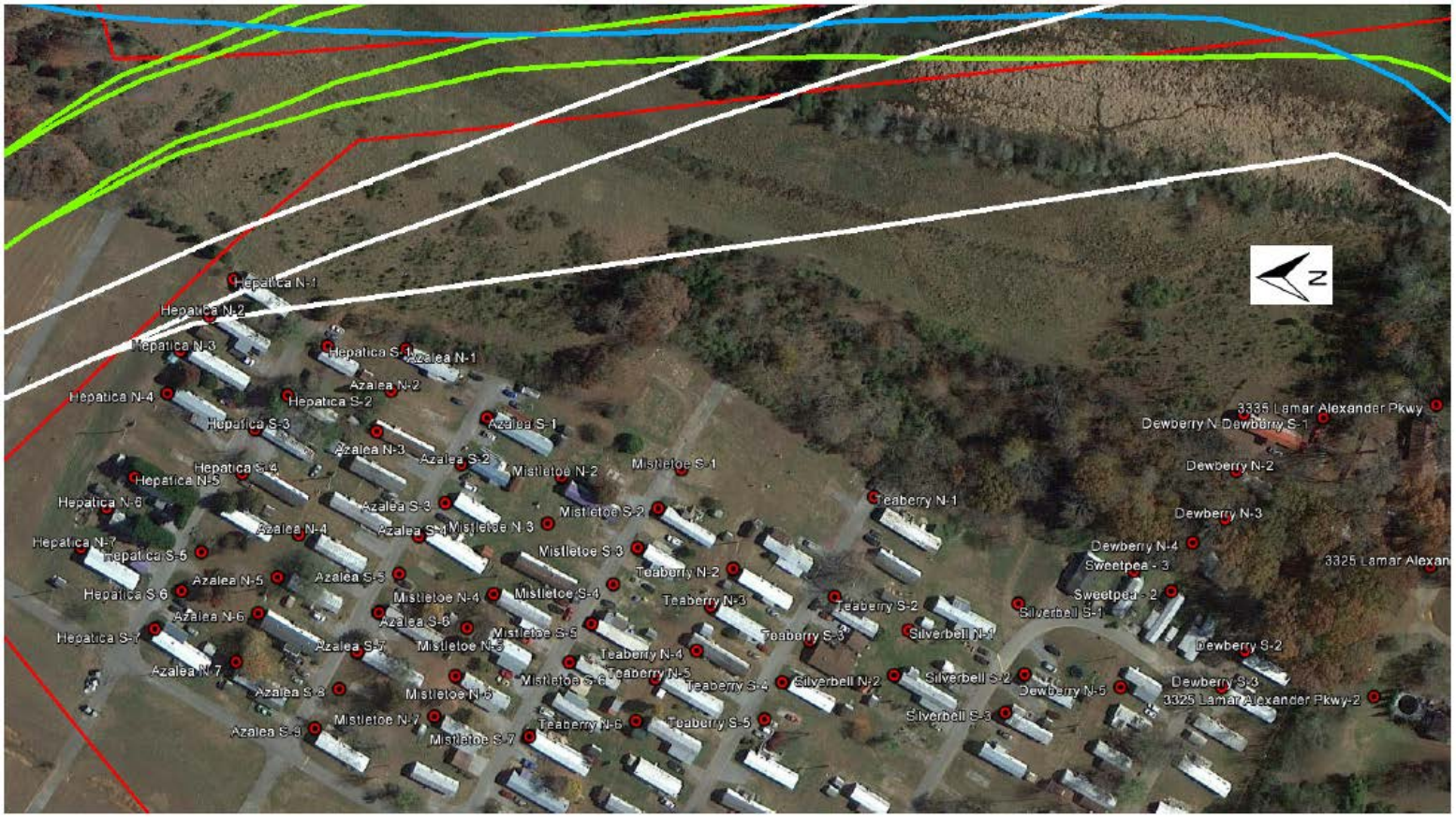
Project:	**Pellissippi Parkway Extension**
Noise Analysis Area:	**4**
Description:	**Kensington Place mobile home community and single-family residences on Lamar Alexander Parkway.**
Background Sound Level	**40**

ALTERNATIVE A

Receiver	Number of Residences	Existing Sound Level (dBA)		Design Year West Shift Sound Level With Barrier (dBA)		Design Year Build East Shift Sound Level (dBA)		West Shift Increases over Existing With Barrier (dBA)		East Shift Increases over Existing (dBA)		Difference in increase between west and east (positive is west is higher) (dBA)	
		PM	PM with background	PM	PM with background	PM	PM with background	PM	PM with background	PM	PM with background	PM	PM with background
Hepatica N-1	1	44	45	Take	Take	63	63	Take	Take	19	17	Take	Take
Hepatica N-2	1	43	45	Take	Take	61	61	Take	Take	18	16	Take	Take
Hepatica N-3	1	43	45	Take	Take	61	61	Take	Take	17	16	Take	Take
Hepatica N-4	1	43	45	Take	Take	60	60	Take	Take	17	15	Take	Take
Hepatica N-5	1	43	45	59	59	58	58	16	14	15	13	1	1
Hepatica N-6	1	43	45	60	60	57	57	17	15	15	13	2	2
Hepatica N-7	1	42	44	60	60	56	56	18	16	13	11	5	5
Hepatica S-1	1	44	45	Take	Take	61	61	Take	Take	17	16	Take	Take
Hepatica S-2	1	44	45	55	55	59	59	12	10	16	14	-4	-4
Hepatica S-3	1	43	45	57	57	59	59	13	12	15	14	-2	-2
Hepatica S-4	1	43	45	57	57	57	57	14	12	14	12	0	0
Hepatica S-5	1	43	45	58	58	56	56	15	13	13	11	2	2
Hepatica S-6	1	43	44	59	59	55	55	16	14	12	11	4	3
Hepatica S-7	1	42	44	59	59	54	55	17	15	12	10	5	4
Azalea N-1	1	45	46	Take	Take	61	61	Take	Take	16	15	Take	Take
Azalea N-2	1	45	46	57	57	60	60	13	11	15	14	-3	-3
Azalea N-3	1	45	46	56	56	58	58	11	10	14	13	-2	-2
Azalea N-4	1	44	45	57	57	56	56	13	11	12	11	1	1
Azalea N-5	1	44	45	57	57	55	55	13	12	11	10	2	2
Azalea N-6	1	43	45	57	57	54	54	14	12	11	9	3	3
Azalea N-7	1	43	45	57	57	53	53	14	13	10	8	4	4
Azalea S-1	1	46	47	57	57	60	60	11	11	14	13	-2	-2
Azalea S-2	1	45	46	56	56	58	58	11	10	13	12	-2	-2
Azalea S-3	1	45	46	55	56	57	57	11	10	12	11	-1	-1
Azalea S-4	1	44	46	55	55	55	55	10	9	11	10	-1	-1
Azalea S-5	1	44	46	55	55	54	54	10	9	10	9	0	0
Azalea S-6	1	44	46	55	55	54	54	11	10	10	8	1	1
Azalea S-7	1	44	45	55	55	53	53	11	10	9	8	2	2
Azalea S-8	1	44	45	56	56	53	53	12	11	9	8	3	3
Azalea S-9	1	43	45	56	56	53	53	12	11	9	8	3	3
Mistletoe N-2	1	47	48	58	58	59	59	11	10	11	11	0	0
Mistletoe N-3	1	47	48	57	57	57	57	10	10	10	10	0	0
Mistletoe N-4	1	46	47	56	56	55	55	10	9	9	9	1	1
Mistletoe N-5	1	46	47	56	56	55	55	10	9	9	8	1	1
Mistletoe N-6	1	45	46	55	55	54	54	10	9	9	8	1	1
Mistletoe N-7	1	45	46	55	55	53	53	10	9	8	7	2	2
Mistletoe S-1	1	48	49	60	60	59	59	11	11	11	10	1	0
Mistletoe S-2	1	48	49	59	59	58	58	11	10	10	10	1	1
Mistletoe S-3	1	48	48	58	58	58	58	10	10	10	9	1	1
Mistletoe S-4	1	47	48	57	57	56	56	10	9	9	8	1	1
Mistletoe S-5	1	47	48	57	57	56	56	10	9	9	8	1	1
Mistletoe S-6	1	47	47	56	56	55	55	9	8	8	7	1	1
Mistletoe S-7	1	46	47	55	55	53	53	9	8	7	7	2	2
Teaberry N-1	2	49	49	60	60	59	59	11	11	10	10	1	1
Teaberry N-2	2	49	50	59	59	58	58	10	9	9	8	1	1
Teaberry N-3	1	48	49	58	58	57	57	9	9	9	8	1	1
Teaberry N-4	1	48	48	57	57	56	56	9	9	8	8	1	1
Teaberry N-5	1	48	48	56	56	55	55	9	8	8	7	1	1
Teaberry N-6	1	47	48	56	56	55	55	9	8	7	7	1	1
Teaberry S-2	1	49	49	59	59	57	57	10	9	8	8	1	1
Teaberry S-3	1	49	49	58	58	57	57	9	9	8	7	1	1
Teaberry S-4	1	48	49	57	57	55	56	9	8	7	7	2	2
Teaberry S-5	1	48	48	56	56	55	55	8	8	7	6	2	2
Silverbell N-1	1	50	50	59	59	58	58	9	9	8	8	1	1
Silverbell N-2	1	49	50	58	58	57	57	9	8	8	7	1	1
Silverbell S-1	1	50	51	59	59	58	58	9	8	8	7	1	1
Silverbell S-2	1	51	52	59	59	58	58	7	7	7	7	1	1
Silverbell S-3	1	51	52	59	59	58	58	7	7	7	6	1	1
Dewberry N-1	1	56	56	64	64	63	63	7	7	7	7	1	1
Dewberry N-2	1	56	56	63	63	62	62	7	7	6	6	1	1
Dewberry N-3	1	55	55	62	62	62	62	7	7	6	6	0	0
Dewberry N-4	1	53	54	61	61	60	60	7	7	7	7	0	0
Dewberry N-5	1	51	52	59	59	58	58	7	7	6	6	1	1
Dewberry S-2	1	54	54	59	59	60	60	6	5	6	6	0	0
Dewberry S-3	1	52	53	59	59	58	58	7	6	5	5	1	1
Sweetpea - 2	1	52	53	60	60	59	59	7	7	7	7	1	1
Sweetpea - 3	1	52	52	60	60	59	59	8	8	7	7	1	1
Dewberry S-1	1	59	59	65	65	64	64	6	6	6	6	0	0
3335 Lamar Alexander Pkwy	1	63	63	68	68	68	68	4	4	4	4	0	0
3325 Lamar Alexander Pkwy-1	1	62	62	67	67	66	66	4	4	4	4	0	0
3325 Lamar Alexander Pkwy-2	1	59	59	63	63	63	63	4	4	4	4	0	0

Condition	Number
Increase Higher with West Shift	45
Increase Higher with East Shift	8
Same Increase	12
Difference of 1 dB	32
Difference of 2 dB	12
Difference of 3 dB	5

Noise Receivers in Area 4



Alternative A
Alternative A (West Shift)
Alternative A (East Shift)
Alternative C
Alternative D

Area 4

Note: Red line represents Noise Analysis Area boundaries. White line represents West Shift. Medium blue line represents East Shift.

Attachment B

May 30, 2013 Community Briefing Summary

Community Briefing Meeting Summary
Pellissippi Parkway Extension (SR 162)
Thursday May 30, 2013

Meeting Participants

The Community Briefing was attended by approximately 136 people. Each person attending the community briefing was asked to sign-in for purposes of counting those in attendance. Thirteen Tennessee Department of Transportation (TDOT) representatives along with four Parsons Brinckerhoff employees were also in attendance.

Meeting Purpose

The purpose of the Community Briefing was for TDOT to provide the opportunity to discuss with the public two potential minor shifts in the route of the Preferred Alternative and the possible impacts of those shifts. In addition to providing updated project information, TDOT was interested in obtaining comments, interests, and concerns from those potentially affected by the shifts.

Meeting

The briefing was held from 5:00 to 7:00 pm EST at the Rio Revolution Church, in Maryville, TN. Prior to the Community Briefing, approximately 1,000 flyers were mailed out to residents making them aware of the meeting. In addition to the mailings, John Barrett (TDOT) stated that 97 handouts were distributed to residents located in the Kensington Place Mobile Home Community.

On site at the Rio Revolution Church, information tables were set at the main entrance lobby. Signs were placed at secondary entrances directing visitors to the front entrance. On the tables a community briefing handout, comment card, and facts sheet were available in both English and Spanish. Members of the public attending the meeting were also greeted and given a concise description of what to expect at the meeting and where information was located. No formal presentation was given, however a looped slideshow was provided to give the community information about the project. This presentation presented in both English and Spanish.

When people were finished watching the slideshow, signs directed them to breakout rooms where project location maps and TDOT representatives were available to answer questions. In total, three rooms were set up for this purpose. Each room contained a minimum of two project display maps and several ROW representatives, to answer questions.

For non-English speaking attendees, TDOT provided a Spanish translator to ensure full understanding of the concepts presented. It was noted at the meeting that the translator was utilized by two families in attendance.

Meeting Comments

The deadline for comments to be received by TDOT was originally set to be June 10, 2013. To provide the public additional time to respond to the information presented at the Community Briefing, TDOT extended the deadline to June 15, 2013. To make people aware of the comment period extension, TDOT posted a notice on the project website, mailed post cards to everyone who signed in to the briefing, and sent emails to person who had provided their email addresses to make people them aware of the extension.

As of June 17, 2013, TDOT has received 157 comments by mail (letter or comment card), e-mail, or comment cards submitted at briefing. All comments were noted in the project database. Several people submitted comments in various formats. A summary of the comments received is included in the following table.

Summary of Public Comments by Topic

Topic	Representative Comment	Response
Support for Extension	The county can use the extension. It serves the greater good with minimal impact to environment or persons displaced and/ or affected.	Comments noted.
Opposed to Project	This road project is not beneficial for Blount County and the East TN region. It will not solve problems, will lead to additional traffic issues, increased sprawl, and will harm long term resources of productive farmland, wildlife habitat, and watershed protection. We need other solutions that do not degrade the quality of life for a minimum of driving time saved.	Comments noted.
Prefer West Shift	The western shift will be more pleasing visually to property owners in Sweetgrass Plantation. The western shift will reduce the noise potential to property owners in Sweetgrass Plantation.	Comments noted.
Prefer East Shift	The east shift seems preferable in this situation and would have the least environmental impact on the surrounding community.	Comments noted.
Improve Current Roads	TDOT should maintain and improve existing roads.	Comments noted.
Traffic	The extension will not address the fundamental traffic challenges we face in Blount County and will in fact make some of them worse, especially on US 411 N. There have been too many fatal traffic accidents here lately and none of them would have been prevented if the project had existed. We have many dangerous highways and the project will not divert traffic from any of them or make it enough quicker to get anywhere to justify this expensive and destructive highway.	Comments noted.
Archaeology	What is the environmentally sensitive area? Is it an Indian burial ground?	The site is an archaeology site that has been determined eligible for the National Register. It does not contain human remains or burial sites. Based on the identification, testing, and coordination with the SHPO, it has been determined that the site contains information that has yielded or may be likely to yield information important in prehistory or history.

Summary of Public Comments by Topic, continued

Topic	Representative Comment	Disposition
Archaeology	What steps has TDOT taken to inform Native American Tribes and the SHPO of the identified site?	The Phase II Archaeological Report (2012), which documented one archaeological site as eligible for listing on the National Register, has been coordinated with the SHPO. The SHPO concurred with TDOT's eligibility recommendation. Additional investigations of proposed avoidance shifts to avoid the site have been conducted and documented in two addenda to the 2012 Phase II report. The addenda are being coordinated with the SHPO, and the Native American tribes that have expressed an interest in the project. TDOT is following procedures defined in its own policies, as well as the requirements of Section 106 of the National Historic Preservation Act as amended.
Impacts to Mobile Home Community	I am one of the owners of the six mobile homes in Kensington Place. I am opposed to the west shift. This would create a financial worry and burden. I have no desire to have to be uprooted and pay for another home. Never heard back from an appraiser in 2002. I should have been informed prior to buying this house.	Owners of the mobile homes that would be relocated by the proposed project will receive relocation assistance, including assistance to secure a comparable residence that meets current standards for safe and decent housing. While mobile home owners will be able to chose where they want to live, there are numerous vacant parcels in this mobile home community,
	Everyone on my street is willing to sell their homes. People would like to be bought out. A lot of drugs and other activity that we don't want our children around. We are asking you to choose the west route.	Comment noted.

Summary of Public Comments by Topic, continued

Topic	Representative Comment	Disposition
Impacts to Sweetgrass Plantation	Homes in Sweetgrass Plantation are high value ($400,000-$600,000) and if these homes lose value due to visual and noise impact, that will result in a negative impact on tax revenue for Blount County. We were informed that sound barrier walls will not be constructed by Sweetgrass due to low population density. As the map is not up to date, we challenge this point and ask at what density levels does the noise mitigation wall become a requirement? The subdivision has 96 lots for homes with approximately. 40 owners. These owners maintain the upkeep of this subdivision, it is not a subdivision owned by one or two developers. As of today there are ten homes in Sweetgrass Plantation. The map presented is not up to date [doesn't show all of the new homes in the Subdivision—now 9].	The preliminary noise analysis conducted for the two avoidance shifts was prepared in compliance with the requirements of FHWA guidance for the identification of highway traffic noise impacts and the TDOT Policy on Highway Traffic Noise Abatement. The results of the barrier analysis for the eastern shift demonstrated that the area does not qualify for a noise barrier based on the information currently available. The conclusions derived from the current noise analysis are preliminary, and final decisions regarding noise abatement measures will be based on a subsequent noise study that will be completed using the design plans for the project. The public will have the opportunity to comment on the results of that analysis at the design public hearing.
Request extension for comments	Because the links on the webpage were not updated to allow the public to gain access materials from the May 30, 2013 meeting as of June 1, we request that the comment deadline a minimum of two weeks after all the links are corrected and after we are notified that all the links are correct. How and when will you be informing people potentially affected by the two possible realignments about the extension and the new deadline?	The link to the website has been corrected and the deadline for comments was extended 5 days to June 15, 2013. A notice was placed on the website and postcards were mailed to persons who attended the community briefing. Emails were also sent to those persons who had provided email addresses.
Release of Technical Studies	More straight forward and detailed information about TDOT's updated technical studies, especially those pertaining to ecology and archaeology, might have enabled citizens to offer more useful answers when we were asked for input. Please release the technical studies and evaluation so that the decision is as transparent as possible.	The technical study updates for the Preferred Alternative and the proposed alignment shift are being finalized and most will be made available when the FEIS is circulated for public comment. TDOT is prohibited by the provisions of the National Historic Preservation Act of 1966 (16 U.S.C. 470), as amended, from releasing the archaeology reports to the public in order to protect the resource.
Explain selection criteria	What criteria will TDOT use to consider the results of the environmental screening and the comments provided in selecting the alignment shift?	As stated in the community briefing handout, TDOT will determine which minor alignment shift to incorporate into the previously selected Preferred Alternative based on the assessment of the environmental screening conducted for the east and the west shifts, and taking into consideration input received from the Community Briefing.

Summary of Public Comments by Topic, continued

Topic	Representative Comment	Disposition
Need for Supplemental EIS	Since the DEIS was circulated in 2010, TDOT has taken a number of actions that affect analysis of the impacts of the proposed PPE. In view of the actions and changes listed below, we believe a Supplemental Environmental Impact Statement is necessary: a. Revised traffic forecasting, as evident in the Sept. 2011 Addendum to Traffic Operations Technical Report. b. Shift in emphasis from improvements in Level of Service to intersection delay. c. Community briefing on the possible change in alignment to avoid an environmentally sensitive area. d. Updated technical studies and evaluations as stated in the materials distributed at the May 30, 2013 community briefing: "Hazardous Materials, Noise, Ecology, Safety, Archaeology" and evaluations of the two 'avoidance' shifts:	TDOT is currently preparing a reevaluation to determine whether a supplement to the DEIS is necessary. It is TDOT's opinion that there are no major changes in the project and significant impacts not previously disclosed
Need for a Written Reevaluation	Before TDOT can decide not to prepare Supplement DEIS, a written reevaluation must be prepared due to the passage of time since the DEIS was circulated.	TDOT is currently preparing a reevaluation to determine whether a supplement to the DEIS is necessary. It is TDOT's opinion that there are no major changes in the project and significant impacts not previously disclosed

In addition to the comments noted on comment cards turned in at the meeting, in emails or by mail, general comments and questions were made to TDOT representatives during the meeting. As with the comments submitted in written form, the questions and areas of interest encompassed a wide range of topics. Representatives answered numerous questions from those in attendance. Some of the topics included:

- How should I let my comments be known to TDOT?
- I live at this location, how will the project impact me?
- When will the project be built?
- What type of archaeological site did TDOT find?
- If my house is in the proposed right-of-way should I make improvements to it?
- How does the right-of-way purchasing process work and what is the timeline for purchasing?
- When will I know how far the road is going to be from my house (when will right-of-way and design plans be complete)?
- What are the next steps in the environmental and design process?
- Why did right-of-way acquisition stop?

- Why is TDOT looking at Alternative D again?

Questions and comments to TDOT representatives came both from citizens in favor or the project and those against the project. Some comments and questions were answered by explaining the processes TDOT uses in project development since the design and right of way stages of the project are not complete.

Media

Following the meeting, both the *Knoxville News Sentinel* and *The Daily Times* ran articles discussing the meeting. Prior to the briefing, an article was also published in *The Daily Times* discussing the upcoming meeting. The author of the article incorrectly stated that previous alignments were now being considered and included information from prior meetings not related to the purpose of the scheduled community briefing. TDOT was made aware of this after the conclusion of the community briefing. This information better explained why some citizens had renewed concerns about locations outside the current study area.

Conclusion

The Community Briefing gave citizens an opportunity to discuss potential shifts to the Pellissippi Parkway extension project, to ask questions, to have questions/concerns answered, and to have local opinions of the project heard by TDOT. The briefing also gave citizens the opportunity to have factual, up-to-date information presented in a setting that allowed discussion by everyone in attendance.

Attachment C

Coordination with TDOT Civil Rights, 2014

STATE OF TENNESSEE
DEPARTMENT OF TRANSPORTATION
Civil Rights Office
Suite 1800, James K. Polk Building
505 Deaderick Street, Nashville, Tennessee 37243
Telephone No. 615-741-3681, Fax No. 615-741-3169

June 10, 2014

Environmental Divisions
ATTN: Margaret Slater
James K. Polk Building, Suite 900
505 Deaderick Street
Nashville, Tennessee 37243-0384

Subject: Pellissippi Parkway Extension EIS: TDOT Project Number 05097-1226-04/Agreement E0132

Thank you for including the Tennessee Department of Transportation's (TDOT) Civil Rights Office (CRO) in the review the Pellissippi Parkway Extension DEIS. Regarding the June 9, 2014, Environmental Justice Memorandum that addresses the DEIS alternatives (A, C, and D) and the East West shifts of the Preferred Alternative (A), the TDOT CRO found the assessment and methodology used to be in keeping with the spirit of the laws that govern programs/projects that are federally funded, specifically, Title VI of the 1964 Civil Rights Act.

Thank you for the opportunity to review and comment on the Environmental Justice Memorandum for this project. Should you have questions or comments, please do not hesitate to contact Cynthia Howard, Title VI Program Director, at 615-253-1066.

Sincerely,

Deborah H. Luter
Director

Attachment D

Noise Effects on Kensington Place for Environmental Justice Evaluation, Memo by Bowlby & Associates, March 3, 2015

Bowlby & Associates, Inc.

504 Autumn Springs Court, #11
Franklin, Tennessee 37067-8278
(615) 771-3006, Fax (615) 771-3406
dreiter@bowlbyassociates.com

MEMORANDUM

To: Parsons Brinckerhoff
Project File

From: Darlene Reiter and Geoff Pratt

Date: March 3, 2015

Re: Noise Effects on Kensington Place for Environmental Justice Evaluation

This memo summarizes the results of the noise effects on the Kensington Place community of the Preferred and East Shift Alternatives.

The noise report for the project[1] predicted the total number of impacts for 18 noise analysis areas along the various alternatives. The Kensington Place community is included in Noise Analysis Area 4 that also includes some residences on Lamar Alexander Parkway. Table 1 summarizes the number of impacts in Area 4 and Kensington Place. Note that some of the residences experience both a substantial increase in sound levels and sound levels approaching or exceeding the NAC.

Table 1: Noise Impact Summary for Noise Analysis Area 4

Noise Analysis Area	Number of Impacts		
	Substantial Increase	Approach or Exceed the NAC	Total
Preferred Alternative			
Area 4 (includes residences on Lamar Alexander Pkwy)	48	8	50
Kensington Place Only	48	6	48
East Shift			
Area 4 (includes residences on Lamar Alexander Pkwy)	26	2	28
Kensington Place Only	26	0	26

[1] *Noise Technical Report for Pellissippi Parkway Extension*, Bowlby & Associates, June 2014.

As shown, the East Shift would result in noise impacts to 26 residences in Kensington Place while the Preferred Alternative would impact 48 residences.

A noise barrier for Kensington Place was evaluated to mitigate the predicted impacts for both the Preferred and East Shift Alternatives in accordance with TDOT's noise policy.

The results of the analysis indicated that a noise barrier would be feasible and reasonable for Kensington Place under the Preferred Alternative but not under the East Shift Alternative.

Impacts are generally not compared between alternatives with the abatement measures included. However, this information was desired for the Environmental Justice evaluation for Kensington Place. Table 2 compares the number of impacts under the East Shift (no barrier) and the Preferred Alternative with the proposed noise barrier.

Table 2: Kensington Place Noise Impacts under Preferred and East Shift Alternatives

Alternative	Number of Impacted Residences			
	Substantial Increase	**Approach or Exceed the NAC**	**Total**	**Sound Level Increases Higher than Other Shift**
Preferred Alternative				
Preferred Alternative (With Barrier)	21 (1)	0	21 (1)	47
East Shift				
East Shift (No Barrier)	26	0	26	8

(1) 20 receptors were affected and receptor "Teaberry N-1" represents two residences so the total number of residences is 21.

As indicated, 21 residences would still experience substantial increases in sound levels under the Preferred Alternative with the proposed noise barrier; however, this number is slightly lower than the 26 residences that would experience substantial noise levels increases under the East Shift with no barrier. Sound levels would be higher with the Preferred Alternative with a barrier for 47 residences, while under the East Shift without a barrier, sound levels would be higher for 8 residences. The differences in noise level increases between the two alternatives are generally 3 dBA or less; 3 dBA is usually the smallest change in traffic noise levels that people can detect without specifically listening for the change. Nine residences in Kensington Place as well as the three residences on Lamar Alexander Parkway would have the same level of increase for either alternative. Finally, six residences would be relocated under the Preferred Alternative. Based on this assessment, the differences in the as-built noise impacts of the Preferred Alternative and the East Shift do not appear to be significant.

Attachment F

Section 106 Consultation and Coordination

STATE OF TENNESSEE
DEPARTMENT OF TRANSPORTATION
THE ENVIRONMENTAL DIVISION
SUITE 900, JAMES K. POLK BUILDING
505 DEADERICK STREET
NASHVILLE, TENNESSEE 37243-0334
(615) 741-5257
Fax (615) 741-1098

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

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

From: "Richard Allen" <Richard-Allen@cherokee.org>
To: "Kristen Broussard" <Kristen.Broussard@state.tn.us>
Date: 6/19/2006 3:40:58 PM
Subject: RE: Section 106 Coordination

Dear Ms. Broussard:

The Cherokee Nation appreciates being kept apprised of the proposed project but has no immediate concerns. We have no knowledge of any historic, sacred or cultural sites in the area of potential impact. However, as always, should human remains or artifacts be discovered, we ask that all activity in the affected area cease and that all appropriate agencies including the Cherokee Nation be notified. I appreciate being kept informed.

Thank you,

Dr. Richard L. Allen
Policy Analyst
Cherokee Nation
P.O. Box 948
Tahlequah, Oklahoma 74465
(918) 453-5466

-----Original Message-----
From: Kristen Broussard [mailto:Kristen.Broussard@state.tn.us]
Sent: Thursday, June 01, 2006 7:46 AM
To: Richard Allen; estochief@hotmail.com; tylehowe@nc-cherokee.com; shawneethpo@neok.com; lstopp@unitedkeetoowahband.org
Subject: Section 106 Coordination

Pellissippi Parkway Extension, State Route 162 from State Route 33 to State Route 73 (U.S. 321), Blount County

See attached letter & map.

Eastern Band of Cherokee Indians
Tribal Historic Preservation Office
P.O. Box 455
Cherokee, NC 28719
Ph: 828-488-0237 Fax 828-488-2462

DATE: 7 - June - 06

TO: FHWA, Tennessee Division
Bobby Blackmon, Division Administrator
640 Grassmere Park Road
Suite 112
Nashville, TN 37211

PROJECT(S): **Proposed Pellissippi Parkway extension, St. Rt. 162 from St. Rt. 33 to St. Rt. 73 (U.S. 321), Blount County, Tennessee.**

The Tribal Historic Preservation Office of the Eastern Band of Cherokee Indians is in receipt of the above-referenced project information and would like to thank you for the opportunity to comment on this proposed NHPA Section 106 activity.

The project's location is within the aboriginal territory of the Cherokee people. This area may have cultural, archaeological, or religious significance to the Eastern Band of Cherokee Indians. Potential cultural resources are subject to damage or destruction from land disturbing activities requiring new ground disturbance, or vegetation manipulation. Additionally, adverse effects to ethnographic sites, such as traditional Native American campsites or burials, can reduce the interpretative or spiritual significance of a site to Tribal and United States culture and history. The EBCI THPO requests any cultural resource data, including phase I archeological reports, topo maps, historical research, or archives research, forwarded to the Tennessee Historical Commission for comment also be to this office in accordance with Section 106 of the NHPA. The EBCI THPO looks forward to participating in the project review process as a consulting party as stipulated in Section 106 of the National Historic Preservation Act of 1966.

If we can be of further service, or if you have any comments or questions, please feel free to contact me at (828) 488-0237 ext 2.

Sincerely,

Tyler B. Howe
Tribal Historical Preservation Specialist
Eastern Band of Cherokee Indians

Cc: Gerald Kline

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

TENNESSEE HISTORICAL COMMISSION
DEPARTMENT OF ENVIRONMENT AND CONSERVATION
2941 LEBANON ROAD
NASHVILLE, TN 37243-0442
(615) 532-1550

December 17, 2012

Mr. Gerald Kline
TDOT – Environmental Division
Suite 900, James K. Polk Building
505 Deaderick Street
Nashville, Tennessee 37243-1402

RE: FHWA, SR-162/SR-33 TO SR-73/5 SITES, UNINCORPORATED, BLOUNT COUNTY

Dear Mr. Kline:

Pursuant to your request, this office has reviewed documentation received Friday, December 7, 2012 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).

Considering available information, we find concur that sites 40BT100, 40BT125, 40BT202, and 40BT203 do not contain resources eligible for inclusion in the National Register of Historic Places. We further concur that site 40BT122 is National Register eligible and that the project as currently proposed may adversely affect this eligible site. Please direct questions and comments to Jennifer M. Barnett (615 741-1588 ext. 105). We appreciate your cooperation.

Sincerely,

E. Patrick McIntyre, Jr.

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

EPM/jmb

TENNESSEE HISTORICAL COMMISSION
2941 LEBANON ROAD
NASHVILLE, TENNESSEE 37243-0442
OFFICE: (615) 532-1550
www.tnhistoricalcommission.org

July 8, 2013

Mr. Gerald Kline
TDOT – Environmental Division
Suite 900, James K. Polk Building
505 Deaderick Street
Nashville, Tennessee 37243-1402

RE: FWHA, SR-162/AVOIDANCE 40BT122/ADDENDUMS, UNINCORPORATED, BLOUNT COUNTY

Dear Mr. Kline:

Pursuant to your request, this office has reviewed documentation concerning the above-referenced undertaking received Thursday, June 27, 2013. This 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).

Considering available information, we find that the western and eastern alternatives for avoiding site 40BT122 the project as currently proposed will not adversely affect any property that is eligible for listing in the National Register of Historic Places. Therefore, this office has no objection to the implementation of this project. Please direct questions and comments to Jennifer M. Barnett (615) 741-1588, ext. 105. We appreciate your cooperation.

Sincerely,

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

EPM/jmb

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

JOHN C. SCHROER
COMMISSIONER

BILL HASLAM
GOVERNOR

August 9, 2013

Muscogee (Creek) Nation
P.O. Box 580
Okmulgee, OK 74447
Attn: Mr. Emman Spain and Mr. Terry Cole, Tribal Historic Preservation Office

RE: State Route 162EXT (Pellissippi Parkway), From State Route 33 to State Route 73 (US-321), Blount County, Tennessee, 101423.00

Dear Mr. Spain and Mr. Cole,

Enclosed is a CD containing final reports of all archaeological investigations conducted on the Pellissippi Parkway Extension project in Blount County. The Tennessee State Historic Preservation Office's review letters are also included. By making adjustments in the project alignment, TDOT has avoided impacts to all archaeological sites. Please review the contents of the CD. I am interested in any comments you may have and will be happy to answer any questions or respond to any concerns that occur to you about the archaeology studies or the project. You may contact me at (615) 741-5257 or via email at Gerald.kline@tn.gov. You may also contact Alan Longmire at (423) 282-0651 ext. 114 or at alan.longmire@tn.gov.

You are receiving this documentation somewhat late in the process because Blount County was not until very recently included in the Muscogee (Creek) Nation's area of interest in Tennessee. Nonetheless I wanted you to be aware of the project and have the opportunity to comment on it.

I appreciate your participation.

Sincerely,

Gerald W. Kline

Gerald W. Kline
Archaeology Program Manager

GWK/kl

cc: Mr. Tyler Howe, Eastern Band of Cherokee Indians, w/enclosure
Archaeology File: 2006049

Attachment G
Air Quality Coordination

$PM_{2.5}$ Interagency Consultation

MSATS Background Information

From:	Darlene Reiter
To:	Margaret Slater; Skinner, Nancy T.
Subject:	FW: Updated Traffic Projections, Pellissippi Parkway Extension, Blount County
Date:	Thursday, January 30, 2014 1:26:48 PM
Attachments:	IAC-PM2.5-Determination-PellissippiPrkwy-101423.00-010709.pdf Current and Previous Traffic Projections for Pellissippi Parkway Extension.pdf

FYI.

From: Darlene Reiter
Sent: Thursday, January 30, 2014 1:26 PM
To: Alan Jones; Angela Midgett; Cantrell, Teresa; Conger, Mike; Davis, Corbin; Jim Ozment; Lynne Liddington; Marc Corrigan; Martin, Elizabeth; Renfro, Jim; Rich DesGroseilliers ; Robert Rock; Ronnie Porter; scott.allen@dot.gov; Sheckler, Kelly; Smith, Dianna; Steve McDaniel; Theresa Claxton ; Welch, Jeff
Subject: Updated Traffic Projections, Pellissippi Parkway Extension, Blount County

Good Afternoon Knoxville IAC –

Per the discussion at the end of our call on Monday, I have attached the updated traffic projections for the Pellissippi Parkway (SR 162) Extension in Blount County for your records. As discussed, a $PM_{2.5}$ Hot-Spot Determination was prepared for the project in January 2009, and the IAC concurred that the project was "Not of Air Quality Concern." The Determination and concurrence responses are attached.

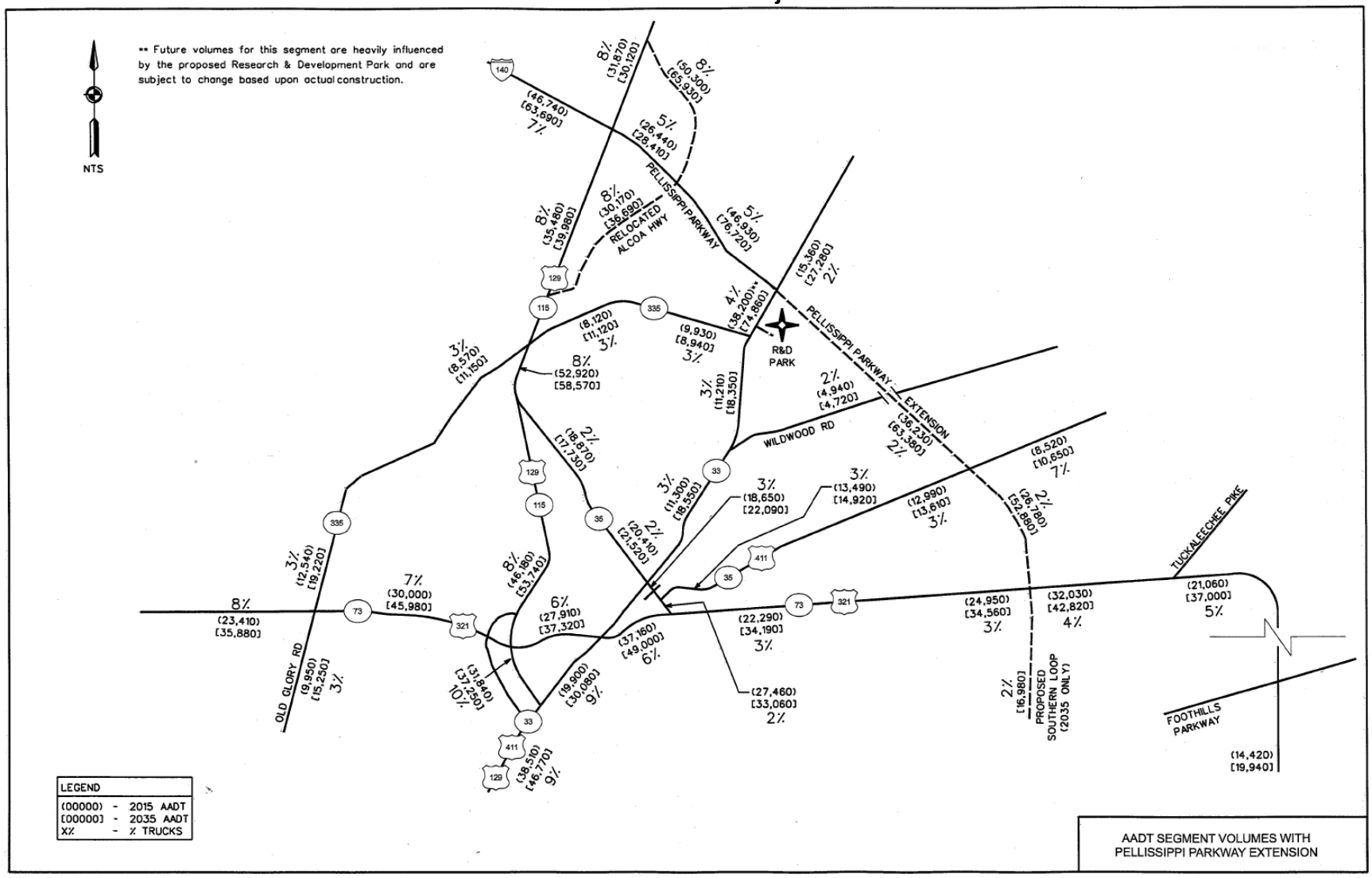
As shown, the updated Design Year 2040 projections are much lower than the previous Design Year 2035 projections used for the $PM_{2.5}$ Hot-Spot Determination. The projected percentage of trucks remains the same. As a result, the IAC agreed that the previous Determination remains valid.

Thank you for your guidance on this matter.

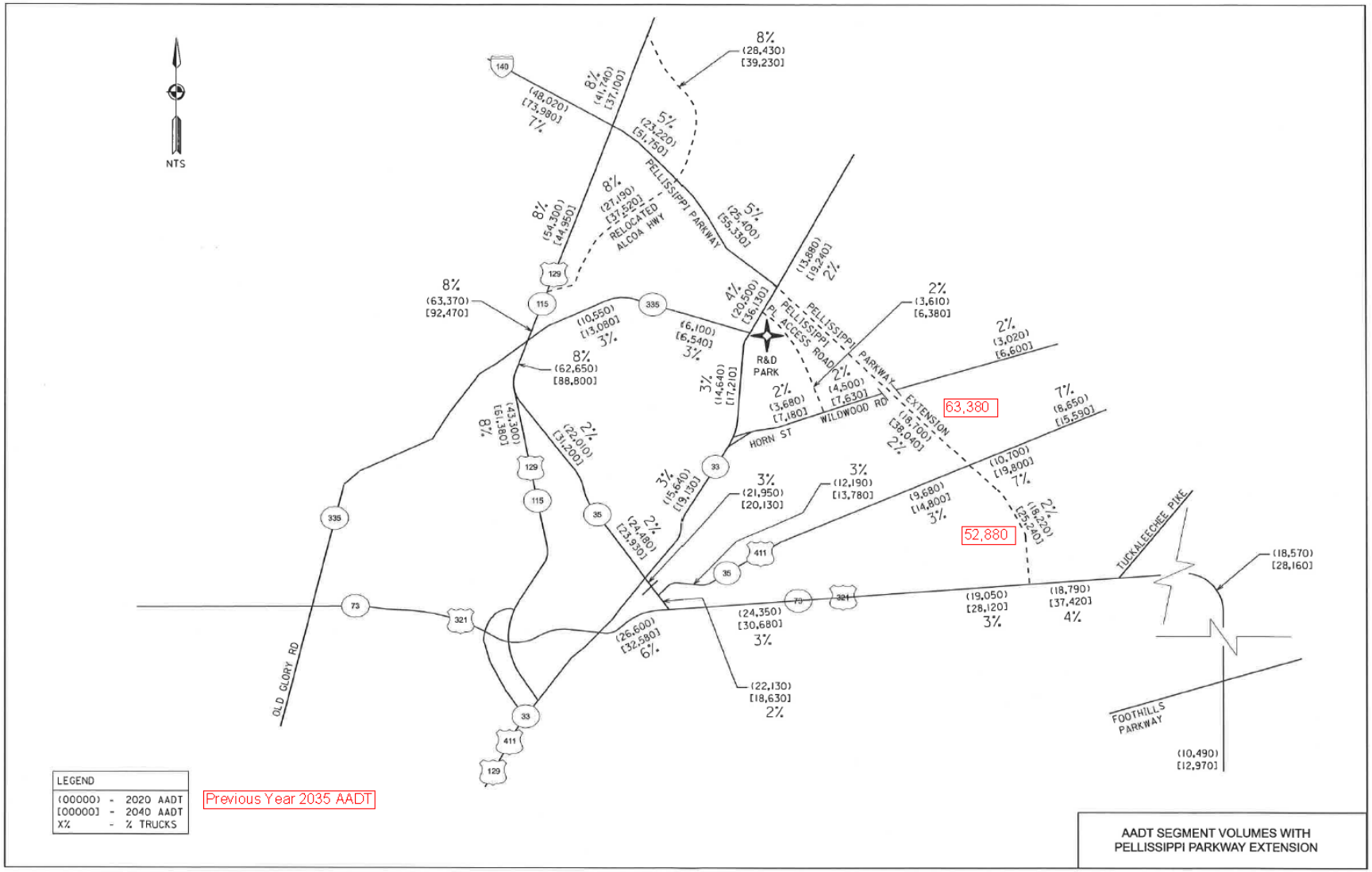
Darlene

Darlene Reiter, Ph.D., P.E.
TDOT Environmental Division Consultant
(615) 574-8102

Previous 2035 Traffic Projections



Current 2040 Traffic Projections



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!

Mobile Source Air Toxics (MSATs)
From: FHWA's "*Interim Guidance Update on Air Toxic Analysis in NEPA Documents*," December 6, 2012.

Background

Controlling air toxic emissions became a national priority with the passage of the Clean Air Act Amendments (CAAA) of 1990, whereby Congress mandated that the U.S. Environmental Protection Agency (EPA) regulate 188 air toxics, also known as hazardous air pollutants. The EPA has assessed this expansive list in their latest rule on the Control of Hazardous Air Pollutants from Mobile Sources (Federal Register, Vol. 72, No. 37, page 8430, February 26, 2007), and identified a group of 93 compounds emitted from mobile sources that are listed in their Integrated Risk Information System (IRIS) (http://www.epa.gov/iris/). In addition, EPA 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 are acrolein, benzene, 1,3-butidiene, diesel particulate matter plus diesel exhaust organic gases (diesel PM), formaldehyde, naphthalene, and polycyclic organic matter. While FHWA considers these the priority mobile source air toxics, the list is subject to change and may be adjusted in consideration of future EPA rules. The 2007 EPA rule mentioned above requires controls that will dramatically decrease MSAT emissions through cleaner fuels and cleaner engines. According to an FHWA analysis using EPA's MOBILE6.2 model, even if vehicle activity (vehicle-miles travelled, VMT) increases by 145 percent as assumed, a combined reduction of 72 percent in the total annual emission rate for the priority MSAT is projected from 1999 to 2050, as shown in Figure 1.

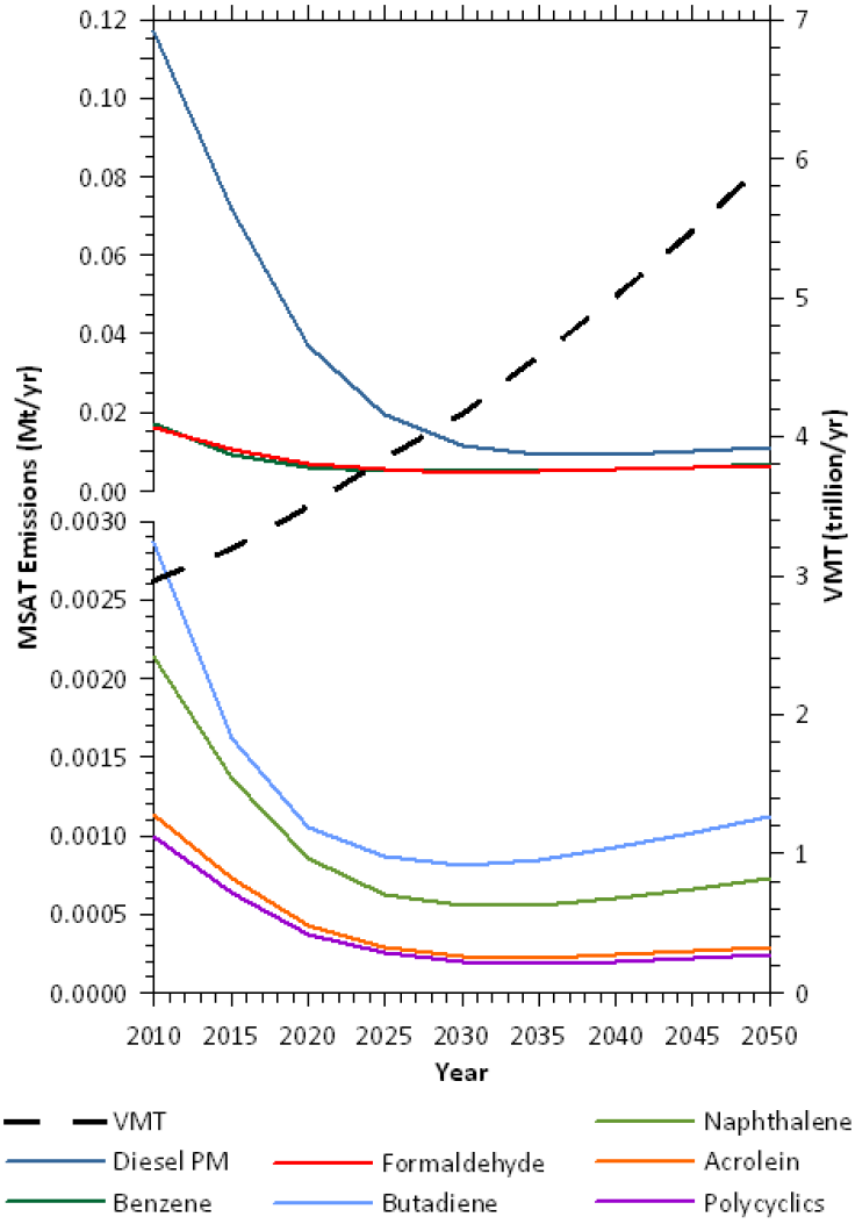
Motor Vehicle Emissions Simulator (MOVES)

According to EPA, MOVES improves upon the previous MOBILE model in several key aspects: MOVES is based on a vast amount of in-use vehicle data collected and analyzed since the latest release of MOBILE, including millions of emissions measurements from light-duty vehicles. Analysis of this data enhanced EPA's understanding of how mobile sources contribute to emissions inventories and the relative effectiveness of various control strategies. In addition, MOVES accounts for the significant effects that vehicle speed and temperature have on PM emissions estimates, whereas MOBILE did not. MOVES2010b includes all air toxic pollutants in NATA that are emitted by mobile sources. EPA has incorporated more recent data into MOVES2010b to update and enhance the quality of MSAT emission estimates. These data reflect advanced emission control technology and modern fuels, plus additional data for older technology vehicles.

Based on an FHWA analysis using EPA's MOVES2010b model, as shown in Figure 1, even if vehicle-miles travelled (VMT) increases by 102 percent as assumed from 2010 to 2050, a combined reduction of 83 percent in the total annual emissions for the priority MSAT is projected for the same time period.

The implications of MOVES on MSAT emissions estimates compared to MOBILE are: lower estimates of total MSAT emissions; significantly lower benzene emissions; significantly higher diesel PM emissions, especially for lower speeds. Consequently, diesel PM is projected to be the dominant component of the emissions total.

Figure 1: NATIONAL MSAT EMISSION TRENDS 1999 – 2050 FOR VEHICLES OPERATING ON ROADWAYS USING EPA's MOVES2010b MODEL



Note: Trends for specific locations may be different, depending on locally derived information representing vehicle-miles travelled, vehicle speeds, vehicle mix, fuels, emission control programs, meteorology, and other factors

Source: EPA MOVES2010b model runs conducted during May - June 2012 by FHWA.

MSAT Research

Air toxics analysis is a continuing area of research. While much work has been done to assess the overall health risk of air toxics, many questions remain unanswered. In particular, the tools and techniques for assessing project-specific health outcomes as a result of lifetime MSAT exposure remain limited. These limitations impede the ability to evaluate how potential public health risks posed by MSAT exposure should be factored into project-level decision-making within the context of NEPA.

Nonetheless, air toxics concerns continue to be raised on highway projects during the NEPA process. Even as the science emerges, we are duly expected by the public and other agencies to address MSAT impacts in our environmental documents. The FHWA, EPA, the Health Effects Institute, and others have funded and conducted research studies to try to more clearly define potential risks from MSAT emissions associated with highway projects. The FHWA will continue to monitor the developing research in this field.

NEPA Context

The NEPA requires, to the fullest extent possible, that the policies, regulations, and laws of the Federal Government be interpreted and administered in accordance with its environmental protection goals. The NEPA also requires Federal agencies to use an interdisciplinary approach in planning and decision-making for any action that adversely impacts the environment. The NEPA requires and FHWA is committed to the examination and avoidance of potential impacts to the natural and human environment when considering approval of proposed transportation projects. In addition to evaluating the potential environmental effects, we must also take into account the need for safe and efficient transportation in reaching a decision that is in the best overall public interest. The FHWA policies and procedures for implementing NEPA are contained in regulation at 23 CFR Part 771.

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/iris/). 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.
It is particularly difficult to reliably forecast 70-year lifetime MSAT concentrations and exposure near roadways; to determine the portion of time that people are actually exposed at a specific location; and to establish the extent attributable to a proposed action, especially given that some of the information needed is unavailable.

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#g) 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 an "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 deemed 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, Bruce Bender (202) 366-2851, and Michael Claggett (505) 820-2047, are available to provide guidance and technical assistance and support.

Attachment H
Noise Tables and Figures

Table H-1: Description of Noise Analysis Areas

Table H-2: Noise Analysis Areas Affected by Alternatives

Table H-3: Existing Sound Levels in Noise Analysis Areas

Table H-4: Impact Determination Analysis, 2040

Figure H-1: Noise Analysis Areas

Table H-1: Description of Noise Analysis Areas

Noise Analysis Area	Alternative(s)	Description	Activity Category	NAC (dBA)
1	Preferred, 2012 Preferred (A), C	Residences on Jackson Hills Drive, October Lane, and Luther Hills Drive.	B	67
2	Preferred, 2012 Preferred (A), C	Residences on Mt. Lebanon Road, Melody Lane and Wildwood Road.	B	67
3	Preferred, East Shift, 2012 Preferred (A), C, D	Residences on Centennial Church Road and in the Sweetgrass Plantation subdivision.	B	67
4	Preferred, East Shift, 2012 Preferred (A)	Kensington Place mobile home community and single-family residences on Lamar Alexander Parkway.	B	67
5	Preferred, 2012 Preferred (A), C	Residences on East Brown School Road, Wildwood Road, Martha Neoma Street, and Talbott Lane.	B	67
6	Preferred, 2012 Preferred (A), C	Residences on Western Springs Drive and Old Knoxville Highway.	B	67
7	Preferred, 2012 Preferred (A), C	Residences on Saratoga Drive, the south side of Wildwood Road and East Brown School Road.	B	67
8	Preferred, 2012 Preferred (A)	Residences on Sevierville Road (SR 35).	B	67
9	Preferred, 2012 Preferred (A)	Residences on Sevierville Road and Davis Ford Road.	B	67
10	Preferred, East Shift, 2012 Preferred (A), C	Residences, the Morning Star Baptist Church, and the Rio Revolution Church on Lamar Alexander Parkway.	B, D	67, 52*
11	D	Residences on Sam Houston School Road and intersecting local roadways between SR 33 and Wildwood Road.	B	67
12	D	Residences on Wildwood Road, Peppermint Road, and Peppermint Hills Drive and the Mt. Lebanon Baptist Church baseball field and playground.	B, C	67
13	D	Residences on Peppermint Road, Peppermint Hills Drive, and Sevierville Road.	B	67
14	D	Residences on Hitch Road, Scarlet Drive, and Sevierville Road.	B	67
15	C	Residences Sevierville and Butler Roads.	B	67
16	C, D	Residences on Melanie Drive, Davis Ford Road, Clayton Court, Misty View Drive and Helton Road and the Full Gospel Church.	B, D	67, 52*
17	D	Residences Helton and John Helton Roads.	B	67
18	C, D	Residences John Helton Road, Hubbard Drive, Tuckaleechee Pike, and E Lamar Alexander Parkway and the Misty Meadow Driving Range.	B, E	67

Table H-2: Noise Analysis Areas Affected by Alternatives

Alternative	Affected Noise Analysis Areas
Preferred, East Shift, 2012 Preferred (A)	1, 2, 3, 4, 5, 6, 7, 8, 9, 10
C	1, 2, 3, 5, 6, 7, 10, 15, 16, 18
D	3, 11, 12, 13, 14, 16, 17, 18

Table H-3: Existing Sound Levels in Noise Analysis Areas

Noise Analysis Area	Predicted Existing Sound Levels (dB)
1	41—54
2	41 – 52
3	42 – 48
4	42 – 64
5	41 – 52
6	45 – 59
7	41 – 55
8	61 – 65
9	43 – 61
10	45 – 68
11	43 – 66
12	46 – 63
13	46 – 62
14	45 – 63
15	44 – 60
16	41 – 50
17	43 – 63
18	44 – 65

Table H-4: Impact Determination Analysis, 2040 (1)

	2012 Preferred Alternative (A)			Preferred Alternative with East Shift			Preferred Alternative			Alternative C			Alternative D		
	Resi-dences	Cat. C/E	Total	Resi-dences	Cat. C/E	Total	Resi-dences	Cat. C/E	Total	Resi-dences	Cat. C/E	Total	Resi-dences	Cat. C/E	Total
Area 1	9	0	9	9	0	9	9	0	9	9	0	9	n/a	n/a	n/a
Area 2	5	0	5	5	0	5	5	0	5	5	0	5	n/a	n/a	n/a
Area 3	6	0	6	6	0	6	7	0	7	2	0	2	0	0	0
Area 4	29	0	29	28	0	28	50	0	50	n/a	n/a	n/a	n/a	n/a	n/a
Area 5	11	0	11	11	0	11	11	0	11	11	0	11	n/a	n/a	n/a
Area 6	0	0	0	0	0	0	0	0	0	0	0	0	n/a	n/a	n/a
Area 7	7	0	7	7	0	7	7	0	7	6	0	6	n/a	n/a	n/a
Area 8	2	0	2	2	0	2	2	0	2	n/a	n/a	n/a	n/a	n/a	n/a
Area 9	6	0	6	6	0	6	6	0	6	n/a	n/a	n/a	n/a	n/a	n/a
Area 10	6	0	6	6	0	6	6	0	6	10	0	10	n/a	n/a	n/a
Area 11	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	32	0	32
Area 12	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	9	2	11
Area 13	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	8	0	8
Area 14	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	9	0	9
Area 15	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	7	0	7	n/a	n/a	n/a
Area 16	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	5	0	5	12	0	12
Area 17	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	8	0	8
Area 18	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	8	1	9	5	0	5
Totals	***81***	***0***	***81***	***80***	***0***	***80***	***103***	***0***	***103***	***63***	***1***	***64***	***83***	***2***	***85***

(1) An "n/a" indicates that a Noise Analysis Area is not affected by that Alternative.

Figure H-1: Noise Analysis Areas

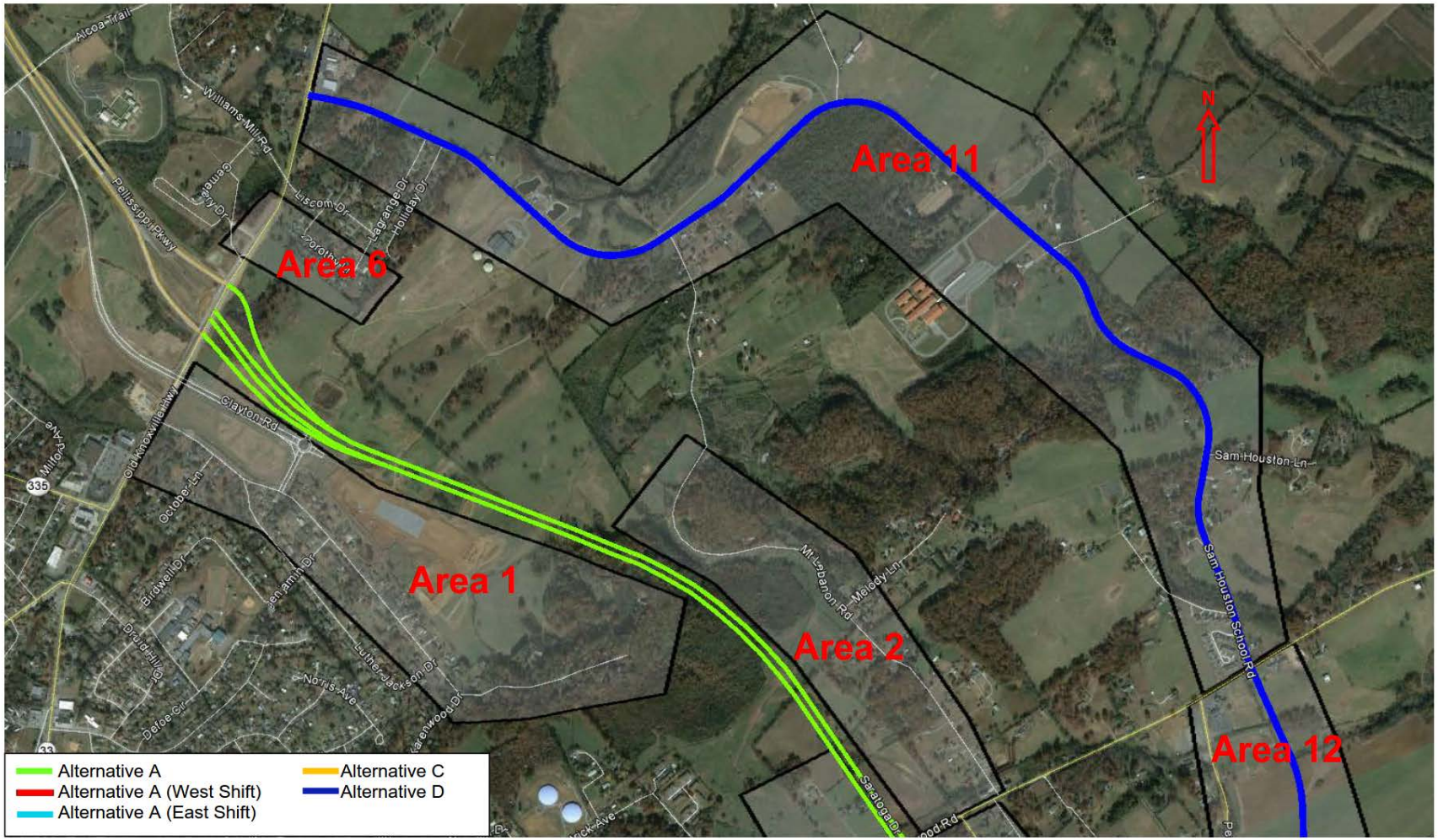


Figure H-1: Noise Analysis Areas (con't.)

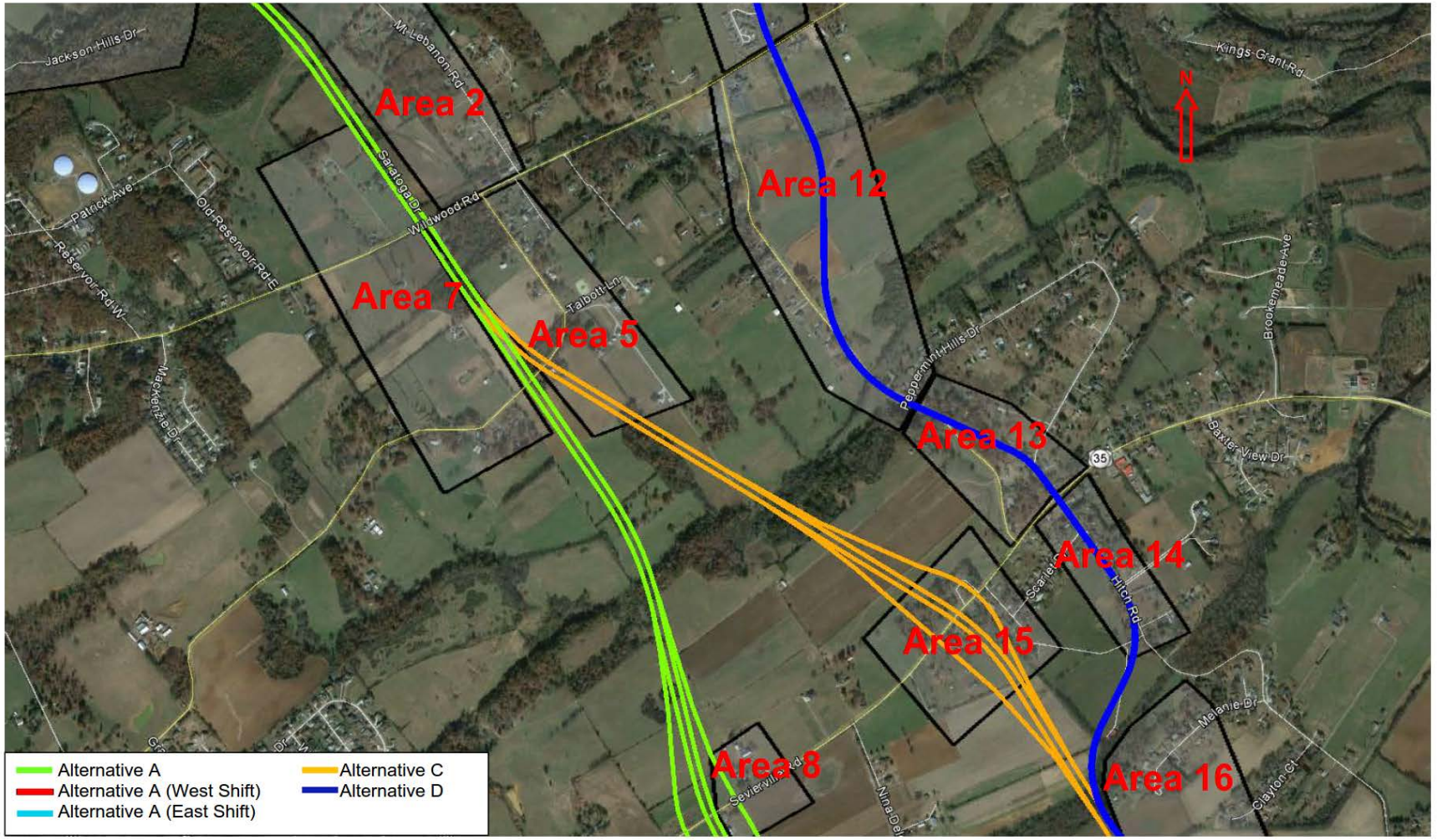
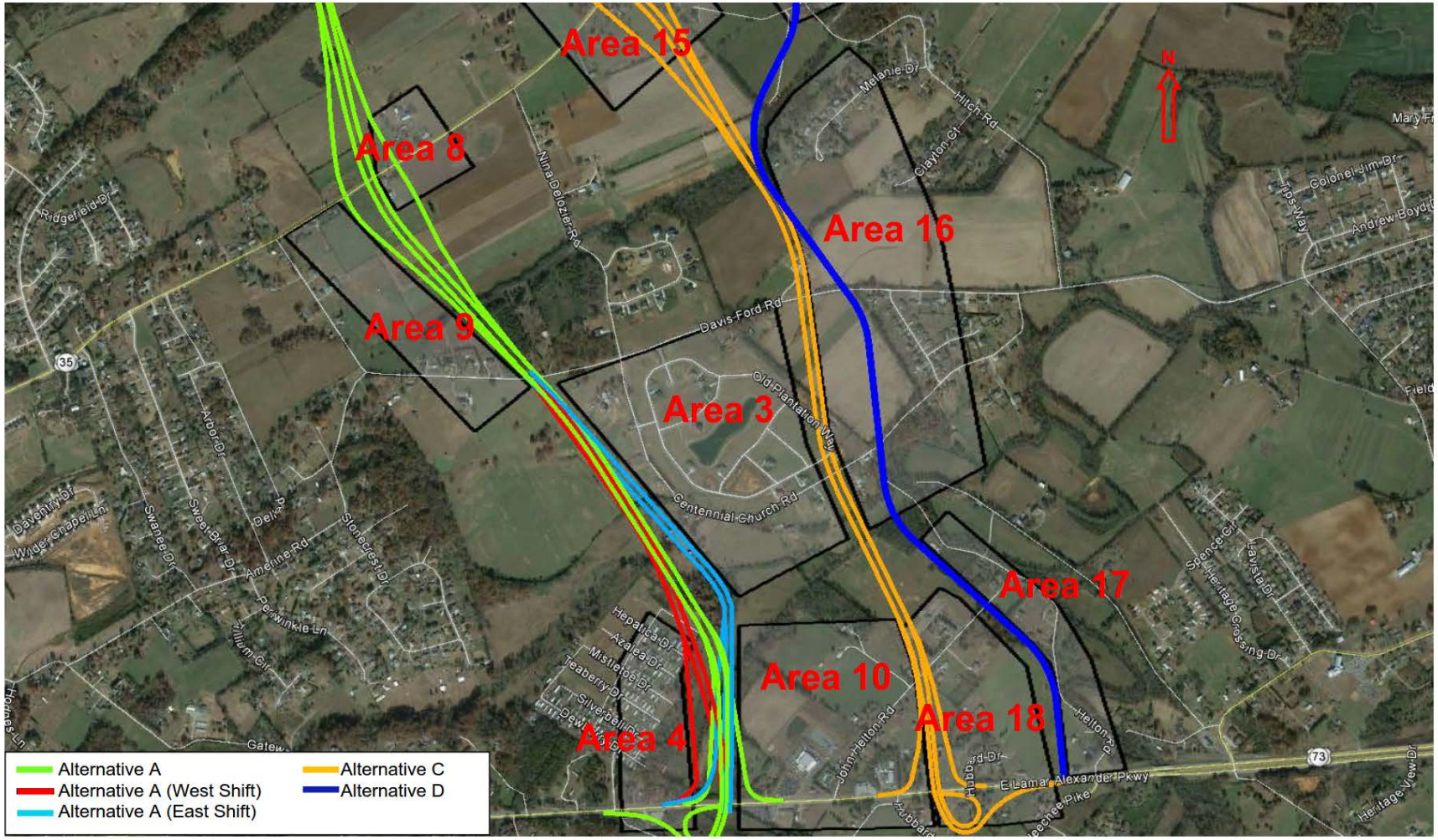


Figure H-1: Noise Analysis Areas (con't.)



Attachment I

Ecology Resource Tables, Biological Assessment, and Agency Coordination

Table I-1: Preferred Alternative, Preferred Alternative with East Shift, and 2012 Preferred Alternative (A)—Ecological Features

Table I-2: Alternative C—Ecological Features

Table I-3: Alternative D—Ecological Features

2013 Biological Assessment

Agency Coordination

Table I-1: Preferred Alternative, Preferred Alternative with East Shift, and 2012 Preferred Alternative (A) - Ecological Features

Map Label/ Feature Name	Lat/Long	Feature Designation	Potential Impacts	Estimated Impact Quantity			ETW or ONRW (Y/N)	303d Listed (Y/N) Reason for Listing
				Preferred Alt	East Shift	2012 Pref Alt(A)		
WTL-1 (ALT A & C)	N35.804843 W83.940205	Scrub/Shrub Wetland	Fill	~0.1 acre	~0.1 acre	~0.1 acre	N	N
PND-1A (ALT A & C)	N35.803302 W83.936642	Man-made Retention Basin	Fill	~0.02 acre	~0.02 acre	~0.02 acre	N	N
WWC-1 (ALT A & C)	N35.802263 W83.937081	Wet Weather Conveyance	No Impact, WWC has been eliminated	0.0	0.0	0.0	N	N
STR-1 (ALT A & C)	N35.78467971 W83.90951683	Intermittent Stream	Crossing/ Encapsulation/ Fill	~1,015'	~1,015'	~1,015'	N	N - Threatened
WTL-2 (ALT A & C)	N35.799413 W83.929155	Emergent Wetland	Fill	~0.2 acre	~0.2 acre	~0.2 acre	N	N
STR-2 (ALT A & C)	N35.78391114 W83.90829976	Intermittent Stream	Crossing/ Encapsulation/ Fill	~147'	~147'	~147'	N	N
STR-3 (ALT A & C)	N35.78303418 W83.90595703	Perennial stream	Crossing/ Encapsulation/ Fill	~640'	~640'	~640'	N	N
WTL-3 (ALT A & C)	N35.79974 W83.927329	Emergent Wetland	Fill	~0.3 acre	~0.3 acre	~0.3 acre	N	N
PND-1 (ALT A & C)	N35.799351 W83.9249	Pond	No Impact, Outside ROW	0.0	0.0	0.0	N	N
WTL-4 (ALT A & C)	N35.79858 W83.923544	Scrub/Shrub Wetland	No Impact, Outside ROW	0.0	0.0	0.0	N	N

STR = stream; WTL = wetlands; PND = pond.

Table I-1: Preferred Alternative, Preferred Alternative with East Shift, and 2012 Preferred Alternative (A) - Ecological Features

Map Label/ Feature Name	Lat/Long	Feature Designation	Potential Impacts	Estimated Impact Quantity			ETW or ONRW (Y/N)	303d Listed (Y/N) Reason for Listing
				Preferred Alt	East Shift	2012 Pref Alt(A)		
STR-4 (ALT A & C)	N35.78283476 W83.90584282	Perennial stream	Runoff/No Direct Impact	0.0	0.0	0.0	N	N
PND-2 (ALT A & C)	N35.79395 W83.919537	Pond	Fill	0.4 acre	0.4 acre	0.4 acre	N	N
STR-5 (ALT A & C)	N35.77526235 W83.89413778	Intermittent stream	Crossing/ Encapsulation/ Fill	300'	300'	300'	N	N
STR-6 Peppermint Branch (ALT A)	N35.76485954 W83.89032228	Perennial stream	Crossing/ Encapsulation/ Fill	315 ft	315 ft	315 ft	N	Y - Siltation
STR-7 (ALT A)	N35.76411882 W83.89121303	Intermittent stream	Crossing/ Encapsulation/ Fill	378 ft	378 ft	378 ft	N	N
STR-7A (2012 ALT A, West Shift, & East Shift)	N35.76359396 W83.89139799	Intermittent stream	Crossing/ Encapsulation/ Fill	1,015 ft	767 ft	1,015 ft	N	N
STR-7B (2012 ALT A, West Shift, & East Shift)	N35.76334256 W83.89088476	Perennial stream	Crossing/ Encapsulation/ Fill	139 ft	N/A	139 ft	N	N
WTL-5 (2012 ALT A, West Shift, & East Shift)	N35.764114 W83.897799	Emergent Wetland	Fill	0.1 acre	N/A	0.1 acre	N	N
WTL-5A (2012 ALT A, West Shift, & East Shift)	N35.764337 W83.898287	Emergent Wetland	Fill	0.06 acre	N/A	0.06 acre	N	N
WTL-5B (2012 ALT A, West Shift, & East	N35.764023 W83.899153	Emergent Wetland	No Impact, Outside ROW	0.0	0.0	0.0	N	N

STR = stream; WTL = wetlands; PND = pond.

Table I-1: Preferred Alternative, Preferred Alternative with East Shift, and 2012 Preferred Alternative (A) - Ecological Features

Map Label/ Feature Name	Lat/Long	Feature Designation	Potential Impacts	Estimated Impact Quantity			ETW or ONRW (Y/N)	303d Listed (Y/N) Reason for Listing
				Preferred Alt	East Shift	2012 Pref Alt(A)		
Shift)								
STR-8 Gravelly Creek (2012 ALT A, West Shift, & East Shift)	N35.76245878 W83.88980234	Perennial stream	Crossing/ Encapsulation/ Fill	545 ft	323 ft	628 ft	N	Y – Siltation
WTL-6 (2012 ALT A, West Shift, & East Shift)	N35.759601 W83.895904	Scrub/Shrub Wetland	Fill	7.96 acres	6.39 acres	4.25 acres	N	N
STR-9 Flag Branch (2012 ALT A, West Shift, & East Shift)	N35.759533 W83.895981	Perennial stream	Crossing/ Encapsulation/ Fill	1,143 ft	545 ft	623 ft	N	Y - Siltation
Total Stream Impacts				**5,637 linear feet**	**4,430 linear feet**	**5,200 linear feet**		
Total Wet Weather Conveyance Impacts				**0.0**	**0.0**	**0.0**		
Total Wetland Impacts				**8.72 acres**	**6.99 acres**	**5.01 acres**		
Total Pond Impacts				**0.42 acre**	**0.42 acre**	**0.42 acre**		

STR = stream; WTL = wetlands; PND = pond.

Table I-2: Alternative C - Ecological Features

Map Label/ Feature Name	Lat/Long	Feature Designation	Potential Impact	Estimated Impact Quantity	ETW or ONRW (Y/N)	303d Listed (Y/N) Reason for Listing
WTL-1 (A & C)	N35.804843 W83.940205	Scrub/Shrub Wetland	Fill	0.1 acre	N	N
PND-1A (A & C)	N35.803302 W83.936642	Man-made Retention Basin	Fill	0.02 acre	N	N
WWC-1 (A & C)	N35.802263 W83.937081	Wet Weather Conveyance	No Impact, WWC has been eliminated	0.0	N	N
STR-1 (A & C)	N35.78467971 W83.90951683	Intermittent Stream	Crossing/ Encapsulation/ Fill	1,015 ft	N	N - Threatened
WTL-2 (A & C)	N35.799413 W83.929155	Emergent Wetland	Fill	0.2 acre	N	N
STR-2 (A & C)	N35.78391114 W83.90829976	Intermittent Stream	Crossing/ Encapsulation/ Fill	147 ft	N	N
STR-3 (A & C)	N35.78303418 W83.90595703	Perennial stream	Crossing/ Encapsulation/ Fill	640 ft	N	N
WTL-3 (A & C)	N35.79974 W83.927329	Emergent Wetland	Fill	0.3 acre	N	N
PND-1 (A & C)	N35.799351 W83.9249	Pond	No Impact, Outside ROW	0.0	N	N
WTL-4 (A & C)	N35.79858 W83.923544	Scrub/Shrub Wetland	No Impact, Outside ROW	0.0	N	N
STR-4 (A & C)	N35.78283476 W83.90584282	Perennial stream	Runoff/No Direct Impact	0.0	N	N
PND-2 (A & C)	N35.79395 W83.919537	Pond	Fill	0.4 acre	N	N
STR-5 (A & C)	N35.77526235 W83.89413778	Intermittent stream	Crossing/ Encapsulation/	300 ft	N	N

STR = stream; WTL = wetlands; PND = pond.

Table I-2: Alternative C - Ecological Features

Map Label/ Feature Name	Lat/Long	Feature Designation	Potential Impact	Estimated Impact Quantity	ETW or ONRW (Y/N)	303d Listed (Y/N) Reason for Listing
			Fill			
WWC-1 (C)	N35.78467971 W83.90951683	Wet weather conveyance	Fill/runoff	420 ft	N	N
WWC-2 (C)	N35.78391114 W83.90829976	Wet weather conveyance	Runoff/No Direct Impact	0.0	N	N
STR-1 C (Peppermint Branch)	N35.78303418 W83.90595703	Perennial stream	Crossing/ encapsulation/ fill	450 ft	N	Y - Siltation
STR-2 (C)	N35.78283476 W83.90584282	Perennial stream	Fill/runoff	100 ft	N	N
STR-3 (C)	N35.77526235 W83.89413778	Intermittent stream	Crossing/ Encapsulation/ Fill	320' ft	N	N
STR-4 C (Gravelly Creek)	N35.76485954 W83.89032228	Perennial stream	Crossing/ Encapsulation/ Fill	325 ft	N	Y - Siltation
STR-5 C (Flag Branch)	N35.76411882 W83.89121303	Perennial stream	Runoff/No Direct Impact	0.0	N	Y - Siltation
WWC-3 (C)	N35.76359396 W83.89139799	Wet weather conveyance	Runoff/No Direct Impact	0.0	N	N
WTL-1 (C)	N35.76334256 W83.89088476	Wetland	Fill/runoff	0.002 acres	N	N
WWC-4 (C)	N35.76245878 W83.88980234	Wet weather conveyance	Fill/runoff	315 ft	N	N
Total Stream Impacts				**3,297 linear ft**		
Total Wet Weather Conveyance Impacts				**735 linear ft**		
Total Wetland Impacts				**0.602 acre**		
Total Pond Impacts				**0.42 acre**		

STR = stream; WTL = wetlands; PND = pond.

Table I-3: Alternative D - Ecological Features

Map Label/ Feature Name	Lat/Long	Feature Designation	Potential Impact	Estimated Impact Quantity	ETW or ONRW (Y/N)	303d Listed (Y/N) Reason for Listing
STR-1	N35.80762608 W83.92830559	Intermittent stream	Crossing/ Encapsulation/ Fill	175 ft	N	N
WTL-1	N35.80722969 W83.92868707	Wetland	Fill/runoff	0.025 acres	N	N
STR-2	N35.80706121 W83.92533599	Perennial stream	Crossing/ encapsulation/ fill	170 ft	N	N - Threatened
WWC-1	N35.80855964 W83.91403423	Wet weather conveyance	Crossing/ encapsulation/ fill	80 ft	N	N
PND-1	N35.80895413 W83.91258378	Pond	Runoff/No Direct Impact	0.0	N	N
STR-3	N35.80492083 W83.91040158	Intermittent stream	Crossing/ encapsulation/ fill	400 ft	N	N
STR-4	N35.80587239 W83.91018933	Intermittent stream	Runoff	0.0	N	N
PND-2	N35.79845301 W83.90808658	Pond	Runoff	0.0	N	N
STR-5	N35.79770508 W83.90670539	Intermittent stream	Crossing/ encapsulation/ fill	200 ft	N	N - Threatened
WWC-2	N35.79706418 W83.90560153	Wet weather conveyance	Runoff/No Direct Impact	0.0	N	N
STR-6	N35.7941347 W83.90447451	Intermittent stream	Crossing/ encapsulation/ fill	190 ft	N	N

STR = stream; WTL = wetlands; PND = pond.

Table I-3: Alternative D - Ecological Features

Map Label/ Feature Name	Lat/Long	Feature Designation	Potential Impact	Estimated Impact Quantity	ETW or ONRW (Y/N)	303d Listed (Y/N) Reason for Listing
STR-7 (Peppermint Branch)	N35.786738 W83.90187304	Perennial stream	Crossing/ encapsulation/ fill	185 ft	N	Y – Siltation
WWC-3	N35.78633755 W83.90163037	Wet weather conveyance	Crossing/ encapsulation/ fill	290 ft	N	N
SNK-1	N35.78000076 W83.89388115	Sinkhole	Fill/runoff	0.10 acres	N	N
WWC-4	N35.78049426 W83.89330938	Wet weather conveyance	Fill/runoff	130 ft	N	N
WWC-5	N35.7759043 W83.89376801	Wet weather conveyance	Runoff/No Direct Impact	0.0	N	N
STR-8	N35.77526799 W83.89408752	Intermittent stream	Crossing/ encapsulation/ fill	190 ft	N	N
WWC-6	N35.77186967 W83.8914195	Wet weather conveyance	Crossing/ encapsulation/ fill	150 ft	N	N
WWC-7	N35.7661253 W83.88932574	Wet weather conveyance	Runoff/No Direct Impact	0.0	N	N
STR-9 (Gravelly Creek)	N35.76586658 W83.88879956	Perennial stream	Crossing/ encapsulation/ fill	185 ft	N	Y – Siltation
STR-10 (Crooked Creek)	N35.76599191 W83.88874282	Perennial stream	Runoff	0.0	N	Y – Habitat
PND-3	N35.76218208 W83.88518202	Pond	Fill/runoff	0.02 acres	N	N
WWC-8	N35.76143277 W83.88376632	Wet weather conveyance	Runoff/No Direct Impact	0.0	N	N

STR = stream; WTL = wetlands; PND = pond.

Table I-3: Alternative D - Ecological Features

Map Label/ Feature Name	Lat/Long	Feature Designation	Potential Impact	Estimated Impact Quantity	ETW or ONRW (Y/N)	303d Listed (Y/N) Reason for Listing
Total Stream Impacts				1,505 linear feet		
Total Wet Weather Conveyance Impacts				650 linear feet		
Total Wetland Impacts				0.025 acre		
Total Pond Impacts				0.02 acre		

STR = stream; WTL = wetlands; PND = pond.

BLOUNT COUNTY, TN
STATE ROUTE 162 (PELLISSIPPI PARKWAY) EXTENSION
FROM SR-33 TO SR-73 (US 321)
PIN 101423.00
PE No. 05097-0229-14

BIOLOGICAL ASSESSMENT
FOR:

SNAIL DARTER (*Percina tanasi*)
MARBLED DARTER (*Etheostoma marmorpinnum*)
{formerly the Duskytail darter – *Etheostoma percnurum*}

FINE-RAYED PIGTOE (*Fusconaia cuneolus*)
INDIANA BAT (*Myotis sodalis*)
ASHY DARTER (*Etheostoma cinereum*)
LONGHEAD DARTER (*Percina macrocephala*)

U.S. FISH AND WILDLIFE SERVICE
LOG# 12-I-0454

Prepared Pursuant To
Section 7(c) of the Endangered Species Act of 1973
As Amended

Prepared By:
Keven Brown, TDOT
June 21, 2013

I. INTRODUCTION

The Tennessee Department of Transportation (TDOT) proposes to extend SR-162 (Pellissippi Parkway) from SR-33 to SR-73 (U.S. 321) in Blount County, Tennessee (Fig. 1 & 2). 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
Snail darter – *Percina tanasi*	T	LT
Duskytail darter – *Etheostoma percnurum* {Now known as the marbled darter – *Etheostoma marmorpinnum*}	E	LE
Fine-rayed pigtoe – *Fusconaia cuneolus*	E	LE
Ashy darter – *Etheostoma cinereum*	T	--
Longhead darter – *Percina macrocephala*	T	--

LT – Federally threatened LE – Federally endangered T – State threatened E – State endangered

Response from the U. S. Fish and Wildlife Service (Service) on January 12, 2000 indicated that the federally endangered Indiana bat (*Myotis sodalis*) could possibly be present in the project impact area as well. Information from the Service was updated by email on September 27, 2001 and no changes from the January 12, 2000 coordination were indicated. A biological assessment was submitted addressing the above species on November 14, 2001 with a finding of not likely to adversely affect (NLTAA). Response from the Service dated February 5, 2002 concurred with the NLTAA finding for the Indiana bat, but not the other aquatic species due to their possible presence in three of the tributaries to Little River crossed by the project. TDOT submitted additional information to the Service dated February 27, 2002 addressing their concerns. The Service responded by letter dated April 16, 2002 concurring with the NLTAA finding for the above listed aquatic species.

Since conclusion of the initial project species coordination, legal action by a local citizens group, Citizens Against Pellissippi Parkway Extension (CAPPE), necessitated that TDOT reinitiate the NEPA process. In the summer of 2012, TDOT conducted a survey of the project area to determine the possible presence of the Indiana bat, per request from the Service dated May 17, 2012. Results of this survey did not indicate that the Indiana bat was present within the project impact area. A finding of NLTAA for the Indiana bat was submitted to the Service on September 24, 2012. The USFWS concurred with the finding of NLTAA on October 11, 2012. A request for updated species information was submitted to the Service on May 22, 2013. Information from the Tennessee Department of Environment and Conservation, Division of Natural Heritage (TDEC/DNH) database was reviewed on May 22, 2013. The following federally listed species were recorded from within four miles of the project impact area:

Species	Status	
	State	Federal
Snail darter – *Percina tanasi*	T	LT
Marbled darter – *Etheostoma marmorpinnum* {formerly the duskytail darter - *Etheostoma percnurum*}	E	LE

Fine-rayed pigtoe – *Fusconaia cuneolus*	E	LE
Ashy darter – *Etheostoma cinereum*	T	--
Longhead darter – *Percina macrocephala*	T	--

LT – Federally threatened LE – Federally endangered T – State threatened E – State endangered

Response from the Service dated June 10, 2013 provided the Indiana bat (*Myotis sodalis*) for consideration. Due to the possible presence of the above species in the project impact area, informal consultation was initiated. Results of this coordination indicated that an updated biological assessment would be necessary to evaluate potential project impacts to these species.

II. 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. This will be the final segment of SR-162 connecting I-40 in Knox County, TN to SR-73 (US-321) in Blount County, TN. Construction of the proposed project is expected to take from two and a half to three years to complete, based on projects of comparable scope.

III. ACTION AREA

The proposed project is located in the northeast portion of Blount County, TN. Terrain along the project alignment is mostly rolling, but ranges from nearly level to quite hilly in some areas. Land use is varied within the project area. Agriculture uses for livestock pasture or hay production are the most common, with cultivated fields for corn, tobacco, and soybeans also present. Residential lots of varying size are prevalent throughout the project area. In addition, there are several subdivisions that either have been or are currently being developed in this portion of Blount County. Commercial development in the project area is located mostly along the main roadways and consists primarily of small businesses including gas stations, car lots, auto repair shops, antique stores, and restaurants. The Alcoa water filtration plant is located near the beginning of the project, in close proximity to Little River at approximately Little River Mile (LRM) 9.6. No caves are believed to be present in the project impact area.

Wooded sites are scattered throughout the area, ranging from only a few clustered trees to several acres in size. The wooded sites tend to be located either in upland areas too steep or rocky for cultivation or along stream drainages. The upland sites contain a variety of 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, American beech, white ash, and persimmon. Wooded sites along area streams are generally less diverse and contain boxelder, green ash, black willow, sycamore, hackberry, and black walnut. The understory in many of these wooded sites is

dominated by a heavy growth of non-native invasive species including Chinese privet, multi-flora rose, or bush honeysuckle.

Several “blue-line” streams will be crossed by the proposed project. These range in size from small, unnamed, first-order trickles to moderately sized, third-order flows. Peppermint Branch, Gravelly Creek and Flag Branch are the only three named streams that will be crossed. All of the streams that will be crossed are direct tributaries to Little River except for Gravelly Creek and Flag Branch, which flow into Crooked Creek approximately two miles upstream of its confluence with Little River. 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 hay or pasture fields. Livestock have access to a large percentage of these stream lengths which has resulted in significant impacts to both streamside vegetation and the channel substrates. Where canopy is present, it is sparse for the most part and limited to within a few feet of the top of the streambanks. Five of the drainage features depicted as “blue-lines” on the area topo maps were identified as wet weather conveyances. Most of the proposed crossings will be accomplished as close to perpendicular as possible. The proposed drainage structures that will be constructed will likely be either concrete box culverts or pipes depending on the hydraulic requirements. However, channel changes may be required on some of these streams depending on the skew at the crossing site.

At present, there are six known wetlands in the project area. These wetlands are associated mostly with the stream drainages and have been heavily impacted by livestock. They are generally small in size (< one ac.) and classified as either emergent or scrub-shrub wetland types. Vegetation present in these wetlands includes sedge, rush, cattail, black willow, ironweed, alder, elderberry, jewelweed, boneset, cardinal flower, and beggar ticks. Four of these six wetlands could possibly be impacted by project construction.

IV. SPECIES/CRITICAL HABITAT CONSIDERED

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, TN (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). The TDEC/DNH database (2013) listed records for the snail darter from the Little River at LRM 9.4, 15.9 and 17.3 in 2000. The most recent record for the snail darter in Little River was from LRM 8.5 in 2007. These records are all downstream from tributaries that will be crossed by the proposed project.

Marbled Darter – *Etheostoma marmorpinnum*
Federally Endangered
Species Description – The marbled darter (*Etheostoma marmorpinnum)* was initially included as part of the duskytail darter (*Etheostoma percnurum*) species complex which was listed as federally endangered on April 27, 1993 (USFWS 1993). However, Blanton and Jenkins (2008) described *Etheostoma marmorpinnum* as one of four distinct species from this complex. The marbled darter is presently known only from the lower portion of Little River in Blount Co., TN from SR-35 (US 411) downstream to SR-33 (Layman 1991). A single marbled darter was collected in 1947 from South Fork Holston River in Sullivan Co., TN, three years prior to completion of construction of South Holston Dam (Blanton and Jenkins 2008). This species is now believed to be extirpated from the South Fork Holston River (USFWS 1993a; Blanton and Jenkins 2008). The nine mile reach of Little River between LRM 8.5 and LRM 17.5 where *Etheostoma marmorpinnum* occurs is generally characterized by moderate gradient with riffles, runs, and long pools (Blanton and Jenkins 2008). Individuals are usually associated with pools and runs that are one to four feet in depth, have gently flowing currents, and are for the most part silt-free (Layman 1991; Etnier and Starnes 1993). There are several records from the TDEC/DNH database (2013) for the marbled darter from LRM 8.5, 9.5 and 10.0 in 2000, and LRM 17.3 in 2006. 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 (*Fusconaia cuneolus*) was listed as endangered on June 14, 1976 (USFWS 1976) and a recovery plan approved on September 19, 1984 (USFWS 1984a). 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 (2013)

indicated records for *Fusconaia cuneolus* from LRM 9.7 (2008) 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 on March 11, 1967 (32 FR 4001) under the Endangered Species Preservation Act of October 15, 1966 [80 Stat. 926; 16 U.S.C. 668aa(c)]. Critical habitat was designated on September 24, 1976 (41 FR 41914). A recovery plan for the Indiana bat was prepared in March, 1999 (USFWS 1999). 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 five (5) 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 (2013) 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). Acoustical and mist net surveys were conducted in the vicinity of the project corridor in July and August 2012, both with negative results (TDOT 2012).

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 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 (2013) indicated records for the ashy darter from LRM 13.3 (1970), 14.2 (1968), 17.3 (2006), 17.6 (1970), 19.5 (2007), and 20.2 (1988). Several of these records are 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 (2013) indicated records for *Percina macrocephala* from the Little River near LRM 8.5 (1985), 14.2 (1993), 16.0 (1974), 17.3 (2006), 19.3 (2009), 20.2 (1970), 21.6 (2008) and 22.0 (1993). Several of these records are downstream of tributaries that will be crossed by the proposed project.

V. EFFECTS ANALYSIS

Clearing, grubbing, and grading activities required for project construction will remove vegetation within most of the project limits, temporarily exposing large areas of bare soil to the elements for varying periods of time. Rain events that occur while the soil is unprotected have the potential to carrying large amounts of sediment off-site into wet-weather conveyances and streams crossed by the project and ultimately into Little River. Although not as prevalent in the project area, sustained high winds associated with storm fronts may also mobilize exposed, loose soils providing an avenue for deposit into area streams. Sediment that is allowed to leave the project has the potential to adversely affect the aquatic species preset in these streams. Excessive siltation can clog the gills of adult 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.

Several streams that are tributaries to the Little River will be crossed by the proposed project. There were no records noted for any of the aquatic species discussed in this assessment from these tributary streams. However, the project crossings are only one to two miles upstream from their respective confluences with the Little River, where all of the aquatic species discussed above are known to occur. 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 will result in direct disturbance of stream channels and substrates. 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 ft.) which will result in a loss of “day-lighted” stream channel. These encapsulated stream sections will be rendered essentially unusable for most aquatic species. These drainage structures could also act as barriers for movement of aquatic organisms both upstream and downstream. Material used to fill over the installed structures could be lost into a given drainage feature unless protective measures are taken. Although most of the potential impacts would be negative, one positive impact may be realized. On streams where no canopy in currently present, especially in open pastures or hayfields, these long structures could provide a definite cooling effect that would not otherwise be available.

While loose soil materials are of great concern, other materials such as mortar, fresh concrete, or petroleum products used as fuel and lubricants for construction equipment could enter a stream at these locations and create additional problems. These pollutants could not only degrade crucial habitats, but can also be acutely toxic to many aquatic species and their respective forage species.

Construction of the proposed project will connect I-40 to SR-73, providing four-lane access from Oak Ridge and Knoxville to Maryville. Both residential and commercial development have increased in the project area since the initial field studies were conducted in the late 1990’s. Large tracts of what was once farmland have been sold and developed into subdivisions or small shopping centers. This trend is expected to continue as people who work in Knoxville or Oak Ridge may prefer to live in a more scenic, rural-type setting. Development of large tracts of farmland into subdivisions or for businesses has the potential to adversely impact aquatic species in the immediate project impact area. Soil disturbance and exposure during site development and housing construction may provide a source of sediments that could enter areas streams directly affecting the fauna present as discussed above. Development of large farm tracts also removes what was in many cases an effective vegetative buffer for area streams. The amount of impervious surfaces would increase in the form of roofs, driveways, entrance/access roads, parking lots, and the four new traffic lanes from the project itself. This would in turn reduce the run-off time during storm events, possibly causing flashy, more intense, storm runoff into area streams. Pollutants carried from the developed areas, as well as off the roadways, could potentially impact area streams in a negative manner.

There are, however, some positive impacts that may result. Large agricultural fields that may have been significant sources for sediment run-off during storm events would be stabilized. A pollution source for large amounts of fertilizer, herbicides,

insecticides, or other chemicals harmful to aquatic systems would be greatly reduced, if not eliminated. Sections of stream channel that may have been heavily damaged and degraded by livestock or other agricultural practices would be protected and canopy to reestablish.

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 if any are present. This could lead to loss of vital individuals necessary for bolstering the population of this federally endangered species. There are a few areas that will be affected by project construction where suitable summer roost habitat is present. However, the overall quality is less than optimal. In addition, there are wooded tracts outside the project impact area that are much larger and contain better quality summer roost habitat that could be used by any bats that would possibly be displaced by project construction. 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 just over eight miles (8.25) 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. Recent surveys by TDOT (2012) did not indicate that the Indiana bat was present within the project area. This would greatly reduce, if not eliminate, the likelihood of the proposed project adversely affecting the Indiana bat.

VI. MEASURES TO MINIMIZE HARM

Installation and maintenance of effective erosion control Best Management Practices (BMP's) throughout the duration of the project will be essential to the prevention of adverse impacts to the aquatic species discussed in this assessment. The use of silt fence, hay bales, rock check-dams, detention ponds, slope drains, and erosion control blankets are just a few of the measures that can be used 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. Typical design for these BMP's is based on a two-year storm event. However, the drainage features that will be crossed by this project flow into Little River, which is listed as an Exceptional Tennessee Water (ETW) due to the presence of several state and federally listed aquatic species. Therefore, the Service has requested that the design for BMP's proposed for use on this project be based on a five-year storm event.

Construction of drainage structures will be accomplished "in the dry" so that minimal material is allowed to enter the streams and possibly adversely affect any of the aquatic species present. Streams will be temporarily routed through work areas using pipes or open channels with non-erodible liners until the respective structures are completed. Relocated channel sections will be properly stabilized and any loose materials removed to the practical extent possible prior to turning stream flows back into the constructed channels. Flows will then be returned to these channels with a minimum of sediment disturbance. Where stream crossings are required, these will be accomplished as close to perpendicular as feasible in order 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 during construction of the proposed project will be to restrict clearing of wooded areas, where possible, 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, where possible, should effectively minimize the likelihood of adversely affecting any Indiana bats that might be present in the project area.

The notes listed below addressing each of the above measures to minimize harm will be placed on the project construction plans. Also, any additional recommendations provided by the Service will be placed as notes on the project construction plans as needed.

1. Clearing and grubbing will be limited to the minimum amount necessary to accommodate roadway cut and fill slopes and operation of construction equipment. All disturbed areas will be stabilized, seeded, and mulched as soon as practicable to reduce the potential for soil erosion.

2. Canopy removal along any streams located within the project limits will be kept to the absolute minimum necessary to accommodate project construction.

3. Silt fence with backing will be installed along the toe of all fills and along all streambanks to minimize the potential of sediment from the project entering area streams. A minimum ten (10) foot vegetated buffer or “green belt” will be left between silt fences and the stream edges where possible.

4. Erosion and sediment control measures will be installed concurrent with clearing and grubbing activities, and will be functional prior to commencement of earthmoving activities. Measures may include, but are not limited to, silt fence with backing, clean shot rock checkdams, sandbags, sediment ponds, sediment filter bags, sediment wattles, slope drains, or other suitable methods.

5. Erosion control structures will be inspected regularly and maintained throughout the life of the project so that they are not rendered ineffective. Sediment will be removed from structures as necessary and must be removed when design capacity has been reduced by 50% to insure maximum effectiveness. Material removed from these structures will not be disposed of in any area streams or wetlands.

6. Maintenance needs for erosion and sediment control structures identified during inspections or by other means will be accomplished within twenty-four (24) hours, if possible. If maintenance prior to the next anticipated storm event is impractical, it will be accomplished as soon as practicable.

7. Waste and borrow areas will be developed in accordance with the procedures outlined in the TDOT Statewide Stormwater Management Program for Construction Projects. These sites will be located in non-wetland areas and are to be a sufficient distance from area streams and/or wetlands so that no soil material is allowed to enter them. These areas will be stabilized as soon as practicable. Appropriate erosion and sediment control measures will be used in these areas as needed to minimize soil loss.

8. Stockpiled topsoil or fill material will be treated in such a manner that is not allowed to enter any area streams or wetlands.

9. Equipment staging areas will be located a sufficient distance from streams and wetlands so that no oils, coolants, fuels, or other petroleum products are allowed to enter these features.

10. Drainage structures required at stream crossings will be constructed "in the dry". Stream flows will be diverted through work areas using flexible pipes or berms or channels lined with plastic, clean shot rock, or other non-erodible material. All water from dewatering areas will be pumped into filter bags or sediment ponds prior to release back into a stream.

11. No motorized equipment will be operated in any streams or wetlands in the project limits except as specified in the project water quality permits.

12. Where possible, tree cutting will be accomplished between October 15th and March 31st to minimize potential impacts to the Indiana bat.

13. A Stormwater Pollution Prevention Plan (SWPPP) will be prepared for the proposed project and will contain a detailed erosion and sediment control plan based on a five-year storm event as requested by the USFWS. A copy of the SWPPP will be available on-site.

14. Weekly stormwater inspections will be conducted for the proposed project as per National Pollutant Discharge Elimination System (NPDES) guidelines.

VII. CONCLUSION AND DETERMINATION OF EFFECTS

There are numerous records for the snail darter (*Percina tanasi*), marbled darter (*Etheostoma marmorpinnum*), fine-rayed pigtoe (*Fusconaia cuneolus*), ashy darter (*Etheostoma cinereum*), and longhead darter (*Percina macrocephala*) 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

listed darter species or the mussel species from these tributary streams. Project construction will result in some temporary stream disturbances to at the proposed crossing locations. However, installation and maintenance of effective erosion and siltation control measures throughout project construction will minimize impacts to these streams, which will in turn minimize potential impacts to Little River and the aquatic fauna present there. Provided the necessary BMP's for erosion and sediment control implemented and maintained throughout project construction, it is the opinion of TDOT that the proposed project is **NOT LIKELY TO ADVERSELY AFFECT** the snail darter (*Percina tanasi*), marbled darter (*Etheostoma marmorpinnum*), fine-rayed pigtoe (*Fusconaia cuneolus*), ashy darter (*Etheostoma cinereum*), or longhead darter (*Percina macrocephala*).

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 suitable trees present outside the project limits to accommodate any Indiana bats that might use this area. Recent surveys by TDOT (2012) did not indicate that the Indiana bat was present within the project impact area. In addition, the USFWS concurred with the finding of NLTAA for the Indiana bat for the proposed project on October 11, 2012. Therefore, based on the information provided in this BA it is still the opinion of TDOT that the proposed project is **NOT LIKELY TO ADVERSELY AFFECT** the Indiana bat.

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IX. LIST OF CONTACTS MADE AND PREPARERS

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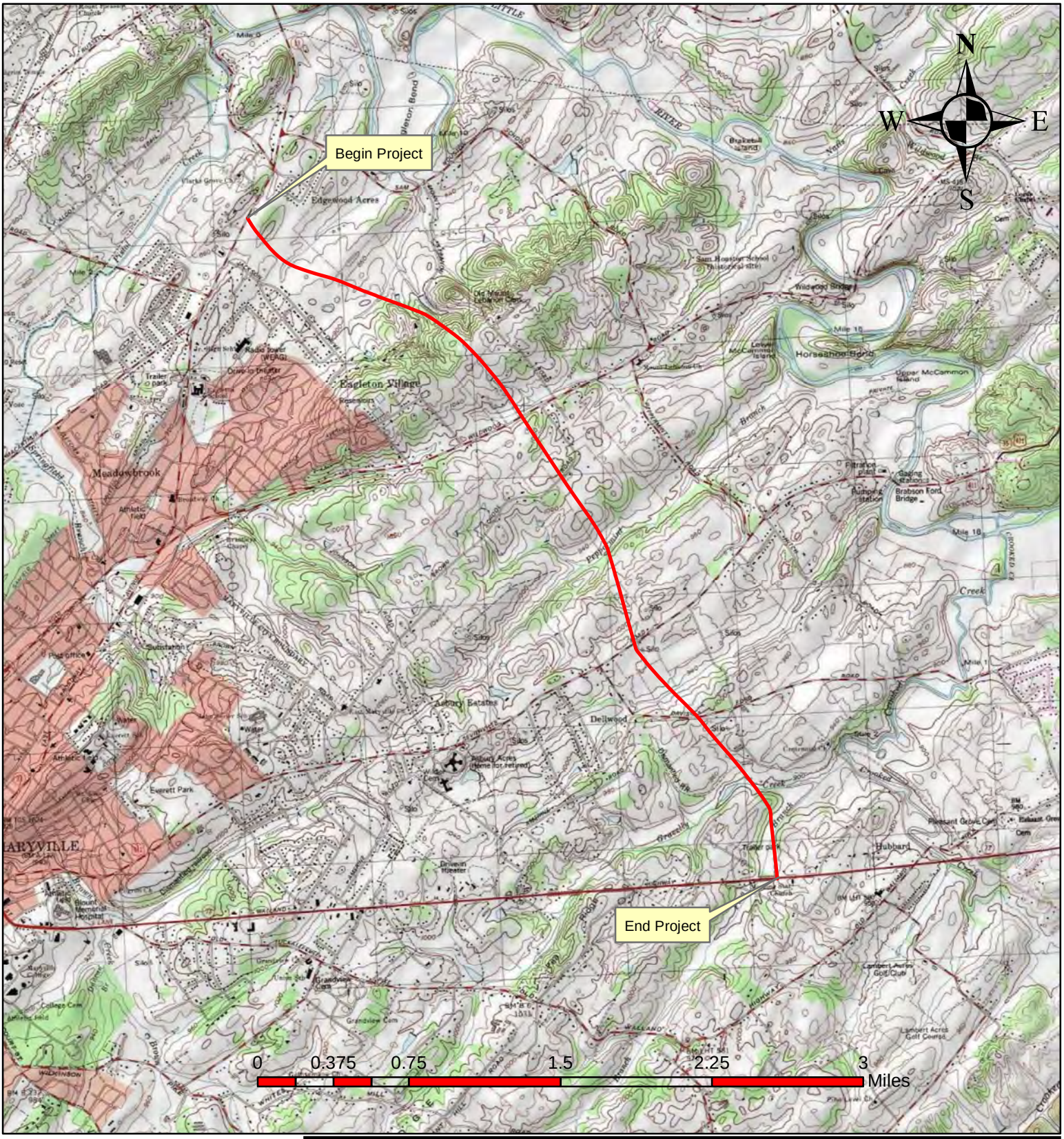
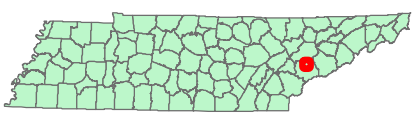




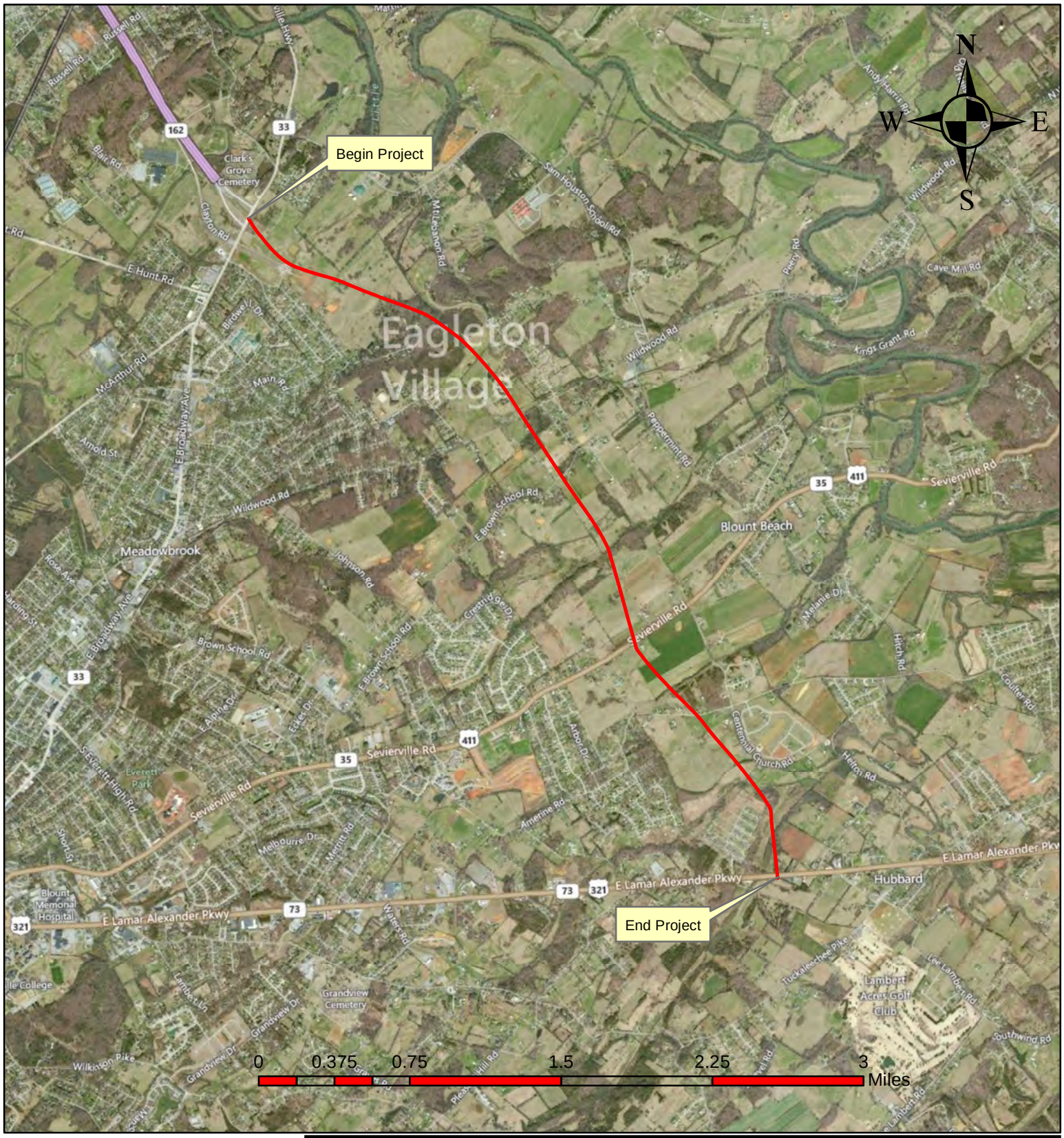
Project Location Map - topo
SR-162EXT, Pellissippi Pkwy, from SR-33 to SR-73
Blount County, TN

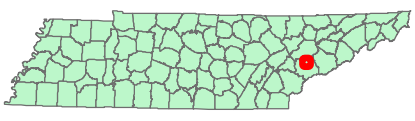
Maryville 147-SW and Wildwood 147-SE

6-4-13

PIN 101423.00 PE #05097-0229-14

TDOT





Project Location Map - aerial
SR-162EXT, Pellissippi Pkwy, from SR-33 to SR-73
Blount County, TN

Maryville 147-SW and Wildwood 147-SE

6-4-13

PIN 101423.00 PE #05097-0229-14

United States Department of the Interior

FISH AND WILDLIFE SERVICE
446 Neal Street
Cookeville, TN 38501

July 26, 2013

Ms. Leigh Ann Tribble
Federal Highway Administration
404 BNA Drive, Suite 508
Nashville, Tennessee 37217

Subject: FWS #13-I-0454. Biological Assessment Addendum for the proposed construction of the State Route 162 Extension (Pellissippi Parkway) from State Route 33 to State Route 73; P.E. 05097-0229-14, PIN #101423.00, Blount County, Tennessee.

Dear Ms. Tribble:

Thank you for your letter dated June 27, 2013, transmitting a Biological Assessment (BA) Addendum for the proposed construction of the State Route (SR) 162 Extension from SR 33 to SR 73 in Blount County, Tennessee. The Tennessee Division Office agrees with the Tennessee Department of Transportation's (TDOT) findings of "not likely to adversely affect" for the federally endangered Indiana bat (*Myotis sodalis*), marbled darter (*Etheostoma marmorpinnum*), fine-rayed pigtoe (*Fusconaia cuneolus*), and the federally threatened snail darter (*Percina tanasi*) and requests our concurrence. Personnel of the U.S. Fish and Wildlife Service have reviewed the information provided and offer the following comments.

Bat surveys were conducted along the proposed corridor in the summer of 2012 to establish whether the area is being utilized as roosting habitat by the Indiana bat. Due to negative survey results for this species, we concurred with TDOT's determination of "not likely to adversely affect" in a letter dated October 11, 2012. Unless new information otherwise indicates Indiana bat use of the area, this survey will be valid until April 1, 2015. TDOT has committed, where possible, to removal of trees with a DBH (diameter at breast height) of five inches or greater from October 15 through March 31 to further minimize potential for impacts to the Indiana bat.

Stringent best management practices (BMPs), including erosion and sediment control measures, would be implemented to protect aquatic systems. Because the proposed crossings are all tributaries to the Little River, an Exceptional Tennessee Water, TDOT has departed from the standard two-year BMP design requirement and committed to BMPs designed for a five-year storm event. Because of this commitment to stringent water quality measures, we concur with the determination of "not likely to adversely affect" for federally listed aquatic species.

The document indicates that four wetlands could be impacted by the proposed project. The Corps of Engineers and Tennessee Department of Environment and Conservation (TDEC) should be contacted regarding the presence of regulatory wetlands and the requirements of wetlands protection statutes.

In light of TDOT's commitments to improved water quality measures and negative surveys for Indiana bats within the project area, we believe that the requirements of section 7 of the Endangered Species Act of 1973, as amended, are fulfilled for all species that currently receive federal protection under the Act. Obligations under 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 you have any questions regarding our comments, please contact John Griffith of my staff at 931/525-4995 or by email at *john_griffith@fws.gov.*

Sincerely,

Brock Brigham

Acting for Mary E. Jennings
Field Supervisor

xc: Keven Brown, TDOT, Nashville, TN