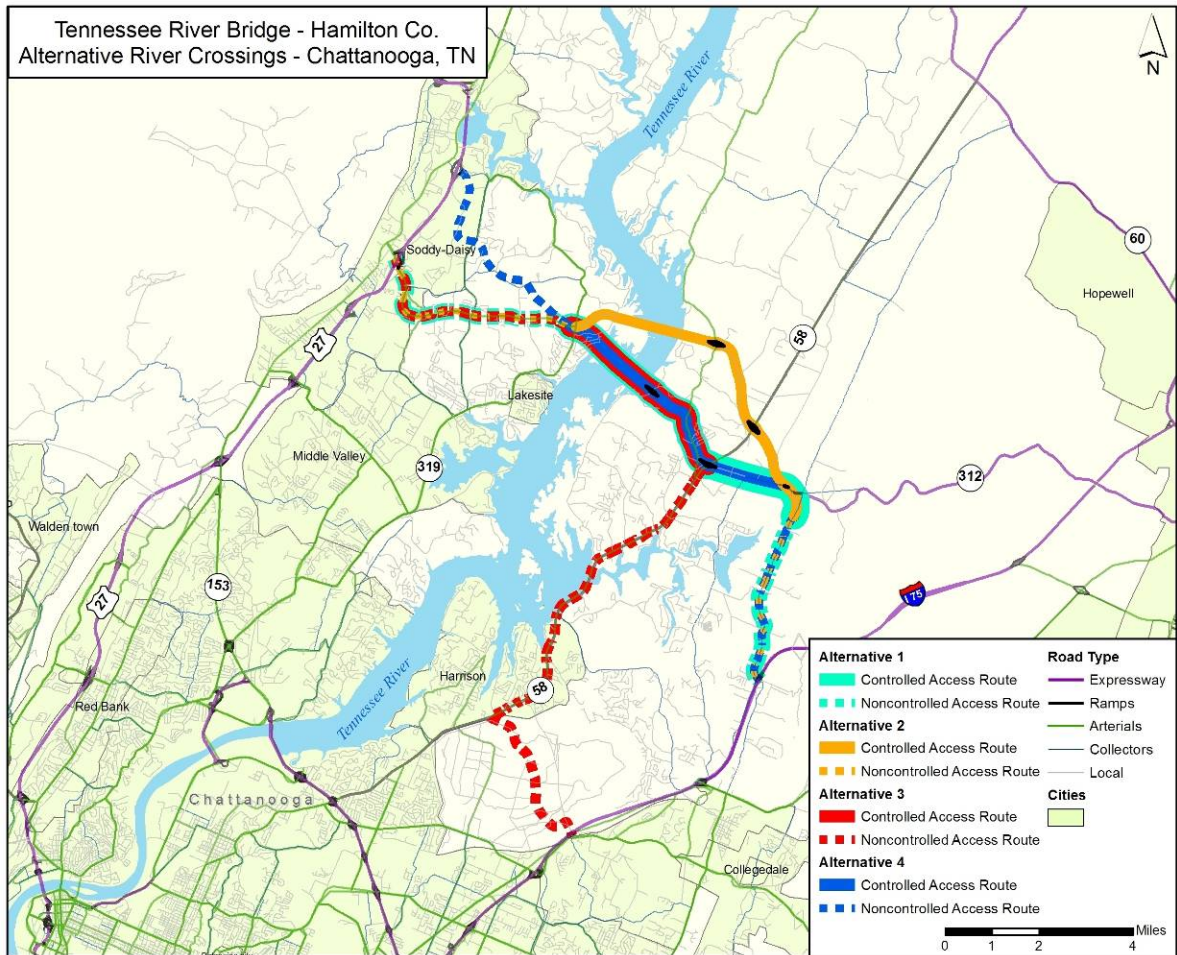


Proposed Tennessee River Bridge Sketch Traffic and Revenue Study



2/4/2009

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CHAPTER 1

INTRODUCTION

The proposed Tennessee River Bridge in Hamilton County, Tennessee is one of several toll projects considered by the Tennessee Department of Transportation (TDOT). Wilbur Smith Associates (WSA) was retained by TDOT to perform a feasibility study of the proposed facility. This report documents the traffic and revenue study that was conducted as part of the overall feasibility study. The primary objective of this study is to determine the potential toll revenue that could be expected from the proposed facility.

This report provides a brief discussion of the tasks performed as part of the study and details the results of the planning level forecasts of potential toll traffic and revenue for each of four alternative crossing configurations. This level of study is not intended for use in direct support of project financing. A more detailed comprehensive traffic and revenue study would be required for that purpose.

PROJECT DESCRIPTION

The four Tennessee River crossing alternatives studied in this analysis were defined in the January 25, 2008 Tennessee River Bridge Feasibility Study, prepared by TDOT. Each of the four alternatives includes a crossing of the Tennessee River in Hamilton County, Tennessee, extending from US 27 in the west to Interstate 75 in the east. The proposed Tennessee River Bridge would provide a sixth river crossing in the Chattanooga region and provide a connection between the communities of Soddy-Daisy and Harrison.

The study effort relied on existing data made available by the Chattanooga-Hamilton County-North Georgia Transportation Planning Organization (CHCNGA-TPO). The results are highly dependent on the trip movement patterns reflected in existing and future year trip tables that were developed through the CHCNGA-TPO planning process.

ALTERNATIVE DESCRIPTIONS

The four Tennessee River Bridge alternatives included in this analysis would extend from US 27 on the west side of the river to Interstate 75 on the east side. The four alternatives are shown in Figure 1-1 and described below.

Alternative 1: The western terminus of Alternative 1 is located at the interchange between US 27 and Sequoyah Road. Alternative 1 generally heads in a southeast direction and has an eastern terminus on Interstate 75 at approximately mile marker 13. Intermediate full access interchanges are assumed with Harrison Bay Road, State Route (SR) 58, and Ooltewah-Georgetown Road. The total length of Alternative 1 is approximately 15 miles.

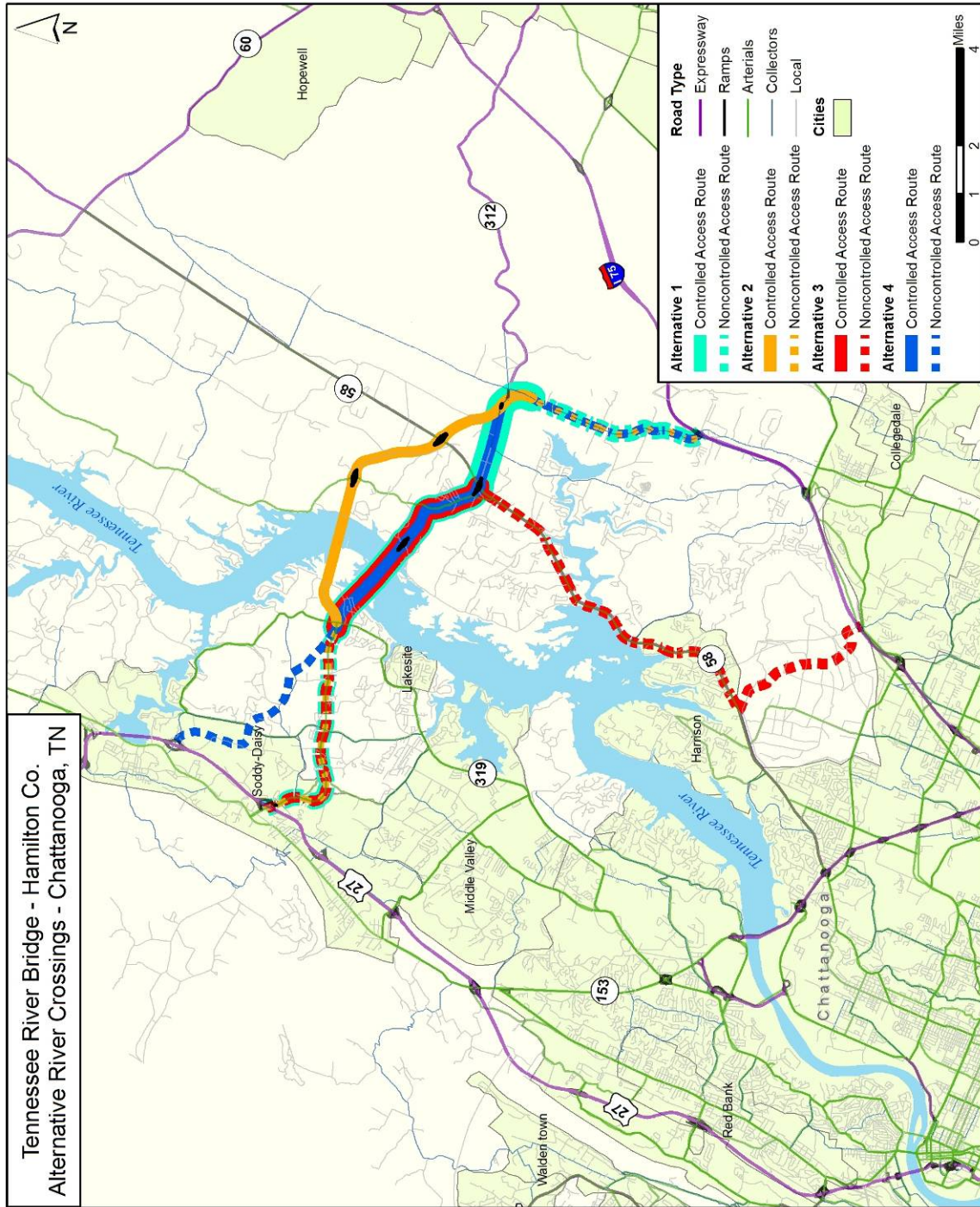
Alternative 2: The western terminus of Alternative 2 is the same as Alternative 1, but the remainder is slightly farther north than Alternative 1. Alternative 2, which is approximately 16 miles in length, meets up with Alternative 1 east of SR 58 and continues south to terminate on Interstate 75 at approximately mile marker 13.

Alternative 3: From its western terminus to SR 58, Alternative 3 is the same as Alternative 1. At SR 58, Alternative 3 turns south onto SR 58 until turning east onto Enterprise Park Drive and terminating on Interstate 75 near mile marker 8. Alternative 3 is the most southern alternative and is approximately 20 miles in length.

Alternative 4: Alternative 4 has the furthest north western terminus of the four alternatives. From the existing interchange between US 27 and SR 319, Alternative 4 extends south and then southeast, crossing the Tennessee River along the same alignment as alternatives 1 and 3. From the eastern end of the bridge, the alternative continues along the same alignment as Alternative 1 to its eastern terminus at Interstate 75, near mile marker 13. Alternative 4 is approximately 15 miles in length.

Each of the four alternatives was assumed to have an opening year of 2018, and was assumed to be constructed with alignments and interchanges as specified in the Tennessee River Bridge Feasibility Study. As shown in the following figure, all four alternatives were assumed to have portions of roadway with and without controlled access. Design speeds varied according to whether access to each portion of the roadway was controlled. Controlled access portions were assumed to be constructed at Interstate standards, and speeds on these segments were assumed to be 70 miles per hour. A total of four travel lanes are assumed, with ten foot shoulders where possible and a divided median.

Figure 1-1: Alternative Locations



STUDY OUTLINE

The analysis of the four Tennessee River Bridge alternatives included the following tasks:

REVIEW OF EXISTING DATA

To ensure timely completion of the analysis, the study effort generally relied on existing data from a variety of sources. Travel demand model networks and trip tables produced by CHCNGA-TPO were reviewed and used in the WSA toll analysis model. Traffic count data used in this study were provided by TDOT.

TRAFFIC MODEL REFINEMENT AND VALIDATION

The travel demand model networks and trip tables produced by CHCNGA-TPO were converted into a format that could be used by the WSA model for estimating toll revenues. The WSA model was then validated by comparing model outputs to recent traffic count data.

CORRIDOR GROWTH ANALYSIS

The population and economic growth potential for the study region is particularly important for a start-up toll facility such as the proposed Tennessee River Bridge. The configuration and alignments under consideration would provide significantly improved access to and within the Chattanooga Metropolitan Statistical Area (MSA). As a check of the model's socioeconomic forecasts and assumptions, an assessment of the area's economic growth was conducted. This effort includes a review of recent economic and demographic trends in Chattanooga and the surrounding area.

PARAMETER CALCULATION

Although existing data was used where possible, key variables which impact the traffic and revenue results for the four alternatives needed to be calculated independently by WSA. These variables included corridor level value-of-time characteristics, cash and electronic toll collection costs, and other related operating expenses.

TRAFFIC AND REVENUE ANALYSIS

The validated model was used to run a series of traffic assignments, both with and without the proposed Tennessee River crossing. The travel demand estimates were then evaluated using techniques such as select link analysis, corridor share analysis, and capture rate analysis.

A conceptual toll collection configuration was developed and incorporated into the model network. The model was then run with a series of progressively higher toll rates to produce toll sensitivity curves. These curves were used to determine the optimum toll levels for the facility opening year of 2018. These optimum rates were then used to estimate toll revenue. Based on the results of the toll sensitivity analysis, annual estimates of traffic and revenue were developed from opening year 2018 through 2057.

REPORT STRUCTURE

The remainder of this report consists of three chapters. Chapter 2 presents an overview of current traffic conditions in the study area. Chapter 3 describes the socioeconomic growth trends and forecasts of growth for the study area. Chapter 4 describes the development of the traffic forecast model, toll sensitivity analysis, traffic and revenue forecasts, and the net toll operating revenue.

CHAPTER 2

EXISTING TRAFFIC CONDITIONS

WSA conducted an inventory of existing corridor characteristics and traffic levels to provide a basis for the sketch level traffic and revenue analysis. The team identified the major competing and complementary routes to the proposed Tennessee River Bridge.

This chapter includes historic traffic volume data and vehicle classification data.

EXISTING HIGHWAY SYSTEM

A variety of traffic and other information on Chattanooga area roadways was provided to WSA for this analysis. This information was used to verify and, where necessary, update roadway link characteristics in the travel demand model. This ensured that the traffic network accurately reflected current roadway characteristics. As part of this process, key highway attributes were identified including posted speed limits, number of lanes, presence and location of turning lanes, and the locations of interchanges and traffic signals.

TRAFFIC COUNTS

Traffic counts of the current Tennessee River crossings in the Chattanooga region were reviewed as part of the study. A total of five vehicular bridges currently provide access across the Tennessee River in the region. The closest crossings to the proposed bridge are located to the south and carry SR 153 and Dupont Parkway (SR 319) across the Tennessee River. Further to the south, in downtown Chattanooga, cross-river traffic is carried by Georgia Avenue, SR 8, and US 27.

Traffic growth on these five bridges is presented below in Table 2-1. As shown, between 1990 and 2007, all five bridges have experienced positive traffic growth. However,

traffic growth between 1990 and 2000 was significantly greater than between 2000 and 2007. From 1990 to 2000, total traffic growth across the river averaged 2.7 percent annually, compared to just 1.1 percent between 2000 and 2007. The three most southernmost crossings near downtown Chattanooga experienced the greatest growth over the 17 year period while the two more northernmost bridges experienced lower total growth including a decline in traffic between 2000 and 2007.

Table 2-1: Tennessee River Crossing Screenline Annual Average Daily Count

Year	US 27	SR 8	Georgia Ave.	Dupont Pkwy.	SR 153	Total
1990	41,078	14,254	20,708	22,093	42,900	141,033
1991	51,034	14,774	21,008	22,000	41,709	150,525
1992	49,773	14,700	20,566	22,833	33,100	140,972
1993	56,872	19,158	23,000	25,953	40,776	165,759
1994	55,676	17,634	17,992	30,493	41,500	163,295
1995	63,855	20,039	25,853	28,293	48,979	187,019
1996	60,731	15,624	20,880	28,728	51,912	177,875
1997	61,111	18,205	21,000	30,673	52,871	183,860
1998	59,082	19,019	26,219	29,258	53,340	186,918
1999	62,648	20,398	23,987	29,578	54,535	191,146
2000	55,098	19,466	24,518	30,236	55,209	184,527
2001	60,919	20,019	23,489	26,259	56,636	187,322
2002	61,702	20,858	25,168	31,329	58,062	197,119
2003	61,169	19,567	24,242	31,095	59,121	195,194
2004	66,483	20,402	26,033	32,028	52,453	197,399
2005	62,697	20,680	18,184	26,752	56,262	184,575
2006	65,335	20,959	27,100	28,573	52,285	194,252
2007	66,878	21,237	27,913	28,875	53,673	198,576
1990-2000 Growth	3.0%	3.2%	1.7%	3.2%	2.6%	2.7%
2000-2007 Growth	2.8%	1.3%	1.9%	-0.7%	-0.4%	1.1%
1990-2007 Growth	2.9%	2.4%	1.8%	1.6%	1.3%	2.0%

Source: Tennessee Department of Transportation

TRUCK PERCENTAGE

Table 2-2 shows a summary of vehicle classification data provided by TDOT for the five existing Tennessee River bridges. The crossings are listed in order of the southernmost river crossing to the northernmost.

Table 2-2: Truck Percentage from 2007

Tennessee River Bridge Count Location	TDOT Count Station #	2007 AADT	Truck Volume	Truck Percentage
US 27 / SR 29	143	66,880	5,183	7.7%
SR 8	110	21,240	1,911	9.0%
Veterans Bridge (Barton Road)	356	27,910	558	2.0%
Dupont Parkway SR 319	313	28,880	8,66	3.0%
SR 153	209	53,670	4,830	9.0%

CHAPTER 3

CORRIDOR GROWTH ANALYSIS

The City of Chattanooga is located in Tennessee's southeast corner, adjacent to the Georgia state line. As defined by the U.S. Census Bureau, the Chattanooga Metropolitan Statistical Area (Chattanooga MSA) includes Hamilton and Marion counties in Tennessee, and Catoosa, Dade, and Walker counties in Georgia. The Chattanooga MSA includes an older city center that forms the core of a mid-sized metropolitan area whose population has increased by nearly 20 percent since 1990.

This chapter provides an overview of recent demographic and economic trends in the Chattanooga area. The first sections describe changes in the number of persons and households since 1990 in the five-county area. Changes in personal and household incomes are also discussed, and a summary of employment trends in the area is provided. The chapter ends with a summary of forecast changes in population, households and employment.

POPULATION TRENDS

Table 3.1 shows U.S. Census Bureau population counts, estimates and annualized rates of change for the Chattanooga MSA counties from 1990 to 2007. Hamilton County, which includes Chattanooga, showed the greatest increase in population between 1990 and 2000, adding over 20,000 residents in this period. Although Hamilton County's growth rate of 0.8 percent was the second lowest of the five counties, nearly half of the net Chattanooga MSA population growth between 1990 and 2000 came to Hamilton County, which added over 20,000 new residents in that decade. Catoosa County, with an annual growth rate of 2.3 percent, was the fastest growing of the five counties between 1990 and 2000, adding over 10,000 new residents.

Similar growth patterns can be seen in the years since the 2000 Census. From 2000 to 2007, net population growth is still centered in Hamilton County, which has added over 22,000 new residents in the decade to date. The highest growth rate since 2000 was again observed in Catoosa County, which showed an annual growth rate of 2.2 percent and added nearly 9,000 new residents. None of the counties has shown a population loss since 1990, although growth in Marion County has flattened out to an annual growth rate of just 0.2 percent since 2000.

Table 3-1: Population Trends 2000-2006

Area		1990 Census	2000 Census	Change 1990-2000	Average Annual Change	2007 Estimate	Change 2000-2007	Average Annual Change
MSA Counties	Catoosa (GA)	42,464	53,282	10,818	2.3%	62,241	2.2%	2.2%
	Dade (GA)	13,147	15,154	2,007	1.4%	16,098	0.9%	0.9%
	Walker (GA)	58,340	61,053	2,713	0.5%	64,554	0.8%	0.8%
	Hamilton (TN)	285,536	307,896	22,360	0.8%	330,168	1.0%	1.0%
	Marion (TN)	24,860	27,776	2,916	1.1%	28,138	0.2%	0.2%
Chattanooga MSA		424,347	465,161	40,814	0.9%	501,199	36,038	1.1%
Tennessee		4,877,185	5,689,283	812,098	1.6%	6,156,719	467,436	1.1%
Georgia		6,478,216	8,186,453	1,708,237	2.4%	9,544,750	1,358,297	2.2%
United States		248,709,873	281,421,906	32,712,033	1.2%	301,621,157	20,199,251	1.0%

Source: US Census Bureau

* Sequatchie County (TN) was considered part of the Chattanooga MSA for the 1990 Census, but not for the 2000 Census.

Unless otherwise noted, all MSA totals in this document refer to the 2000 MSA designation, which includes the five counties listed above.

HOUSEHOLD TRENDS

Table 3-2 shows changes in the number and average size of households in the Chattanooga MSA, the two states, and in the U.S. as a whole between 2000 and 2006. The number of households in the Chattanooga MSA increased by ten percent, a larger increase than those of Tennessee and the U.S., but lower than the growth rate of Georgia.

Average household size declined slightly in the Chattanooga MSA and Tennessee, but grew slightly in Georgia and in the entire U.S. The Chattanooga MSA's 2006 average household size of 2.39 was lower than that of either state or the U.S., reflecting a large proportion of older households.

Table 3-2: Household Trends 2000-2006

Area	Number of Households			Average Household Size		
	2000	2006	Average Annual Percent Change	2000	2006	Change
Chattanooga MSA	185,144	203,599	1.6%	2.46	2.39	-0.07
Tennessee	2,232,905	2,375,123	1.0%	2.53	2.48	-0.05
Georgia	3,006,369	3,376,763	2.0%	2.65	2.69	0.04
United States	105,480,101	111,617,402	0.9%	2.59	2.61	0.02

Source: US Census Bureau

PERSONAL AND HOUSEHOLD INCOME

The decennial census long form asks respondents to report their annual incomes for the previous year. The median household incomes of area counties in 1989 and 1999 are shown in Table 3-3.

In 1989, Hamilton County, home to the city of Chattanooga, had the highest median income, followed by Catoosa County. By 1999, Catoosa County had passed Hamilton County. Marion County continues to have lowest income of the Chattanooga MSA counties, although it showed a relatively robust rate of 1.6 percent annual income growth. The next highest median household income was found in Walker County, where incomes remained flat through the decade after adjusting for inflation.

Table 3-3: Median Household Income 1989-1999

Area		Median Income					
		Unadjusted			2006 Dollars*		
		1989	1999	Average Annual Change	1989	1999	Average Annual Change
	Catoosa (GA)	\$25,581	\$39,998	4.6%	\$40,858	\$47,560	1.5%
MSA	Dade (GA)	\$20,176	\$35,259	5.7%	\$32,225	\$41,925	2.7%
Counties	Walker (GA)	\$24,068	\$32,406	3.0%	\$38,441	\$38,533	0.0%
	Hamilton (TN)	\$26,523	\$38,930	3.9%	\$42,362	\$46,290	0.9%
	Marion (TN)	\$20,045	\$31,419	4.6%	\$32,016	\$37,359	1.6%
	Chattanooga MSA**	\$25,475	\$37,411	3.9%	\$40,688	\$44,484	0.9%
	Tennessee	\$24,807	\$36,360	3.9%	\$39,621	\$43,234	0.9%
	Georgia	\$29,021	\$42,433	3.9%	\$46,352	\$50,455	0.9%
	United States	\$30,056	\$41,994	3.4%	\$48,865	\$50,816	0.4%

Sources: US Census Bureau, US Bureau of Labor Statistics

*2006 dollars for US calculated using BLS consumer price indices for all urban areas.

South regional CPI-U used to inflate state, county, and MSA income values.

**1989 MSA median income includes Sequatchie County (TN)

Table 3-4 shows changes in per capita income from 1994 to 2006 in the area counties, in the two states, and in the U.S. as a whole. Incomes have grown in the Chattanooga MSA as well as in the two states, but not as fast as in the entire U.S. As of 2006, per capita income in the Chattanooga MSA was at 86 percent of the U.S. per capita income, and also lagged behind the per capita incomes of Georgia and Tennessee.

Table 3-4: Per Capita Income Changes 1994-2006

Year	Chattanooga MSA			Tennessee			Georgia			USA	
	Income (\$)	2006 Dollars (\$)	% of US Avg.	Income (\$)	2006 Dollars (\$)	% of US Avg.	Income (\$)	2006 Dollars (\$)	% of US Avg.	Income (\$)	2006 Dollars (\$)
1994	20,405	27,456	91.0	20,233	27,224	90.3	20,711	27,868	92.4	22,172	30,161
1995	21,296	27,828	91.2	21,174	27,668	90.6	21,677	28,326	92.8	23,076	30,526
1996	22,310	28,280	91.0	21,854	27,702	89.2	22,945	29,085	93.6	24,175	31,062
1997	23,070	28,628	90.0	22,676	28,139	88.4	23,795	29,528	92.8	25,334	31,821
1998	24,220	29,677	89.3	23,989	29,394	88.4	25,279	30,974	93.2	26,883	33,249
1999	25,598	30,765	91.0	24,898	29,924	88.5	26,359	31,680	93.7	27,939	33,809
2000	26,953	31,386	89.8	26,095	30,387	87.0	27,987	32,590	93.3	29,845	34,940
2001	27,073	30,807	88.5	26,833	30,534	87.7	28,570	32,511	93.4	30,574	34,804
2002	27,479	30,872	89.4	27,435	30,823	89.2	28,513	32,034	92.7	30,821	34,539
2003	28,101	30,859	89.4	28,257	31,030	89.9	28,696	31,512	91.3	31,504	34,517
2004	29,074	31,137	88.1	29,539	31,635	89.5	29,688	31,795	89.9	33,123	35,350
2005	30,316	31,346	87.4	30,827	31,875	88.8	31,193	32,253	89.9	34,757	35,878
2006	31,685	31,685	86.3	32,172	32,172	87.6	32,095	32,095	87.4	36,714	36,714

Source: Regional Economic Information System, Bureau of Economic Analysis, US Department of Commerce
2006 dollars for US calculated using BLS consumer price indices for all urban areas.
South regional CPI-U used to calculate 2006 dollars for MSA and states

Table 3-5: Labor Force and Employment 1996-2007

Year	Chattanooga MSA		Tennessee		Georgia		US ¹	
	Labor Force	Total Employment	Labor Force	Total Employment	Labor Force	Total Employment	Labor Force	Total Employment
1996	230,402	219,645	2,758,346	2,610,975	3,812,908	3,638,219	133,943	126,708
1997	230,334	218,822	2,788,348	2,640,005	3,926,801	3,751,699	136,297	129,558
1998	230,294	220,604	2,811,700	2,685,151	4,029,245	3,861,646	137,673	131,463
1999	236,013	227,817	2,838,738	2,722,124	4,106,678	3,951,684	139,368	133,488
2000	247,294	238,995	2,871,539	2,756,498	4,242,889	4,095,362	142,583	136,891
2001	246,511	237,245	2,863,516	2,728,523	4,283,156	4,112,868	143,734	136,933
2002	247,524	236,745	2,867,108	2,714,992	4,345,402	4,135,381	144,863	136,485
2003	248,460	237,476	2,896,135	2,731,371	4,382,182	4,173,787	146,510	137,736
2004	250,374	239,196	2,906,869	2,748,584	4,461,287	4,250,777	147,401	139,252
2005	253,742	241,706	2,938,939	2,775,615	4,616,140	4,377,507	149,320	141,730
2006	260,308	249,057	3,008,343	2,853,953	4,732,450	4,516,169	151,428	144,427
2007	263,190	252,581	3,036,736	2,893,748	4,814,831	4,602,947	153,124	146,047
Average annual change 1996-2007	1.2%	1.3%	0.9%	0.9%	2.1%	2.2%	1.2%	1.3%

¹ Number in thousands

Source: Bureau of Labor Statistics

EMPLOYMENT TRENDS

Table 3-5 shows changes in labor force and total employment over the past 12 years in the Chattanooga MSA, the two states, and the U.S. as a whole. Labor force and employment growth in the Chattanooga MSA has been comparable to that of the U.S. and ahead of Tennessee's, while lagging growth in Georgia. Since 1996, employment in the Chattanooga MSA has grown by fifteen percent, adding nearly 33,000 jobs. For 2007, the Chattanooga average median hourly wage was \$13.44.

FUTURE GROWTH FORECASTS

Table 3-6 provides a summary of anticipated population and employment growth in the planning area covered by the CHCNGA-TPO. The planning area includes much of population of the Chattanooga MSA, but does not share the exact MSA boundaries.

Figures 3-1 through 3-3 show anticipated employment, population, and housing growth through 2030 for Hamilton County and bordering portions of Georgia, as forecast by CHCNGA-TPO. Through 2030, employment growth is expected to be concentrated in Catoosa County, Georgia. Population growth is more evenly distributed throughout the region, but is expected to be greatest in Catoosa County.

Table 3-6 summarizes forecast population and employment growth in the area. Population is expected to continue growing over the next three decades at rates that are comparable to the 0.9 percent annual rate observed in the Chattanooga MSA between 1990 and 2000. Employment growth rates are forecast to grow only slightly more slowly than the 1.2 percent rate observed between 1996 and 2007.

Table 3-6: MPO Population and Employment Forecasts through 2040

Year	Population		Employment	
	Total	Average Annual Percent Change	Total	Average Annual Percent Change
2000	395,061	--	287,918	--
2010	438,581	1.1%	316,976	1.0%
2020	480,825	0.9%	351,669	1.0%
2030	522,808	0.8%	393,487	1.1%

Source: Chattanooga-Hamilton County/North Georgia Transportation Planning Organization (CHCNGA-TPO)

Figure 3-1: Future Employment Growth

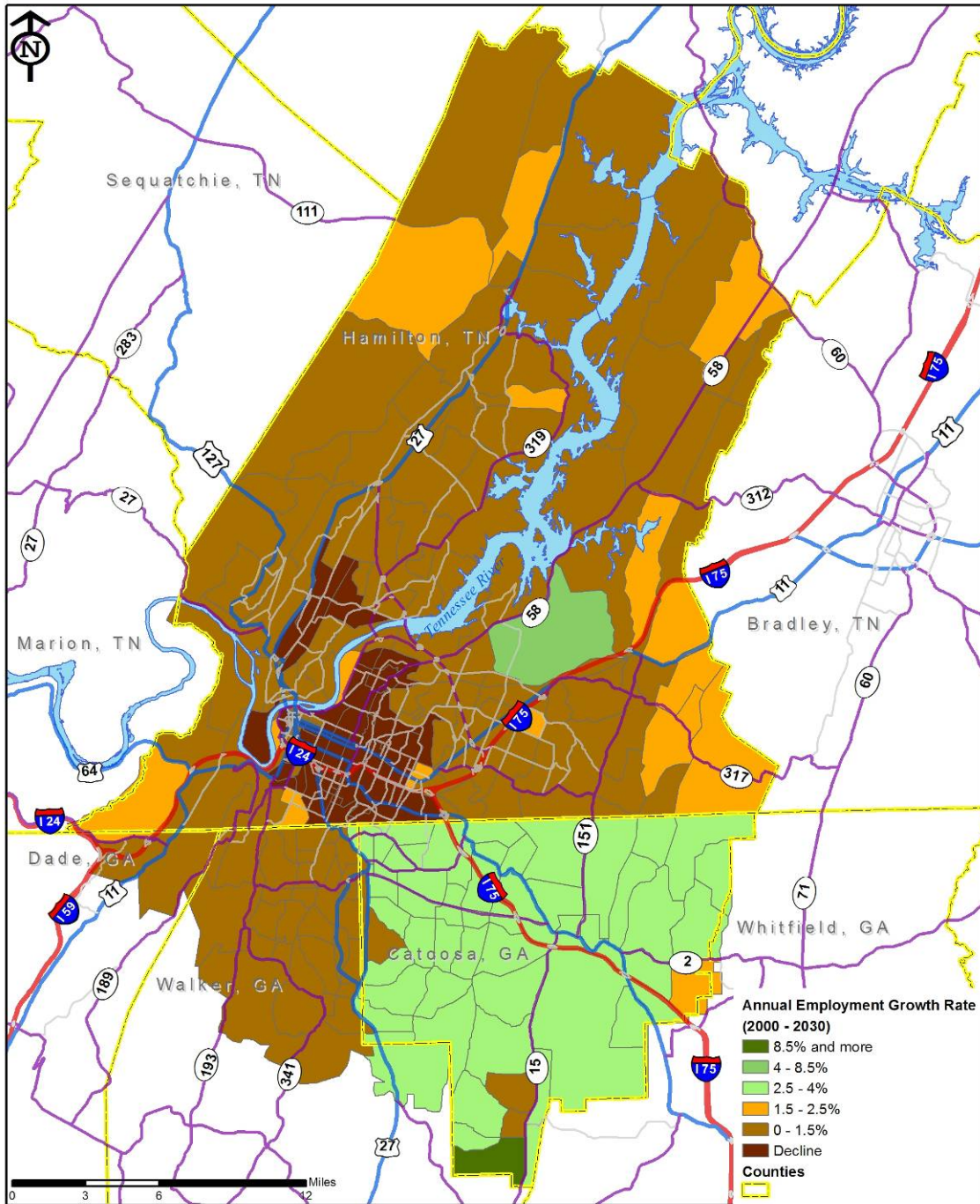


Figure 3-2: Future Population Growth

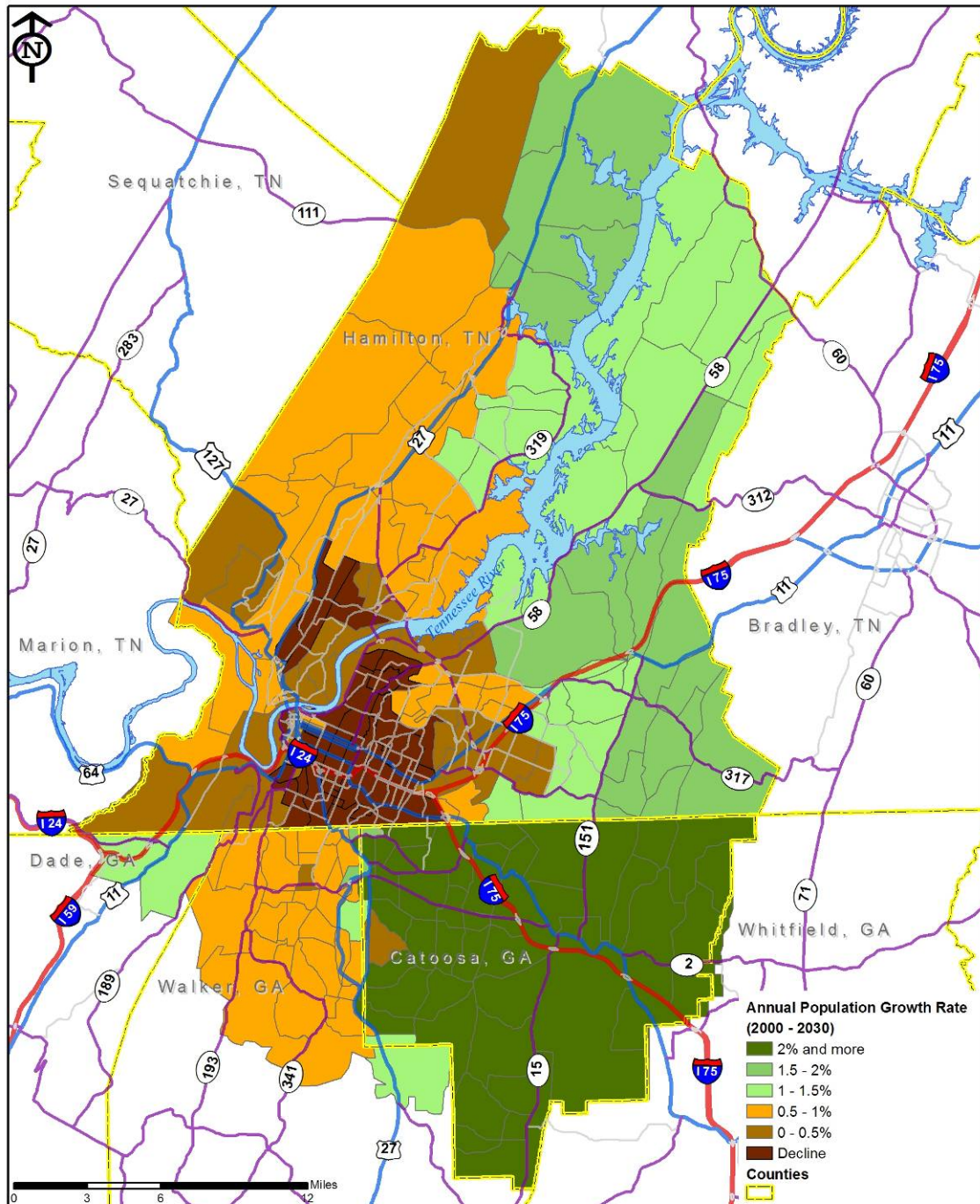
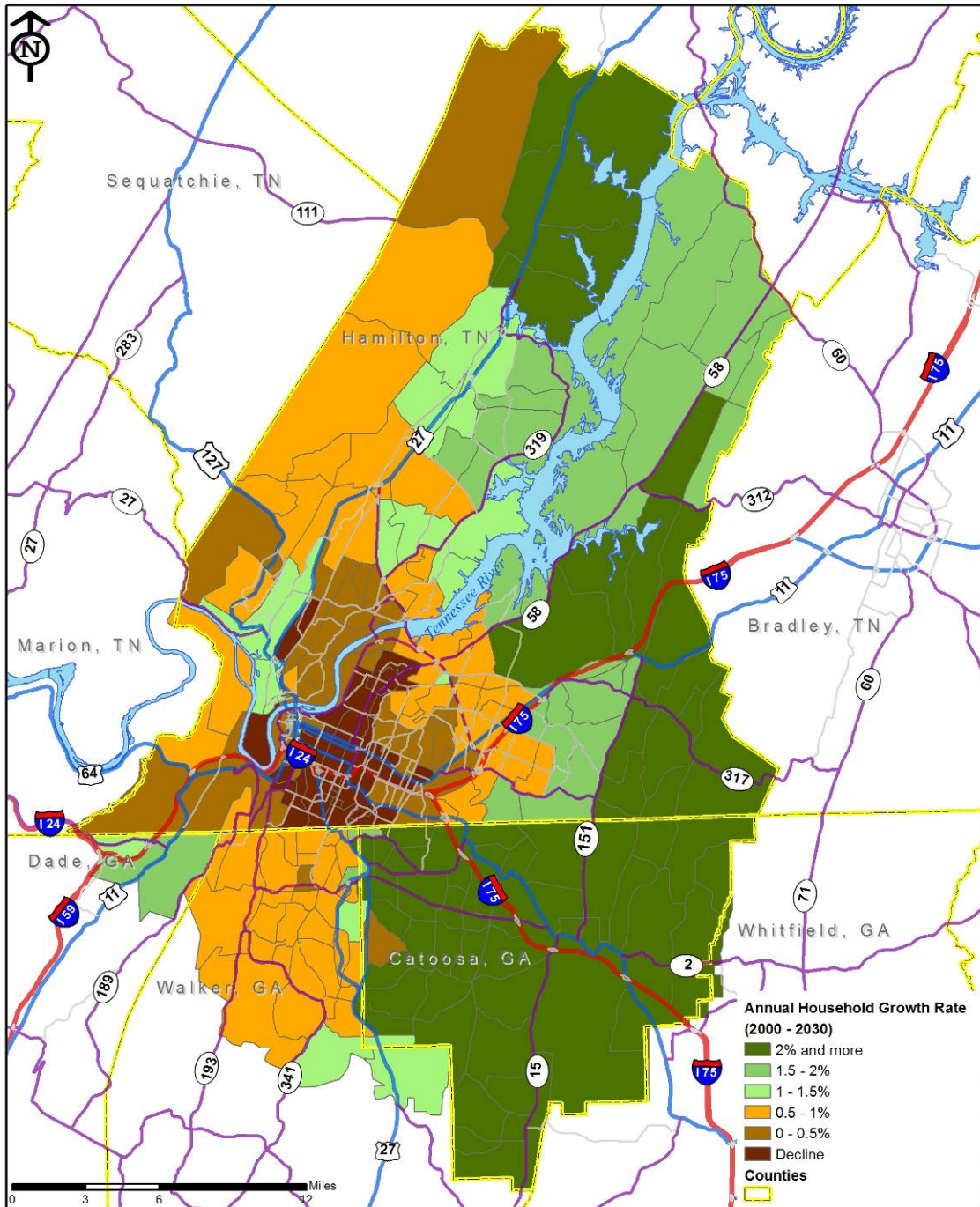


Figure 3-3: Future Household Growth



CHAPTER 4

TRAFFIC AND REVENUE ANALYSIS

This chapter describes how WSA developed the sketch level traffic and revenue forecasts for the proposed Tennessee River Bridge. Beginning with a review of the basic study assumptions included in the forecast, the chapter then includes an overview of the travel demand modeling process and the various parameters included in the analysis. A discussion of the toll collection process includes a toll rate sensitivity analysis, a review of the anticipated toll collection facilities. The gross revenue forecasts for each proposed alternative are then presented. The chapter concludes with estimates of operations and maintenance costs relating to toll collection and the anticipated net revenue forecasts for the proposed alternatives.

BASIC ASSUMPTIONS

A number of assumptions were made in order to complete the forecasts of tolled traffic and revenue presented below. The estimates are predicated on the following basic assumptions, all of which are considered reasonable for the purposes of this analysis.

- Toll increases will be applied in a manner as described in this report.
- No new competing freeway or major arterial facilities, tolled or toll-free, will be constructed during the forecast period.
- The proposed toll facility and its feeder routes will be well maintained, efficiently operated, and effectively signed and promoted in order to encourage maximum usage.
- The ratio of passenger car to commercial vehicle traffic and the distribution of commercial vehicles by axle classification will not vary significantly from the assumed distributions in the CHCNGA-TPO model.
- Population, employment, and development activity within the influence area of the project will be generally in accordance with those projections made by the CHCNGA-TPO.

- No national, regional, or local emergency will arise which would abnormally restrict usage of motor vehicles during the forecast period.
- Motor fuel will remain in adequate supply over the forecast period and fuel prices will stabilize.

TRAFFIC MODEL DEVELOPMENT AND REFINEMENT

To complete the sketch level traffic and revenue analysis, WSA used information from the existing travel demand model made available by the CHCNGA-TPO. The model covers areas to both the east and west of the Tennessee River, which meant that no modifications to the model were necessary to study the four proposed alternatives. Networks and trip tables were provided for future year “no build” and “build” scenarios. The “build” set of trips tables and networks included the proposed Tennessee River Bridge and assumed the full build out of the Enterprise South Industrial Park located north of downtown Chattanooga and just south of the eastern terminus of the project.

To determine if the model was accurately assigning traffic within the study area, base year 2000 model assignments were performed, and model outputs were compared to traffic count data. The comparisons were done based on both the roadway functional class and total roadway volumes. Another means of assessing the validity of model is to compare base year model forecasted traffic to traffic counts using a screenline analysis. A screenline is created by drawing a line on a map between two points. The total traffic on all roads crossing that line is termed the screenline traffic. A natural barrier such as a river is often used to determine a screenline because of the limited number of roads crossing the river. The Tennessee River between downtown Chattanooga and SR 153 served as the screenline in this case. The comparisons showed that the model was performing within Federal Highway Administration targets and was assigning traffic at levels similar to the count data.

SKETCH TRAFFIC AND REVENUE PARAMETERS

In order to complete the traffic and revenue study a number of variables were reviewed as inputs to the travel demand modeling work. Key variables that impact the traffic and revenue analysis of the Tennessee River Bridge project are presented below.

VALUE OF TIME

Regional income levels are a major indicator of the prevalent value of time for residents of an area. WSA reviewed U.S. Census data for the Chattanooga MSA to estimate passenger vehicles’ value of time (VOT). By using household data, median household income, and the number of hours worked per person, an average value of time (in dollars/minute) was estimated. The base year value of time was then adjusted for inflation to get current and future year estimates of values of time. The consumer price index data used to adjust values of time from 1999 levels to 2007 levels is presented in Table 4-1 below. Values were inflated by the assumed inflation rate of 3.0 percent annually beyond

2007. Opening year 2018 passenger car values of time were estimated to reach \$0.23 per minute in 2018 dollars.

Commercial vehicles' value of time is highly dependent on the wages of the vehicle operator. In addition, research has shown that commercial vehicles' value of time can be influenced by the cargo that the operator is hauling and that schedule delays and deliveries made for just-in-time processes can also impact commercial vehicles' value of time. Based on these studies, 2018 commercial vehicle per minute values of time were estimated at \$0.94 for small commercial vehicles, \$1.11 for medium sized commercial vehicles, and \$1.29 for heavy commercial vehicles in 2018 dollars.

Table 4-1: Consumer Price Index for Chattanooga Area

Year	1999	2000	2001	2002	2003	2004	2005	2006	2007
Index	104.0	107.6	110.3	110.9	113.2	116.2	120.1	123.1	126.5

Source: U.S. Bureau of Labor Statistics

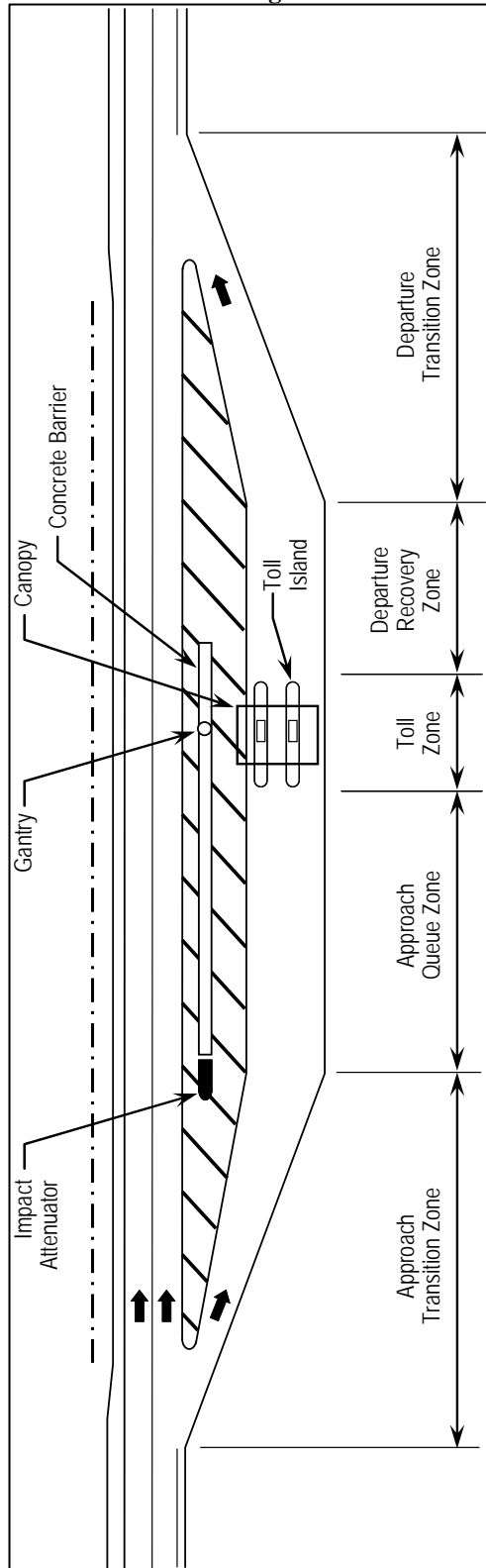
TOLL COLLECTION CONFIGURATION

The toll collection configuration for each of the four proposed alternatives is the same, a single mainline toll plaza collecting a toll from patrons crossing the Tennessee River. Movements between the termini and intermediate interchanges which do not include a crossing of the river will not be charged a toll. Both cash and ETC transactions were assumed to be accommodated at the toll plaza. Cash toll payments would be collected using cash machines, rather than toll collectors, to minimize cash toll collection costs. The mainline toll plaza was assumed to include eight total lanes with the inside four lanes dedicated to ETC. One half of the assumed toll plaza is presented below in Figure 4-1. The other half of the toll plaza, which is not included in the figure below, would be identical to the half presented in Figure 4-1.

TOLL COLLECTION CAPITAL COSTS

WSA completed an estimate of the toll collection system costs for the Tennessee River Bridge. Costs included a number of items such as the mainline structures and appurtenances, communications equipment, power systems, signage, both manual and electronic toll collection systems, vehicle detection and violation triggers, a violation enforcement system, lane and host processing, security access and control, and project delivery costs. It is important to note that the costs did not include utility infrastructure costs, additional warranties or maintenance, and pavement and pavement marking costs. Current 2008 toll facility capital costs were inflated by an assumed inflation factor of 2.5 percent to estimate opening year 2018 costs. The assumed 2.5 percent represents an educated assumption on the amount that their particular costs will rise in the future and is slightly different than the assumed general rate of inflation. After inflation, 2018 toll facility and system capital costs were found to be approximately \$4.75 million, which is the same for all four alternatives.

Figure 4-1: Tennessee River Bridge Mainline Toll Plaza Layout



TOLL SENSITIVITY ANALYSIS

Toll sensitivity tests were performed individually for each of the four alternatives. A series of model assignments were performed for each alternative to determine the optimum toll rate in the opening year of 2018. The toll rates shown below are the passenger car rates, which were used in the sensitivity tests to represent the entire toll structure for all vehicles.

Commercial vehicle toll rates were based on the passenger car toll rates and were applied to three unique categories of commercial vehicles. Commercial vehicles with two axles and six tires were assumed to be charged 1.5 times the passenger car rate. The factor for three and four axle commercial vehicles was 2.25. Larger commercial vehicles with five axles or more were charged four times the passenger car rate.

The results of the toll sensitivity analysis are presented below in Figures 4-2 through 4-5. The optimal 2018 passenger car toll rate was found to be \$5.00 for each of the four alternatives. For each alternative toll revenues continue to increase as tolls increased beyond \$5.00. As toll revenue continues to rise only slightly at rates above \$5.00, the decreased use of the facility based on total forecasted traffic, does not warrant a higher toll rate. Therefore, as the \$5.00 toll was the lowest toll rate that came close to maximizing revenue it was chosen as the selected toll rate. Based on the commercial vehicle toll rate factors listed above, commercial vehicles with two axles and six tires were assumed to pay a toll of \$7.50. The toll rate for three and four axle commercial vehicles was \$11.25 while five axle commercial vehicles and larger were charged a toll rate of \$20.00. Toll rates were assumed to remain constant with no changes based on the time of day.

All rates are in 2018 dollars. The \$5.00 passenger car rate for 2018 is equivalent to about \$3.75 in current year dollars.

Figure 4-2: Alternative 1 Toll Sensitivity Curve - 2018

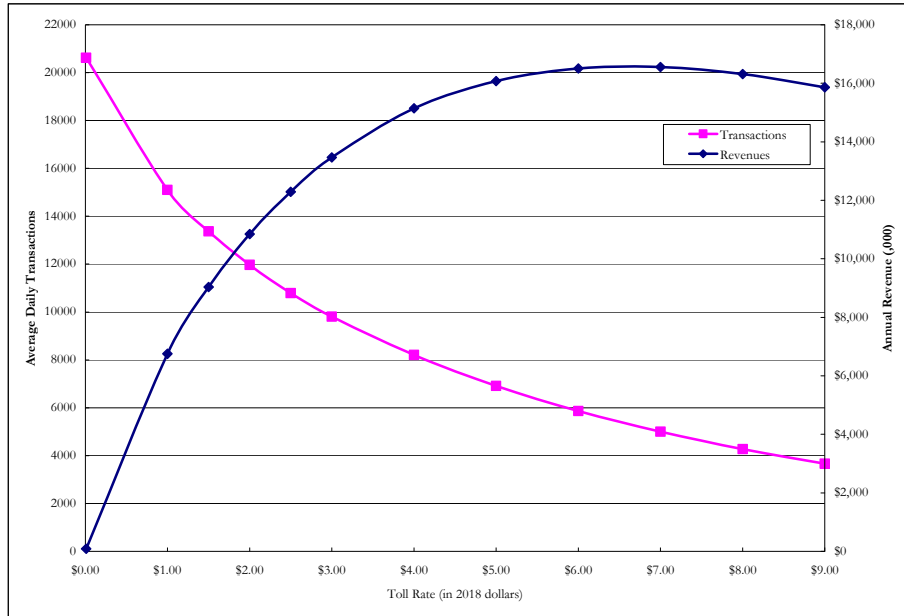


Figure 4-3: Alternative 2 Toll Sensitivity Curve - 2018

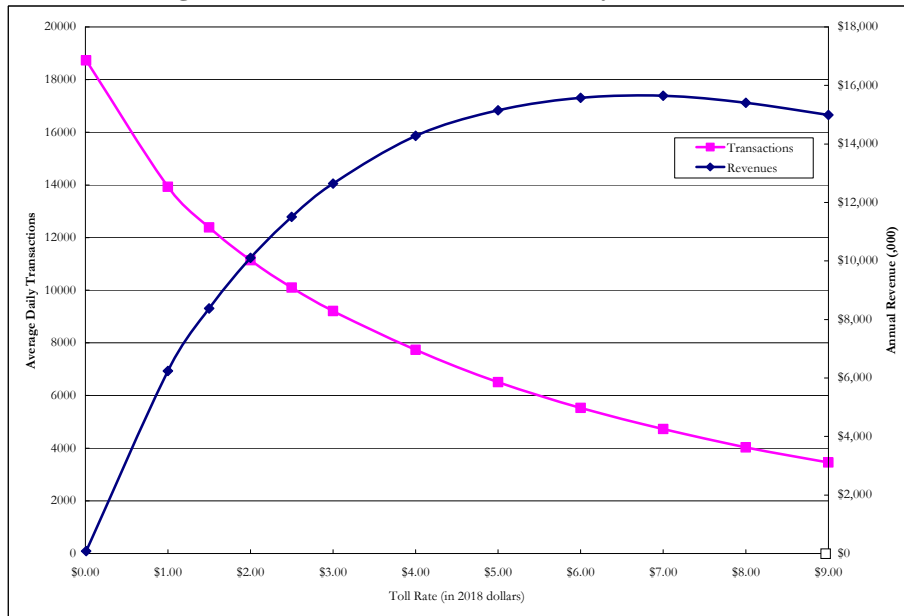


Figure 4-4: Alternative 3 Toll Sensitivity Curve - 2018

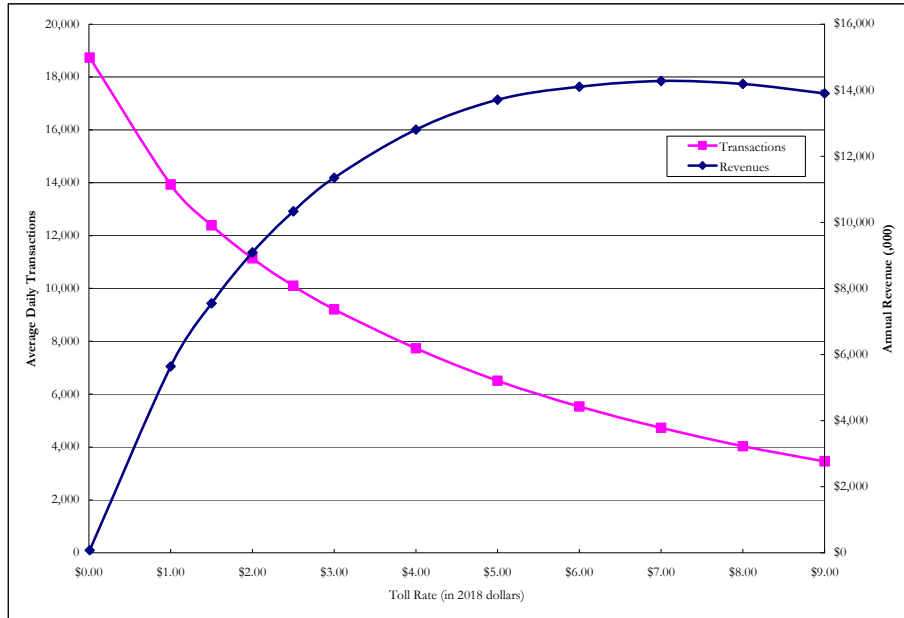
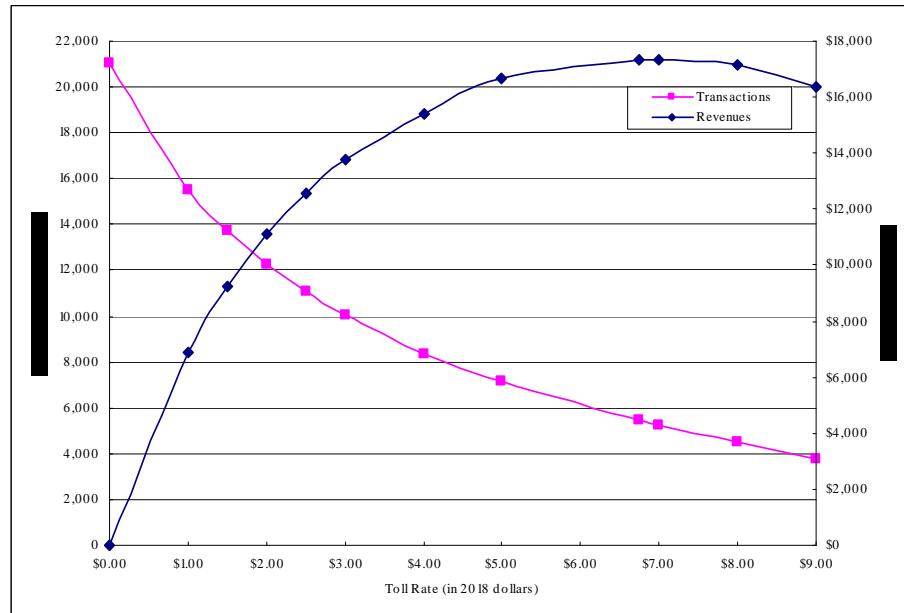


Figure 4-5: Alternative 4 Toll Sensitivity Curve - 2018



TENNESSEE RIVER BRIDGE MARKET SHARE

Under each of the four proposed alternatives, the total distribution of traffic was reviewed according to which bridge was used to cross the Tennessee River. Based on the passenger car optimal toll of \$5.00, and corresponding commercial vehicle toll rates, the distribution of traffic crossing the Tennessee River is presented below in Table 4-2. Figures 4-6 through 4-9 graphically represent the screenline distribution for each of the four alternatives. As shown, traffic distribution varied little based on the four alternatives included in this study.

Table 4-2: Comparison of Tennessee River Screenline Distribution

	Alternative 1 \$5.00 Toll		Alternative 2 \$5.00 Toll		Alternative 3 \$5.00 Toll		Alternative 4 \$5.00 Toll	
	Traffic Volume	Share (Percent)	Traffic Volume	Share (Percent)	Traffic Volume	Share (Percent)	Traffic Volume	Share (Percent)
Downtown Bridges	115,050	48.1	115,010	48.2	115,060	48.5	116,510	48.8
DuPontParkway/SR153	117,050	49.0	116,910	49.0	116,350	49.0	115,140	48.2
Proposed Toll Bridge	6,910	2.9	6,510	2.7	5,860	2.5	7,180	3.0
Total	239,010	100.0	238,430	100.0	237,270	100.0	238,830	100.0

Figure 4-6: Alternative 1 – Screenline Distribution



Figure 4-7: Alternative 2 – Screenline Distribution



Figure 4-8: Alternative 3 – Screenline Distribution

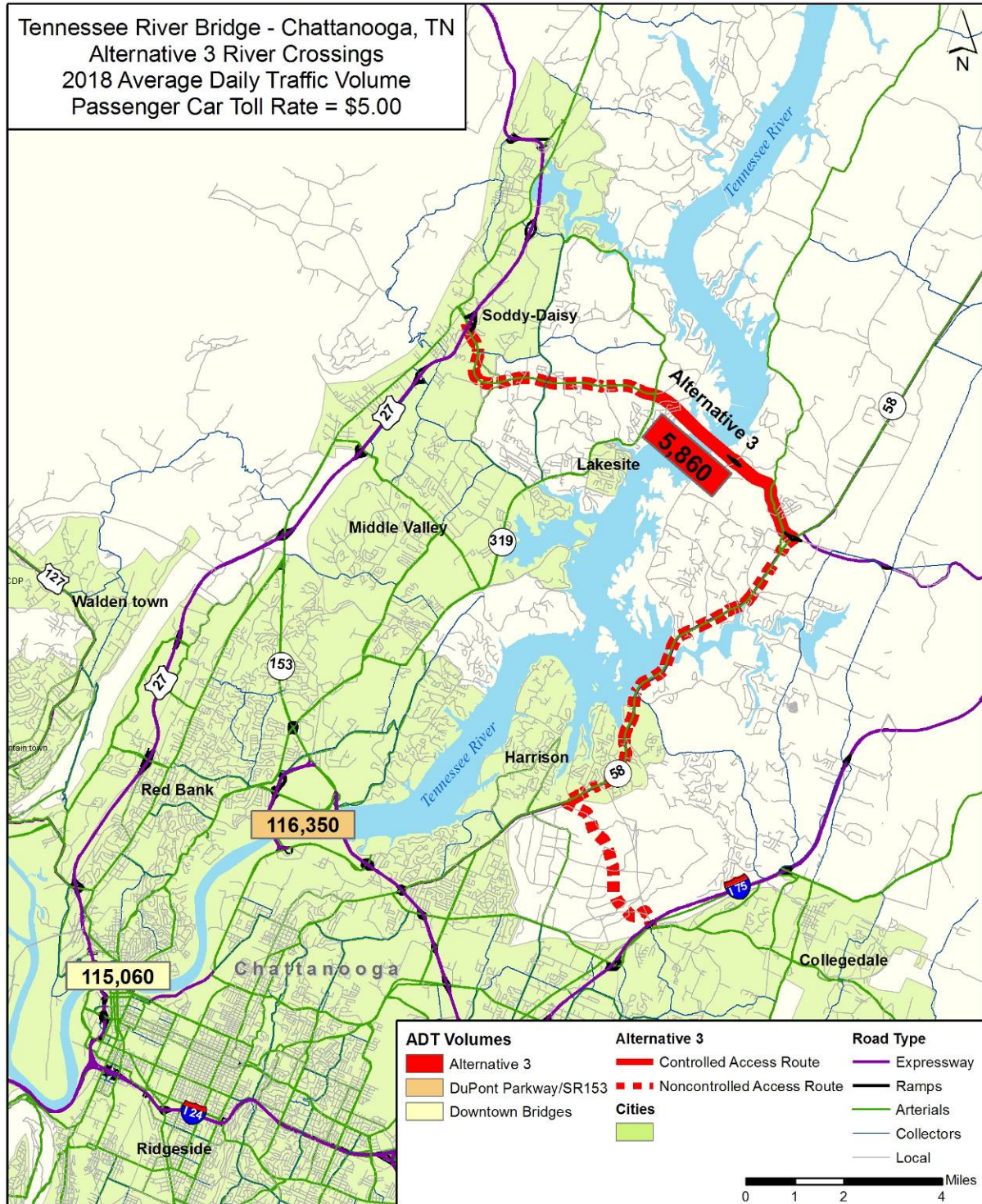


Figure 4-9: Alternative 4 – Screenline Distribution



ESTIMATED ANNUAL TRANSACTIONS AND REVENUE

The travel demand model was run at both 2018 and 2030 levels in order to prepare the forecast of gross toll revenues. Because the model outputs represented annual average daily traffic annual revenue, forecasts were obtained by multiplying the daily results by the number of days in a year (365 for non-leap years, 366 for leap years). Toll rates were assumed to increase by the assumed inflation rate of three percent annually. While for the purpose of revenue forecasting it was assumed that toll rates would be increased by exactly three percent annually, in reality, because cash collection was assumed, toll rates would likely be rounded to the nearest nickel increment. This means that actual revenue increases would be more stepwise than shown below.

ANNUAL REVENUE STREAM

For years between 2018 and 2030 annual traffic and revenue values were interpolated from the 2018 and 2030 model results. Model results were not available after the year 2030 so assumptions were made about future traffic growth. The average annual growth rate in traffic for each alternative between 2018 and 2030 was the basis for developing the results beyond 2030. This average annual growth rate was applied to the years after 2030 with an adjustment factor. The adjustment factor was such that the growth rate gradually changed to 1.5 percent per year by 2042. After 2042, the annual growth was assumed to remain at 1.5 percent. Note that as the average annual traffic growth rates between 2018 and 2030 differ by alternative, the growth rates between 2030 and 2042 will also differ by alternative. Table 4-3 presents the results of the traffic and revenue analysis in terms of gross revenue for each of the four alternatives.

As shown, in the opening year of 2018 Alternative 4 generates the greatest gross toll revenues, approximately \$16.7 million. Alternative 1 is forecast to generate just over \$16 million annually, the next highest revenue total. Alternative 3 is forecast to generate the least revenue, approximately \$13.7 million. Alternative 4 is also forecast to generate the most revenue at the end of the forecast period in 2057, nearly \$111 million annually.

Table 4-3: Tennessee River Bridge Annual Gross Revenue Streams

Year	Alignment 1		Alignment 2		Alignment 3		Alignment 4	
	Average Daily Transaction/Traffic Volumes	Annual Revenue (\$,000)	Average Daily Transaction/Traffic Volumes	Annual Revenue (\$,000)	Average Daily Transaction/Traffic Volumes	Annual Revenue (\$,000)	Average Daily Transaction/Traffic Volumes	Annual Revenue (\$,000)
2018	6,910	\$16,074	6,511	\$15,148	5,864	\$13,714	7,185	\$16,693
2019	7,127	\$17,376	6,696	\$16,304	5,941	\$14,472	7,388	\$17,970
2020	7,345	\$18,730	6,881	\$17,508	6,017	\$15,272	7,591	\$19,300
2021	7,562	\$19,981	7,066	\$18,616	6,094	\$15,988	7,795	\$20,525
2022	7,780	\$21,283	7,251	\$19,772	6,171	\$16,746	7,998	\$21,803
2023	7,997	\$22,585	7,436	\$20,928	6,247	\$17,505	8,201	\$23,080
2024	8,215	\$23,953	7,621	\$22,145	6,324	\$18,313	8,405	\$24,424
2025	8,433	\$25,190	7,806	\$23,240	6,401	\$19,021	8,608	\$25,635
2026	8,650	\$26,492	7,991	\$24,396	6,477	\$19,779	8,811	\$26,912
2027	8,868	\$27,794	8,176	\$25,552	6,554	\$20,537	9,014	\$28,190
2028	9,085	\$29,176	8,361	\$26,781	6,631	\$21,354	9,218	\$29,548
2029	9,303	\$30,399	8,546	\$27,864	6,707	\$22,054	9,421	\$30,744
2030	9,520	\$31,701	8,731	\$29,020	6,784	\$22,812	9,624	\$32,022
2031	9,736	\$33,393	8,915	\$30,521	6,863	\$23,772	9,832	\$33,694
2032	9,950	\$35,247	9,099	\$32,171	6,946	\$24,847	10,039	\$35,532
2033	10,162	\$36,976	9,280	\$33,706	7,031	\$25,837	10,244	\$37,246
2034	10,371	\$38,869	9,461	\$35,391	7,120	\$26,948	10,449	\$39,128
2035	10,578	\$40,832	9,639	\$37,141	7,212	\$28,115	10,651	\$41,083
2036	10,781	\$42,981	9,816	\$39,063	7,307	\$29,421	10,852	\$43,230
2037	10,980	\$44,966	9,990	\$40,838	7,406	\$30,630	11,050	\$45,217
2038	11,175	\$47,139	10,162	\$42,787	7,508	\$31,984	11,246	\$47,400
2039	11,366	\$49,383	10,331	\$44,805	7,614	\$33,409	11,440	\$49,661
2040	11,553	\$51,840	10,498	\$47,021	7,724	\$35,002	11,630	\$52,145
2041	11,734	\$54,085	10,661	\$49,050	7,838	\$36,482	11,817	\$54,424
2042	11,910	\$56,543	10,821	\$51,280	7,955	\$38,140	12,001	\$56,929
2043	12,089	\$59,113	10,983	\$53,610	8,074	\$39,874	12,181	\$59,516
2044	12,270	\$61,969	11,148	\$56,200	8,196	\$41,800	12,364	\$62,391
2045	12,454	\$64,608	11,315	\$58,594	8,319	\$43,581	12,549	\$65,049
2046	12,641	\$67,545	11,485	\$61,257	8,443	\$45,562	12,737	\$68,005
2047	12,830	\$70,614	11,657	\$64,041	8,570	\$47,632	12,928	\$71,096
2048	13,023	\$74,026	11,832	\$67,135	8,699	\$49,934	13,122	\$74,531
2049	13,218	\$77,179	12,010	\$69,995	8,829	\$52,061	13,319	\$77,706
2050	13,416	\$80,687	12,190	\$73,176	8,961	\$54,427	13,519	\$81,238
2051	13,618	\$84,354	12,373	\$76,502	9,096	\$56,900	13,722	\$84,930
2052	13,822	\$88,430	12,558	\$80,198	9,232	\$59,650	13,927	\$89,033
2053	14,029	\$92,196	12,747	\$83,614	9,371	\$62,190	14,136	\$92,825
2054	14,240	\$96,387	12,938	\$87,414	9,511	\$65,017	14,348	\$97,044
2055	14,453	\$100,767	13,132	\$91,387	9,654	\$67,972	14,564	\$101,455
2056	14,670	\$105,636	13,329	\$95,803	9,799	\$71,256	14,782	\$106,357
2057	14,890	\$110,135	13,529	\$99,883	9,946	\$74,291	15,004	\$110,887

TOLL OPERATING AND MAINTENANCE COSTS

Operation and maintenance costs for toll collection were estimated for the opening year of 2018. O&M costs for 2018 were inflated from current 2008 cost levels using an assumed annual inflation factor of 2.5 percent which as discussed above differs from the general inflation rate. An overview of the opening year O&M costs is provided in Table 4-4.

In estimating toll collection costs, assumptions were made regarding the percentage of users that would pay using cash and electronic payment. The assumed toll collection system allows for both cash and electronic collection but is oriented toward a high percentage of electronic payers. Aggressive promotion of the electronic toll collection would be necessary, and is assumed to take place before the facility is opened and during the initial years of operation. Violation processing was assumed to be performed by a third party service provider. It was also assumed that violation processing would be revenue neutral, meaning that collected fines and fee revenue would equal the fee charged for the services provided.

For each of the four alternatives, it was assumed that ETC traffic would account for 40 percent of all transactions in 2018, and that by 2022 the ETC share would increase to 80 percent. From 2022 on, ETC transactions were assumed to remain at 80 percent. As the percentage of cash transactions were assumed to decline over the first five years of the forecast, the O&M costs related to cash toll collection were assumed to decline also. Total O&M costs for each alternative are different due to the varying traffic levels, and the associated ETC processing cost on each alternative. Total O&M costs for each of the four alternatives are approximately \$1.5 million. Operating and maintenance costs were forecast to increase by 2.5 percent annually over the 40 year forecast period.

Table 4-4: Summary of Opening Year Operations and Maintenance Costs

Cost Category	Alternative 1	Alternative 2	Alternative 3	Alternative 4
Administration & Staff	\$ 863,545	\$ 863,545	\$ 863,545	\$ 863,545
Maintenance	\$ 207,809	\$ 207,809	\$ 207,809	\$ 207,809
Enforcement	\$ 256,017	\$ 256,017	\$ 256,017	\$ 256,017
Transaction Processing	\$ 142,057	\$ 133,854	\$ 120,553	\$ 147,608
Total	\$ 1,469,428	\$1,461,225	\$1,447,924	\$ 1,474,979

ESTIMATED NET REVENUE

Tables 4-5 through 4-8 present the net revenue forecasts for Alternatives 1, 2, 3, and 4, respectively. Net toll revenues were calculated by subtracting the forecasted O&M costs from the forecast of gross toll revenue presented above in Table 4-3. As shown in tables below, in the opening year of 2018, net toll revenue is forecasted to range from approximately \$12.3 million to \$15.2 million. Alternative 4 is forecast to generate the

greatest net revenues in the opening year. Over the entire forecast period, Alternative 4 is also expected to generate the greatest net toll revenue, increasing to approximately \$29.8 million by 2030, and \$106 million in 2057.

Table 4-5: Alternative 1 Annual Net Toll Revenue Stream

Year	Gross Toll Revenue (\$,000)	Toll O&M Costs (\$,000)	Net Toll Revenue (\$,000)
2018	\$16,074	\$1,469	\$14,605
2019	\$17,376	\$1,526	\$15,850
2020	\$18,730	\$1,588	\$17,142
2021	\$19,981	\$1,653	\$18,328
2022	\$21,283	\$1,723	\$19,560
2023	\$22,585	\$1,776	\$20,809
2024	\$23,953	\$1,832	\$22,121
2025	\$25,190	\$1,887	\$23,303
2026	\$26,492	\$1,945	\$24,547
2027	\$27,794	\$2,005	\$25,789
2028	\$29,176	\$2,068	\$27,108
2029	\$30,399	\$2,130	\$28,269
2030	\$31,701	\$2,195	\$29,506
2031	\$33,393	\$2,263	\$31,130
2032	\$35,247	\$2,333	\$32,914
2033	\$36,976	\$2,402	\$34,574
2034	\$38,869	\$2,475	\$36,394
2035	\$40,832	\$2,550	\$38,282
2036	\$42,981	\$2,629	\$40,352
2037	\$44,966	\$2,706	\$42,260
2038	\$47,139	\$2,786	\$44,352
2039	\$49,383	\$2,869	\$46,513
2040	\$51,840	\$2,956	\$48,883
2041	\$54,085	\$3,041	\$51,043
2042	\$56,543	\$3,130	\$53,413
2043	\$59,113	\$3,222	\$55,891
2044	\$61,969	\$3,320	\$58,649
2045	\$64,608	\$3,415	\$61,194
2046	\$67,545	\$3,515	\$64,029
2047	\$70,614	\$3,619	\$66,995
2048	\$74,026	\$3,729	\$70,297
2049	\$77,179	\$3,837	\$73,343
2050	\$80,687	\$3,950	\$76,737
2051	\$84,354	\$4,068	\$80,286
2052	\$88,430	\$4,193	\$84,237
2053	\$92,196	\$4,314	\$87,882
2054	\$96,387	\$4,443	\$91,944
2055	\$100,767	\$4,576	\$96,191
2056	\$105,636	\$4,717	\$100,919
2057	\$110,135	\$4,855	\$105,281

Table 4-6: Alternative 2 Annual Net Toll Revenue Stream

Year	Gross Toll Revenue (\$,000)	Toll O&M Costs (\$,000)	Net Toll Revenue (\$,000)
2018	\$15,148	\$1,461	\$13,687
2019	\$16,304	\$1,515	\$14,790
2020	\$17,508	\$1,573	\$15,936
2021	\$18,616	\$1,633	\$16,983
2022	\$19,772	\$1,699	\$18,074
2023	\$20,928	\$1,750	\$19,178
2024	\$22,145	\$1,804	\$20,341
2025	\$23,240	\$1,857	\$21,384
2026	\$24,396	\$1,912	\$22,484
2027	\$25,552	\$1,970	\$23,583
2028	\$26,781	\$2,030	\$24,752
2029	\$27,864	\$2,089	\$25,775
2030	\$29,020	\$2,152	\$26,869
2031	\$30,521	\$2,216	\$28,305
2032	\$32,171	\$2,283	\$29,887
2033	\$33,706	\$2,350	\$31,356
2034	\$35,391	\$2,420	\$32,972
2035	\$37,141	\$2,491	\$34,650
2036	\$39,063	\$2,567	\$36,496
2037	\$40,838	\$2,641	\$38,197
2038	\$42,787	\$2,718	\$40,069
2039	\$44,805	\$2,798	\$42,007
2040	\$47,021	\$2,882	\$44,139
2041	\$49,050	\$2,963	\$46,087
2042	\$51,280	\$3,049	\$48,230
2043	\$53,610	\$3,138	\$50,472
2044	\$56,200	\$3,232	\$52,969
2045	\$58,594	\$3,323	\$55,271
2046	\$61,257	\$3,420	\$57,837
2047	\$64,041	\$3,520	\$60,521
2048	\$67,135	\$3,626	\$63,509
2049	\$69,995	\$3,730	\$66,265
2050	\$73,176	\$3,839	\$69,337
2051	\$76,502	\$3,952	\$72,550
2052	\$80,198	\$4,072	\$76,126
2053	\$83,614	\$4,189	\$79,425
2054	\$87,414	\$4,313	\$83,102
2055	\$91,387	\$4,440	\$86,947
2056	\$95,803	\$4,576	\$91,227
2057	\$99,883	\$4,708	\$95,175

Table 4-7: Alternative 3 Annual Net Toll Revenue Stream

Year	Gross Toll Revenue (\$,000)	Toll O&M Costs (\$,000)	Net Toll Revenue (\$,000)
2018	\$13,714	\$1,448	\$12,266
2019	\$14,472	\$1,495	\$12,977
2020	\$15,272	\$1,545	\$13,727
2021	\$15,988	\$1,596	\$14,392
2022	\$16,746	\$1,650	\$15,096
2023	\$17,505	\$1,695	\$15,810
2024	\$18,313	\$1,742	\$16,571
2025	\$19,021	\$1,788	\$17,233
2026	\$19,779	\$1,836	\$17,943
2027	\$20,537	\$1,886	\$18,651
2028	\$21,354	\$1,938	\$19,415
2029	\$22,054	\$1,990	\$20,064
2030	\$22,812	\$2,044	\$20,768
2031	\$23,772	\$2,100	\$21,672
2032	\$24,847	\$2,158	\$22,689
2033	\$25,837	\$2,216	\$23,621
2034	\$26,948	\$2,277	\$24,671
2035	\$28,115	\$2,339	\$25,775
2036	\$29,421	\$2,405	\$27,016
2037	\$30,630	\$2,471	\$28,159
2038	\$31,984	\$2,539	\$29,445
2039	\$33,409	\$2,610	\$30,798
2040	\$35,002	\$2,685	\$32,318
2041	\$36,482	\$2,758	\$33,724
2042	\$38,140	\$2,836	\$35,304
2043	\$39,874	\$2,916	\$36,958
2044	\$41,800	\$3,000	\$38,800
2045	\$43,581	\$3,083	\$40,498
2046	\$45,562	\$3,171	\$42,391
2047	\$47,632	\$3,261	\$44,372
2048	\$49,934	\$3,355	\$46,578
2049	\$52,061	\$3,449	\$48,612
2050	\$54,427	\$3,547	\$50,880
2051	\$56,900	\$3,648	\$53,252
2052	\$59,650	\$3,755	\$55,895
2053	\$62,190	\$3,859	\$58,331
2054	\$65,017	\$3,970	\$61,047
2055	\$67,972	\$4,084	\$63,888
2056	\$71,256	\$4,204	\$67,052
2057	\$74,291	\$4,322	\$69,969

Table 4-8: Alternative 4 Annual Net Toll Revenue Stream

Year	Gross Toll Revenue (\$,000)	Toll O&M Costs (\$,000)	Net Toll Revenue (\$,000)
2018	\$16,693	\$1,475	\$15,218
2019	\$17,970	\$1,533	\$16,437
2020	\$19,300	\$1,596	\$17,705
2021	\$20,525	\$1,662	\$18,863
2022	\$21,803	\$1,733	\$20,070
2023	\$23,080	\$1,786	\$21,294
2024	\$24,424	\$1,841	\$22,583
2025	\$25,635	\$1,896	\$23,739
2026	\$26,912	\$1,953	\$24,959
2027	\$28,190	\$2,013	\$26,177
2028	\$29,548	\$2,075	\$27,473
2029	\$30,744	\$2,137	\$28,608
2030	\$32,022	\$2,201	\$29,821
2031	\$33,694	\$2,268	\$31,426
2032	\$35,532	\$2,338	\$33,194
2033	\$37,246	\$2,407	\$34,838
2034	\$39,128	\$2,480	\$36,648
2035	\$41,083	\$2,555	\$38,528
2036	\$43,230	\$2,633	\$40,597
2037	\$45,217	\$2,710	\$42,507
2038	\$47,400	\$2,791	\$44,609
2039	\$49,661	\$2,874	\$46,787
2040	\$52,145	\$2,962	\$49,183
2041	\$54,424	\$3,047	\$51,377
2042	\$56,929	\$3,137	\$53,792
2043	\$59,516	\$3,229	\$56,287
2044	\$62,391	\$3,327	\$59,065
2045	\$65,049	\$3,422	\$61,627
2046	\$68,005	\$3,523	\$64,482
2047	\$71,096	\$3,627	\$67,469
2048	\$74,531	\$3,738	\$70,793
2049	\$77,706	\$3,845	\$73,860
2050	\$81,238	\$3,960	\$77,278
2051	\$84,930	\$4,078	\$80,852
2052	\$89,033	\$4,203	\$84,830
2053	\$92,825	\$4,324	\$88,501
2054	\$97,044	\$4,454	\$92,590
2055	\$101,455	\$4,587	\$96,868
2056	\$106,357	\$4,729	\$101,628
2057	\$110,887	\$4,867	\$106,020

DISCLAIMER

Current accepted professional practices and procedures were used in the development of these traffic and revenue forecasts. However, as with any forecast of the future, it should be understood that there may well be differences between forecasted and actual results that may be caused by events and circumstances beyond the control of the forecasters. The WSA review and analysis has relied upon the accuracy and completeness of all information provided by TDOT and other agencies. Publicly available and obtained material has neither been independently verified nor does WSA assume responsibility for verifying such information. WSA has relied upon the assurances of the independent parties that they are not aware of any facts that would make such information misleading.

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