

# **SR 162 (PELLISSIPPI PARKWAY EXTENSION)**

## **TRAFFIC OPERATIONS TECHNICAL REPORT**

**BLOUNT COUNTY, TENNESSEE  
P.I.N. 101423.00**

*Prepared for:*

**Tennessee Department of Transportation**



*Prepared by:*

***PB Americas, Inc.***

*October 2008*

# TABLE OF CONTENTS

---

<b>1.0</b>	<b>INTRODUCTION.....</b>	<b>1</b>
<b>2.0</b>	<b>DESCRIPTION OF ALTERNATIVES .....</b>	<b>1</b>
2.1	NO-BUILD ALTERNATIVE.....	1
2.2	BUILD ALTERNATIVE: EXTEND PELLISSIPPI PARKWAY .....	4
2.3	BUILD ALTERNATIVE: UPGRADE EXISTING TWO-LANE NETWORK .....	4
<b>3.0</b>	<b>ANALYSIS OF ALTERNATIVES .....</b>	<b>6</b>
<b>4.0</b>	<b>CORRIDOR LEVEL OF SERVICE ANALYSIS .....</b>	<b>7</b>
4.1	STUDY AREA ROADWAYS .....	7
4.2	METHODOLOGY .....	7
4.3	NO-BUILD CORRIDOR LEVEL OF SERVICE RESULTS .....	9
4.4	BUILD CORRIDOR LEVEL OF SERVICE RESULTS.....	20
4.5	SUMMARY OF CORRIDOR LEVEL OF SERVICE RESULTS.....	29
<b>5.0</b>	<b>NO-BUILD AND ALTERNATIVES A/C INTERSECTION LEVEL OF SERVICE ANALYSIS .....</b>	<b>33</b>
5.1	STUDY AREA INTERSECTIONS .....	33
5.2	METHODOLOGY .....	35
5.3	INTERSECTION LEVEL OF SERVICE RESULTS.....	35

## TABLE OF TABLES

---

Table 1: LOS Criteria for Two-Lane Highways .....	8
Table 2: LOS Criteria for Multilane Highways .....	9
Table 3: LOS Criteria for Freeways .....	9
Table 4: Existing Corridor Levels of Service .....	11
Table 5: 2015 No-Build Corridor Levels of Service .....	13
Table 6: 2035 No-Build Corridor Levels of Service .....	15
Table 7: 2015 Build Corridor (Alternatives A/C) Levels of Service .....	21
Table 8: 2015 Build Corridor (Alternative D) Level of Service .....	23
Table 9: 2035 Build Corridor (Alternatives A/C) Levels of Service .....	24
Table 10: 2035 Build Corridor (Alternative D) Level of Service .....	26
Table 11: Alternative Corridor Levels of Service Summary .....	29
Table 12: Study Area Roadway Corridor Levels of Service Summary .....	30
Table 13: Failure Year for the Pellissippi Parkway Extension between SR 33 and US 411 .....	32
Table 14: LOS Criteria for Intersections.....	35
Table 15: 2006 Existing Intersection Levels of Service .....	36
Table 16: 2015 No-Build Intersection Levels of Service .....	37
Table 17: 2035 No-Build Intersection Levels of Service .....	38
Table 18: 2015 Build (Alternatives A/C) Intersection Levels of Service .....	39
Table 19: 2015 Build (Alternatives A/C) New SR 33 at I-140 Intersection Levels of Service.....	40
Table 20: 2015 Build (Alternatives A/C) New US 411 at I-140 Intersection Levels of Service....	40
Table 21: 2035 Build (Alternatives A/C) Intersection Levels of Service .....	41
Table 22: 2035 Build (Alternatives A/C) New SR 33 at I-140 Intersection Levels of Service.....	42
Table 23: 2035 Build (Alternatives A/C) New US 411 at I-140 Intersection Levels of Service....	42
Table 24: Intersection Levels of Service Summary.....	43

## TABLE OF FIGURES

---

Figure 1: Build Alternatives to be Evaluated in the DEIS .....	2
Figure 2: Existing Levels of Service .....	17
Figure 3: 2015 No-Build Levels of Service.....	18
Figure 4: 2035 No-Build Levels of Service.....	19
Figure 5: 2015 Build Levels of Service .....	27
Figure 6: 2035 Build Levels of Service .....	28
Figure 7: Intersection Location Map.....	34

## LIST OF ACRONYMS

---

- EIS – Environmental Impact Statement
- FHWA – Federal Highway Administration
- HCM – Highway Capacity Manual
- HCS+ – Highway Capacity Software Plus
- LOS – Level of Service
- NEPA – National Environmental Policy Act
- RAH – Relocated Alcoa Highway
- TDOT – Tennessee Department of Transportation
- TRIMS – Tennessee Roadway Information Management System

## 1.0 INTRODUCTION

The Tennessee Department of Transportation (TDOT), in cooperation with the Federal Highway Administration (FHWA), is proposing to extend and construct Pellissippi Parkway (Interstate 140 or I-140) from its current terminus at State Route (SR) 33 (Old Knoxville Highway) to SR 73 (US 321 or Lamar Alexander Highway) in Blount County. TDOT and FHWA are preparing an Environmental Impact Statement (EIS) in accordance with the National Environmental Policy Act (NEPA) to identify and evaluate the environmental effects of the proposed project and to identify measures to minimize impacts. As part of the preparation of the EIS, a traffic operations technical study has been prepared and is presented in this document. The following sections describe the alternatives evaluated specifically for this analysis and the corresponding corridor and intersection traffic operations analysis.

## 2.0 DESCRIPTION OF ALTERNATIVES

Based on the results of public input during the 2007 and 2008 public meetings and comment periods, participating agency comments and concurrence, and an environmental screening analysis, TDOT has determined the alternatives that will be carried forward, refined and evaluated in the Draft EIS (DEIS). The alternatives that are being carried forward in the DEIS are the subject of this traffic operation analysis. The alternatives are:

- No-Build Alternative
- Alternative A – New Four-Lane Roadway
- Alternative C – New Four-Lane Roadway
- Alternative D – Upgraded Two-Lane Network

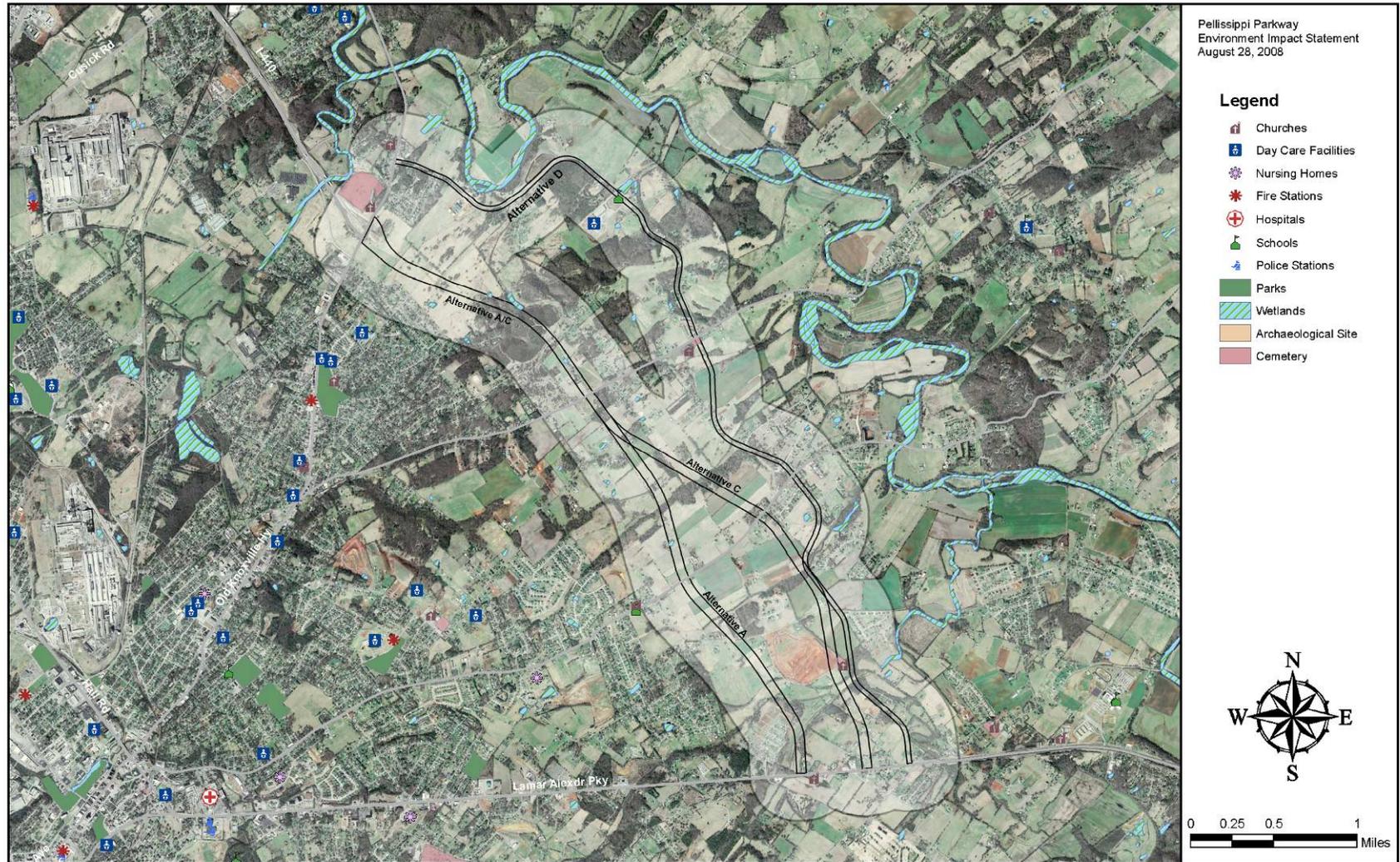
These alternatives are described in more detail below. Refer to **Figure 1** for a graphical depiction of Alternatives A, C and D.

### 2.1 No-Build Alternative

The No-Build Alternative would not extend Pellissippi Parkway beyond its existing terminus at SR 33. No improvements would be made to the I-140 / SR 33 interchange. Other projects that are included in the Knoxville Region Long Range Transportation Plan (LRTP) (2005 to 2030) may be constructed if their project-specific planning, environmental and design studies are carried forward. This includes the Relocated Alcoa Highway (LRTP #82, new 6-lane road from Hunt Road to Singleton Station Road by 2104), and the LRTP # 609 Southern Loop Connector, a new 2-lane road from US 321 to Topside Road with a horizon year of 2030.

**Figure 1: Build Alternatives to be Evaluated in the DEIS**

Alternatives to be Evaluated in the DEIS



The LRTP also includes the following projects to improve sections of SR 33 by 2030:

- LRTP #66: Widen SR 33 from 2 to 4 lanes from Wildwood Road to McArthur Road with a horizon year of 2014.
- LRTP #74: Realign and install traffic signal at intersection of SR 33 (Broadway Avenue) with Brown School Road with a horizon year of 2014.
- LRTP #612: Construct a new 4-lane road as the Business Park Access Road on SR 33 to just before Sam Houston School Road with a horizon year of 2009.
- LRTP #149: Widen SR 33 from 2 to 4 lanes from Hunt Road to the Knox County Line with a horizon year of 2020.

Other projects that were mentioned by members of the public during the earlier meetings are also included in the LRTP:

- LRTP #97: Reconstruct 2-lane section of Ellejoy Road from River Road to Jefferson Hollow Road by 2014.
- LRTP #123: Add center turn lane on US 441 (Sevierville Road) Northfield Drive to Peppermint Road by 2014.
- LRTP #123a: Reconstruct 2-lane section of US 441 (Sevierville Road) from Peppermint Road to Blount County Line by 2014.
- LRTP #152: Reconstruct 2-lane section of Peppermint Hills Drive from Wildwood Road to US 411 by 2020.
- LRTP #153: Reconstruct 2-lane section of Sam Houston School Road from SR 33 / Old Knoxville Highway to Wildwood Road by 2020

The designation "Reconstruct 2-lane section" is defined in the LRTP as the improvement of an existing 2-lane roadway to bring it up to modern standards in terms of lane widths and geometric design chiefly to enhance the safety of the roadway. It may also involve the construction of turn lanes at major intersections. There are numerous roadways in the region that were not designed to accommodate the type and amount of suburban development that is occurring, which leads to unsafe operating conditions.

The LRTP also includes improvements to Alcoa Highway (US 129 / SR 115):

- LRTP #85: Alcoa Highway (SR 115), add turn lanes and traffic signals between Singleton Station Road and Hunt Road by 2014.
- LRTP #88: Widen Alcoa Highway (SR 115) from 4 to 6 lanes from Singleton Station Road to Knox County Line by 2014.

Specific projects that are included in the three-year Transportation Improvement Plan (2008 to 2011) are the Maryville / Alcoa signal timing project to upgrade traffic signal control infrastructure and improve multi-jurisdictional communication interconnects within Blount County. The specific intersections where signal timing will be improved include those on SR 35 between US 129 and US 411.

## **2.2 Build Alternative: Extend Pellissippi Parkway**

Under the Build Alternative, the existing Pellissippi Parkway would be extended from SR 33 to US 321, as a four-lane divided roadway, with interchanges at SR 33, US 411 and US 321. The two alternate alignments under consideration for the DEIS, Alternative A and Alternative C, are described below.

### **2.2.1 Alternative A**

This alternative alignment generally follows the corridor identified and investigated in the 2002 Environmental Assessment (EA) and selected as the preferred alternative. This alternative starts on the east side of SR 33, opposite the existing half interchange of Pellissippi Parkway and SR 33. From this terminus, the route follows a generally easterly and southeasterly path to Wildwood Road, passing through former farmlands that are now the site of the proposed Pellissippi Center Research and Development Park. Alternative A also runs west of Mount Lebanon Road in this area. After crossing Wildwood Road, the alignment continues in a generally southerly direction, crossing Brown School Road, US 411 east of the Davis Ford Road intersection with US 411, and Davis Ford Road, and then passing along the northeastern edge of the Kensington Place mobile home park. The alignment intersects with US 321 just east of Flag Branch. Alternative A is approximately 4.38 miles in length.

### **2.2.2 Alternative C**

This alternative shares the route of Alternative A from SR 33 to the vicinity of Brown School Road, at which point Alternative C diverges to the east. Alternative C then runs in a southeasterly direction, crossing US 411 about 0.6 miles east of Alternative A. It continues southeasterly to cross Davis Ford Road and proceeds southerly, crossing Centennial Church Road about 500 feet west of Helton Road, crossing John Helton Road and terminating with US 321 at Hubbard School Road. The alternative is approximately 4.68 miles in length.

## **2.3 Build Alternative: Upgrade Existing Two-Lane Network**

Alternative D proposes to upgrade a two-lane network of existing roads to serve as a two-lane connection between SR 33 and US 321. This concept emerged during the course of this study based on discussions with the public about travel needs and environmental concerns. This upgraded network was seen as a way to improve some of the currently deficient two-lane roads in the study area and provide a more direct connection between SR 33 and US 321 east of Maryville without having a new freeway-type facility. A route using portions of existing Sam Houston School Road, Peppermint Road, Hitch Road, and Helton Road was identified. Under this alternative, now referred to as Alternative D, an improved two-lane roadway with adequate shoulders would be constructed using the existing roadway alignment where possible, while straightening curves and realigning intersections and using new location to provide a continuous route with a 50 mile per hour design speed. The length of this corridor is approximately 5.77 miles.

The corridor generally follows Sam Houston School Road from SR 33 to Wildwood Road. The corridor would continue across Wildwood Road on new location before joining with Peppermint Road about 2,000 feet south of the Peppermint Road / Wildwood Road intersection. This would avoid the existing offset intersections on Wildwood Road. The

corridor would use Peppermint Road for about 1,800 feet then shift to the east to intersect Hitch Road at its current intersection with Sevierville Road. The corridor would use Hitch Road for about 1,500 feet before shifting southwest to avoid substantial horizontal curves and a large residential subdivision. The corridor would follow a south / southeasterly course behind the subdivision and cross Davis Ford Road to the west of Misty View Drive and Misty View subdivision. The alignment would continue southerly crossing Centennial Church Road at Helton Road. Alternative D would generally follow a course to the west of Helton Road, crossing John Helton Road and intersect with US 321 about 250 feet west of the intersection of US 321 and Old Walland Highway (Tuckaleechee Pike).

### 3.0 ANALYSIS OF ALTERNATIVES

For the Pellissippi Parkway Extension from SR 33 to US 321, an initial assessment in level of service was conducted in 2007 assuming a generic corridor for a four-lane highway concept as was included in the Knoxville Regional Travel Demand Model. Since then, two four-lane build alternative have been identified and refined (Alternatives A and C). The Knoxville Regional Travel Demand Model was evaluated to determine if the location of these alternatives would result in significant differences in estimated volumes such that specific traffic volumes would need to be developed for each alternative. It was determined that the model is not sensitive enough to determine differences in the two four-lane build alternatives, and as such, the existing traffic volumes generated for the generic corridor are assumed for each of the four-lane build alternatives. Therefore, the levels of service for the four-lane extension of Pellissippi Parkway (both corridor and intersection) presented in this report are assumed to apply for both Alternatives A and C (labeled as Alternatives A/C).

For Alternative D (upgrade of existing 2-lane roadway network), portions of this corridor would involve new alignment, but this option would primarily follow the existing roads: Sam Houston School Road, Peppermint Road, Hitch Road and Helton Road. Levels of service must be determined for these roadways in order to compare Alternative D with the other alternatives. This includes an existing conditions analysis (2008 as no known previous traffic counts exist), as well as traffic forecasts for the future years of 2015 and 2035.

As the existing routes that form part of Alternative D are not state-maintained routes, TDOT did not have any traffic count information available, nor did the local municipalities. To obtain the needed existing traffic volumes, five (5) 48-hour tube counts were conducted by TDOT in August 2008. Counts were conducted at the following locations:

- Sam Houston School Road – near SR 33
- Sam Houston School Road – near Wildwood Road
- Peppermint Road – near the mid-point between Wildwood Road and US 411
- Hitch Road – just south of US 411
- Helton Road – south of Centennial Church Road

These counts provided the existing year (2008) LOS for a frame of reference.

For the future years of 2015 and 2035, this alternative was coded into the Knoxville Regional Travel Demand Model. The model years were 2014 and 2030. Based on the methodology for the previous traffic forecasts for the four-lane build alternative, and given the absence of historic traffic growth data, growth rate factors were derived from the model output. These factors were then applied to the model volumes to determine future year volumes of 2015 and 2035.

With the available information, only existing (2008) and future build (2015 and 2035) evaluation was completed for Alternative D. This allows for a LOS determination for Alternative D that can be compared to the other alternatives as well as a comparison of how traffic operations change from the existing traffic operations of the existing two-lane network.

## 4.0 CORRIDOR LEVEL OF SERVICE ANALYSIS

To evaluate the effects of the project on traffic in the study area, a traffic operations analysis including a level of service analysis was conducted at the corridor level for the No-Build Alternative and Build Alternatives for the years 2015 and 2035. Existing (2006 / 2008) levels of service were determined for comparison purposes. The methodology and results are presented in the following sections.

### 4.1 Study Area Roadways

The following roadways were identified as either routes along proposed interchanges with an extension of Pellissippi Parkway or as routes currently used in lieu of the proposed Pellissippi Parkway Extension.

- East Broadway / Old Knoxville Highway (SR 33)
- US 411 (SR 35)
- Lamar Alexander Parkway (SR 73 / US 321)
- Alcoa Highway (SR 115 / US 129)
- Hall Road (SR 35)
- Washington Street (SR 35)
- Wildwood Road

Each of these roadways was evaluated for all analysis years to determine the effects of the proposed project on existing and future traffic operations in the vicinity of the project.

In addition, the local roads of Sam Houston School Road, Peppermint Road, Hitch Road, and Helton Road were evaluated for the existing conditions analysis. Data was not available to complete a future No-Build analysis.

The proposed Relocated Alcoa Highway (RAH), which would extend east of the existing Alcoa Highway (SR 115 / US 129) generally between Cusick Road and south of the Blount / Knox County line, was included in the analysis. As this is a proposed project, it was only included in the 2015 and 2035 No-Build and Build analysis.

### 4.2 Methodology

Level of service (LOS) is a qualitative measure of expected traffic conflicts, delay, driver discomfort, and congestion. Levels of service are described according to a letter rating system ranging from LOS A (free flow, minimal or no delays – best conditions) to LOS F (stop and go conditions, very long delays – worst conditions). There are several ways levels of service can be calculated depending on the type of facility. Below is a description of the analysis methodologies used for this study.

#### Two-Lane Highway Analysis

The Highway Capacity Software Plus (HCS+) two-lane road analysis software module based on the 2000 Highway Capacity Manual (HCM) was used to evaluate two-lane highways (e.g., SR 33, US 411, Wildwood Road, Sam Houston School Road, Peppermint

Road, Hitch Road, and Helton Road). For this method, there are two classes of highways: **Class I** highways typically include higher speed arterials and daily commuter routes while **Class II** highways include lower speed collector roadways and roads primarily designed to provide access to individual properties. As SR 33 and US 411 are major state and nationally designated routes in this section of Tennessee, they were assumed to be Class I highways. Sam Houston School Road, Peppermint Road, Hitch Road, and Helton Road were also assumed to be Class I highways given their existing use as an informal bypass to the east of the cities of Alcoa and Maryville. Wildwood Road was classified as a Class II highway given its lower traffic volumes.

Levels of service for Class I highways are based on the estimated average travel speeds and percent time vehicles spend following other vehicles. Levels of service for Class II highways are based on the percent time vehicles spend following other vehicles only. The level of service criteria for two-lane highways is shown in **Table 1**.

**Table 1: LOS Criteria for Two-Lane Highways**

LOS	Class I Highways		Class II Highways
	Percent Time Spent Following	Average Travel Speed	Percent Time Spent Following
A	≤ 35	>55	≤ 40
B	>35 - 50	>50 - 55	>40 - 55
C	>50 - 65	>45 - 50	>55 - 70
D	>65 - 80	>40 - 45	>70 - 85
E	>80	≤40	>85
F	LOS F applies whenever the flow rate exceeds the capacity (3,200 pc/h*)		

Source: Highway Capacity Manual (2000)

\*Capacity is 3,200 passenger cars per hour (pc/h) for the two-way flow rate

Level of Service (LOS) D is the threshold for desirable traffic operations in this study. According to the *AASHTO-Geometric Design of Highways and Streets* reference manual, a LOS D threshold for freeways and arterials can be an appropriate threshold in developed areas. While the study area is not currently a heavily developed, urbanized area, substantial development pressures may be expected in the future due to the population growth occurring in Blount County. The study area is included in the designated 2030 urban growth boundary for Maryville and Alcoa. It is possible that by the year 2035 the area could be considered substantially developed. Therefore, as most of the study area fits this criterion (or will in the future) it is acceptable practice to use this as the traffic operations threshold. Operations below this threshold are noted as undesirable and warrant improvement.

### Multilane Highway Analysis

To analyze traffic operations for the four-lane or greater highway sections (US 129, SR 35, US 321, and Relocated Alcoa Highway), the HCS+ multilane analysis module was used. This is based on the 2000 Highway Capacity Manual's methodology. For each section, the estimated travel speed and the resulting levels of service were calculated.

Levels of service for multilane highway sections are based on density in terms of passenger cars per mile per lane (pc/mi/lane) as shown in **Table 2**. Density is used to define level of service because it is an indicator of freedom to maneuver within the traffic stream and the proximity to other vehicles. Speed in terms of mean passenger-car speed and volume-to-capacity (v/c) ratios are interrelated with density and can be used to characterize a multilane highway segment.

**Table 2: LOS Criteria for Multilane Highways**

LOS	Density Range (pc/mi/lane)
A	0 – 11
B	> 11 – 18
C	> 18 – 26
D	>26 – 35
E	> 35 – 45
F	> 45

Source: Highway Capacity Manual (2000)

Similar to the two-lane highway analysis, LOS D is the lowest threshold for desirable traffic operations used in this study. For multilane highways, a LOS D corresponds to a density between 26 and 35 passenger cars per mile per lane. (Refer to the Highway Capacity Manual for more specific information.)

Freeway Analysis

To analyze peak hour traffic operations for Pellissippi Parkway (I-140), the HCS+ freeway analysis package was used. This is based on the 2000 Highway Capacity Manual (HCM Chapter 23) methodology. For each section, the estimated travel speed and the resulting levels of service were calculated.

Levels of service for freeway sections are also based on density in terms of passenger cars per mile per lane (pc/mi/lane) as shown in **Table 3**.

**Table 3: LOS Criteria for Freeways**

LOS	Density Range (pc/mi/lane)
A	0 – 11
B	> 11 – 18
C	> 18 – 26
D	>26 – 35
E	> 35 – 45
F	> 45

Source: Highway Capacity Manual (2000)

Again, LOS D is the threshold for desirable traffic operations used in this study. For freeways, a LOS D corresponds to a density between 26 and 35 passenger cars per mile per lane. (Refer to the Highway Capacity Manual for more specific information.)

**4.3 No-Build Corridor Level of Service Results**

The existing analysis incorporates data from both the years 2006 and 2008. The 2006 data encompasses the entire study area with the exception of the two-lane roadways to the east (Sam Houston School Road, Peppermint Road, Hitch Road, and Helton Road).

The 2006 and forecasted traffic volumes (2015 and 2035) for the No-Build Alternative were provided as part of a Traffic Forecast Study prepared in 2007 for this project by Sain Associates, Inc. Also included in the Traffic Forecast Study were truck percentages for all analysis years. Peak hour traffic volumes for highway segments were calculated using a

K-factor<sup>1</sup> obtained from TDOT's Tennessee Roadway Information Management System (TRIMS) Blount County Traffic Database. Functional classification, median type, directional split, current lane widths, shoulder widths, percent passing, speed limit, and access points per mile were also obtained from TRIMS as well as from roadway observations. For the Relocated Alcoa Highway, several geometric assumptions were made based on initial design plans and the current operating characteristics of existing Alcoa Highway (US 129). These assumptions include an assumed K-factor of 0.100, a 55 mph speed limit, 8 percent trucks and buses, four access points per mile, three lanes per direction, and a 55/45 directional split of traffic.

As for the 2008 data, traffic volumes were taken directly from the counts made for this project. Given that these are not state-maintained roadways, numerous assumptions had to be made with regard to operational characteristics. If no pre-existing data was available, base conditions according to the HCM were assumed. That includes the following characteristics:

- 6-foot shoulders
- 12-foot lane width
- Class I Highway
- 50 percent no-passing zones
- 60/40 directional split of traffic
- 8 access points per mile
- 4 percent recreational vehicles

Based on other highway sections in the study area, the terrain type was assumed to be rolling, and the percentage of trucks was assumed to be five percent. Given the location, all sections were assumed to be rural. A K-factor of 10 percent was assumed for the calculation of design hour volumes (DHV). The speed limit was assumed to be 50 mph based on known design criteria.

For these specific roadway sections, it should be noted that only existing (2008) traffic information was available. Therefore, these roadways were not included in the 2015 and 2035 No-Build analysis. For an indication of traffic operations in the future, refer to the Build analysis, Alternative D. Traffic operations will likely be similar for both the No-Build and Alternative D analysis as the improvements included in the alternative only seek to make geometric improvements and do not necessarily significantly increase capacity along the roadways.

The calculated level of service for each highway segment is shown on the following tables, **Tables 4 through 6** and on **Figures 2 through 4**. It should be noted that sections with an associated speed less than 45 mph were not analyzed as the HCS+ software will not calculate a level of service if the free-flow speed is less than 45 mph.

---

<sup>1</sup> The K-factor is used to compute design hour volumes (DHV) and is based on the 30<sup>th</sup> highest hour of the year.

**Table 4: Existing Corridor Levels of Service**

Route	Section	Begin Milepoint	End Milepoint	Section Length (miles)	2006 ADT	K-Factor	2006 DHV	Posted Speed Limit (MPH)	% Trucks and Buses	Estimated Travel Speed (MPH)	% Time Spent Following	Density (pc/mi/ln)	LOS
Wildwood Road	1	E. Broadway/Old Knoxville Hwy (SR 33) MP 0.000	End of Study Area MP 4.740	4.74	5,040	0.110	554	45	2.0%	31.6	59.6	N/A	C
Pellissippi Parkway	1	Topside Rd MP 0.810	Alcoa Hwy (SR 115/US 129) MP 2.240	1.43	34,510	0.120	4141	60	7.0%	57.5	N/A	22.1	C
	2	Alcoa Hwy (SR 115/US 129) MP 2.240	Relocated Alcoa Highway MP 3.240	1.00	10,850	0.130	1411	60	5.0%	57.5	N/A	7.3	A
	3	Relocated Alcoa Highway MP 3.240	E. Broadway/Old Knoxville Hwy (SR 33) MP 4.710	1.47	9,950	0.130	1294	60	5.0%	57.5	N/A	6.7	A
Lamar Alexander Parkway (SR 73 / US 321)	1	Beginning of Study Area MP 8.250	Alcoa Hwy (SR 115/US 129) MP 10.570	2.32	24,810	0.110	2729	55	7.0%	54.0	N/A	16.4	B
	2	Alcoa Hwy (SR 115/US 129) MP 10.570	E. Broadway/Old Knoxville Hwy (SR 33) MP 11.650	1.08	24,200	0.100	2420	45	7.0%	45.0	N/A	18.5	C
	3	E. Broadway/Old Knoxville Hwy (SR 33) MP 11.650	Jones Ave MP 12.526	0.87	25,870	0.100	2587	40	7.0%				
	4	Jones Ave MP 12.520	Merritt Rd MP 13.980	1.46	21,380	0.100	2138	50	4.0%	50.0	N/A	16.4	B
	5	Merritt Rd MP 13.980	Tuckaleechee Pk MP 17.020	3.04	18,030	0.100	1803	50	4.0%	50.0	N/A	10.8	A
	6	Tuckaleechee Pk MP 17.020	Melrose Station Rd MP 20.020	3.00	14,220	0.100	1422	55	5.0%	53.0	N/A	9.0	A
Hall Road (SR 35)	1	Alcoa Hwy (SR 115/US 129) MP 0.000	Bessemer St MP 1.520	1.52	19,550	0.100	1955	45	2.0%	45.0	N/A	14.4	B
	2	Bessemer St MP 1.520	E. Broadway/Old Knoxville Hwy (SR 33) MP 2.590	1.07	23,660	0.100	2366	35	2.0%				
Washington Street (SR 35)	1	E. Broadway/Old Knoxville Hwy (SR 33) MP 2.590	US 411 (SR 35) MP 2.820	0.23	21,880	0.100	2188	30	3.0%				
	2	US 411 (SR 35) MP 0.000	Lamar Alexander Pkwy (SR 73/US 321) MP 0.160	0.16	21,170	0.100	2117	30	2.0%				
US 411 (SR 35)	1	Washington St (SR 35) MP 2.820	Westfield Dr MP 4.510	1.69	11,720	0.110	1289	40	3.0%				
	2	Westfield Dr MP 4.510	Near Peppermint Rd 6.510	2.00	8,300	0.100	830	45	4.0%	26.4	69.7	N/A	E
	3	Near Peppermint Rd 6.510	End of Study Area 7.930	1.42	5,400	0.100	540	45	7.0%	28.2	61.3	N/A	E

  LOS E - F  
  LOS A - D  
  Speed <45, Not Analyzed

Notes:  
 ADT = 2006 Traffic Volumes from Traffic Forecast Study prepared by Sain Associates, Inc., July 2007  
 K-Factor = Design Hour Factor obtained from the TRIMS Blount County Traffic Database  
 DHV = 2006 Design Hour Volume (Average Daily Traffic x K-Factor)  
 Speed Limit obtained from examination of TDDOT Photolog Viewer  
 % Trucks and Buses obtained from Traffic Forecast Study prepared by Sain Associates, Inc., July 2007  
 Estimated Travel Speed, % Time Spent Following, and Level of Service (LOS) calculated using Highway Capacity Software Plus

**Table 4: Existing Corridor Levels of Service (cont.)**

Route	Section	Begin Milepoint	End Milepoint	Section Length (miles)	2006 ADT	K-Factor	2006 DHV	Posted Speed Limit (MPH)	% Trucks and Buses	Estimated Travel Speed (MPH)	% Time Spent Following	Density (pc/mi/ln)	LOS
E. Broadway / Old Knoxville Highway (SR 33)	1	Beginning of Study Area MP 7.854	Montgomery Lane MP 10.201	2.35	29,690	0.100	2969	50	9.0%	50.0	N/A	24.3	C
	2	Montgomery Lane MP 10.201	Hall Rd MP 12.340	2.14	17,280	0.100	1728	30	9.0%				
	3	Hall Rd MP 12.340	Wildwood Rd MP 14.206	1.87	12,290	0.100	1229	30	2.0%				
	4	Wildwood Rd MP 14.206	Hunt Rd MP 15.470	1.26	11,440	0.100	1144	40	2.0%				
	5	Hunt Rd MP 15.470	Williams Mill Rd MP 17.420	1.95	16,550	0.110	1821	40	2.0%				
	6	Williams Mill Rd MP 17.420	County Line MP 20.640	3.22	13,320	0.120	1598	50	2.0%	29.6	84.7	N/A	E
Alcoa Highway (SR 115 / US 129)	1	Broadway Ave MP 10.450	Lamar Alexander Pkwy (SR 73/US 321) MP 11.340	0.89	25,850	0.100	2585	50	10.0%	49.0	N/A	20.9	C
	2	Lamar Alexander Pkwy (SR 73/US 321) MP 11.340	Hall Rd (SR 35) MP 14.280	2.94	38,950	0.100	3895	55	10.0%	54.3	N/A	25.7	C
	3	Hall Rd (SR 35) MP 14.280	Hunt Rd MP 15.020	0.74	57,960	0.070	4057	55	8.0%	51.8	N/A	36.5	E
	4	Hunt Rd MP 15.020	Pellissippi Pky MP 17.660	2.64	54,610	0.100	5461	50	8.0%	43.4	N/A	42.2	E
	5	Pellissippi Pky MP 17.660	County Line MP 20.400	2.74	42,510	0.110	4676	55	8.0%	51.1	N/A	30.7	D
Sam Houston School Road	1	SR 33	North of Wildwood Rd	1.20	9,750*	0.100	975	50	5.0%	37.7	72.8	N/A	E
	2	North of Wildwood Rd	Wildwood Rd	1.20	8,560*	0.100	856	50	5.0%	38.0	69.3	N/A	E
Peppermint Road	1	Wildwood Rd	Sevierville Rd	1.20	6,080*	0.100	608	50	5.0%	39.8	61.0	N/A	E
Hitch Road	1	Sevierville Rd	North of Lamar Alexander Pkwy	1.20	2,500*	0.100	250	50	5.0%	41.7	46.7	N/A	D
Helton Road	1	North of Lamar Alexander Pkwy	Lamar Alexander Pkwy	1.20	650*	0.100	65	50	5.0%	46.1	28.8	N/A	C

  LOS E - F  
  LOS A - D  
  Speed <45, Not Analyzed

Notes:  
 ADT = 2006 Traffic Volumes from Traffic Forecast Study prepared by Sain Associates, Inc., July 2007; Volumes with \* indicate they are 2008 volumes obtained through recent tube counts  
 K-Factor = Design Hour Factor obtained from the TRIMS Blount County Traffic Database  
 DHV = 2006 Design Hour Volume (Average Daily Traffic x K-Factor)  
 Speed Limit obtained from examination of TDOT Photolog Viewer  
 % Trucks and Buses obtained from Traffic Forecast Study prepared by Sain Associates, Inc., July 2007  
 Estimated Travel Speed, % Time Spent Following, and Level of Service (LOS) calculated using Highway Capacity Software Plus

**Table 5: 2015 No-Build Corridor Levels of Service**

Route	Section	Begin Milepoint	End Milepoint	Section Length (miles)	2015 ADT	K-Factor	2015 DHV	Posted Speed Limit (MPH)	% Trucks and Buses	Estimated Travel Speed (MPH)	% Time Spent Following	Density (pc/mi/ln)	LOS
Wildwood Road	1	E. Broadway/Old Knoxville Hwy (SR 33) MP 0.000	End of Study Area MP 4.740	4.74	5,580	0.110	614	45	2.0%	31.2	61.1	N/A	C
Pellissippi Parkway	1	Topside Rd MP 0.810	Alcoa Hwy (SR 115/US 129) MP 2.240	1.43	43,560	0.120	5227	60	7.0%	57.5	N/A	27.9	D
	2	Alcoa Hwy (SR 115/US 129) MP 2.240	Relocated Alcoa Highway MP 3.240	1.00	25,880	0.130	3364	60	5.0%	57.5	N/A	17.5	B
	3	Relocated Alcoa Highway MP 3.240	E. Broadway/Old Knoxville Hwy (SR 33) MP 4.710	1.47	34,420	0.130	4475	60	5.0%	57.5	N/A	23.2	C
Lamar Alexander Parkway (SR 73 / US 321)	1	Beginning of Study Area MP 8.250	Alcoa Hwy (SR 115/US 129) MP 10.570	2.32	30,500	0.110	3355	55	7.0%	54.0	N/A	20.2	C
	2	Alcoa Hwy (SR 115/US 129) MP 10.570	E. Broadway/Old Knoxville Hwy (SR 33) MP 11.650	1.08	29,090	0.100	2909	45	7.0%	45.0	N/A	22.2	C
	3	E. Broadway/Old Knoxville Hwy (SR 33) MP 11.650	Jones Ave MP 12.526	0.87	37,720	0.100	3772	40	7.0%				
	4	Jones Ave MP 12.520	Merritt Rd MP 13.980	1.46	27,240	0.100	2724	50	4.0%	50.0	N/A	20.8	C
	5	Merritt Rd MP 13.980	Tuckaleechee Pk MP 17.020	3.04	24,080	0.100	2408	50	4.0%	50.0	N/A	14.5	B
	6	Tuckaleechee Pk MP 17.020	Melrose Station Rd MP 20.020	3.00	18,720	0.100	1872	55	5.0%	53.0	N/A	11.8	B
Hall Road (SR 35)	1	Alcoa Hwy (SR 115/US 129) MP 0.000	Bessemer St MP 1.520	1.52	23,220	0.100	2322	45	2.0%	45.0	N/A	17.1	B
	2	Bessemer St MP 1.520	E. Broadway/Old Knoxville Hwy (SR 33) MP 2.590	1.07	27,460	0.100	2746	35	2.0%				
Washington Street (SR 35)	1	E. Broadway/Old Knoxville Hwy (SR 33) MP 2.590	US 411 (SR 35) MP 2.820	0.23	24,450	0.100	2445	30	3.0%				
	2	US 411 (SR 35) MP 0.000	Lamar Alexander Pkwy (SR 73/US 321) MP 0.160	0.16	24,620	0.100	2462	30	2.0%				
US 411 (SR 35)	1	Washington St (SR 35) MP 2.820	Westfield Dr MP 4.510	1.69	13,910	0.110	1530	40	3.0%				
	2	Westfield Dr MP 4.510	Near Peppermint Rd 6.510	2.00	10,660	0.100	1066	45	4.0%	25.3	74.1	N/A	E
	3	Near Peppermint Rd 6.510	End of Study Area 7.930	1.42	6,950	0.100	695	45	7.0%	27.2	65.3	N/A	E

  LOS E - F  
  LOS A - D  
  Speed <45, Not Analyzed

Notes:  
 ADT = 2015 Traffic Volumes from Traffic Forecast Study prepared by Sain Associates, Inc., July 2007 (Revised September 2007)  
 K-Factor = Design Hour Factor obtained from the TRIMS Blount County Traffic Database  
 DHV = 2015 Design Hour Volume (Average Daily Traffic x K-Factor)  
 Speed Limit obtained from examination of TDDOT Photolog Viewer  
 % Trucks and Buses obtained from Traffic Forecast Study prepared by Sain Associates, Inc., July 2007 (Revised September 2007)  
 Estimated Travel Speed, % Time Spent Following, and Level of Service (LOS) calculated using Highway Capacity Software Plus

**Table 5: 2015 No-Build Corridor Levels of Service (cont.)**

Route	Section	Begin Milepoint	End Milepoint	Section Length (miles)	2015 ADT	K-Factor	2015 DHV	Posted Speed Limit (MPH)	% Trucks and Buses	Estimated Travel Speed (MPH)	% Time Spent Following	Density (pc/mi/ln)	LOS
E. Broadway / Old Knoxville Highway (SR 33)	1	Beginning of Study Area MP 7.854	Montgomery Lane MP 10.201	2.35	38,910	0.100	3891	50	9.0%	49.2	N/A	32.4	D
	2	Montgomery Lane MP 10.201	Hall Rd MP 12.340	2.14	19,720	0.100	1972	30	9.0%				
	3	Hall Rd MP 12.340	Wildwood Rd MP 14.206	1.87	13,170	0.100	1317	30	2.0%				
	4	Wildwood Rd MP 14.206	Hunt Rd MP 15.470	1.26	13,330	0.100	1333	40	2.0%				
	5	Hunt Rd MP 15.470	Williams Mill Rd MP 17.420	1.95	34,350	0.110	3779	40	2.0%				
	6	Williams Mill Rd MP 17.420	County Line MP 20.640	3.22	19,350	0.120	2322	50	2.0%	23.5	92.9	N/A	F
Alcoa Highway (SR 115 / US 129)	1	Broadway Ave MP 10.450	Lamar Alexander Pkwy (SR 73/US 321) MP 11.340	0.89	32,550	0.100	3255	50	10.0%	49.0	N/A	26.3	D
	2	Lamar Alexander Pkwy (SR 73/US 321) MP 11.340	Hall Rd (SR 35) MP 14.280	2.94	47,740	0.100	4774	55	10.0%	52.9	N/A	32.2	D
	3	Hall Rd (SR 35) MP 14.280	Hunt Rd MP 15.020	0.74	56,100	0.070	3927	55	8.0%	52.2	N/A	35.1	E
	4	Hunt Rd MP 15.020	Pellissippi Pky MP 17.660	2.64	31,570	0.100	3157	50	8.0%	45.8	N/A	23.2	C
	5	Pellissippi Pky MP 17.660	County Line MP 20.400	2.74	22,670	0.110	2494	55	8.0%	51.8	N/A	16.2	B
Relocated Alcoa Highway	1	Alcoa Highway (SR 115 / US 129)	Pellissippi Pky	Not Determined	37,100	0.100	3710	55	8.0%	52.4	N/A	16.1	B
	2	Pellissippi Pky	Alcoa Highway (SR 115 / US 129)	Not Determined	50,900	0.100	5090	55	8.0%	52.4	N/A	22.2	C

  LOS E - F  
  LOS A - D  
  Speed <45, Not Analyzed

Notes:  
 ADT = 2015 Traffic Volumes from Traffic Forecast Study prepared by Sain Associates, Inc., July 2007 (Revised September 2007)  
 K-Factor = Design Hour Factor obtained from the TRIMS Blount County Traffic Database  
 DHV = 2015 Design Hour Volume (Average Daily Traffic x K-Factor)  
 Speed Limit obtained from examination of TDDOT Photolog Viewer  
 % Trucks and Buses obtained from Traffic Forecast Study prepared by Sain Associates, Inc., July 2007 (Revised September 2007)  
 Estimated Travel Speed, % Time Spent Following, and Level of Service (LOS) calculated using Highway Capacity Software Plus

**Table 6: 2035 No-Build Corridor Levels of Service**

Route	Section	Begin Milepoint	End Milepoint	Section Length (miles)	2035 ADT	K-Factor	2035 DHV	Posted Speed Limit (MPH)	% Trucks and Buses	Estimated Travel Speed (MPH)	% Time Spent Following	Density (pc/mi/ln)	LOS
Wildwood Road	1	E. Broadway/Old Knoxville Hwy (SR 33) MP 0.000	End of Study Area MP 4.740	4.74	6,250	0.110	688	45	2.0%	30.7	63.0	N/A	C
Pellissippi Parkway	1	Topside Rd MP 0.810	Alcoa Hwy (SR 115/US 129) MP 2.240	1.43	62,310	0.120	7477	60	7.0%	57.5	N/A	Too High To Calculate	F
	2	Alcoa Hwy (SR 115/US 129) MP 2.240	Relocated Alcoa Highway MP 3.240	1.00	39,240	0.130	5101	60	5.0%	57.5	N/A	26.5	D
	3	Relocated Alcoa Highway MP 3.240	E. Broadway/Old Knoxville Hwy (SR 33) MP 4.710	1.47	60,080	0.130	7810	60	5.0%	57.5	N/A	Too High To Calculate	F
Lamar Alexander Parkway (SR 73 / US 321)	1	Beginning of Study Area MP 8.250	Alcoa Hwy (SR 115/US 129) MP 10.570	2.32	45,270	0.110	4980	55	7.0%	53.2	N/A	30.5	D
	2	Alcoa Hwy (SR 115/US 129) MP 10.570	E. Broadway/Old Knoxville Hwy (SR 33) MP 11.650	1.08	37,430	0.100	3743	45	7.0%	45.0	N/A	28.6	D
	3	E. Broadway/Old Knoxville Hwy (SR 33) MP 11.650	Jones Ave MP 12.526	0.87	48,380	0.100	4838	40	7.0%				
	4	Jones Ave MP 12.520	Merritt Rd MP 13.980	1.46	38,610	0.100	3861	50	4.0%	49.8	N/A	29.7	D
	5	Merritt Rd MP 13.980	Tuckaleechee Pk MP 17.020	3.04	41,200	0.100	4120	50	4.0%	50.0	N/A	24.7	C
	6	Tuckaleechee Pk MP 17.020	Melrose Station Rd MP 20.020	3.00	32,620	0.100	3262	55	5.0%	53.0	N/A	20.6	C
Hall Road (SR 35)	1	Alcoa Hwy (SR 115/US 129) MP 0.000	Bessemer St MP 1.520	1.52	23,220	0.100	2322	45	2.0%	45.0	N/A	17.1	B
	2	Bessemer St MP 1.520	E. Broadway/Old Knoxville Hwy (SR 33) MP 2.590	1.07	27,460	0.100	2746	35	2.0%				
Washington Street (SR 35)	1	E. Broadway/Old Knoxville Hwy (SR 33) MP 2.590	US 411 (SR 35) MP 2.820	0.23	25,990	0.100	2599	30	3.0%				
	2	US 411 (SR 35) MP 0.000	Lamar Alexander Pkwy (SR 73/US 321) MP 0.160	0.16	37,890	0.100	3789	30	2.0%				
US 411 (SR 35)	1	Washington St (SR 35) MP 2.820	Westfield Dr MP 4.510	1.69	16,910	0.110	1860	40	3.0%				
	2	Westfield Dr MP 4.510	Near Peppermint Rd 6.510	2.00	14,240	0.100	1424	45	4.0%	22.6	81.2	N/A	E
	3	Near Peppermint Rd 6.510	End of Study Area 7.930	1.42	9,670	0.100	967	45	7.0%	25.8	74.0	N/A	E

  LOS E - F  
  LOS A - D  
  Speed <45, Not Analyzed

Notes:  
 ADT = 2035 Traffic Volumes from Traffic Forecast Study prepared by Sain Associates, Inc., July 2007 (Revised September 2007)  
 K-Factor = Design Hour Factor obtained from the TRIMS Blount County Traffic Database  
 DHV = 2035 Design Hour Volume (Average Daily Traffic x K-Factor)  
 Speed Limit obtained from examination of TDDOT Photolog Viewer  
 % Trucks and Buses obtained from Traffic Forecast Study prepared by Sain Associates, Inc., July 2007 (Revised September 2007)  
 Estimated Travel Speed, % Time Spent Following, and Level of Service (LOS) calculated using Highway Capacity Software Plus

**Table 6: 2035 No-Build Corridor Levels of Service (cont.)**

Route	Section	Begin Milepoint	End Milepoint	Section Length (miles)	2035 ADT	K-Factor	2035 DHV	Posted Speed Limit (MPH)	% Trucks and Buses	Estimated Travel Speed (MPH)	% Time Spent Following	Density (pc/mi/ln)	LOS
E. Broadway / Old Knoxville Highway (SR 33)	1	Beginning of Study Area MP 7.854	Montgomery Lane MP 10.201	2.35	46,990	0.100	4699	50	9.0%	47.1	N/A	40.9	E
	2	Montgomery Lane MP 10.201	Hall Rd MP 12.340	2.14	30,940	0.100	3094	30	9.0%				
	3	Hall Rd MP 12.340	Wildwood Rd MP 14.206	1.87	25,060	0.100	2506	30	2.0%				
	4	Wildwood Rd MP 14.206	Hunt Rd MP 15.470	1.26	24,310	0.100	2431	40	2.0%				
	5	Hunt Rd MP 15.470	Williams Mill Rd MP 17.420	1.95	65,850	0.110	7244	40	2.0%				
	6	Williams Mill Rd MP 17.420	County Line MP 20.640	3.22	31,770	0.120	3812	50	2.0%	<45	100.0	N/A	F
Alcoa Highway (SR 115 / US 129)	1	Broadway Ave MP 10.450	Lamar Alexander Pkwy (SR 73/US 321) MP 11.340	0.89	37,280	0.100	3728	50	10.0%	48.8	N/A	30.3	D
	2	Lamar Alexander Pkwy (SR 73/US 321) MP 11.340	Hall Rd (SR 35) MP 14.280	2.94	47,740	0.100	4774	55	10.0%	52.9	N/A	32.2	D
	3	Hall Rd (SR 35) MP 14.280	Hunt Rd MP 15.020	0.74	61,120	0.070	4278	55	8.0%	51.1	N/A	39.0	E
	4	Hunt Rd MP 15.020	Pellissippi Pky MP 17.660	2.64	40,280	0.100	4028	50	8.0%	45.8	N/A	29.6	D
	5	Pellissippi Pky MP 17.660	County Line MP 20.400	2.74	26,060	0.110	2867	55	8.0%	51.8	N/A	18.6	C
Relocated Alcoa Highway	1	Alcoa Highway (SR 115 / US 129)	Pellissippi Pky	Not Determined	38,430	0.100	3843	55	8.0%	52.4	N/A	16.7	B
	2	Pellissippi Pky	Alcoa Highway (SR 115 / US 129)	Not Determined	62,590	0.100	6259	55	8.0%	52.3	N/A	27.3	D

  LOS E - F  
  LOS A - D  
  Speed <45, Not Analyzed

Notes:  
 ADT = 2035 Traffic Volumes from Traffic Forecast Study prepared by Sain Associates, Inc., July 2007 (Revised September 2007)  
 K-Factor = Design Hour Factor obtained from the TRIMS Blount County Traffic Database  
 DHV = 2035 Design Hour Volume (Average Daily Traffic x K-Factor)  
 Speed Limit obtained from examination of TDDOT Photolog Viewer  
 % Trucks and Buses obtained from Traffic Forecast Study prepared by Sain Associates, Inc., July 2007 (Revised September 2007)  
 Estimated Travel Speed, % Time Spent Following, and Level of Service (LOS) calculated using Highway Capacity Software Plus

Figure 2: Existing Levels of Service

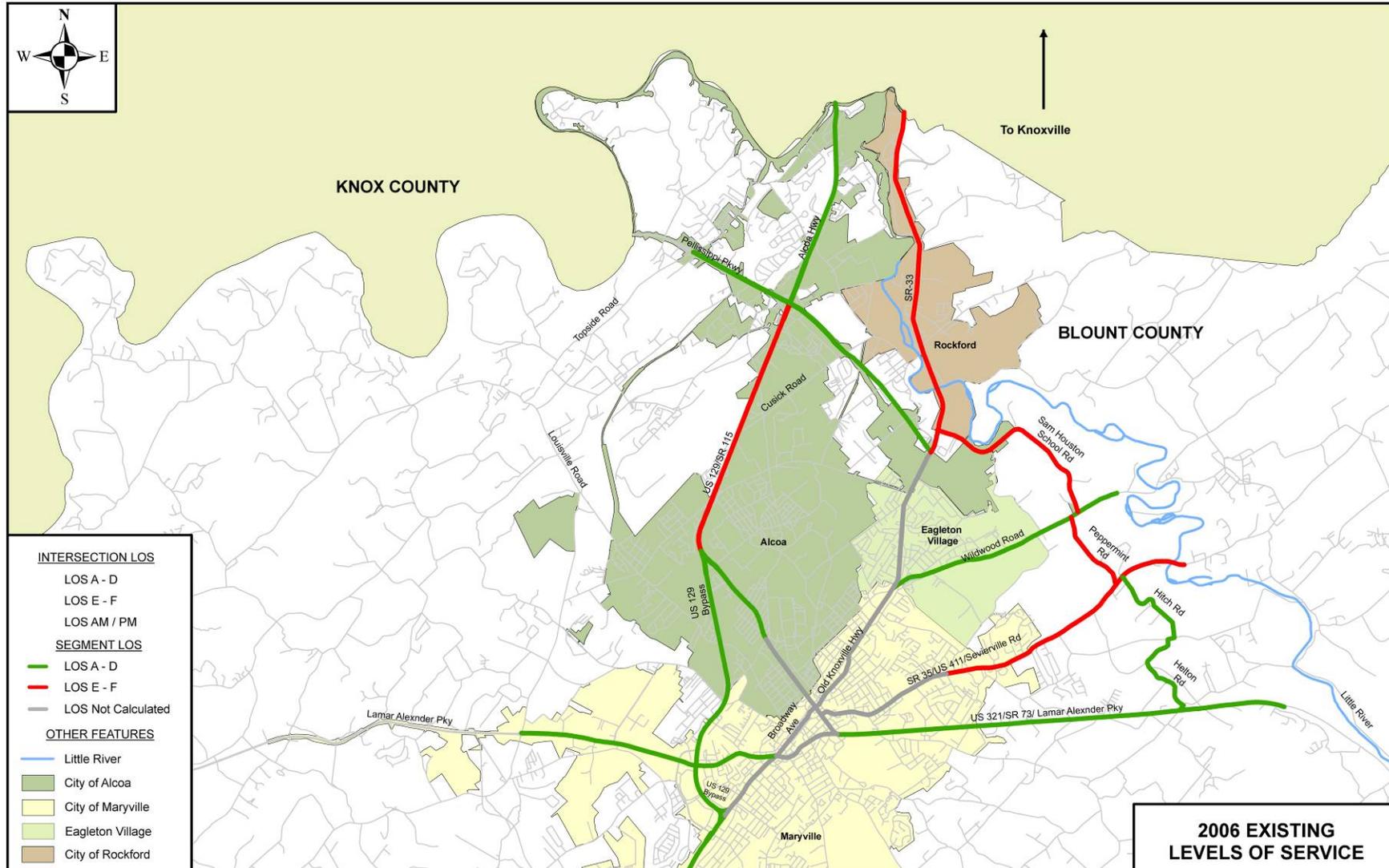
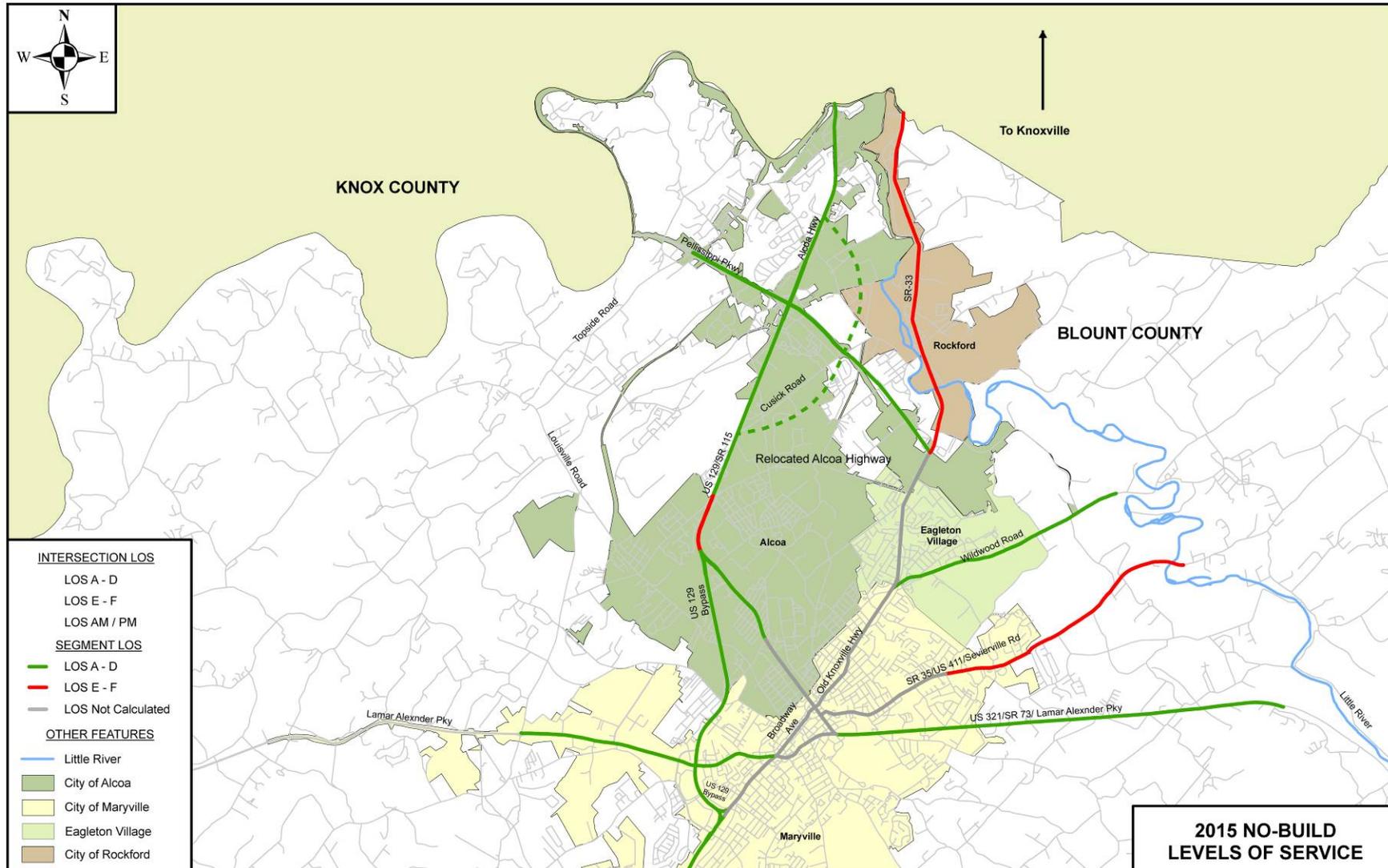
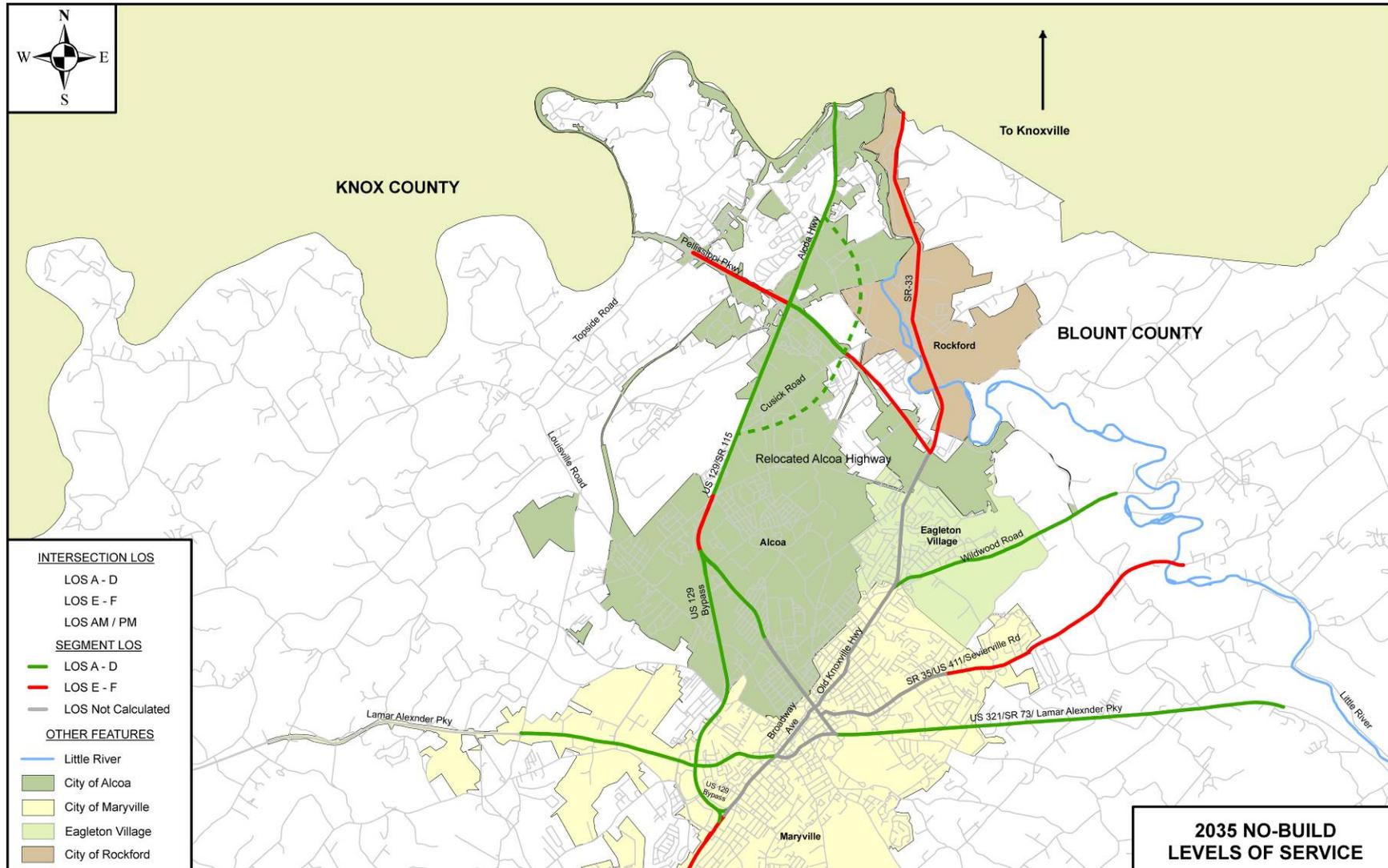


Figure 3: 2015 No-Build Levels of Service



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

Figure 4: 2035 No-Build Levels of Service



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

#### 4.4 Build Corridor Level of Service Results

As mentioned previously in the Analysis of Alternatives section, according to the Knoxville Regional Travel Demand Model, there is little differentiation between Alternatives A and C. Therefore, the same traffic volumes and operations were assumed for both alternatives at this level of analysis. The forecasted Build (Alternatives A and C) traffic volumes (2015 and 2035) included as part of the 2007 Traffic Forecast Study prepared for this project by Sain Associates, Inc. were used. Similar geometrics and factors used for the No-Build analysis were also used in this analysis. The same information for Alternative D was also used, along with traffic volumes based on the Knoxville model output.

The following tables and figures, **Tables 7 – 10** and **Figures 5 – 6** show the resulting levels of service for each build alternative (Alternatives A / C and Alternative D). The impact on the surrounding roadway network is shown only for Alternatives A / C as the traffic forecast and assumptions were only completed for the extension of the parkway. For an indication of traffic operations on the other study area roadways relative to Alternative D, refer to the No-Build 2015 and 2035 analysis. It is expected that traffic operations would be similar as the two-lane alternative (Alternative D) does not significantly increase capacity and as a result would not attract as much traffic as the extension of the parkway.

**Table 7: 2015 Build Corridor (Alternatives A/C) Levels of Service**

Route	Section	Begin Milepoint	End Milepoint	Section Length (miles)	2015 ADT	K-Factor	2015 DHV	Posted Speed Limit (MPH)	% Trucks and Buses	Estimated Travel Speed (MPH)	% Time Spent Following	Density (pc/mi/ln)	LOS
Wildwood Road	1	E. Broadway/Old Knoxville Hwy (SR 33) MP 0.000	End of Study Area MP 4.740	4.74	4,940	0.110	543	45	2.0%	31.6	59.3	N/A	C
Pellissippi Parkway	1	Topside Rd MP 0.810	Alcoa Hwy (SR 115/US 129) MP 2.240	1.43	46,740	0.120	5609	60	7.0%	57.5	N/A	30.0	D
	2	Alcoa Hwy (SR 115/US 129) MP 2.240	Relocated Alcoa Highway MP 3.240	1.00	26,440	0.130	3437	60	5.0%	57.5	N/A	17.8	B
	3	Relocated Alcoa Highway MP 3.240	E. Broadway/Old Knoxville Hwy (SR 33) MP 4.710	1.47	46,930	0.130	6101	60	5.0%	57.3	N/A	31.8	D
	4	E. Broadway/Old Knoxville Hwy (SR 33)	US 411 (SR 35)	Not Determined	36,230	0.130	4710	60	2.0%	57.5	N/A	23.4	C
	5	US 411 (SR 35)	Lamar Alexander Pkwy (SR 73/US 321)	Not Determined	26,780	0.130	3481	60	2.0%	57.5	N/A	17.3	B
Lamar Alexander Parkway (SR 73 / US 321)	1	Beginning of Study Area MP 8.250	Alcoa Hwy (SR 115/US 129) MP 10.570	2.32	30,000	0.110	3300	55	7.0%	54.0	N/A	19.9	C
	2	Alcoa Hwy (SR 115/US 129) MP 10.570	E. Broadway/Old Knoxville Hwy (SR 33) MP 11.650	1.08	27,910	0.100	2791	45	6.0%	45.0	N/A	21.0	C
	3	E. Broadway/Old Knoxville Hwy (SR 33) MP 11.650	Jones Ave MP 12.526	0.87	37,160	0.100	3716	40	6.0%				
	4	Jones Ave MP 12.520	Merritt Rd MP 13.980	1.46	22,290	0.100	2229	50	3.0%	50.0	N/A	16.8	B
	5	Merritt Rd MP 13.980	Tuckaleechee Pk MP 17.020	3.04	24,950	0.100	2495	50	3.0%	50.0	N/A	14.8	B
	6	Tuckaleechee Pk MP 17.020	MP 19.020	2.00	32,030	0.100	3203	55	4.0%	53.0	N/A	19.9	C
	7	MP 19.020	Melrose Station Rd MP 20.020	1.00	21,060	0.100	2106	55	5.0%	53.0	N/A	13.3	B
Hall Road (SR 35)	1	Alcoa Hwy (SR 115/US 129) MP 0.000	Bessemer St MP 1.520	1.52	18,870	0.100	1887	45	2.0%	45.0	N/A	13.9	B
	2	Bessemer St MP 1.520	E. Broadway/Old Knoxville Hwy (SR 33) MP 2.590	1.07	20,410	0.100	2041	35	2.0%				
Washington Street (SR 35)	1	E. Broadway/Old Knoxville Hwy (SR 33) MP 2.590	US 411 (SR 35) MP 2.820	0.23	18,650	0.100	1865	30	3.0%				
	2	US 411 (SR 35) MP 0.000	Lamar Alexander Pkwy (SR 73/US 321) MP 0.160	0.16	27,460	0.100	2746	30	2.0%				

LOS E - F  
 LOS A - D  
 Speed <45, Not Analyzed

Notes:  
 ADT = 2015 Traffic Volumes from Traffic Forecast Study prepared by Sain Associates, Inc., July 2007 (Revised September 2007)  
 K-Factor = Design Hour Factor obtained from the TRIMS Blount County Traffic Database  
 DHV = 2015 Design Hour Volume (Average Daily Traffic x K-Factor)  
 Speed Limit obtained from examination of TDOT Photolog Viewer  
 % Trucks and Buses obtained from Traffic Forecast Study prepared by Sain Associates, Inc., July 2007 (Revised September 2007)  
 Estimated Travel Speed, % Time Spent Following, and Level of Service (LOS) calculated using Highway Capacity Software Plus

**Table 7: 2015 Build Corridor (Alternatives A/C) Levels of Service (cont.)**

Route	Section	Begin Milepoint	End Milepoint	Section Length (miles)	2015 ADT	K-Factor	2015 DHV	Posted Speed Limit (MPH)	% Trucks and Buses	Estimated Travel Speed (MPH)	% Time Spent Following	Density (pc/mi/ln)	LOS
US 411 (SR 35)	1	Washington St (SR 35) MP 2.820	Westfield Dr MP 4.510	1.69	13,490	0.110	1484	40	3.0%				
	2	Westfield Dr MP 4.510	Near Peppermint Rd 6.510	2.00	12,990	0.100	1299	45	3.0%	23.7	78.9	N/A	E
	3	Near Peppermint Rd 6.510	End of Study Area 7.930	1.42	8,520	0.100	852	45	7.0%	26.1	70.8	N/A	E
E. Broadway / Old Knoxville Highway (SR 33)	1	Beginning of Study Area MP 7.854	Montgomery Lane MP 10.201	2.35	38,510	0.100	3851	50	9.0%	49.3	N/A	32.0	D
	2	Montgomery Lane MP 10.201	Hall Rd MP 12.340	2.14	19,900	0.100	1990	30	9.0%				
	3	Hall Rd MP 12.340	Wildwood Rd MP 14.206	1.87	11,300	0.100	1130	30	3.0%				
	4	Wildwood Rd MP 14.206	Hunt Rd MP 15.470	1.26	11,210	0.100	1121	40	3.0%				
	5	Hunt Rd MP 15.470	Williams Mill Rd MP 17.420	1.95	38,200	0.110	4202	40	4.0%				
	6	Williams Mill Rd MP 17.420	County Line MP 20.640	3.22	15,360	0.120	1843	50	2.0%	27.6	87.6	N/A	E
Alcoa Highway (SR 115 / US 129)	1	Broadway Ave MP 10.450	Lamar Alexander Pkwy (SR 73/US 321) MP 11.340	0.89	31,840	0.100	3184	50	10.0%	49.0	N/A	25.7	C
	2	Lamar Alexander Pkwy (SR 73/US 321) MP 11.340	Hall Rd (SR 35) MP 14.280	2.94	46,180	0.100	4618	55	8.0%	53.5	N/A	30.1	D
	3	Hall Rd (SR 35) MP 14.280	Hunt Rd MP 15.020	0.74	52,920	0.070	3704	55	8.0%	52.8	N/A	32.7	D
	4	Hunt Rd MP 15.020	Pellissippi Pky MP 17.660	2.64	35,480	0.100	3548	50	8.0%	45.8	N/A	26.1	D
	5	Pellissippi Pky MP 17.660	County Line MP 20.400	2.74	31,870	0.110	3506	55	8.0%	51.8	N/A	22.7	C
Relocated Alcoa Highway	1	Alcoa Highway (SR 115 / US 129)	Pellissippi Pky	Not Determined	30,170	0.100	3017	55	8.0%	52.4	N/A	13.1	B
	2	Pellissippi Pky	Alcoa Highway (SR 115 / US 129)	Not Determined	50,300	0.100	5030	55	8.0%	52.4	N/A	21.9	C

  LOS E - F  
  LOS A - D  
  Speed <45, Not Analyzed

Notes:  
 ADT = 2015 Traffic Volumes from Traffic Forecast Study prepared by Sain Associates, Inc., July 2007 (Revised September 2007)  
 K-Factor = Design Hour Factor obtained from the TRIMS Blount County Traffic Database  
 DHV = 2015 Design Hour Volume (Average Daily Traffic x K-Factor)  
 Speed Limit obtained from examination of TDOT Photolog Viewer  
 % Trucks and Buses obtained from Traffic Forecast Study prepared by Sain Associates, Inc., July 2007 (Revised September 2007)  
 Estimated Travel Speed, % Time Spent Following, and Level of Service (LOS) calculated using Highway Capacity Software Plus

**Table 8: 2015 Build Corridor (Alternative D) Level of Service**

Route	Section	Begin	End	Section Length (miles)	2015 ADT	K-Factor	2015 DHV	Posted Speed Limit (MPH)	% Trucks and Buses	Estimated Travel Speed (MPH)	% Time Spent Following	LOS
Alt. D	1	SR 33	North of Wildwood Road	1.20	15,720	0.100	1572	50	5.0%	33.1	83.2	E
	2	North of Wildwood Road	Wildwood Road	1.20	14,330	0.100	1433	50	5.0%	34.2	80.7	E
	3	Wildwood Road	Sevierville Road	1.20	20,870	0.100	2087	50	5.0%	28.6	89.5	E
	4	Sevierville Road	North of Lamar Alexander Parkway	1.20	10,800	0.100	1080	50	5.0%	37.0	73.2	E
	5	North of Lamar Alexander Parkway	Lamar Alexander Parkway	1.20	13,740	0.100	1374	50	5.0%	34.7	79.5	E

LOS E - F  
 LOS A - D  
 Speed <45, Not Analyzed

**Table 9: 2035 Build Corridor (Alternatives A/C) Levels of Service**

Route	Section	Begin Milepoint	End Milepoint	Section Length (miles)	2035 ADT	K-Factor	2035 DHV	Posted Speed Limit (MPH)	% Trucks and Buses	Estimated Travel Speed (MPH)	% Time Spent Following	Density (pc/mi/ln)	LOS
Wildwood Road	1	E. Broadway/Old Knoxville Hwy (SR 33) MP 0.000	End of Study Area MP 4.740	4.74	4,720	0.110	519	45	2.0%	31.8	58.6	N/A	C
Pellissippi Parkway	1	Topside Rd MP 0.810	Alcoa Hwy (SR 115/US 129) MP 2.240	1.43	63,690	0.120	7643	60	7.0%	57.5	N/A	Too High To Calculate	F
	2	Alcoa Hwy (SR 115/US 129) MP 2.240	Relocated Alcoa Highway MP 3.240	1.00	28,410	0.130	3693	60	5.0%	57.5	N/A	19.2	C
	3	Relocated Alcoa Highway MP 3.240	E. Broadway/Old Knoxville Hwy (SR 33) MP 4.710	1.47	76,720	0.130	9974	60	5.0%	57.5	N/A	Too High To Calculate	F
	4	E. Broadway/Old Knoxville Hwy (SR 33)	US 411 (SR 35)	Not Determined	63,380	0.130	8239	60	2.0%	57.5	N/A	Too High To Calculate	F
	5	US 411 (SR 35)	Lamar Alexander Pkwy (SR 73/US 321)	Not Determined	52,880	0.130	6874	60	2.0%	56.4	N/A	34.9	D
	6	Lamar Alexander Pkwy (SR 73/US 321)	End of Study Area	Not Determined	16,980	0.130	2207	60	2.0%	57.5	N/A	11.0	A
Lamar Alexander Parkway (SR 73 / US 321)	1	Beginning of Study Area MP 8.250	Alcoa Hwy (SR 115/US 129) MP 10.570	2.32	45,980	0.110	5058	55	7.0%	53.0	N/A	31.0	D
	2	Alcoa Hwy (SR 115/US 129) MP 10.570	E. Broadway/Old Knoxville Hwy (SR 33) MP 11.650	1.08	37,320	0.100	3732	45	6.0%	45.0	N/A	28.1	D
	3	E. Broadway/Old Knoxville Hwy (SR 33) MP 11.650	Jones Ave MP 12.526	0.87	49,000	0.100	4900	40	6.0%				
	4	Jones Ave MP 12.520	Merritt Rd MP 13.980	1.46	34,190	0.100	3419	50	3.0%	50.0	N/A	25.8	C
	5	Merritt Rd MP 13.980	Tuckaleechee Pk MP 17.020	3.04	34,560	0.100	3456	50	3.0%	50.0	N/A	20.5	C
	6	Tuckaleechee Pk MP 17.020	MP 19.020	2.00	42,820	0.100	4282	55	4.0%	53.0	N/A	26.7	D
	7	MP 19.020	Melrose Station Rd MP 20.020	1.00	37,000	0.100	3700	55	5.0%	53.0	N/A	23.3	C
Hall Road (SR 35)	1	Alcoa Hwy (SR 115/US 129) MP 0.000	Bessemer St MP 1.520	1.52	17,730	0.100	1773	45	2.0%	45.0	N/A	13.1	B
	2	Bessemer St MP 1.520	E. Broadway/Old Knoxville Hwy (SR 33) MP 2.590	1.07	21,520	0.100	2152	35	2.0%				
Washington Street (SR 35)	1	E. Broadway/Old Knoxville Hwy (SR 33) MP 2.590	US 411 (SR 35) MP 2.820	0.23	22,090	0.100	2209	30	3.0%				
	2	US 411 (SR 35) MP 0.000	Lamar Alexander Pkwy (SR 73/US 321) MP 0.160	0.16	33,060	0.100	3306	30	2.0%				

  LOS E - F  
  LOS A - D  
  Speed <45, Not Analyzed

Notes:  
 ADT = 2035 Traffic Volumes from Traffic Forecast Study prepared by Sain Associates, Inc., July 2007 (Revised September 2007)  
 K-Factor = Design Hour Factor obtained from the TRIMS Blount County Traffic Database  
 DHV = 2035 Design Hour Volume (Average Daily Traffic x K-Factor)  
 Speed Limit obtained from examination of TDOT Photolog Viewer  
 % Trucks and Buses obtained from Traffic Forecast Study prepared by Sain Associates, Inc., July 2007 (Revised September 2007)  
 Estimated Travel Speed, % Time Spent Following, and Level of Service (LOS) calculated using Highway Capacity Software Plus

**Table 9: 2035 Build Corridor (Alternatives A/C) Levels of Service (cont.)**

Route	Section	Begin Milepoint	End Milepoint	Section Length (miles)	2035 ADT	K-Factor	2035 DHV	Posted Speed Limit (MPH)	% Trucks and Buses	Estimated Travel Speed (MPH)	% Time Spent Following	Density (pc/mi/ln)	LOS
US 411 (SR 35)	1	Washington St (SR 35) MP 2.820	Westfield Dr MP 4.510	1.69	14,920	0.110	1641	40	3.0%				
	2	Westfield Dr MP 4.510	Near Peppermint Rd 6.510	2.00	13,610	0.100	1361	45	3.0%	23.1	80.1	N/A	E
	3	Near Peppermint Rd 6.510	End of Study Area 7.930	1.42	10,650	0.100	1065	45	7.0%	25.2	74.0	N/A	E
E. Broadway / Old Knoxville Highway (SR 33)	1	Beginning of Study Area MP 7.854	Montgomery Lane MP 10.201	2.35	46,770	0.100	4677	50	9.0%	47.1	N/A	40.6	E
	2	Montgomery Lane MP 10.201	Hall Rd MP 12.340	2.14	30,080	0.100	3008	30	9.0%				
	3	Hall Rd MP 12.340	Wildwood Rd MP 14.206	1.87	18,550	0.100	1855	30	3.0%				
	4	Wildwood Rd MP 14.206	Hunt Rd MP 15.470	1.26	18,350	0.100	1835	40	3.0%				
	5	Hunt Rd MP 15.470	Williams Mill Rd MP 17.420	1.95	74,860	0.110	8235	40	4.0%				
	6	Williams Mill Rd MP 17.420	County Line MP 20.640	3.22	27,280	0.120	3274	50	2.0%	<45	99.1	N/A	F
Alcoa Highway (SR 115 / US 129)	1	Broadway Ave MP 10.450	Lamar Alexander Pkwy (SR 73/US 321) MP 11.340	0.89	37,250	0.100	3725	50	10.0%	48.8	N/A	30.2	D
	2	Lamar Alexander Pkwy (SR 73/US 321) MP 11.340	Hall Rd (SR 35) MP 14.280	2.94	53,740	0.100	5374	55	8.0%	52.0	N/A	36.0	E
	3	Hall Rd (SR 35) MP 14.280	Hunt Rd MP 15.020	0.74	58,570	0.070	4100	55	8.0%	51.7	N/A	37.0	E
	4	Hunt Rd MP 15.020	Pellissippi Pky MP 17.660	2.64	39,980	0.100	3998	50	8.0%	45.8	N/A	29.4	D
	5	Pellissippi Pky MP 17.660	County Line MP 20.400	2.74	30,120	0.110	3313	55	8.0%	51.8	N/A	21.5	C
Relocated Alcoa Highway	1	Alcoa Highway (SR 115 / US 129)	Pellissippi Pky	Not Determined	36,690	0.100	3669	55	8.0%	52.4	N/A	16.0	B
	2	Pellissippi Pky	Alcoa Highway (SR 115 / US 129)	Not Determined	65,930	0.100	6593	55	8.0%	52.1	N/A	28.9	D

  LOS E - F  
  LOS A - D  
  Speed <45, Not Analyzed

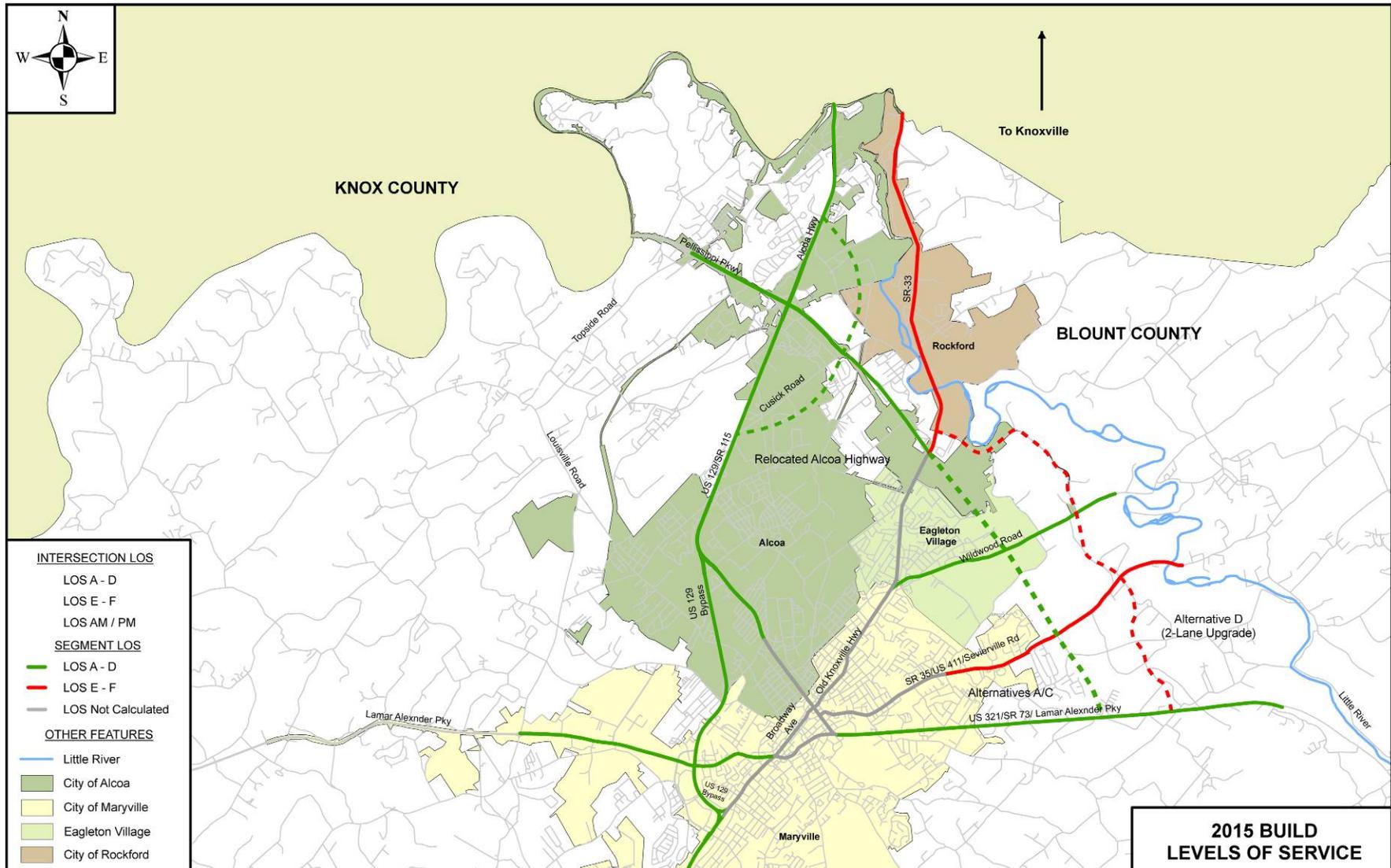
Notes:  
 ADT = 2035 Traffic Volumes from Traffic Forecast Study prepared by Sain Associates, Inc., July 2007 (Revised September 2007)  
 K-Factor = Design Hour Factor obtained from the TRIMS Blount County Traffic Database  
 DHV = 2035 Design Hour Volume (Average Daily Traffic x K-Factor)  
 Speed Limit obtained from examination of TDOT Photolog Viewer  
 % Trucks and Buses obtained from Traffic Forecast Study prepared by Sain Associates, Inc., July 2007 (Revised September 2007)  
 Estimated Travel Speed, % Time Spent Following, and Level of Service (LOS) calculated using Highway Capacity Software Plus

**Table 10: 2035 Build Corridor (Alternative D) Level of Service**

Route	Section	Begin	End	Section Length (miles)	2035 ADT	K-Factor	2035 DHV	Posted Speed Limit (MPH)	% Trucks and Buses	Estimated Travel Speed (MPH)	% Time Spent Following	LOS
Alt. D	1	SR 33	North of Wildwood Road	1.20	20,720	0.100	2072	50	5.0%	28.7	89.5	E
	2	North of Wildwood Road	Wildwood Road	1.20	18,620	0.100	1862	50	5.0%	30.6	87.1	E
	3	Wildwood Road	Sevierville Road	1.20	27,820	0.100	2782	50	5.0%	Could not Calculate	95.0	F
	4	Sevierville Road	North of Lamar Alexander Parkway	1.20	15,480	0.100	1548	50	5.0%	33.3	82.7	E
	5	North of Lamar Alexander Parkway	Lamar Alexander Parkway	1.20	19,000	0.100	1900	50	5.0%	30.2	87.5	E

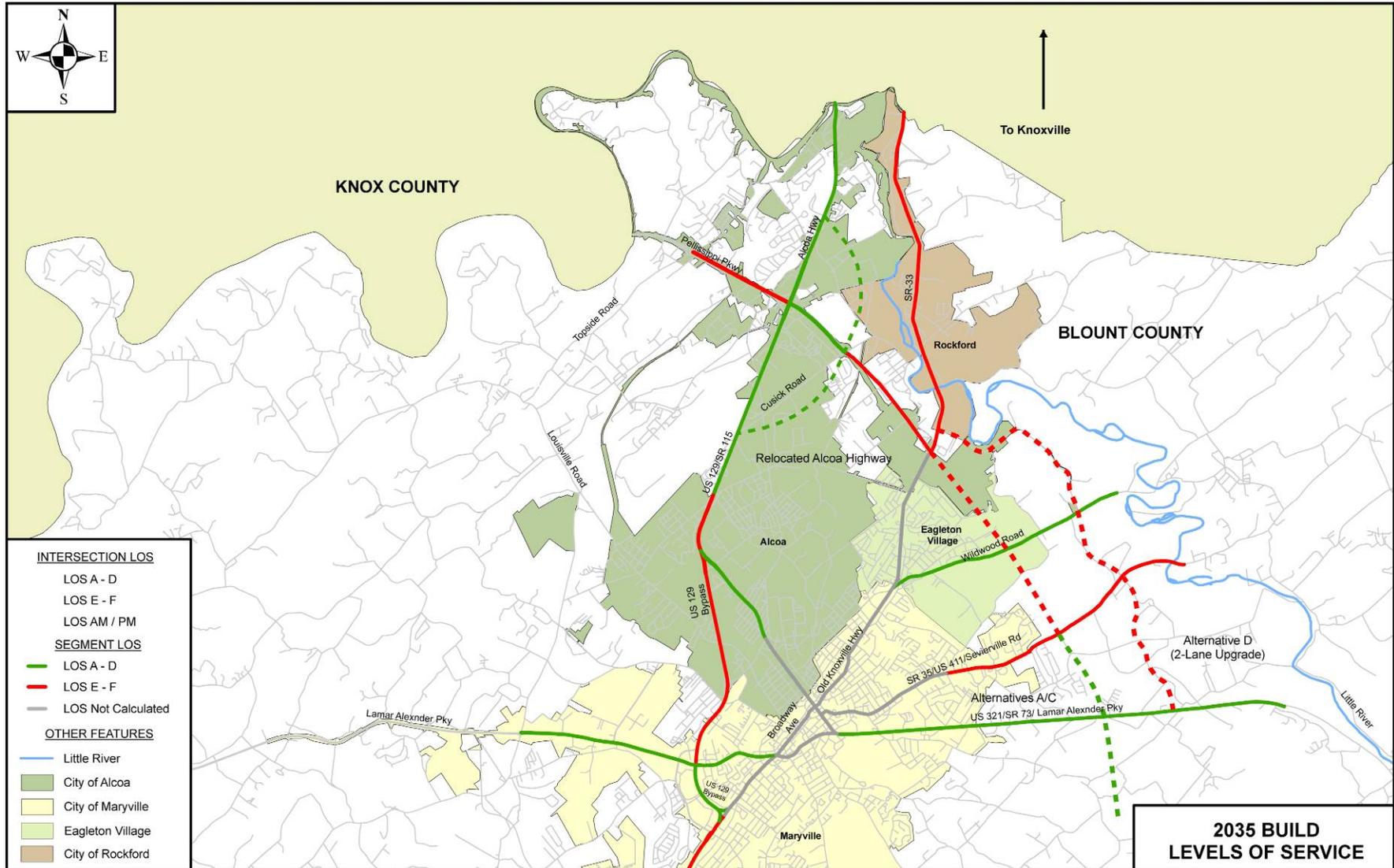
LOS E - F  
 LOS A - D  
 Speed <45, Not Analyzed

Figure 5: 2015 Build Levels of Service



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

Figure 6: 2035 Build Levels of Service



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

### 4.5 Summary of Corridor Level of Service Results

To assist in the comparison of alternatives, the following tables were developed. **Table 11** lists the levels of service for the proposed alternatives (Alternatives A, C, and D) compared to the No-Build Alternative. **Table 12** lists the corresponding levels of service for the other study area roadways for the No-Build Alternative as well as the Alternatives A and C. The impact on the other study area roadways under Alternative D is assumed to be similar to the No-Build scenario as significant changes in other study area roadways are not expected given that the alternative does not significantly increase capacity on the existing two-lane roadways.

**Table 11: Alternative Corridor Levels of Service Summary**

Route	Section	Begin Milepoint	End Milepoint	Existing	2015 No-Build	2035 No-Build	2015 Build	2035 Build
Pellissippi Parkway (Build Alternatives A/C)	1	Topside Rd MP 0.810	Alcoa Hwy (SR 115/US 129) MP 2.240	C	D	F	D	F
	2	Alcoa Hwy (SR 115/US 129) MP 2.240	Relocated Alcoa Highway MP 3.240	A	B	D	B	C
	3	Relocated Alcoa Highway MP 3.240	E. Broadway/Old Knoxville Hwy (SR 33) MP 4.710	A	C	F	D	F
	4	E. Broadway/Old Knoxville Hwy (SR 33)	US 411 (SR 35)	Not Determined	Not Determined	Not Determined	C	F
	5	US 411 (SR 35)	Lamar Alexander Pkwy (SR 73/US 321)	Not Determined	Not Determined	Not Determined	B	D
	6	Lamar Alexander Pkwy (SR 73/US 321)	End of Study Area	Not Determined	Not Determined	Not Determined	Not Determined	A
Sam Houston School Rd/Peppermint Rd/Hitch Rd/Helton Rd (Alternative D)	1	SR 33	North of Wildwood Rd	E	Not Determined	Not Determined	E	E
	2	North of Wildwood Rd	Wildwood Rd	E	Not Determined	Not Determined	E	E
	3	Wildwood Rd	Sevierville Rd	E	Not Determined	Not Determined	E	F
	4	Sevierville Rd	North of Lamar Alexander Pkwy	D	Not Determined	Not Determined	E	E
	5	North of Lamar Alexander Pkwy	Lamar Alexander Pkwy	C	Not Determined	Not Determined	E	E

LOS E - F  
 LOS A - D  
 Speed <45, Not Analyzed

**Table 12: Study Area Roadway Corridor Levels of Service Summary**

Route	Section	Begin Milepoint	End Milepoint	Existing	2015 No-Build	2035 No-Build	2015 Build	2035 Build
Wildwood Road	1	E. Broadway/Old Knoxville Hwy (SR 33) MP 0.000	End of Study Area MP 4.740	C	C	C	C	C
Lamar Alexander Parkway (SR 73 / US 321)	1	Beginning of Study Area MP 8.250	Alcoa Hwy (SR 115/US 129) MP 10.570	B	C	D	C	D
	2	Alcoa Hwy (SR 115/US 129) MP 10.570	E. Broadway/Old Knoxville Hwy (SR 33) MP 11.650	C	C	D	C	D
	3	E. Broadway/Old Knoxville Hwy (SR 33) MP 11.650	Jones Ave MP 12.526					
	4	Jones Ave MP 12.520	Merritt Rd MP 13.980	B	C	D	B	C
	5	Merritt Rd MP 13.980	Tuckaleechee Pk MP 17.020	A	B	C	B	C
	6	Tuckaleechee Pk MP 17.020	MP 19.020	A	B	C	C	D
	7	MP 19.020	Melrose Station Rd MP 20.020	A	B	C	B	C
Hall Road (SR 35)	1	Alcoa Hwy (SR 115/US 129) MP 0.000	Bessemer St MP 1.520	B	B	B	B	B
	2	Bessemer St MP 1.520	E. Broadway/Old Knoxville Hwy (SR 33) MP 2.590					
Washington Street (SR 35)	1	E. Broadway/Old Knoxville Hwy (SR 33) MP 2.590	US 411 (SR 35) MP 2.820					
	2	US 411 (SR 35) MP 0.000	Lamar Alexander Pkwy (SR 73/US 321) MP 0.160					
US 411 (SR 35)	1	Washington St (SR 35) MP 2.820	Westfield Dr MP 4.510					
	2	Westfield Dr MP 4.510	Near Peppermint Rd 6.510	E	E	E	E	E
	3	Near Peppermint Rd 6.510	End of Study Area 7.930	E	E	E	E	E
E. Broadway / Old Knoxville Highway (SR 33)	1	Beginning of Study Area MP 7.854	Montgomery Lane MP 10.201	C	D	E	D	E
	2	Montgomery Lane MP 10.201	Hall Rd MP 12.340					
	3	Hall Rd MP 12.340	Wildwood Rd MP 14.206					
	4	Wildwood Rd MP 14.206	Hunt Rd MP 15.470					
	5	Hunt Rd MP 15.470	Williams Mill Rd MP 17.420					
	6	Williams Mill Rd MP 17.420	County Line MP 20.640	E	F	F	E	F
Alcoa Highway (SR 115 / US 129)	1	Broadway Ave MP 10.450	Lamar Alexander Pkwy (SR 73/US 321) MP 11.340	C	D	D	C	D
	2	Lamar Alexander Pkwy (SR 73/US 321) MP 11.340	Hall Rd (SR 35) MP 14.280	C	D	D	D	E
	3	Hall Rd (SR 35) MP 14.280	Hunt Rd MP 15.020	E	E	E	D	E
	4	Hunt Rd MP 15.020	Pellissippi Pky MP 17.660	E	C	D	D	D
	5	Pellissippi Pky MP 17.660	County Line MP 20.400	D	B	C	C	C
Relocated Alcoa Highway	1	Alcoa Highway (SR 115 / US 129)	Pellissippi Pky	Not Determined	B	B	B	B
	2	Pellissippi Pky	Alcoa Highway (SR 115 / US 129)	Not Determined	C	D	C	D

LOS E - F  
 LOS A - D  
 Speed <45, Not Analyzed

Based on the analysis provided in the previous tables, the following are some summary notes:

- For the No-Build scenario along Sam Houston School Road, Peppermint Road, Hitch Road and Helton Road, existing traffic is heaviest between SR 33 and Sevierville Road, and in those sections the LOS is at E, which is below desirable operations. The sections between Sevierville Road (US 411) and Lamar Alexander Parkway (US 321/SR 73) have substantially lower volumes, with comparable LOS of D and C.
- From **Table 11**, in the year 2015 Alternatives A and C have a much higher LOS than Alternative D. However, once the year 2035 is reached, the LOS gap between the two alternatives begins to narrow. From SR 33 to US 411, all alternatives operate at a poor LOS (LOS E/F). From US 411 to Lamar Alexander Parkway, Alternatives A and C still outperform Alternative D; however, not by as much as in 2015. From this comparison, Alternatives A and C would operate better and experience less delay and higher travel speeds than Alternative D.
- Wildwood Road has minimal change and no change in level of service regardless of year or scenario. The level of service is at an acceptable level for all evaluation years and scenarios.
- The levels of service for Pellissippi Parkway are acceptable for both the existing (2006) and 2015 analysis years for the No-Build and Build (A/C) Alternatives. However, for the year 2035 for both the No-Build and Build (A/C) Alternatives, several sections operate below the LOS D threshold. In particular, the existing section just west of US 129 (Alcoa Highway) and the section between the proposed Relocated Alcoa Highway and SR 33 would operate poorly. In addition, the proposed section between SR 33 and US 411 would operate poorly in the future year of 2035.
- To estimate the year when traffic operations drop to below the LOS D threshold for the section of the Pellissippi Parkway Extension between SR 33 and US 411, **Table 13** was created. According to this analysis, this section of the Pellissippi Parkway Extension is projected to drop from LOS D to LOS E in the year 2029. It will reach LOS F in the year 2034.
- Traffic operations on US 321 are overall at or above the acceptable threshold of LOS D for all sections and all scenarios.
- US 411 has poor traffic operations regardless of scenario.
- SR 33 has little difference in level of service regardless of scenario, with poor levels of service, particularly for the year 2035.
- Traffic operations on US 129 shows minimal difference between the No-Build and Build scenarios, with some improvements in level of service for certain sections and worse levels of service for other sections.
- There is little difference between levels of service for the No-Build and Build scenarios on the proposed Relocated Alcoa Highway (RAH). According to this analysis, the RAH should operate well most years for both scenarios.

**Table 13: Failure Year for the Pellissippi Parkway Extension between SR 33 and US 411**

Year	Volume	DHV	LOS
2015	36,230	4,710	C
2016	37,257	4,843	C
2017	38,314	4,981	C
2018	39,400	5,122	C
2019	40,518	5,267	D
2020	41,667	5,417	D
2021	42,848	5,570	D
2022	44,063	5,728	D
2023	45,313	5,891	D
2024	46,598	6,058	D
2025	47,919	6,230	D
2026	49,278	6,406	D
2027	50,676	6,588	D
2028	52,113	6,775	D
<b>2029</b>	<b>53,591</b>	<b>6,967</b>	<b>E</b>
2030	55,110	7,164	E
2031	56,673	7,368	E
2032	58,280	7,576	E
2033	59,933	7,791	E
<b>2034</b>	<b>61,633</b>	<b>8,012</b>	<b>F</b>
2035	63,380	8,239	F

## 5.0 NO-BUILD AND ALTERNATIVES A/C INTERSECTION LEVEL OF SERVICE ANALYSIS

A level of service analysis was also conducted at the intersection level for the No-Build Alternative and Build Alternative (Alternatives A/C) for the years 2015 and 2035. Existing (2006) levels of service were determined for comparison purposes. Existing intersection data was not available for the Alternative D scenario; therefore it was not included in the intersection LOS analysis. The methodology and results are presented in the following sections.

### 5.1 Study Area Intersections

The following existing intersections are likely to be impacted by the proposed Pellissippi Parkway Extension. **Figure 7** shows the location of each intersection.

1. SR 115 / US 129 @ I-140 / Pellissippi Parkway (Interchange)
2. SR 115 / US 129 @ SR 35 (Interchange)
3. SR 115 / US 129 @ SR 73 / US 321 (Signalized)
4. SR 33 / US 411 @ SR 15 / US 129 (Interchange)
5. SR 33 @ I-140 / Pellissippi Parkway (STOP Controlled)
6. SR 33 @ Wildwood Road (Signalized)
7. SR 33 / E. Broadway Avenue @ SR 35 / S. Washington Street (Signalized)
8. SR 33 @ SR 73 / US 321 (Signalized)
9. SR 35 / S. Washington Street @ Sevierville Road (Signalized)
10. S. Washington Street / SR 35 @ High Street / SR 35 (Signalized)
11. S. Washington Street @ SR 73 / US 321 (Signalized)
12. SR 73 / US 321 @ SR 335 / Old Glory Road (Signalized)

The existing intersections that currently operate as an interchange without signal control were not evaluated as part of the level of service analysis:

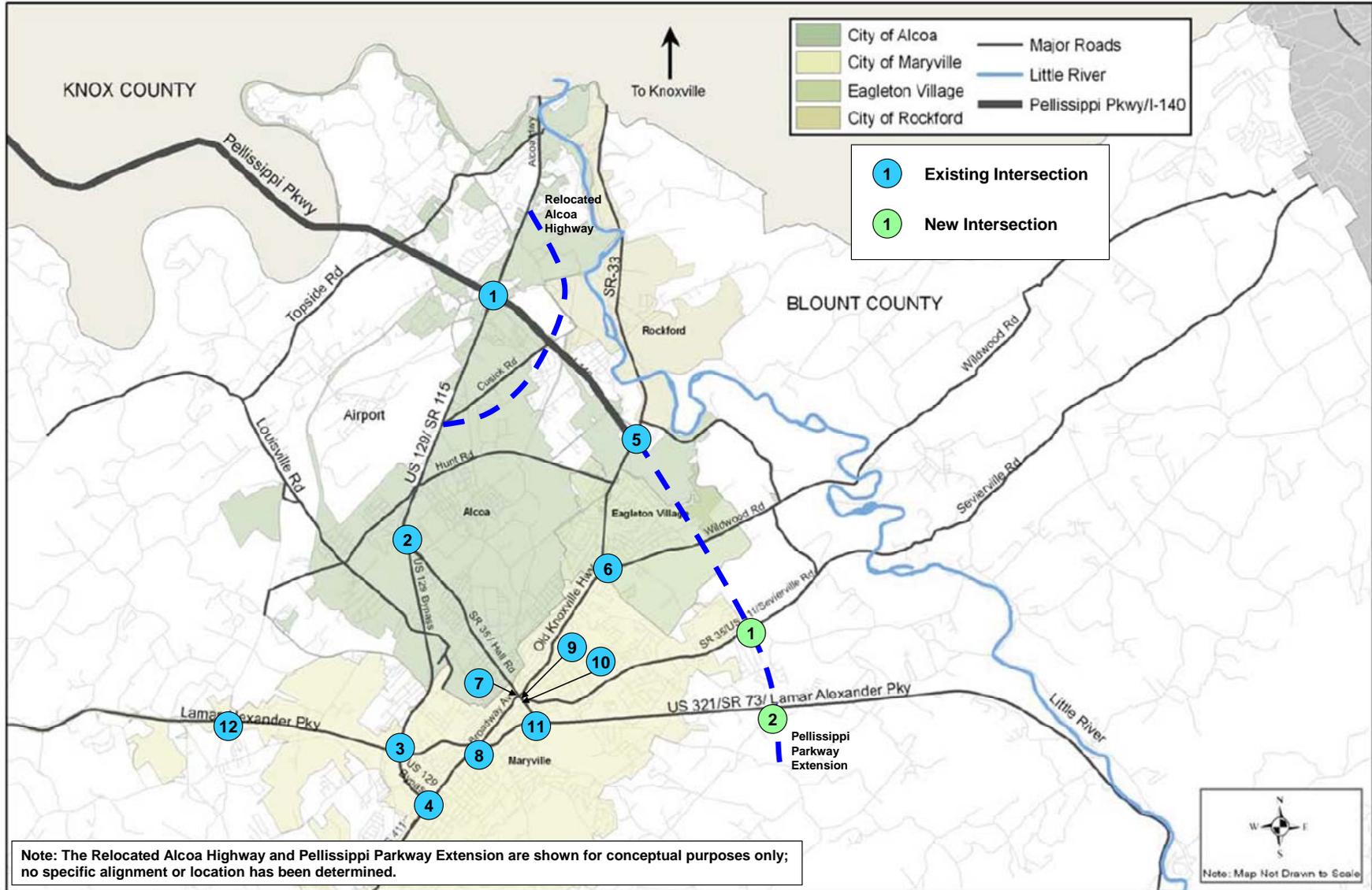
- SR 115 / US 129 @ I-140 / Pellissippi Parkway (1)
- SR 115 / US 129 @ SR 35 (2)
- SR 33 / US 411 @ SR 15 / US 129 (4)

The intersection of SR 33 at I-140 / Pellissippi Parkway is currently STOP controlled; however, a traffic signal is approved by TDOT for this location. Therefore, this intersection was evaluated as a STOP controlled intersection for the existing (2006) scenario and as a signalized intersection for the No-Build Alternative in the future years of 2015 and 2035. For the Build Alternative, it was assumed that a typical diamond interchange would be created, thereby resulting in two new intersections. As this evaluation is for the planning stages of this project and no final design has been completed, the necessary traffic control and lane configuration to make the intersections operate at an acceptable level of service (if possible) was assumed. For both scenarios, the right turn movement from SR 33 to Pellissippi Parkway was assumed to have a separate ramp and would not be directed through the intersection to access Pellissippi Parkway.

In addition, several new intersections would be created by the proposed Pellissippi Parkway Extension:

1. Pellissippi Parkway Extension @ SR 35 / US 411 / Sevierville Road
2. Pellissippi Parkway Extension @ US 321

Figure 7: Intersection Location Map



For this analysis, a typical diamond interchange has been assumed for the Pellissippi Parkway Extension @ SR 35 / US 411 / Sevierville Road interchange resulting in the creation of two new intersections. Levels of service and delay were calculated for similar scenarios as discussed above for the SR 33 / I-140 interchange. The Pellissippi Parkway Extension at US 321 may include directional loop ramps and was not evaluated at this time.

## 5.2 Methodology

For this analysis, the Highway Capacity Software Plus package (HCS+) was used to assess the peak period traffic operating conditions. This software package implements the Highway Capacity Manual (HCM) intersection analysis method. For each study intersection, average vehicle delays were calculated as well as the resulting levels of service (LOS). For intersections, the Highway Capacity Manual 2000 defines levels of service based on the average delay due to signal or STOP control as shown in **Table 14**.

**Table 14: LOS Criteria for Intersections**

LOS	Signalized Intersections Control Delay (seconds per vehicle)	Unsignalized Intersections Control Delay (seconds per vehicle)
A	≤ 10	≤ 10
B	>10 – 20	>10 – 15
C	>20 – 35	>15 – 25
D	>35 – 55	>25 – 35
E	>55 – 80	>35 – 50
F	>80	>50

Source: Highway Capacity Manual (2000)

In general terms, a facility is considered to have reached its physical capacity at LOS E. TDOT typically uses LOS D as the threshold for acceptable traffic service for all but the more rural roads. Because of the urban character of the study area, LOS D is used as the threshold. Operations below this threshold are noted as undesirable and warrant improvement. LOS D corresponds to ≤ 55 seconds of delay per vehicle at a signalized intersection and ≤ 35 seconds of delay at an unsignalized intersection. (Refer to the HCM for more detail.)

## 5.3 Intersection Level of Service Results

Using the existing (2006) and forecasted traffic volumes (2015 and 2035) from the Traffic Forecast Study completed for this project, intersection levels of service were developed for the existing (2006), 2015 and 2035 No-Build, and the 2015 and 2035 Build (Alternatives A/C) scenarios. Intersection lane configurations were provided by Sain Associates, Inc. for several of the intersections. For the remaining existing intersections, data was compiled from aerial photography mapping and the TRIMS Blount County Database. For the existing signalized intersections, signal timings were provided by the City of Maryville Public Works Department. Optimized signal timings were assumed for intersections with a new traffic signal. **Tables 15 through 23** show the intersection levels of service for each scenario.

**Table 15: 2006 Existing Intersection Levels of Service**

Intersection	Type	Approach	AM	LOS	PM	LOS
			Avg. Delay (sec)		Avg. Delay (sec)	
SR 115 / US 129 @ SR 73 / US 321	Signalized	Eastbound	59.3	E	227.1	F
		Westbound	42.9	D	56.0	E
		Northbound	836.2	F	119.6	F
		Southbound	33.0	C	174.0	F
		<b>Whole Int.</b>	<b>388.5</b>	<b>F</b>	<b>141.6</b>	<b>F</b>
SR 33 @ I-140	STOP Controlled	Eastbound	1531.0	F	851.7	F
		Northbound	30.5	D	11.3	B
		Southbound	-	-	-	-
SR 33 @ Wildwood Road	Signalized	Westbound	60.7	E	52.1	D
		Northbound	54.4	D	131.2	F
		Southbound	50.3	D	84.9	F
		<b>Whole Int.</b>	<b>54.5</b>	<b>D</b>	<b>100.6</b>	<b>F</b>
SR 33 / E. Broadway Avenue @ SR 35 / S. Washington Street	Signalized	Eastbound	38.7	D	50.1	D
		Westbound	52.7	D	70.5	E
		Northbound	38.3	D	36.9	D
		Southbound	26.1	C	49.1	D
		<b>Whole Int.</b>	<b>36.9</b>	<b>D</b>	<b>48.1</b>	<b>D</b>
SR 33 @ SR 73 / US 321	Signalized	Eastbound	35.5	D	639.4	F
		Westbound	22.7	C	39.4	D
		Northbound	642.8	F	156.8	F
		Southbound	35.6	D	104.4	F
		<b>Whole Int.</b>	<b>223.9</b>	<b>F</b>	<b>267.3</b>	<b>F</b>
SR 35 / S. Washington Street @ Sevierville Road	Signalized	Eastbound	27.7	C	39.2	D
		Westbound	37.2	D	48.2	D
		Northbound	14.9	B	12.3	B
		Southbound	14.3	B	14.2	B
		<b>Whole Int.</b>	<b>17.1</b>	<b>B</b>	<b>17.1</b>	<b>B</b>
S. Washington Street / SR 35 @ High Street / SR 35	Signalized	Eastbound	35.6	D	38.1	D
		Westbound	98.6	F	68.8	E
		Northbound	18.0	B	36.0	D
		Southbound	7.2	A	19.2	B
		<b>Whole Int.</b>	<b>26.3</b>	<b>C</b>	<b>31.2</b>	<b>C</b>
S. Washington Street @ SR 73 / US 321	Signalized	Eastbound	45.2	D	170.9	F
		Westbound	30.0	C	41.9	D
		Northbound	22.7	C	28.7	C
		Southbound	45.8	D	136.8	F
		<b>Whole Int.</b>	<b>34.5</b>	<b>C</b>	<b>95.2</b>	<b>F</b>
SR 73 / US 321 @ SR 335 / Old Glory Road	Signalized	Eastbound	241.0	F	168.4	F
		Westbound	181.6	F	171.4	F
		Northbound	26.7	C	25.1	C
		Southbound	28.2	C	30.4	C
		<b>Whole Int.</b>	<b>153.3</b>	<b>F</b>	<b>120.9</b>	<b>F</b>

**Table 16: 2015 No-Build Intersection Levels of Service**

Intersection	Type	Approach	AM	LOS	PM	LOS
			Avg. Delay (sec)		Avg. Delay (sec)	
SR 115 / US 129 @ SR 73 / US 321	Signalized	Eastbound	295.0	F	636.3	F
		Westbound	67.6	E	207.3	F
		Northbound	1420.0	F	479.1	F
		Southbound	35.1	D	531.6	F
		<b>Whole Int.</b>	<b>699.9</b>	<b>F</b>	<b>453.7</b>	<b>F</b>
SR 33 @ I-140	Signalized	Eastbound	751.8	F	1460.0	F
		Northbound	2725.0	F	2504.0	F
		Southbound	3418.0	F	3344.0	F
		<b>Whole Int.</b>	<b>2227.0</b>	<b>F</b>	<b>2224.0</b>	<b>F</b>
SR 33 @ Wildwood Road	Signalized	Westbound	70.6	E	53.8	D
		Northbound	71.4	E	382.7	F
		Southbound	58.8	E	261.2	F
		<b>Whole Int.</b>	<b>66.7</b>	<b>E</b>	<b>284.9</b>	<b>F</b>
SR 33 / E. Broadway Avenue @ SR 35 / S. Washington Street	Signalized	Eastbound	46.5	D	63.9	E
		Westbound	88.6	F	128.9	F
		Northbound	60.7	E	47.0	D
		Southbound	27.6	C	78.6	E
		<b>Whole Int.</b>	<b>52.7</b>	<b>D</b>	<b>73.1</b>	<b>E</b>
SR 33 @ SR 73 / US 321	Signalized	Eastbound	129.8	D	1070.0	F
		Westbound	37.8	D	287.9	F
		Northbound	1451.0	F	608.4	F
		Southbound	39.0	D	314.5	F
		<b>Whole Int.</b>	<b>531.1</b>	<b>F</b>	<b>602.3</b>	<b>F</b>
SR 35 / S. Washington Street @ Sevierville Road	Signalized	Eastbound	27.8	C	39.7	D
		Westbound	38.8	D	50.1	D
		Northbound	15.8	B	13.1	B
		Southbound	15.0	B	15.6	B
		<b>Whole Int.</b>	<b>17.9</b>	<b>B</b>	<b>18.3</b>	<b>B</b>
S. Washington Street / SR 35 @ High Street / SR 35	Signalized	Eastbound	37.1	D	40.1	D
		Westbound	244.9	F	149.8	F
		Northbound	18.5	B	40.5	D
		Southbound	7.5	A	28.0	C
		<b>Whole Int.</b>	<b>47.2</b>	<b>D</b>	<b>45.3</b>	<b>D</b>
S. Washington Street @ SR 73 / US 321	Signalized	Eastbound	287.0	F	531.3	F
		Westbound	31.3	C	55.4	E
		Northbound	222.3	F	370.6	F
		Southbound	204.2	F	585.2	F
		<b>Whole Int.</b>	<b>235.1</b>	<b>F</b>	<b>459.4</b>	<b>F</b>
SR 73 / US 321 @ SR 335 / Old Glory Road	Signalized	Eastbound	484.1	F	226.9	F
		Westbound	239.2	F	380.1	F
		Northbound	27.9	C	25.8	C
		Southbound	29.2	C	33.0	C
		<b>Whole Int.</b>	<b>271.8</b>	<b>F</b>	<b>220.4</b>	<b>F</b>

**Table 17: 2035 No-Build Intersection Levels of Service**

Intersection	Type	Approach	AM	LOS	PM	LOS
			Avg. Delay (sec)		Avg. Delay (sec)	
SR 115 / US 129 @ SR 73 / US 321	Signalized	Eastbound	703.9	F	1138.0	F
		Westbound	326.0	F	620.3	F
		Northbound	2114.0	F	948.1	F
		Southbound	39.5	D	968.8	F
		<b>Whole Int.</b>	<b>1143.0</b>	<b>F</b>	<b>905.5</b>	<b>F</b>
SR 33 @ I-140	Signalized	Eastbound	2834.0	F	3362.0	F
		Northbound	6540.0	F	5813.0	F
		Southbound	6419.0	F	7328.0	F
		<b>Whole Int.</b>	<b>5384.0</b>	<b>F</b>	<b>5103.0</b>	<b>F</b>
SR 33 @ Wildwood Road	Signalized	Westbound	997.2	F	123.0	F
		Northbound	1244.0	F	2111.0	F
		Southbound	990.3	F	1878.0	F
		<b>Whole Int.</b>	<b>1091.0</b>	<b>F</b>	<b>1729.0</b>	<b>F</b>
SR 33 / E. Broadway Avenue @ SR 35 / S. Washington Street	Signalized	Eastbound	56.1	E	86.8	F
		Westbound	145.7	F	203.2	F
		Northbound	126.6	F	75.4	E
		Southbound	28.9	C	135.9	F
		<b>Whole Int.</b>	<b>88.2</b>	<b>F</b>	<b>118.7</b>	<b>F</b>
SR 33 @ SR 73 / US 321	Signalized	Eastbound	736.3	F	1897.0	F
		Westbound	167.3	F	644.1	F
		Northbound	2311.0	F	1024.0	F
		Southbound	57.6	E	840.2	F
		<b>Whole Int.</b>	<b>1031.0</b>	<b>F</b>	<b>1143.0</b>	<b>F</b>
SR 35 / S. Washington Street @ Sevierville Road	Signalized	Eastbound	27.9	C	39.9	D
		Westbound	40.2	D	52.0	D
		Northbound	16.5	B	13.8	B
		Southbound	15.5	B	16.9	B
		<b>Whole Int.</b>	<b>18.6</b>	<b>B</b>	<b>19.3</b>	<b>B</b>
S. Washington Street / SR 35 @ High Street / SR 35	Signalized	Eastbound	38.6	D	42.5	D
		Westbound	912.2	F	782.5	F
		Northbound	21.4	C	361.8	F
		Southbound	8.9	A	38.3	D
		<b>Whole Int.</b>	<b>136.5</b>	<b>F</b>	<b>224.6</b>	<b>F</b>
S. Washington Street @ SR 73 / US 321	Signalized	Eastbound	825.6	F	1713.0	F
		Westbound	113.5	F	1914.0	F
		Northbound	578.2	F	734.6	F
		Southbound	1044.0	F	1660.0	F
		<b>Whole Int.</b>	<b>732.8</b>	<b>F</b>	<b>1290.0</b>	<b>F</b>
SR 73 / US 321 @ SR 335 / Old Glory Road	Signalized	Eastbound	*	F	475.4	F
		Westbound	402.3	F	733.4	F
		Northbound	34.1	C	27.9	C
		Southbound	34.0	C	55.2	E
		<b>Whole Int.</b>	<b>*</b>	<b>F</b>	<b>429.9</b>	<b>F</b>

\*Delay too high to calculate

**Table 18: 2015 Build (Alternatives A/C) Intersection Levels of Service**

Intersection	Type	Approach	AM	LOS	PM	LOS
			Avg. Delay (sec)		Avg. Delay (sec)	
SR 115 / US 129 @ SR 73 / US 321	Signalized	Eastbound	243.8	F	573.7	F
		Westbound	56.8	E	152.2	F
		Northbound	1329.0	F	420.3	F
		Southbound	34.4	C	439.4	F
		<b>Whole Int.</b>	<b>647.0</b>	<b>F</b>	<b>385.6</b>	<b>F</b>
SR 33 @ Wildwood Road	Signalized	Westbound	59.9	E	51.9	D
		Northbound	53.6	D	119.6	F
		Southbound	49.9	D	80.4	F
		<b>Whole Int.</b>	<b>53.9</b>	<b>D</b>	<b>43.6</b>	<b>F</b>
SR 33 / E. Broadway Avenue @ SR 35 / S. Washington Street	Signalized	Eastbound	34.7	C	42.6	D
		Westbound	39.7	D	49.5	D
		Northbound	31.4	C	31.9	C
		Southbound	24.7	C	31.6	C
		<b>Whole Int.</b>	<b>31.2</b>	<b>C</b>	<b>35.6</b>	<b>D</b>
SR 33 @ SR 73 / US 321	Signalized	Eastbound	73.0	E	933.6	F
		Westbound	34.3	C	266.2	F
		Northbound	1421.0	F	596.3	F
		Southbound	37.8	D	255.8	F
		<b>Whole Int.</b>	<b>506.5</b>	<b>F</b>	<b>540.9</b>	<b>F</b>
SR 35 / S. Washington Street @ Sevierville Road	Signalized	Eastbound	27.5	C	38.9	D
		Westbound	36.0	D	46.7	D
		Northbound	14.1	B	11.6	B
		Southbound	13.7	B	12.8	B
		<b>Whole Int.</b>	<b>16.4</b>	<b>B</b>	<b>16.0</b>	<b>B</b>
S. Washington Street / SR 35 @ High Street / SR 35	Signalized	Eastbound	36.5	D	39.3	D
		Westbound	172.1	F	105.1	F
		Northbound	18.3	B	38.5	D
		Southbound	7.4	A	24.0	C
		<b>Whole Int.</b>	<b>36.7</b>	<b>D</b>	<b>38.1</b>	<b>D</b>
S. Washington Street @ SR 73 / US 321	Signalized	Eastbound	321.3	F	594.7	F
		Westbound	32.0	C	72.0	E
		Northbound	185.2	F	323.6	F
		Southbound	303.6	F	730.2	F
		<b>Whole Int.</b>	<b>247.3</b>	<b>F</b>	<b>494.3</b>	<b>F</b>
SR 73 / US 321 @ SR 335 / Old Glory Road	Signalized	Eastbound	457.7	F	221.5	F
		Westbound	232.1	F	366.6	F
		Northbound	27.8	C	25.7	C
		Southbound	29.1	C	32.7	C
		<b>Whole Int.</b>	<b>258.8</b>	<b>F</b>	<b>213.5</b>	<b>F</b>

**Table 19: 2015 Build (Alternatives A/C) New SR 33 at I-140 Intersection Levels of Service**

Intersection	Type / Scenario	Approach	AM	LOS	PM	LOS
			Avg. Delay (sec)		Avg. Delay (sec)	
SR 33 @ I-140 North Ramp	Signalized; Dual Turn Lanes for Each Direction and Dual NB/SB Through Lanes	Westbound	51.5	D	29.1	C
		Northbound	23.3	C	15.1	B
		Southbound	53.4	D	19.5	B
		<b>Whole Int.</b>	<b>34.2</b>	<b>C</b>	<b>17.7</b>	<b>B</b>
SR 33 @ I-140 South Ramp	Signalized; Dual SB Lefts, Single EB Left, Triple EB Rights, and Dual NB/SB Through Lanes	Eastbound	61.7	E	63.2	E
		Northbound	65.4	E	74.4	E
		Southbound	14.1	B	28.4	C
		<b>Whole Int.</b>	<b>53.4</b>	<b>D</b>	<b>59.2</b>	<b>E*</b>

\*The intersection level of service could be improved to an acceptable level if the eastbound right turns were allowed to operate in a free-flow manner and thereby not controlled by the signal.

**Table 20: 2015 Build (Alternatives A/C) New US 411 at I-140 Intersection Levels of Service**

Intersection	Type / Scenario	Approach	AM	LOS	PM	LOS
			Avg. Delay (sec)		Avg. Delay (sec)	
US 411 @ I-140 West Ramp	Signalized; Exclusive WB Left Turn Lane and SB Left and Right Turn Lane	Eastbound	34.9	C	47.6	D
		Westbound	17.1	B	27.5	C
		Southbound	20.9	C	21.4	C
		<b>Whole Int.</b>	<b>27.6</b>	<b>C</b>	<b>30.6</b>	<b>C</b>
US 411 @ I-140 East Ramp	Signalized; Exclusive EB Left Turn Lane Only	Eastbound	30.9	C	19.3	B
		Westbound	10.8	B	10.9	B
		Northbound	28.0	C	27.2	C
		<b>Whole Int.</b>	<b>27.4</b>	<b>C</b>	<b>19.4</b>	<b>B</b>

**Table 21: 2035 Build (Alternatives A/C) Intersection Levels of Service**

Intersection	Type	Approach	AM	LOS	PM	LOS
			Avg. Delay (sec)		Avg. Delay (sec)	
SR 115 / US 129 @ SR 73 / US 321	Signalized	Eastbound	782.0	F	1231.0	F
		Westbound	369.3	F	679.4	F
		Northbound	2242.0	F	1038.0	F
		Southbound	39.8	D	1006.0	F
		<b>Whole Int.</b>	<b>1225.0</b>	<b>F</b>	<b>972.7</b>	<b>F</b>
SR 33 @ Wildwood Road	Signalized	Westbound	346.5	F	62.4	E
		Northbound	536.6	F	1192.0	F
		Southbound	349.1	F	1015.0	F
		<b>Whole Int.</b>	<b>421.5</b>	<b>F</b>	<b>955.9</b>	<b>F</b>
SR 33 / E. Broadway Avenue @ SR 35 / S. Washington Street	Signalized	Eastbound	39.7	D	51.8	D
		Westbound	54.6	E	76.1	E
		Northbound	39.1	D	37.4	D
		Southbound	26.2	C	52.1	D
		<b>Whole Int.</b>	<b>38.0</b>	<b>D</b>	<b>50.5</b>	<b>D</b>
SR 33 @ SR 73 / US 321	Signalized	Eastbound	644.6	F	1852.0	F
		Westbound	360.7	F	642.7	F
		Northbound	2357.0	F	1056.0	F
		Southbound	57.1	E	832.4	F
		<b>Whole Int.</b>	<b>1079.0</b>	<b>F</b>	<b>1134.0</b>	<b>F</b>
SR 35 / S. Washington Street @ Sevierville Road	Signalized	Eastbound	27.6	C	39.3	D
		Westbound	37.4	D	48.4	D
		Northbound	15.0	B	12.4	B
		Southbound	14.4	B	14.3	B
		<b>Whole Int.</b>	<b>17.2</b>	<b>B</b>	<b>17.2</b>	<b>B</b>
S. Washington Street / SR 35 @ High Street / SR 35	Signalized	Eastbound	35.9	D	38.7	D
		Westbound	414.0	F	323.6	F
		Northbound	19.9	B	111.5	F
		Southbound	8.0	A	22.2	C
		<b>Whole Int.</b>	<b>68.5</b>	<b>E</b>	<b>84.0</b>	<b>F</b>
S. Washington Street @ SR 73 / US 321	Signalized	Eastbound	688.8	F	1383.0	F
		Westbound	49.7	D	1164.0	F
		Northbound	618.6	F	789.9	F
		Southbound	829.7	F	1379.0	F
		<b>Whole Int.</b>	<b>664.6</b>	<b>F</b>	<b>1123.0</b>	<b>F</b>
SR 73 / US 321 @ SR 335 / Old Glory Road	Signalized	Eastbound	*	F	489.8	F
		Westbound	411.2	F	751.2	F
		Northbound	34.6	C	28.1	C
		Southbound	34.3	C	57.2	E
		<b>Whole Int.</b>	<b>*</b>	<b>F</b>	<b>441.1</b>	<b>F</b>

\*Delay too high to calculate

**Table 22: 2035 Build (Alternatives A/C) New SR 33 at I-140 Intersection Levels of Service**

Intersection	Type / Scenario	Approach	AM	LOS	PM	LOS
			Avg. Delay (sec)		Avg. Delay (sec)	
SR 33 @ I-140 North Ramp	Signalized; Dual Turn Lanes for Each Direction and Dual NB/SB Through Lanes	Westbound	274.4	F	166.0	F
		Northbound	181.4	F	197.5	F
		Southbound	250.0	F	119.1	F
		<b>Whole Int.</b>	<b>215.4</b>	<b>F</b>	<b>172.9</b>	<b>F</b>
SR 33 @ I-140 South Ramp	Signalized; Dual SB Lefts, Single EB Left, Triple EB Rights, and Dual NB/SB Through Lanes	Eastbound	329.0	F	302.9	F
		Northbound	364.3	F	421.2	F
		Southbound	18.3	B	39.1	D
		<b>Whole Int.</b>	<b>269.9</b>	<b>F</b>	<b>279.0</b>	<b>F</b>

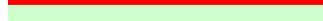
**Table 23: 2035 Build (Alternatives A/C) New US 411 at I-140 Intersection Levels of Service**

Intersection	Type / Scenario	Approach	AM	LOS	PM	LOS
			Avg. Delay (sec)		Avg. Delay (sec)	
US 411 @ I-140 West Ramp	Signalized; Exclusive WB Left Turn Lane and SB Left and Right Turn Lane	Eastbound	34.5	C	50.5	D
		Westbound	19.0	B	24.9	C
		Southbound	20.9	C	27.4	C
		<b>Whole Int.</b>	<b>26.6</b>	<b>C</b>	<b>34.5</b>	<b>C</b>
US 411 @ I-140 East Ramp	Signalized; Exclusive EB Left Turn Lane Only	Eastbound	38.2	D	19.8	B
		Westbound	10.1	B	10.7	B
		Northbound	37.6	D	29.5	C
		<b>Whole Int.</b>	<b>34.0</b>	<b>C</b>	<b>20.6</b>	<b>C</b>

Table 24 provides a summary of the intersection level of service.

**Table 24: Intersection Levels of Service Summary**

Intersection	AM					PM				
	2006 No-Build	2015 No-Build	2035 No-Build	2015 Build	2035 Build	2006 No-Build	2015 No-Build	2035 No-Build	2015 Build	2035 Build
SR 115 / US 129 @ SR 73 / US 321	F	F	F	F	F	F	F	F	F	F
SR 33 @ I-140	F	F	F	D	F	F	F	F	E	F
SR 33 @ Wildwood Rd	D	E	F	D	F	F	F	F	F	F
SR 33 / E. Broadway Ave @ SR 35 / S. Washington St	D	D	F	C	D	D	E	F	D	D
SR 33 @ SR 73 / US 321	F	F	F	F	F	F	F	F	F	F
SR 35 / S. Washington St @ Sevierville Rd	B	B	B	B	B	B	B	B	B	B
S. Washington St / SR 35 @ High St / SR 35	C	D	F	D	E	C	D	F	D	F
S. Washington St @ SR 73 / US 321	C	F	F	F	F	F	F	F	F	F
SR 73 / US 321 @ SR 335 / Old Glory Rd	F	F	F	F	F	F	F	F	F	F
US 411 @ I-140	Does Not Exist	Does Not Exist	Does Not Exist	C	C	Does Not Exist	Does Not Exist	Does Not Exist	C	C

 LOS E - F  
 LOS A - D

Based on this analysis, there are no intersections where the construction of the Pellissippi Parkway Extension would degrade the level of service. There are a few intersections where the proposed project would improve the level of service. The locations include:

- Improvement at the intersection of SR 33 at Wildwood Road for the year 2015 during the AM peak period – the LOS is improved to a LOS D from a LOS E, which is at the threshold for acceptable operations.
- Improvements for SR 33 / E. Broadway Avenue at SR 35 / S. Washington Street intersection for 2015 and 2035 for both peak periods.

There is an improvement for the year 2015 at the intersection of SR 33 and I-140 (Pellissippi Parkway); however, this improvement is a result of improvements at the new ramp intersections including signaling both intersections and adding turn lanes and dual northbound/southbound through lanes. Additional improvements were evaluated for the 2035 Build scenario; however, it was not possible to achieve an acceptable LOS (i.e. LOS D) for this intersection.