I-73 Intermediate Traffic and Revenue Study

- FINAL REPORT-

Presented to:

South Carolina Department of Transportation

U.S. Department of Transportation
Federal Highway Administration

Submitted By:

C&M Associates, Inc.
10 years of reliable advice

February 2016

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Cover Letter

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Date: February 9, 2016

To: Mr. Roy Tolson
Project Leader
South Carolina Department of Transportation

Subject: **I-73 Intermediate Traffic and Revenue Study – Final Report**

Dear Mr. Tolson,

C&M Associates, Inc. is pleased to provide you with the Final Report of the I-73 Intermediate Level Traffic and Revenue Study. This report presents an overview of the proposed project, an assessment of existing traffic conditions and socioeconomic data in the project area, and an overview of field data collection and analyses. The report also presents details regarding the modeling approach, methodology, and, most importantly, the traffic and revenue forecasts.

The C&M project team—including Axel Herrmann, James Liddle, Abigail Osei-Asamoah, Alireza Moradzadehkarimi, Baharan Rahnama, Bahram Abedini, Behruz Paschai, Mitra Ghadimi, and Carlos L. Miranda—expresses its sincere gratitude to SCDOT for providing the opportunity to participate in this project.

Respectfully,

Carlos M. Contreras, MBA
President

Shahram Bohluli, Ph.D., P.E.
Project Manager

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I-73

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Prepared For:

By:

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The results of this study constitute the opinion of C&M with respect to the tolled facility's future traffic and revenue. The traffic and revenue projections provided in this report were developed based on standard professional practices and the information available at the time the study was executed, subject to the time and budget constraints of the study's scope of work. C&M reasonably relied on the accuracy and completeness of information provided (both written and orally) by the South Carolina Department of Transportation and independent parties. C&M is unaware of any material facts that would call into question the information that was received. Publicly available material has not been independently verified, and C&M does not assume responsibility for verifying such material.

This report presents an Intermediate Level traffic and revenue study. As such, the results of this study are intended to aid in determining the feasibility of the proposed project. These results are considered preliminary compared to an Investment Grade study and should not be taken to the financial community to secure or obtain project financing.

As with any forecast, differences between projected and actual outcomes may occur due to future events and circumstances outside of C&M's control. C&M cannot guarantee or ensure future events in connection to this traffic and revenue forecast, though the projections and other forward-looking statements included herein are based on reasonable assumptions as of the date this study was completed.

The information and results presented in this report should be considered as a whole. Selecting portions of any individual result without considering the intent of the whole may promote a misleading or incomplete view of this study's findings and the methodologies used to obtain these findings. C&M does not endorse the value or merit of partial information extracted from this report.

All Images on the cover of this report are courtesy of the Myrtle Beach Chamber of Commerce.

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List of Acronyms and Abbreviations

Acronym/Abbreviation	Description
AADT	Annual Average Daily Traffic
ACS	American Community Survey
ADT	Average Daily Traffic
AET	All-Electronic Toll
APCOG	Appalachian Council of Governments
ATD	All Traffic Data Services, Inc.
BCDCOG	Berkeley-Charleston-Dorchester Council of Governments
BLS	Bureau of Labor Statistics
BPF	Bureau of Public Roads
C&M	C&M Associates, Inc.
CAGR	Compound Annual Growth Rate
CATCOG	Catawba Region Council of Governments
Chmura	Chmura Economics & Analytics
CMCOG	Central Midlands Council of Governments
COG	Council of Governments
CPI	Consumer Price Index
CSV	Comma Separated Values
D&B	Dun & Bradstreet
DOT	Department of Transportation
EE	External-to-External
EI	External-to-Internal
ETC	Electronic Toll Collection
FIPS	Federal Information Processing Standard
FLATS	Florence Metropolitan Planning Organization
GDP	Gross Domestic Product
GRP	Gross Regional Product
GSATS	Grand Strand Metropolitan Planning Organization
HBO	Home-Based Other
HBW	Home-Based Work
HOV	High Occupancy Vehicle
HPMS	Highway Performance Monitoring System
I-73 North	I-73 Project, Northern Section
I-73 South	I-73 Project, Southern Section

IE	Internal-to-External
II	Internal-to-Internal
ISTEA	Intermodal Surface Transportation Efficiency Act
LCOG	Lowcountry Council of Governments
LOS	Level of Service
MBACC	Myrtle Beach Area Chamber of Commerce
Moody's	Moody's Analytics
MPO	Metropolitan Planning Organization
MSA	Metropolitan Statistical Area
MTP	South Carolina Multimodal Transport Plan
NCHRP	National Cooperative Highway Research Program
NHB	Non-Home-Based
NHTS	National Household Travel Survey
NPV	Net Present Value
OD	Origin-Destination
QRFM II	Quick Response Freight Manual, 2nd ed.
RSG	Resource Systems Group, Inc.
SAILC	South Atlantic International Logistic Center
SC-#	South Carolina Highway #
SCDOT	South Carolina Department of Transportation
SCDRFA	South Carolina Department of Revenue and Fiscal Affairs
SCSWM	South Carolina Statewide Travel Demand Model
SELL	Southern Evacuation Life Line
SLCOG	Santee-Lynches Council of Governments
SOV	Single Occupancy Vehicle
SP	Stated Preference
STIP	Statewide Transportation Improvement Program
T&R	Traffic and Revenue
TAZ	Traffic Analysis Zone
TDM	Travel Demand Model
US	U.S. Route
USCOG	Upper Savannah Council of Governments
VPD	Vehicles per Day
W&P	Woods & Poole Economics

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Executive Summary

This report documents the Intermediate Level Traffic and Revenue (T&R) Study of the proposed Interstate 73 (I-73; the Project), as well as the Southern Evacuation Life Line (SELL) and the Conway Bypass (SC-22), which are potential contributing routes to I-73. This study was conducted by C&M Associates, Inc. (C&M) for the South Carolina Department of Transportation (SCDOT). The study aims to determine the traffic and revenue potential of I-73, the SELL, and SC-22 by providing independent toll revenue forecasts for the facilities over a 40-year period.

ES.1. Project Description

The Project consists of two proposed sections of I-73[1] as defined by SCDOT: the southern section and the northern section.

- **Southern Section** – The 42-mile southern section of the Project (I-73 South) will extend from South Carolina Highway 22 (SC-22; Veteran's Highway/Conway Bypass) in the Myrtle Beach/Conway area—in a new alignment east of Aynor—to the northwest between Mullins and Marion, intersecting I-95 just west of Dillon. The purpose of I-73 South is to provide an interstate link between the Myrtle Beach region and I-95 to serve residents, businesses, and tourists by improving travel times, level of service (LOS), and national/regional connectivity, as well as facilitating hurricane evacuation. Right-of-Way plans are complete for I-73 South, and construction plans are available from U.S. Route 501 (US 501) to I-95. I-73 South is expected to open to traffic in 2025.
- **Northern Section** – The 38-mile northern section of the Project (I-73 North) will extend from I-95 just west of Dillon to I-73/74 in the Rockingham/Hamlet, NC region. This portion of the Project is less dependent on tourists and will primarily serve to improve national connectivity in conjunction with proposed "High Priority Corridor 5" construction and/or facility upgrades in Michigan, Ohio, West Virginia, Virginia, North Carolina, and South Carolina. Only conceptual plans are available for I-73 North, but for this study it was assumed to have an opening date of 2035.

The SELL and SC-22 are potential contributing routes in Horry County, SC and will be part of C&M's study. The SELL is a proposed 28-mile, multilane, limited-access tolling facility that extends northwest from US 17 to US 501 at the SC-22 interchange. For this study, the anticipated opening date of the SELL is 2025. C&M analyzed the proposed SELL to determine its traffic and revenue potential and its contribution to the Project's traffic.

SC-22, also known as the Conway Bypass and Veterans Highway, is a four-lane freeway that connects US 501 north of Conway to US 17 in the Myrtle Beach area. This

[1] Throughout this report, the terms "I-73" and "the Project" refer to both the southern and northern sections of the proposed I-73 Project. When discussing the southern or northern sections separately, they are referred to as "I-73 South" or "I-73 North," respectively.

road was analyzed as a tolled road to determine its revenue potential as well as its contribution to traffic on I-73 and the SELL. In contrast to the other facilities analyzed in this study, SC-22 already exists as a 28-mile toll-free alternative within the study area road network.

ES.2. Basic Study Information

The area considered by C&M for this study includes Marlboro, Dillon, Marion, and Horry Counties, SC, and Richmond County, NC. Within South Carolina, the borders of the study area comprise the Great Pee Dee River to the west, the SC/NC state border to the east, and the South Carolina coast (from the intersection of US 17 and SC-707 to the SC/NC border) to the south. The northern portion of the study area is within North Carolina and is defined by the borders of Richmond County.

The T&R study results are expressed in annual toll transactions and toll revenue over a 40-year period beginning in 2025, the proposed opening year of I-73 South. The following sections summarize the components of this T&R study.

ES.3. Review of Existing Information

C&M analyzed existing information in an effort to calibrate and validate the traffic conditions simulated in the travel demand model (TDM). As detailed in Chapter 2, in order to evaluate and model current traffic conditions within the study area, C&M reviewed annual average daily traffic (AADT) counts and average daily traffic (ADT) counts provided by SCDOT. These traffic counts were used to determine historical and current traffic trends and seasonality, as well as to produce daily and weekly traffic profiles. C&M also reviewed and analyzed data from an origin-destination (OD) survey performed by SCDOT. These data were analyzed separately for weekday and weekend traffic due to the tourist influence in the area. The OD data were also expanded upon and used to calibrate the TDM, as presented in Chapter 4.

ES.4. Field Data Collection

C&M supplemented the existing information gathered for this study with field data collection, as described in Chapter 2. C&M conducted a speed and delay study that assessed travel times along five routes within the study area. C&M also conducted field observations of the main roads and potential competing facilities within the study area, and a field network inventory was performed along the five routes chosen for the speed and delay study. Additionally, a stated preference (SP) survey was conducted from April 17 to June 3, 2015 to solicit information from individuals who travel within or through the proposed I-73, SELL, or SC-22 corridors. The survey questionnaire was designed to gather information about respondents' travel behaviors and obtain data that could be used to estimate their value of time (VOT), or their willingness to pay for and utilize the Project. The results of the survey were used to develop a toll diversion model based on the probability of travelers using the Project as a function of the trade-offs in time savings and trip reliability. C&M used data from previous studies to determine the VOT for commercial vehicles.

ES.5. Socioeconomic Review

As detailed in Chapter 3, C&M analyzed the historical, current, and projected socioeconomic data within the study area and surrounding counties relevant to the Project. C&M reviewed the following socioeconomic factors that are likely to impact travel behaviors and traffic demand: population, employment, number of households, median household income, consumer price index (CPI), gross domestic product (GDP), and gross regional product (GRP). Data regarding these factors were obtained from the U.S. Census Bureau, the Bureau of Labor Statistics, the South Carolina Department of Revenue and Fiscal Affairs, Moody's Analytics, and Woods & Poole Economics.

C&M enlisted an independent economist to review the socioeconomic data of the study area for the TDM years. C&M evaluated the results of this analysis by reviewing historical socioeconomic growth patterns—at the county and study area level—and the socioeconomic projections produced by other sources.

Given the important role of tourist activity in the study area, particularly the Myrtle Beach area, C&M contacted the Myrtle Beach Area Chamber of Commerce (MBACC), which has represented the Grand Strand's business community for close to 80 years, to collect data related to the tourism industry. C&M analyzed data regarding visitor volumes, visitor origins, accommodation volumes, employment tied to tourism, total retail sales, and data from MBACC's 2012 Visitors Travel Survey.

ES.6. Travel Demand Model Calibration and Validation

As detailed in Chapter 4, C&M adopted the South Carolina Statewide Travel Demand Model (SCSWM) to model current traffic conditions within the study area, to forecast future travel demand and traffic patterns, and to estimate transactions on I-73, the SELL, and SC-22. The SCSWM is a traditional four-step TDM that includes trip generation, trip distribution, mode choice, and traffic assignment. This TDM encompasses all of South Carolina and is built upon the existing Metropolitan Planning Organization (MPO) and Council of Governments (COG) models of the state. The model comprises 6,544 traffic analysis zones (TAZs), with 6,347 internal zones and 97 external zones. The highway networks and the TAZ systems of the existing TDMs within South Carolina were used directly in the SCSWM.

The original model provided outputs of daily traffic on the highway network for two analysis years: 2010 as the base year and 2040 as a forecast year. C&M developed the additional modeling years of 2025, 2035, and 2050, with 2025 representing the opening of I-73 South, 2035 representing the opening of I-73 North, and 2050 being the final forecast year. C&M replicated the model runs of the SCSWM base year 2010 and forecast year 2040, ensuring that all four model steps were replicated as documented in the SCSWM documentation.

For calibration and validation purposes, the 2010 model's traffic volumes were compared to observed traffic counts (i.e., ADT) along six screenlines within the study area. The screenline alignments were chosen such that C&M could analyze model performance in terms of traffic traveling along the Project corridor as well as traffic moving across the study area. Overall, the model reasonably replicates counts at the

screenlines, with deviations well within the accepted range according to National Cooperative Highway Research Program (NCHRP) guidelines.

Data from the travel-time runs described in Chapter 2 were used to calibrate the travel times produced by the SCSWM. Subsequent analysis and comparisons confirmed that the model is sufficiently calibrated to replicate real-time reported traffic conditions and could reliably be used for the T&R study.

Finally, C&M implemented a toll diversion model within the SCSWM modeling structure by using the adjusted assignment results from the SCSWM in the toll diversion process. C&M's toll diversion models are structured as logit functions, dividing toll and non-toll trips on the basis of travel time savings and toll costs with respect to the socioeconomic characteristics of the individual traveler. The final product of the logit model is a probability that reflects the share of toll and non-toll trips between any given OD pair that may utilize the toll facility.

ES.7. Traffic and Revenue Forecast

C&M used the SCSWM to model T&R for a typical working day in 2010 and performed future scenario runs to forecast T&R for the years 2025, 2035, and 2040. After creating a travel forecast for a typical day on the weekend within the Peak period, C&M incorporated this information into its post-processing model designed to project annual T&R. Traffic volume was interpolated between the model years and extrapolated to the final forecast year 2065 to cover the entire forecast period. In addition to annualizing the T&R numbers, C&M incorporated T&R assumptions into its post-processing model. These assumptions are based on the existing data and C&M's experience with toll road facilities, particularly toll system implementation and enforcement. Additionally, C&M's T&R analysis was conducted with the assumption that mainlanes, exit ramps, and entrance ramps will be built with proper geometric configurations and traffic control to ensure that traffic is not negatively affected.

I-73, the SELL, and SC-22 are assumed to utilize an all-electronic toll (AET) system. Toll gantries are strategically located on the mainlanes to ensure that all movements in the system are tolled. C&M used a revenue-maximization method to define the toll rate per mile. The toll rate is 12.5 cents per mile for I-73 (North and South) and 15.0 cents per mile for the SELL and SC-22.

The toll rate is assumed to increase every year based on historically observed CPI growth of 2.5 percent a year. This assumption is necessary to preserve the toll's value over the forecast years, but the actual toll increase schedule will be decided by the governing toll authority.

In this study, transactions are calculated when vehicles pass through a Mainlane Gantry. Since there are multiple gantries along the facilities, one vehicle can create multiple transactions while traveling. Therefore, transactions do not translate into ADT.

Based on the traffic forecast at each Mainlane Gantry toll plaza location, C&M prepared an annual forecast for I-73 from 2025 to 2065. Based on the combination of I-73 North and South sections and the contributing routes, C&M created the following T&R scenarios:

- Scenario 1: I-73 North and South, without the SELL and SC-22 No Toll
- Scenario 2: I-73 North and South, with the SELL and SC-22 No Toll
- Scenario 3: I-73 South, without the SELL and SC-22 No Toll
- Scenario 4: I-73 South, with the SELL and SC-22 No Toll
- Scenario 5: I-73 North and South, without the SELL and SC-22 Tolled
- Scenario 6: I-73 North and South, with the SELL and SC-22 Tolled
- Scenario 7: I-73 South, without the SELL and SC-22 Tolled
- Scenario 8: I-73 South, with the SELL and SC-22 Tolled

The "I-73 North and South" scenarios assume that both northern and southern sections are open at their corresponding opening years. The "I-73 South" scenarios assume that only the southern section of the Project will be built throughout the entire forecast period. The truncation "with/without the SELL" shows whether the SELL is considered in the scenario. Scenarios with "SC-22 Tolled" consider SC-22 as a tolled facility; "SC-22 No Toll" scenarios assume there is no toll on SC-22, which represents the existing condition of this facility.

Table ES-1 presents the Net Present Value (NPV) for the Project and the contributing routes for every scenario, in cumulative 2015 dollars, for the forecast period of 40 years.

Table ES-1. Scenario Net Present Value in Cumulative 2015 Dollars

Scenario	Description	Net Present Value, in Thousands Cumulative 2015 Dollars				
		I-73 North and South	I-73 South Only	SELL	SC 22	Total
1	I-73 North and South, without the SELL and SC-22 No Toll	$1,103,566	-	-	-	$1,103,566
2	I-73 North and South, with the SELL and SC-22 No Toll	$1,205,111	-	$811,765	-	$2,016,876
3	I-73 South, without the SELL and SC-22 No Toll	-	$790,031	-	-	$790,031
4	I-73 South, with the SELL and SC-22 No Toll	-	$861,823	$811,765	-	$1,673,588
5	I-73 North and South, without the SELL and SC-22 Tolled	$1,169,321	-	-	$946,533	$2,115,854
6	I-73 North and South, with the SELL and SC-22 Tolled	$1,269,655	-	$604,633	$807,502	$2,681,790
7	I-73 South, without the SELL and SC-22 Tolled	-	$832,788	-	$942,008	$1,774,796
8	I-73 South, with the SELL and SC-22 Tolled	-	$903,360	$599,870	$802,967	$2,306,197

It can be concluded that the contributing routes provide additional revenue to I-73 North and South. The SELL is responsible for increasing the Project's NPV by $70 to $100 million, while converting SC-22 to a toll road increases the Project's NPV by $40 to $60 million.

The NPV of the contributing routes SELL and SC-22 are similar in revenue to the I-73 South Only scenario (i.e., Scenario 3).

ES.8. Sensitivity Analysis

C&M conducted a sensitivity analysis of the revenue forecast based on specific assumptions to show that, in all cases, the revenue responds reasonably to changes in the following: toll rate, revenue days, ETC penetration, video toll factor, and ramp-up period.

1. Introduction

This report documents the Intermediate Level Traffic and Revenue (T&R) Study of the proposed Interstate 73 (I-73; the Project), as well as the Southern Evacuation Life Line (SELL) and the Conway Bypass (SC-22), which are potential contributing routes to I-73. This study was conducted by C&M Associates, Inc. (C&M) for the South Carolina Department of Transportation (SCDOT). The study aims to determine the traffic and revenue potential of I-73, the SELL, and SC-22 by providing independent toll revenue forecasts for the facilities over a 40-year period.

1.1. Project Description

1.1.1. Interstate 73

The Intermodal Surface Transportation Efficiency Act of 1991 (ISTEA) defined several high priority corridors as part of the National Highway System, with High Priority Corridor 5 defined as the "I-73/74 North-South Corridor." This corridor was initially proposed to connect portions of South Carolina, North Carolina, Virginia, West Virginia, Ohio, and Michigan by traveling from Charleston, SC through Winston-Salem, NC to Portsmouth, OH, to Cincinnati, OH, and terminating in Detroit, MI.[1] Further legislation over the years has resulted in revisions to the proposed corridor—for example, revising the termini to Myrtle Beach, SC and Sault Ste. Marie, MI. There are currently no scheduled plans for construction in Ohio or Michigan, as the proposed corridor is served by existing facilities that are intended to be upgraded. North Carolina and South Carolina, however, are moving forward with plans for their respective portions of the corridor. North Carolina currently has a portion of I-73 built that begins from U.S. Route 220 (US 220) in Ellerbe and continues north, crossing over US 64 in Asheboro and terminating near the Piedmont International Airport in Greensboro.

The current study considers two proposed sections of the I-73 Project as defined by SCDOT (see Figure 1-1).[2] These sections are described below.

Southern Section

The 42-mile southern section of the I-73 Project (I-73 South) will extend from South Carolina Highway 22 (SC-22; Conway Bypass/Veteran's Highway) in the Myrtle Beach/Conway area—in a new alignment east of Aynor—to the northwest between Mullins and Marion, intersecting I-95 just west of Dillon. The purpose of I-73 South is to provide an interstate link between the Myrtle Beach region and I-95 that serves residents, businesses, and tourists by improving travel times, level of service (LOS), and national/regional connectivity, as well as facilitating hurricane evacuation. Right-of-Way plans are complete for I-73 South, and construction plans are available from US 501 to I-95. I-73 South is expected to open to traffic in 2025.

Northern Section

The 38-mile northern section of the I-73 Project (I-73 North) will extend from I-95 just west of Dillon to I-73/74 in the Rockingham/Hamlet, NC region. This portion of the Project is less dependent on tourists and will primarily serve to improve national connectivity in

conjunction with proposed “High Priority Corridor 5” construction and/or facility upgrades in Michigan, Ohio, West Virginia, Virginia, North Carolina, and South Carolina. Only conceptual plans are available for I-73 North, but for this study it was assumed to have an opening date of 2035.

Figure 1-1. I-73 Project Map

1.1.2. Southern Evacuation Life Line

The Southern Evacuation Life Line (SELL) is a potential contributing route in Horry County, SC and will be part of C&M's study. The SELL is a proposed 28-mile, multilane, limited-access toll facility that extends northwest from US 17 to US 501 at the SC-22 interchange, as illustrated in Figure 1-2. For this study, the anticipated opening date of the SELL is 2025. C&M will analyze the proposed SELL to determine its traffic and revenue potential and its contribution to traffic demand along the I-73 Project corridor.

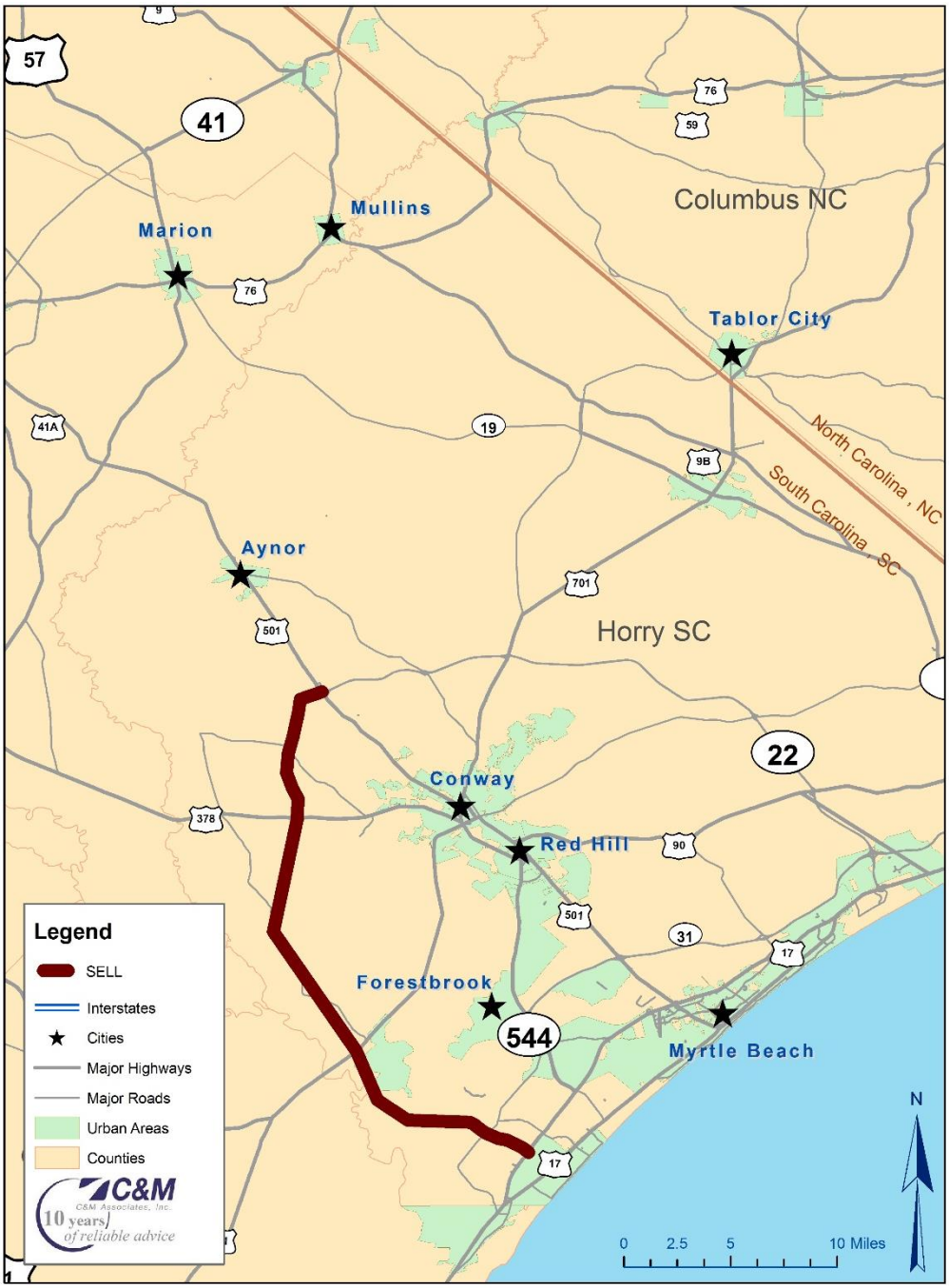

Figure 1-2. SELL Project Map

1.1.3. SC-22

SC-22, also known as the Conway Bypass and Veterans Highway, is a potential contributing route in Horry County and is part of C&M's study. SC-22 is an existing 28-mile, multilane, limited-access, toll-free facility that extends from US 17 northwest of North Myrtle Beach to US 501 at the proposed SELL interchange, as illustrated in Figure 1-3. For this study, SC-22 is assumed to become a toll facility in the year 2025. C&M will analyze the SC-22 toll facility to determine its traffic and revenue potential and its contribution to traffic demand along the I-73 Project corridor.

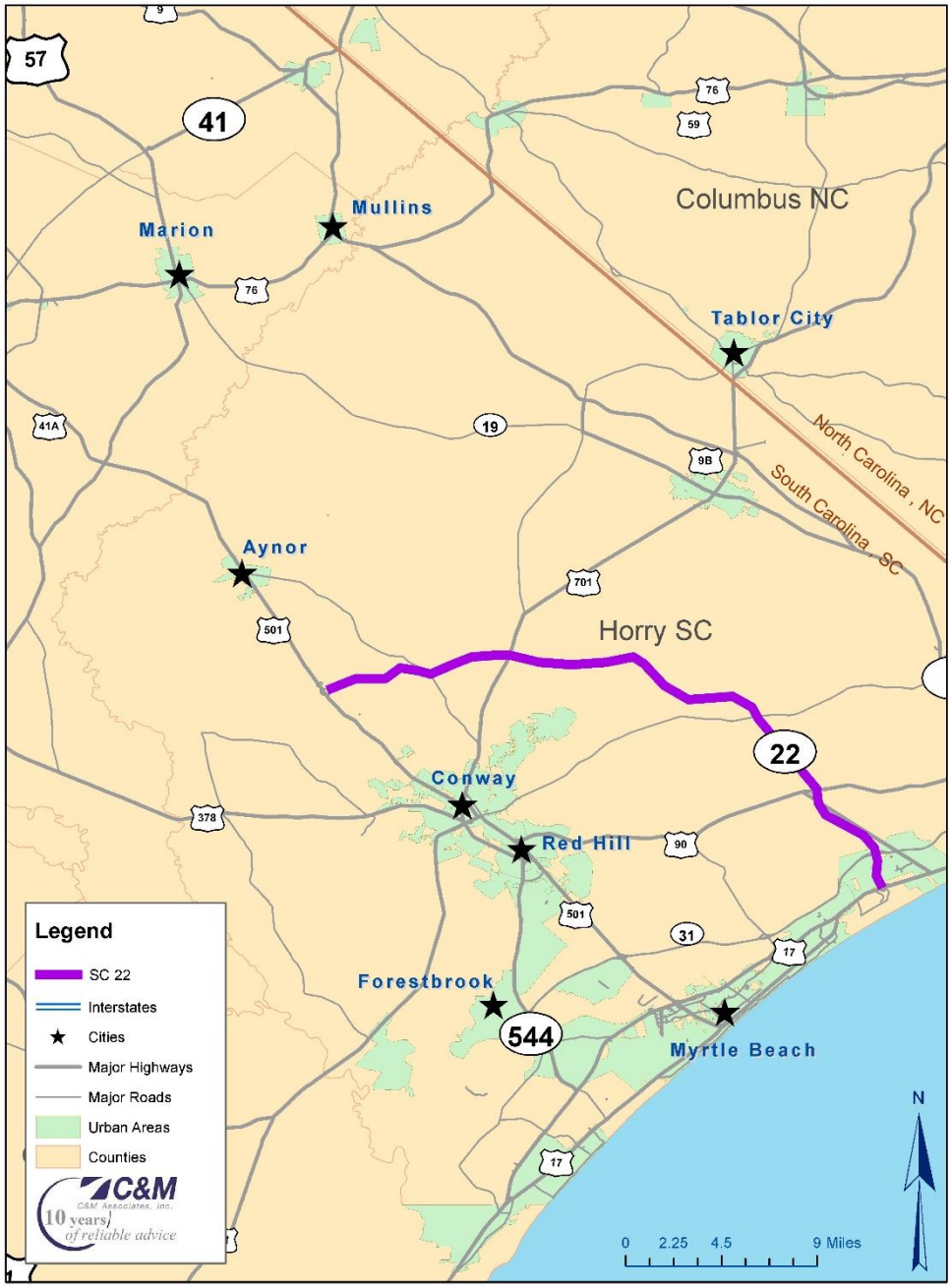

Figure 1-3. SC-22 Project Map

1.2. Research on Project Benefits

I-73, the SELL, and SC-22 aim to provide numerous benefits to motorists and to the region in general. According to previous reports available to C&M, the primary benefits of these projects are as follows:

- Increased national and regional connectivity in conjunction with the "High Priority Corridor 5" identified by federal legislation.
- Benefits to tourism: I-73 will provide improved, faster access to the Myrtle Beach area.
- Improved travel times and LOS: The I-73 corridor has been estimated to provide 28 percent time savings for businesses and motorists, with estimated cost savings reaching $120.8 million by 2030.[3]
- Improved hurricane evacuation ability: After completion of the SELL and I-73, travelers will be able to pass over US 501, connect with SC-22, and quickly reach I-73 for hurricane evacuation.[4]

The opening of I-73 is expected to generate significant economic benefits to the region according to an economic impact study conducted by Chmura Economics & Analytics in 2011.[5] Projections indicate the facility will inject billions into South Carolina by 2030 and create jobs in retail, service, warehouse, and tourism industries. I-73 is expected to increase the region's appeal for relocating or expanding businesses as well as boost the tourism industry by approximately 7 percent, with an annual economic impact of $1.4 billion in South Carolina and the creation of approximately 19,000 jobs in the Myrtle Beach area. I-73 is also likely to accelerate the development of the proposed South Atlantic International Logistic Center (SAILC) in Marion County, a 3,000-acre site that, when fully built, will contain 15 million square feet of industrial, commercial, and manufacturing space and will directly create 15,000 jobs. Finally, the I-73 Project is expected to fiscally benefit the state and local governments of the region through approximately $86 million in state tax revenues and $43 million in local tax revenues annually.

1.3. Basic Study Information

The T&R study results are expressed in annual toll transactions and toll revenue over a 40-year period beginning in 2025, the opening year of I-73 South. In its development of the T&R projections, C&M took into account the following: existing information; field observations and data; past, present, and projected socioeconomic data; origin and destination (OD) data; and stated preference (SP) survey results. The T&R forecasts of this study are based on a statewide travel demand model (TDM).

For the purposes of this study, C&M used the South Carolina Statewide Travel Demand Model (SCSWM), which is a TransCAD 6-based TDM developed in July 2014 for SCDOT.[6] The SCSWM is a traditional four-step TDM that encompasses all of South Carolina and is built upon the existing Metropolitan Planning Organization (MPO) and Council of Governments (COG) models of the state. The model comprises 6,544 traffic analysis zones (TAZs), with 6,347 internal zones, 97 external zones, and 100 dummy zones. Networks and trip tables are included for the base year of 2010 and a forecast year of 2040. C&M produced the model years 2025, 2035, and 2050, including the

networks and trip tables. The intermediate years were chosen to model the time periods before and after the opening of I-73 North.

1.4. Study Area

As illustrated in Figure 1-4, the area considered by C&M for this study includes Marlboro, Dillon, Marion, and Horry Counties, SC, and Richmond County, NC. Within South Carolina, the borders of the study area comprise the Great Pee Dee River to the west, the SC/NC state border to the east, and the South Carolina coast (from the intersection of US 17 and SC-707 to the SC/NC border) to the south. The northern portion of the study area is within North Carolina and is defined by the borders of Richmond County. The following sections elaborate on the population and roadway infrastructure of the counties within the study area.

1.4.1. Horry County, SC

Horry County is included in the Myrtle Beach-Conway-North Myrtle Beach, SC-NC Metropolitan Statistical Area. It is located in the Pee Dee region of South Carolina, approximately 90 miles north of Charleston and 130 miles east of Columbia, the state capital. The county has a total area of 1,255 square miles, 90.4 percent of which is land. According to the 2014 U.S. Census, Horry County's population is approximately 296,300, making it the fourth most-populous county in South Carolina.

The major highways in Horry County include five U.S. highways: US 17, US 76, US 378, US 501, and US 701. The state highways that travel through Horry County include SC-9, SC-22, SC-31, SC-65, SC-90, SC-179, SC-319, SC-410, SC-544, SC-707, SC-905, and SC-917.

Of particular note within Horry County is Myrtle Beach. In addition to being a major tourist destination, with over 16 million visitors in 2013,[7] the Myrtle Beach Metropolitan Statistical Area (MSA) was ranked as the second fastest-growing MSA in the nation by the U.S. Census based on a population increase of 12,000 from July 1, 2013 to July 1, 2014.[8] Given the popularity of the Myrtle Beach area, I-73 will play an important role in minimizing congestion as tourism and population continue to grow.

1.4.2. Marion County, SC

Marion County is located west of Horry County and south of Dillon County. It has a total area of 494 square miles, 99 percent of which is land. According to the 2014 U.S. Census, Marion County has a population of approximately 33,200.

The major highways in Marion County include four U.S. highways: US 76, US 301, US 378, and US 501. The state highways that travel through Marion County include SC-9, SC-38, SC-41, SC-57, SC-576, SC-908, and SC-917.

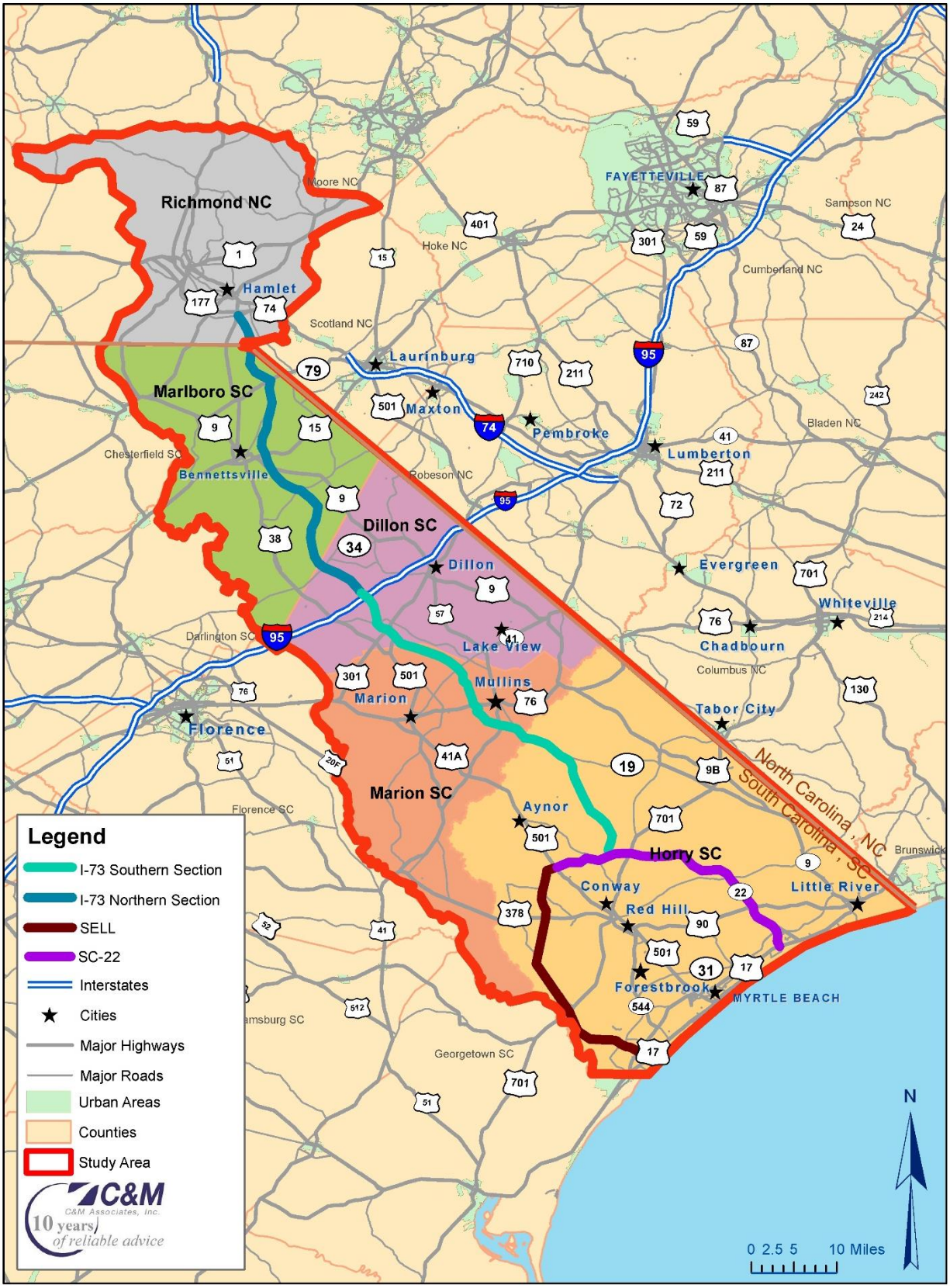

Figure 1-4. Project Study Area

1.4.3. Dillon County, SC

Dillon County is located along the SC/NC border, with Horry County to the southeast, Marion County to the south, and Marlboro County to the northwest. Founded in 1910 from a portion of Marion County, it was named after James W. Dillon, who led a successful campaign to bring the railroad to the area. This led to the construction of the Wilson Short Cut Railroad, which later became part of the Atlantic Coast Line Railroad and brought greater prosperity to the area by directly linking Dillon County to the national network of railroads.

Dillon County has a total area of 407 square miles, 99.6 percent of which is land. It is the fifth-smallest county in South Carolina by area, with a population of approximately 32,000 according to the 2014 U.S. Census.

The major highways in Dillon County include two U.S. highways (US 301 and US 501) and one interstate highway (I-95). The state highways traveling through the county include SC-9, SC-22, SC-34, SC-38, SC-41, SC-57, and SC-917.

1.4.4. Marlboro County, SC

Marlboro County comprises the Bennettsville, SC Micropolitan Statistical Area and is located along the SC/NC border, with Dillon County to the east and Richmond County, NC to the north. The western border of Marlboro County is defined by the Great Pee Dee River. The county has a total area of 485 square miles, 98.8 percent of which is land. Its population is approximately 28,700 according to the 2014 U.S. Census.

The major highways in Marlboro County include two U.S. highways: US 15 and US 1. Additionally, I-95 travels through the southern tip of the county. The state highways within the county include SC-9, SC-34, SC-38, SC-79, SC-83, SC-177, SC-381, SC-385, and SC-912.

1.4.5. Richmond County, NC

Richmond County comprises the Rockingham, NC Metropolitan Statistical Area and is located in the northernmost portion of the study area, along the SC/NC border, with Marlboro County, SC to the south. The county consists of two cities: Hamlet and Richmond, the county seat. It has a total area of 480 square miles, 98.7 percent of which is land. Its population is approximately 45,700 according to the 2014 U.S. Census.

The major highways in Richmond County include three U.S. highways and two interstate highways: US 1, US 74, US 220, and the partially completed I-73 and I-74. The state highways in the county include NC-38, NC-73, NC-109, NC-177, and NC-381.

1.5. Organization of the Report

The remainder of this report is organized as follows:

- Chapter 2 details the area's historical traffic trends, existing traffic conditions, and the field data collection program and findings, including the methodology and results of the SP survey conducted for this study.

- Chapter 3 presents the socioeconomic analysis, summarizing the historical and projected socioeconomic data for the study area.
- Chapter 4 describes the SCSWM and the development of this TDM by C&M for use in this study.
- Chapter 5 describes C&M's T&R forecasting methodologies and presents a summary of projected toll transactions and revenue, as well as sensitivity analysis results.

1.6. C&M Qualifications

C&M Associates, Inc. is a corporation founded by U.S. investors and Cal y Mayor y Asociados, S.C., a premier Mexican engineering firm with offices and operations throughout Latin America. The combined experience of C&M Associates, Inc. and Cal y Mayor y Asociados, S.C., jointly referred to as C&M, comprises over 25 years of U.S. and international T&R analysis. C&M's staff has vast experience in providing reliable and detailed T&R forecasts and risk analysis to turnpike authorities, trusts, bond underwriters, rating agencies, credit enhancers, bank lenders, and investors in both the United States and Latin America.

C&M's experience in toll projects includes toll roads, toll tunnels, and toll bridges as well as HOT lanes, managed lanes, and projects with fixed, dynamic, and variable pricing that focus on congestion management and/or revenue maximization.

1.6.1. Traffic and Revenue Expertise

Since 2005, C&M has served as a prime traffic and revenue consultant, performing more than 150 and revenue studies: more than 30 in the United States and the remainder in Mexico, Colombia, and Puerto Rico. C&M's experience ranges from sketch to investment grade studies for the support of toll revenue bonds and bank debt on behalf of a variety of clients almost evenly distributed between public entities and private concessionaires. More than a third of C&M's studies have been investment grade studies. More than $11 billion in bonds and debt, plus equity investments, have been supported by C&M's investment grade studies.

1.6.2. Recent Experience

State Highway 288 Managed Lanes Investment Grade T&R Study, Texas (2015) – Produced a toll revenue forecast to support a major international concessionaire's bid presented to the Texas DOT. The project consisted of four managed lanes proposed for a 10.3-mile portion of SH 288 from U.S. Route 59 to the Harris County line at Clear Creek.

I-77 Managed Lanes Investment Grade T&R Study, North Carolina (2014) – Produced a toll revenue forecast to support a major international concessionaire's bid presented to the North Carolina DOT. The sponsor ultimately won the bid.

I-64 HOT Lanes Sketch Level T&R Study (2008) and Intermediate T&R Study, Virginia (2012-2013) – Produced T&R studies of the possible development of I-64 HOT lanes by the Virginia DOT. The HOT lane analysis was performed in urban areas within a larger I-64 toll project in Virginia, from I-95 (east of Richmond) to the beginning of the Hampton Roads Bridge-Tunnel in Hampton Roads.

Route 460 Investment Grade T&R Study, Virginia (2012) – Produced a toll revenue forecast to support the ultimate issuance of approximately $300 million in toll revenue bonds. The project consisted of constructing a 55-mile Greenfield toll road connecting the Richmond and Hampton Roads metropolitan areas.

I-70 Mountain Corridor Request for Proposal (RFP) Development and Proposal Review, Colorado (2012) – Provided the High Performance Transportation Enterprise division of the Colorado DOT with RFP language development assistance and RFP response evaluation assistance regarding the scope and adequacy of T&R, and regarding conclusions presented by proposers for a co-development agreement to develop managed lanes along the corridor.

PR-22 PR-5 and Dynamic Tolled Lanes Investment Grade T&R Study, Puerto Rico (2011) – Conducted an analysis of the proposed dynamic tolled lanes to be built in the western end of the San Juan metropolitan area as part of the investment grade T&R study performed on behalf of Citi Infrastructure Investors and CCR for the PR-22 and PR-5 in Puerto Rico privatization. The work included a review of the operational implications of the added lanes and a T&R forecast.

Midtown Tunnel / Downtown Tunnel / MLK Freeway Extension T&R Study and Review (2009–2011) – Intermediate level T&R study in which C&M advised the Virginia DOT in the procurement of the Downtown Tunnel / Midtown Tunnel / MLK Freeway Extension project in Norfolk and Portsmouth, Virginia. The project comprised a new two-lane tunnel parallel to the existing Midtown Tunnel, maintenance and safety improvements to the existing Midtown and Downtown Tunnels, and an extension of the MLK Freeway to Interstate 264. C&M reviewed the project sponsor's T&R forecast and provided the Virginia DOT with advice during contract negotiations.

North Tarrant Express Managed Lanes Investment Grade T&R Study, Texas (2008) – Provided forecasts to support the concession bid for Itinere North America. The work included forecasting revenues for the concession period, an operational analysis—through micro-simulation—of the interaction between the managed lanes and the surrounding network and key interchanges, and presenting the results to financial advisors and lenders.

I-20 East Managed Lanes T&R (2008) – Produced sketch and subsequent intermediate T&R forecasts for the Public Private Initiative Program of the Georgia DOT. The analysis included assessing the feasibility of a base case project and an extension alternative; forecasting traffic demand, project revenues, and the resulting toll rates of a free-flow throughput maximization strategy; interacting with the environmental review team to select geometric alternatives and ramp configurations; and conducting a micro-simulation traffic operation analysis to identify potential issues in the interaction of the managed lanes with the general purpose lanes and surrounding network.

[1] Federal Highway Administration (n.d.). *National Highway System – High priority corridors: Statutory listing of corridor descriptions*. Retrieved from http://www.fhwa.dot.gov/planning/national_highway_system/high_priority_corridors/hpcor.cfm

[2] Throughout this report, the terms "I-73" and "the Project" refer to both the southern and northern sections of the proposed I-73 Project. When discussing the southern or northern sections separately, they are referred to as "I-73 South" or "I-73 North," respectively.

[3] Chmura Economics & Analytics (2011, May). *Economic impact of I-73 in South Carolina*. Prepared for Northeastern Strategic Alliance.

[4] Ropp, K. (2008, August). Southern bypass route unveiled. *The Horry Independent/The Horry News & Shopper*. Retrieved from http://www.i73.com/docs/southern08.14.08.pdf

[5] Chmura Economics & Analytics (2011, May). *Economic impact of I-73 in South Carolina*. Prepared for Northeastern Strategic Alliance.

[6] CDM Smith (2014, December). *South Carolina Statewide Travel Demand Model documentation (SCSWMv2 build 141126)*. Prepared for SCDOT.

[7] Myrtle Beach Area Chamber of Commerce (MBACC) (2015, February). *The Myrtle Beach area statistical abstract* (24th ed.). Myrtle Beach, SC: Author.

[8] Jones, S. (2015, March). Myrtle Beach area second fastest-growing region in U.S. *The Sun News*. Retrieved from http://www.myrtlebeachonline.com/news/local/article16828880.html

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2. Existing Information and Field Data

This chapter provides a description and analysis of the existing information and field data collected for the I-73 T&R Study. C&M reviewed a wide variety of traffic data in order to evaluate and model the current traffic conditions of the Project corridor. The existing information utilized for this study consists of details regarding the existing roadway network, annual average daily traffic (AADT) and average daily traffic (ADT) counts provided by SCDOT, and a peak-period origin-destination (OD) survey also provided by SCDOT. These traffic counts were used to determine historical and current traffic trends as well as seasonality, and to produce daily and weekly traffic profiles. The field data gathered for this study consists of field observations, a speed and delay study, a road inventory, and a stated preference (SP) survey.

The existing information summarized in this chapter corresponds to the study area within South Carolina consisting of Horry, Marion, Dillon, and Marlboro Counties, excluding Richmond County, NC. The following section provides a review of the existing roadway network within the South Carolina study area.

2.1. Existing Roadway Network

2.1.1. I-95

Interstate 95 (I-95) runs parallel to the Atlantic Ocean and serves the entire U. S. East Coast. Traveling from New England to southern Florida and passing through more states than any other interstate highway, it is considered the main highway of the East Coast and is the longest north-south interstate highway in the country. I-95 plays an important role in commerce and tourism along the coast, including South Carolina and the Myrtle Beach area.

In South Carolina, I-95 is predominantly a four-lane freeway. It runs roughly parallel to the Atlantic Ocean shore, though about 50 miles inland, from Hardeeville in the south to Dillon in the northeast. Within the study area, I-95 travels through Dillon County and a small portion of Marlboro County. In 2013, I-95 exhibited an AADT of approximately 40,000 vehicles per day (vpd) within the study area.

2.1.2. U.S. Highways

The following U.S. highways travel through the study area: US 1, US 17, US 76, US 301, US 378, US 401, US 501, and US 701. Despite being outside of the study area, a portion of US 52 to the west of Marlboro County was also analyzed due to US 52's connection to I-95. Details regarding these U.S. highways are provided below.

US 1

US 1 is the longest north-south U.S. highway in the country, serving the East Coast from Fort Kent, ME to Key West, FL. Within the study area, US 1 travels through Marlboro County, extending from US 52 to the North Carolina state line. US 1 functions as a local, two-lane road with occasional boulevard stretches and exhibited a 2013 AADT of approximately 3,500 vpd.

US 17

Within South Carolina, US 17 is a north–south highway located near the Atlantic Ocean. The route enters the state from Georgia at the Savannah River and serves Hardeeville, Charleston, Georgetown, and Myrtle Beach before entering North Carolina near Calabash. Within the study area, the route maintains a four-lane configuration and enters into Horry County, passing Surfside Beach and arriving in Myrtle Beach. US 17 splits here between a business route and the standard route, which remains west of the beach and tourist areas served by US 17 BUS. The roads rejoin north of the city and continue as US 17 through Atlantic Beach, North Myrtle Beach, and Little River before crossing into North Carolina. Within the study area, US 17 exhibited a 2013 AADT of approximately 45,000 vpd.

US 52

Within South Carolina, US 52 runs roughly 160 miles from Charleston to the North Carolina state line. This north-south highway has four or more lanes from Charleston and Florence. The portion of US 52 considered in this study is primarily a two-lane rural highway, with a 2013 AADT of approximately 3,000 vpd.

US 76

US 76 is an east-west U.S. highway that travels for approximately 548 miles from Chattanooga, TN to Wrightsville Beach, NC. Within the study area, the highway extends from US 301 in Marion County to the North Carolina state line in Horry County, with a 2013 AADT of approximately 15,000 vpd.

US 301

US 301 is a spur of US 1 that travels through the South Atlantic states. Within the South Carolina study area, US 301 travels through Marion and Dillon Counties, joining US 501 in the town of Latta, where they both approach the South of the Border roadside attraction complex at the I-95 interchange along the South Carolina/North Carolina border. US 301's 2013 AADT within the study area was approximately 3,400 vpd.

US 378

US 378 is a spur of US 78 in the states of Georgia and South Carolina. It spans approximately 234 miles, of which 211 miles are located in South Carolina. Within the study area, US 378 travels through Marion County and Horry County, where it reaches its eastern terminus at US 501 BUS (Main Street) next to the Old Conway County Courthouse. US 378's configuration ranges from two to six lanes and it exhibited a 2013 AADT of approximately 4,100 vpd.

US 401

Starting in Sumter, SC, US 401 is predominantly a two-lane rural road that travels northeast through swamp and farmland, connecting the cities of Darlington and Bennettsville before crossing the state line into North Carolina. Within the study area, US 401 is located in Marlboro County and exhibited a 2013 AADT of approximately 5,400 vpd.

US 501

Within the South Carolina study area, US 501 is located in Horry County, Marion County, and Dillon County. It begins at US 17 BUS in Myrtle Beach. From Myrtle Beach to Marion, US 501 is a multi-lane highway, with some sections divided and some undivided, mostly with at-grade intersections and some interchanges along its length. It passes through the city of Conway before reaching Marion, where US 501 bypasses the town to the east. North of Marion, US 501 meets SC-38, a connector to I-95. From SC-38, US 501 heads to the northeast, meeting US 301 in Latta. US 301 merges with US 501, forming a concurrency through Dillon to the North Carolina border. Within the study area, US 501 exhibited a 2013 AADT of approximately 13,800 vpd.

US 701

US 701 is a spur of US 1 in the states of South Carolina and North Carolina. The highway runs approximately 170 miles from US 17 and US 17 Alternate in Georgetown, SC to I-95 near Four Oaks, NC. US 701 serves the Pee Dee region of South Carolina and the southern and central portions of Eastern North Carolina. The highway connects Georgetown and Conway in South Carolina with the North Carolina cities of Whiteville, Elizabethtown, Clinton, and Smithfield.

Within the study area, US 701 is located in Horry County, has a two-lane configuration, and exhibited a 2013 AADT of approximately 5,600 vpd.

2.1.3. State Highways

The following South Carolina state highways within the study area were analyzed: SC-9, SC-22, SC-34, SC-38, SC-41, SC-57, SC-79, SC-90, SC-177, SC-319, SC-381, and SC-917. These state highways are described in more detail below.

SC-9

SC-9 is the longest state highway in South Carolina, traveling 258.3 miles from the northern South Carolina/North Carolina border to North Myrtle Beach. Within the study area, the highway begins at US 1 in Marlboro County, passes through Dillon County and Marion County, and ends at North Myrtle Beach in Horry County. SC-9 exhibited a 2013 AADT of approximately 4,600 vpd.

SC-22

SC-22, also known as the Conway Bypass and Veterans Highway, is a 28.2-mile, four-lane freeway located in Horry County and connecting US 501 north of Conway, SC to US 17 in Myrtle Beach. SC-22 exhibited a 2013 AADT of approximately 6,100 vpd.

SC-34

At 186.8 miles in length, SC-34 is one of the longer state highways in South Carolina, traversing the state east-west from Greenwood to Dillon and connecting the cities of Newberry, Winnsboro, Camden, Bishopville, and Darlington. Within the study area, SC-34 travels through Marlboro and Dillon Counties as a two-lane road with a 2013 AADT of approximately 1,150 vpd.

SC-38

SC-38 extends from US 501 in Marion County to Marlboro County near Hamlet, NC. This 42.9-mile, north-south route runs across the eastern portion of the state and is currently one of the most popular routes to Myrtle Beach. It is a four-lane road with a 2013 AADT of approximately 6,400 vpd.

SC-41

SC-41 is a 121.5-mile, north-south highway that begins in Mount Pleasant, SC and ends at the North Carolina state line just north of Lake View, where it continues as North Carolina Highway 41 towards Lumberton. Though the route is mostly rural, it serves as an important arterial in suburban Mount Pleasant and passes through several small towns on its route northwards. It also provides several key river and swamp crossings in the Pee Dee region.

Within the study area, SC-41 is a two-lane highway that travels through Marion County and Dillon County, with a 2013 AADT of approximately 2,000 vpd.

SC-57

SC-57 is a 25.9-mile, two-lane highway within Dillon County that travels northwest from Fork to Dillon. From there, SC-57 meets US 301/US 501, has an interchange with I-95, and proceeds north to Little Rock and the North Carolina state line. SC-57 exhibited a 2013 AADT of approximately 2,000 vpd.

SC-79

SC-79 is a 9.2-mile, two-lane road in western Marlboro County that begins at SC-9 and continues to the North Carolina state line. It exhibited a 2013 AADT of approximately 1,700 vpd.

SC-90

SC-90 is a 30-mile, two-lane, east-west highway within Horry County. It travels from US 17 at North Myrtle Beach to US 501 Bus near Red Hill, with a 2013 AADT of approximately 8,400 vpd.

SC-177

SC-177 is a 7.82-mile, two-lane rural highway within Marlboro County. It connects the community of Wallace with Hamlet, NC and exhibited a 2013 AADT of approximately 2,300 vpd.

SC-319

SC-319 is a two-lane rural highway located in Horry County that runs approximately 13 miles from US 501 in Aynor to US 701 in Homewood. It exhibited a 2013 AADT of approximately 2,700 vpd.

SC-381

SC-381 is a 22.5-mile, two-lane rural highway within Marlboro County. It begins at SC-38 in Blenheim and travels to the North Carolina state line, connecting the towns of Clio and McColl in eastern Marlboro County. It exhibited a 2013 AADT of approximately 1,400 vpd.

SC-917

SC-917 is a 36.6-mile, two-lane highway spanning across Horry, Marion, and Dillon Counties, traveling from SC-410 in Finklea to SC-38 outside of Latta. It exhibited a 2013 AADT of approximately 2,000 vpd.

2.2. Historical Traffic Trends Within the Study Area

SCDOT provided Annual Average Daily Traffic (AADT) for the primary roadways in the study area. These data aid in determining historical traffic patterns within the Project limits. C&M reviewed AADTs from 2006 to 2013 for 43 stations relevant to this study. Figure 2-1 presents the location map of these stations and their corresponding IDs. Table 2-1 summarizes the AADTs and the compound annual growth rates (CAGRs) at these stations. As can be seen, the majority of locations exhibited negative CAGRs from 2006 to 2013, due in part to the Great Recession of 2008–2009. However, several facilities exhibited significant growth in select locations from 2011 to 2012, such as SC-38, US 52, US 501, SC-22, and SC-917, with CAGRs of 10 percent or higher.

2.3. Average Daily Traffic

Average Daily Traffic (ADT) data were obtained from seven SCDOT permanent count stations in the study area, as shown in Figure 2-2. The permanent count stations selected include P-105, P-37, P-128, P-134, P-129, P-30, and P-18. These stations were selected because of their close proximity to major roads in the study area. The permanent count station data, while similar to the AADT data previously presented, are collected continuously throughout the year.

Data from these stations were analyzed to determine traffic behavior within the study limits, especially in regards to tourist attraction in the Myrtle Beach area. Stations P-37 and P-128 are located to the northwest of I-95 and on I-95, respectively, and are expected to indicate different traffic behavior than the other stations, which are located closer to the Myrtle Beach area.

Traffic count data were collected from these permanent stations using the SCDOT Vehicle Polling and Traffic Analysis System. The following sections discuss the use of ADT counts to determine the variability of monthly ADTs, seasonality, and weekly traffic profiles.

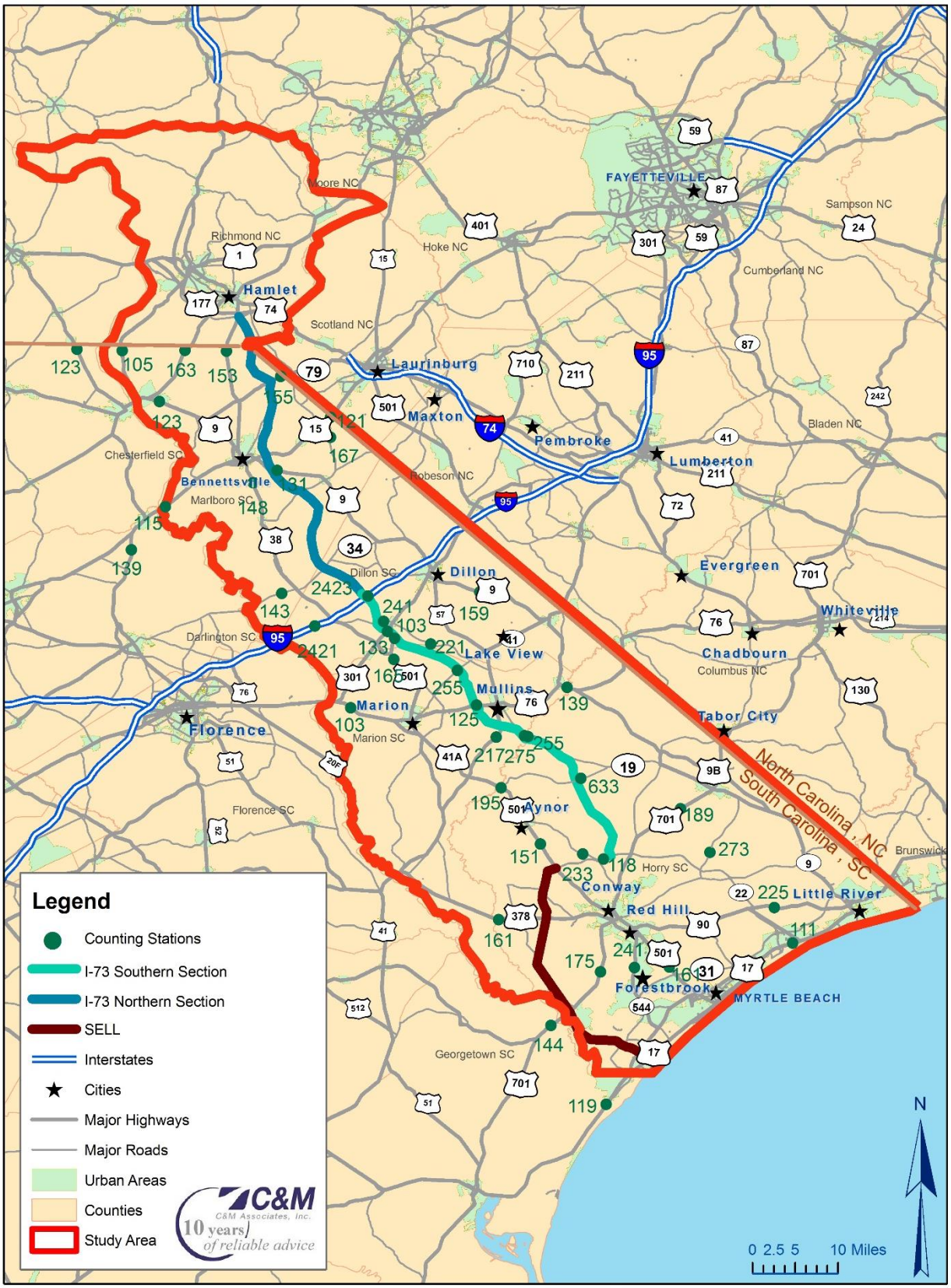

Figure 2-1. Traffic Count Stations for AADT

Table 2-1. Study Area Traffic Count Station AADTs and Growth Rates

Station ID	Road	Location	AADT								CAGR		
			2006	2007	2008	2009	2010	2011	2012	2013	2006 - 2011	2011 - 2012	2006 - 2013
123	US 52	S-391 to NC State Line	3,000	2,700	2,800	3,000	2,900	2,700	3,100	2,400	-2.1%	14.8%	-3.1%
105	US 1	S-97 to NC State Line	3,800	4,400	3,600	3,100	3,100	3,600	3,100	3,500	-1.1%	-13.9%	-1.2%
163	SC-177	SC-9 to NC State Line	2,100	2,200	1,950	2,300	2,200	2,400	2,400	2,300	2.7%	0.0%	1.3%
153	SC-38	SC-79 to NC State Line	4,900	4,700	4,800	4,000	3,800	4,400	5,000	4,300	-2.1%	13.6%	-1.8%
155	SC-79	S-28 to NC State Line	2,200	1,750	1,700	1,650	1,700	1,700	1,750	1,650	-5.0%	2.9%	-4.0%
123	SC-9	US 1 to SC-79/S-36	8,300	8,900	8,700	8,500	8,000	8,000	8,500	8,000	-0.7%	6.3%	-0.5%
121	US 401	S-534 to NC State Line	7,400	6,100	6,200	6,700	6,900	5,500	6,500	6,200	-5.8%	18.2%	-2.5%
167	SC-381	SC-83 to S-27	1,400	1,400	1,350	1,350	1,550	1,550	1,300	1,400	2.1%	-16.1%	0.0%
131	SC-9	US 15 to SC-381	3,900	4,100	3,500	3,200	3,300	3,300	3,300	3,300	-3.3%	0.0%	-2.4%
148	SC-38	S-51 to US 15/401/SC-9	7,500	8,600	7,900	6,200	6,500	6,500	7,600	8,400	-2.8%	16.9%	1.6%
115	US 401	US 52, S-133 to Marlboro Co. Line	4,200	4,500	3,900	3,900	4,200	3,800	4,000	4,500	-2.0%	5.3%	1.0%
139	US 52	S-41 to US 15	4,200	4,200	3,800	4,400	3,800	3,600	3,600	3,600	-3.0%	0.0%	-2.2%
143	SC-34	Darlington Co. to S-31	1,400	1,150	1,200	1,350	1,200	1,200	1,200	1,150	-3.0%	0.0%	-2.8%
2423	I-95	SC-38 to SC-34	37,500	37,200	34,900	34,600	36,100	34,600	34,100	33,600	-1.6%	-1.4%	-1.6%
2421	I-95	(Florence) SC-327 to SC-38	40,300	39,000	36,800	35,400	37,400	35,500	35,200	34,100	-2.5%	-0.8%	-2.4%
241	SC-917	S-136 to S-233	1,950	2,100	1,900	1,950	2,100	2,000	2,200	2,200	0.5%	10.0%	1.7%
103	US 301	SC-38 to US 501	4,300	3,900	3,500	3,900	3,900	3,500	3,500	3,400	-4.0%	0.0%	-3.3%
133	US 501	US 301 to Marion Co. Line	2,600	3,200	3,200	3,600	3,300	3,400	3,000	2,800	5.5%	-11.8%	1.1%
165	US 501 / SC-38	SC-38 to S-263	8,000	7,700	9,200	9,000	8,000	8,400	9,500	8,300	1.0%	13.1%	0.5%
103	US 76	US 301 to S-64	22,300	22,700	21,100	21,500	21,600	20,700	20,600	20,700	-1.5%	-0.5%	-1.1%
221	SC-57	S-22 to S-45	2,500	2,600	2,400	2,800	2,700	2,600	1,950	1,950	0.8%	-25.0%	-3.5%
159	SC-9	S-44 to S-22	3,000	3,000	2,700	2,600	2,700	2,800	2,500	2,500	-1.4%	-10.7%	-2.6%
255	SC-41	ALT S-502 to Dillon Co. Line	1,600	1,800	1,650	1,700	1,650	1,650	1,500	1,300	0.6%	-9.1%	-2.9%
125	US 76	S-202 to S-20	11,100	10,900	10,200	9,800	10,500	10,600	10,700	9,100	-0.9%	0.9%	-2.8%
217	SC-41	S-39 to S-19	3,100	3,000	3,000	2,600	2,700	2,700	2,600	2,700	-2.7%	-3.7%	-2.0%
195	US 501	L-640 to Horry Co. Line	17,700	19,000	17,700	16,200	15,100	17,300	16,500	14,800	-0.5%	-4.6%	-2.5%
275	SC-917	S-31 to Horry Co. Line	2,400	2,400	2,200	2,300	2,300	2,100	2,200	2,200	-2.6%	4.8%	-1.2%
255	SC-917	Marion Co. to SC-9 BUS/SC-410	2,300	2,400	2,400	1,950	1,800	1,600	1,600	1,650	-7.0%	0.0%	-4.6%
139	SC-9 / US 76	Marion Co. Line to SC-9	4,500	5,300	4,300	4,400	3,800	3,800	3,600	3,700	-3.3%	-5.3%	-2.8%
633	Hwy 308	S-309 to S-23	175	175	150	150	150	125	125	125	-6.5%	0.0%	-4.7%
151	US 501	S-651 to SC-22	25,000	25,400	23,600	24,200	24,100	23,500	23,800	23,900	-1.2%	1.3%	-0.6%
233	SC-319	S-338 to US 701	2,900	3,100	3,000	3,000	2,800	2,600	2,600	2,700	-2.2%	0.0%	-1.0%
118	SC-22	SC-319 to US 701	5,600	5,700	4,800	5,600	5,100	4,900	5,900	6,100	-2.6%	20.4%	1.2%
189	US 701	SC-410 to S-761	7,300	7,700	7,400	6,600	7,000	6,500	6,400	6,600	-2.3%	-1.5%	-1.4%
273	Hwy 66	SC-905 to S-102	1,150	1,150	1,350	1,200	1,250	1,250	1,000	1,000	1.7%	-20.0%	-2.0%
225	SC-90	SC-22 to S-57	6,900	6,800	6,700	6,300	6,700	7,100	8,200	8,400	0.6%	15.5%	2.9%
111	US 17	S-469 to S-227	59,900	61,100	56,400	55,200	52,600	54,900	56,200	57,500	-1.7%	2.4%	-0.6%
161	US 501	SC-544 to SC-31	53,600	53,500	50,700	43,400	48,600	48,600	49,100	49,100	-1.9%	1.0%	-1.2%
241	SC-544	S-955, S-1285 to S-814	29,100	29,800	28,100	27,000	25,900	26,400	27,000	27,600	-1.9%	2.3%	-0.8%
175	US 701	S-79, L-79 to S-110, L-110	7,700	7,600	7,300	7,200	7,400	7,900	8,100	8,300	0.5%	2.5%	1.1%
161	US 378	SC-908 to Horry Co. Line	4,900	5,200	4,400	3,800	4,400	4,200	4,200	4,100	-3.0%	0.0%	-2.5%
144	US 701	SC-261 to Horry Co. Line	N/A	N/A	N/A	3,700	4,200	4,000	4,000	4,500		0.0%	
119	US 17	S-362 to S-392	32,300	35,100	32,300	31,100	30,400	29,800	30,000	32,400	-1.6%	0.7%	0.0%

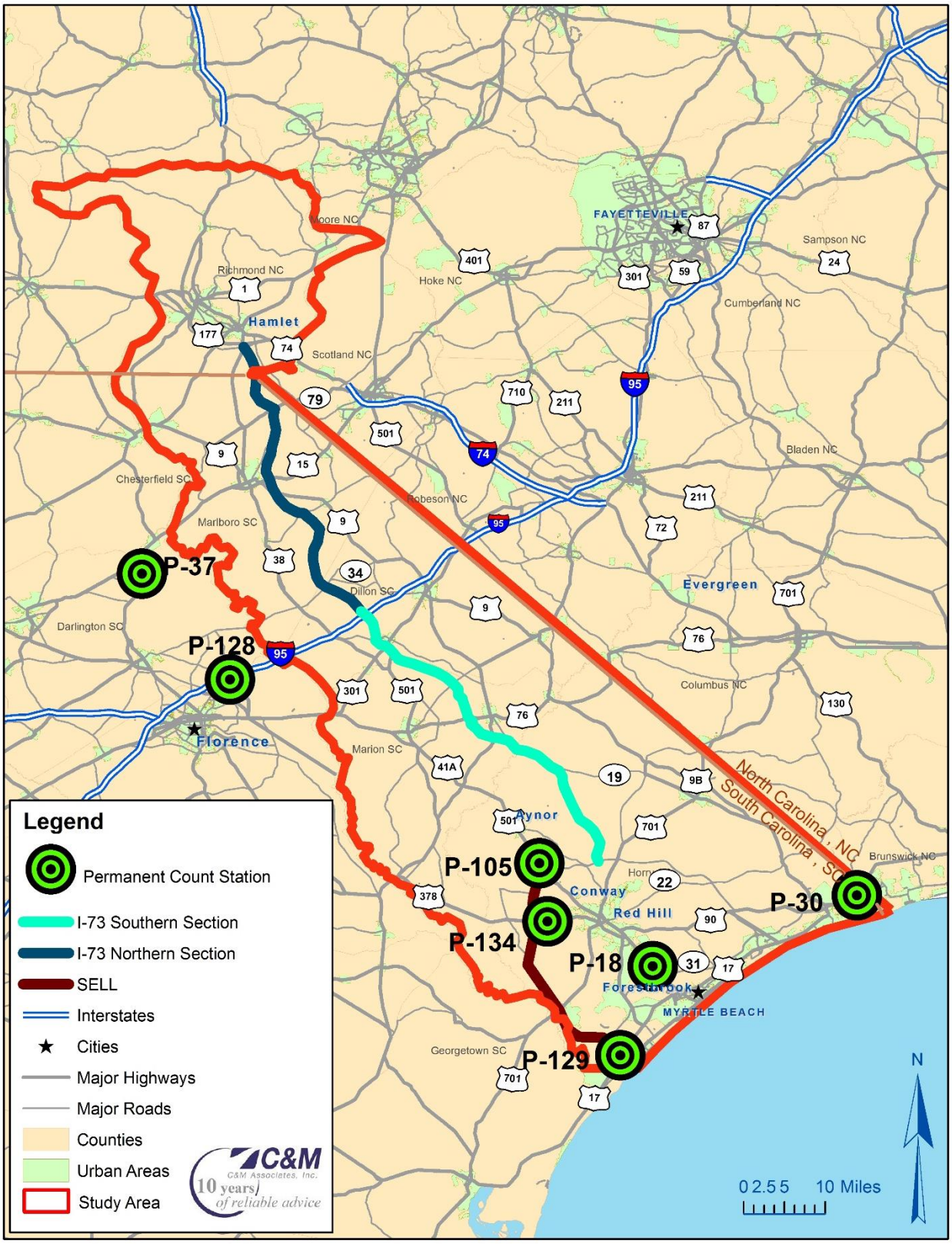

Figure 2-2. Permanent Traffic Count Stations for ADT

2.3.1. Monthly ADT

Monthly ADTs were analyzed for each of the permanent count stations. These data aid in determining historical growth and seasonal variations, as well as defining the study area's major traffic producers. The permanent count station monthly ADTs from 2012 to 2014 are illustrated in Figure 2-3. Table 2-2 presents the annual growth in monthly ADT for the years 2012–2013 and 2013–2014. For the majority of the stations, monthly ADTs were analyzed from June 2012 to May 2014. However, since station P-18 had no count data available for the early months of 2014, monthly ADTs were analyzed from February 2012 to January 2014.

It can be observed from Figure 2-3 that for stations P-134, P-129, P- 105, P-30, and P-18, ADT peaks around the summer months of June through August and is at its lowest in the month of January. These stations are closer to the Myrtle Beach area in the southern part of the Project corridor, and the observed monthly variations in ADT highlight the influence of Myrtle Beach on nearby traffic due to its role as a major summer attraction. As expected, this monthly ADT trend is not observed at station P-37, which is located to the northwest of I-95 in the northern part of the Project corridor. However, I-95 at station P-128 does exhibit a peak in traffic during summer months similar to the locations further south, highlighting the tourist utilization of I-95.

As shown in Table 2-2, the two highest growth rates in monthly ADTs are observed on US 501, with 8.6 percent growth from April 2013 to April 2014, and I-95, with 24.4 percent growth from April 2013 to April 2014. However, it is worth noting that I-95 exhibited negative CAGRs in its monthly ADTs for all reported months from 2012 to 2013, with the exception of December 2012 to December 2013.

2.3.2. Weekly Traffic Profiles

The ADT counts were used to produce weekly traffic profiles at the permanent count station locations, as shown in Figure 2-4 through Figure 2-9. To illustrate the effects of tourist traffic in the Project corridor, three profiles are presented for each of the count stations: peak, non-peak, and average. "Peak" refers to the peak summer season when tourist activity is typically at its highest; traffic counts from a typical week in July were analyzed. "Non-peak" refers to the off-season when tourist activity is typically at its lowest; traffic counts from a typical week in January were analyzed. "Average" weekly traffic profiles were selected from a typical week in October. The weekly traffic profiles for each station, summarized below, illustrate the different ways these major roads are utilized by travelers in the study area.

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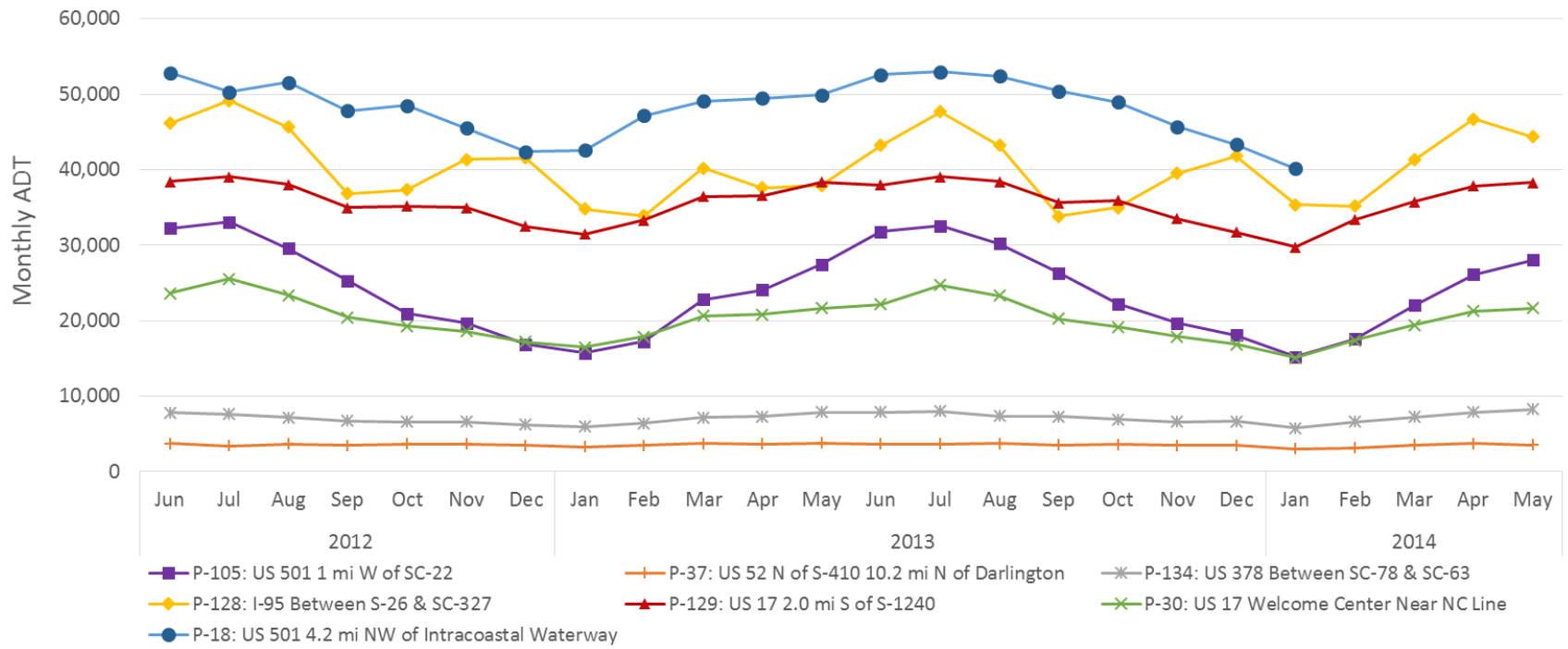


Figure 2-3. Monthly ADT – Permanent Traffic Count Stations

Table 2-2. Monthly ADT Growth Rates – Permanent Traffic Count Stations

Station	Facility	Location	Jun '12 - Jun '13	Jul '12 - Jul '13	Aug '12 - Aug '13	Sept '12 - Sept '13	Oct '12 - Oct '13	Nov '12 - Nov '13	Dec '12 - Dec '13	Jan '13 - Jan '14	Feb '13 - Feb '14	Mar '13 - Mar '14	Apr '13 - Apr '14	May '13 - May '14
P-105	US 501	1 mi W of SC-22	-1.4%	-1.5%	2.0%	4.0%	5.9%	-0.1%	7.4%	-3.1%	1.9%	-3.1%	8.6%	2.2%
P-37	US 52 N of S-410	10.2 mi N of Darlington	-1.1%	8.3%	1.8%	0.4%	-2.8%	-5.1%	-0.3%	-8.2%	-9.8%	-5.2%	2.1%	-5.9%
P-134	US 378	Between SC-78 and SC-63	0.9%	5.1%	3.1%	8.4%	5.3%	0.4%	6.2%	-2.5%	3.3%	1.3%	7.7%	5.5%
P-128	I-95	Between S-26 and SC-327	-6.3%	-3.1%	-5.3%	-8.2%	-6.3%	-4.4%	0.6%	1.5%	3.8%	2.7%	24.4%	17.1%
P-129	US 17	2.0 mi S of S-1240	-1.2%	0.0%	1.1%	1.8%	2.2%	-4.3%	-2.3%	-5.4%	0.2%	-2.0%	3.5%	-0.1%
P-30	US 17	Welcome Center near NC line	-6.2%	-3.3%	-0.5%	-1.1%	-0.7%	-3.6%	-1.8%	-8.3%	-2.9%	-5.9%	2.2%	0.0%
Station	Facility	Location	Feb '12 - Feb '13	Mar '12 - Mar '13	Apr '12 - Apr '13	May '12 - May '13	Jun '12 - Jun '13	Jul '12 - Jul '13	Aug '12 - Aug '13	Sept '12 - Sept '13	Oct '12 - Oct '13	Nov '12 - Nov '13	Dec '12 - Dec '13	Jan '13 - Jan '14
P-18	US 501	4.2 mi NW of Intracoastal Waterway	-2.8%	-2.8%	-3.0%	1.0%	-0.5%	5.3%	1.6%	5.4%	0.9%	0.6%	2.2%	-5.7%

US 501 is a direct competitor with the Project. As shown in Figure 2-4, the weekly profiles from both the non-peak and average months at station P-105 indicate that traffic is highest on Fridays and Sundays, with higher southbound traffic on Fridays during the PM period and higher northbound traffic on Sundays during the AM period. These profiles capture local travelers and tourists who visit the region on Friday nights and leave on Sunday mornings. The peak profile indicates the highest activity in both directions on Saturdays, highlighting the increase in recreational travel during the summer weekends. Figure 2-5 shows that the weekly traffic profiles at station P-18 on US 501 depict similar weekday and weekend traffic volumes for non-peak, average, and peak times of the year. The daily profiles indicate a predominantly commuter traffic pattern, with two distinctive peaks during the AM and PM periods. The weekend traffic, however, does not exhibit this commuting trend, peaking in the middle of the day rather than in the morning and evening times. To summarize, in addition to serving commuters, US 501 serves as an important transportation link to tourist activities in the area.

Station P-37 is located on US 52 in the northern part of the I-73 corridor beyond I-95. Figure 2-6 shows that the profiles for the non-peak and average months exhibit lower traffic on weekends, which is characteristic of commuter traffic. The peak month profile shows roughly uniform volumes that indicate greater recreational traffic, though the weekdays are still indicative of commuter traffic due to the directional peaks in the AM and PM periods. Regarding US 378 (station P-134), it can be seen from Figure 2-7 that the weekly traffic profiles exhibit a distinct commuter pattern during the weekdays, with traffic peaking in one direction during the AM period and in the opposite direction during the PM period. However, the weekend traffic is significantly higher during the peak month of July. In short, these roads primarily serve as commuter or retail traffic links in the study area, though they are also utilized by visitors during the summer.

As can been seen from Figure 2-8, the weekly traffic profile at Station P-128 on I-95 exhibits higher peaks for Saturdays and Sundays compared to weekdays during the peak month. Additionally, the non-peak and average months show high Friday peaks and high Sunday peaks—a characteristic of local and visitor traffic arriving on Fridays and leaving on Sundays.

Regarding US 17, Figure 2-9 shows that the weekly traffic profiles for station P-129 exhibit similar traffic peaks for both weekdays and weekends for all profiles—an indication that recreational traffic primarily consists of local travelers—though the weekday traffic is slightly higher than the weekend traffic, indicating commuter trips.

In summary, the study area has a mix of commuter and visitor traffic, though the tourist component is a significant contributor to the observed traffic volumes, especially during the summer.

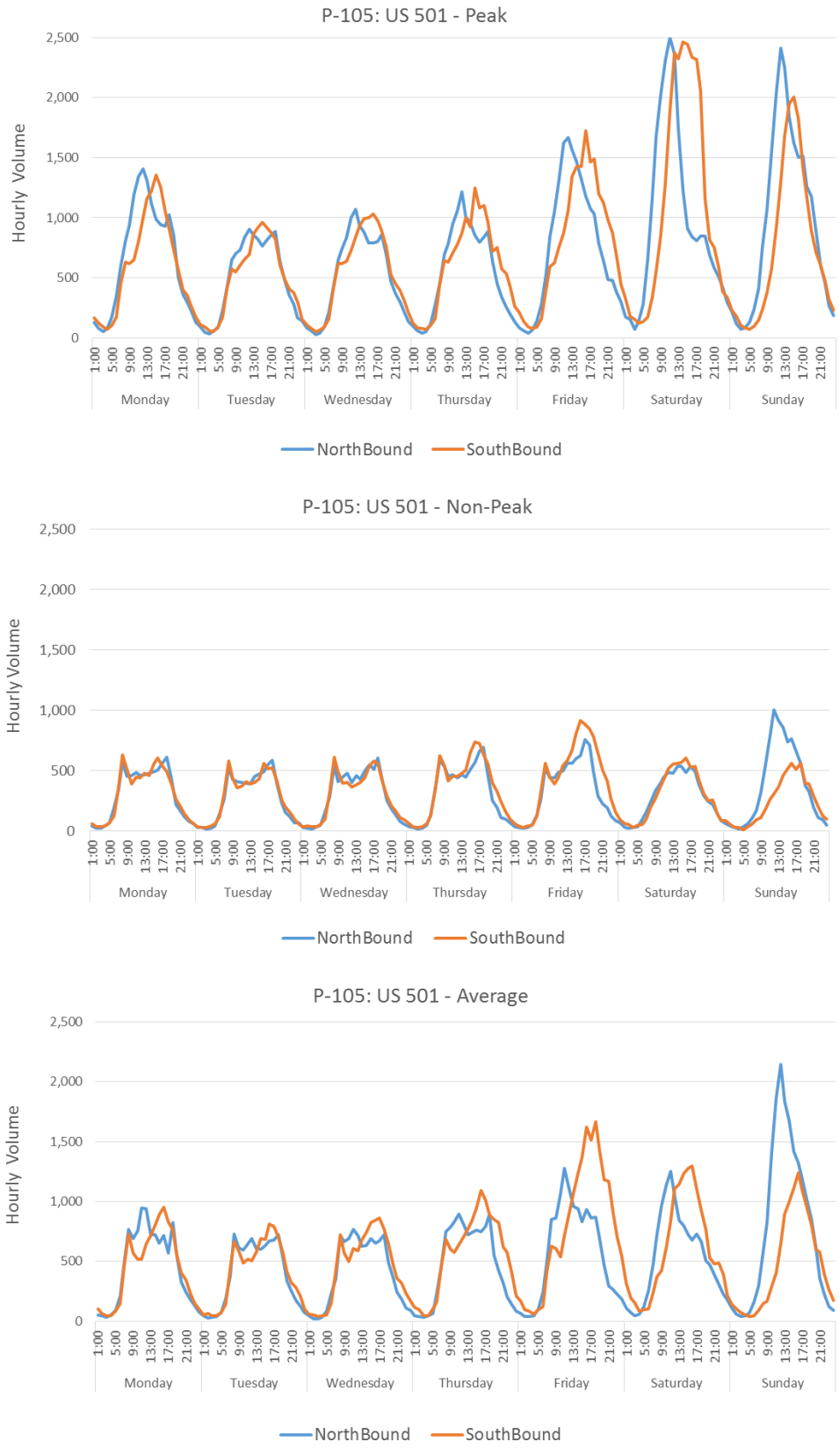


Figure 2-4. Weekly Traffic Profiles at Station P-105: US 501

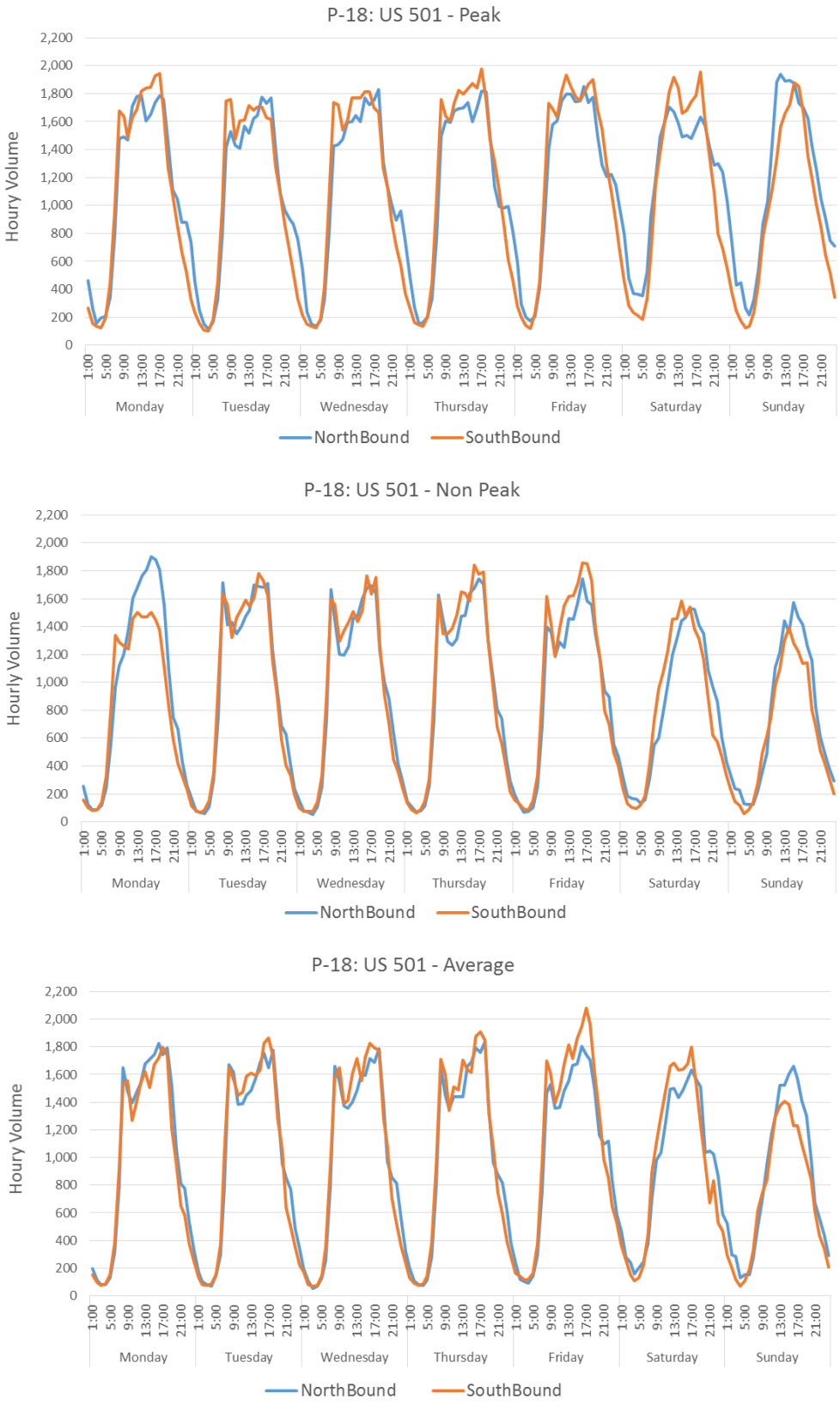


Figure 2-5. Weekly Traffic Profiles at Station P-18: US 501

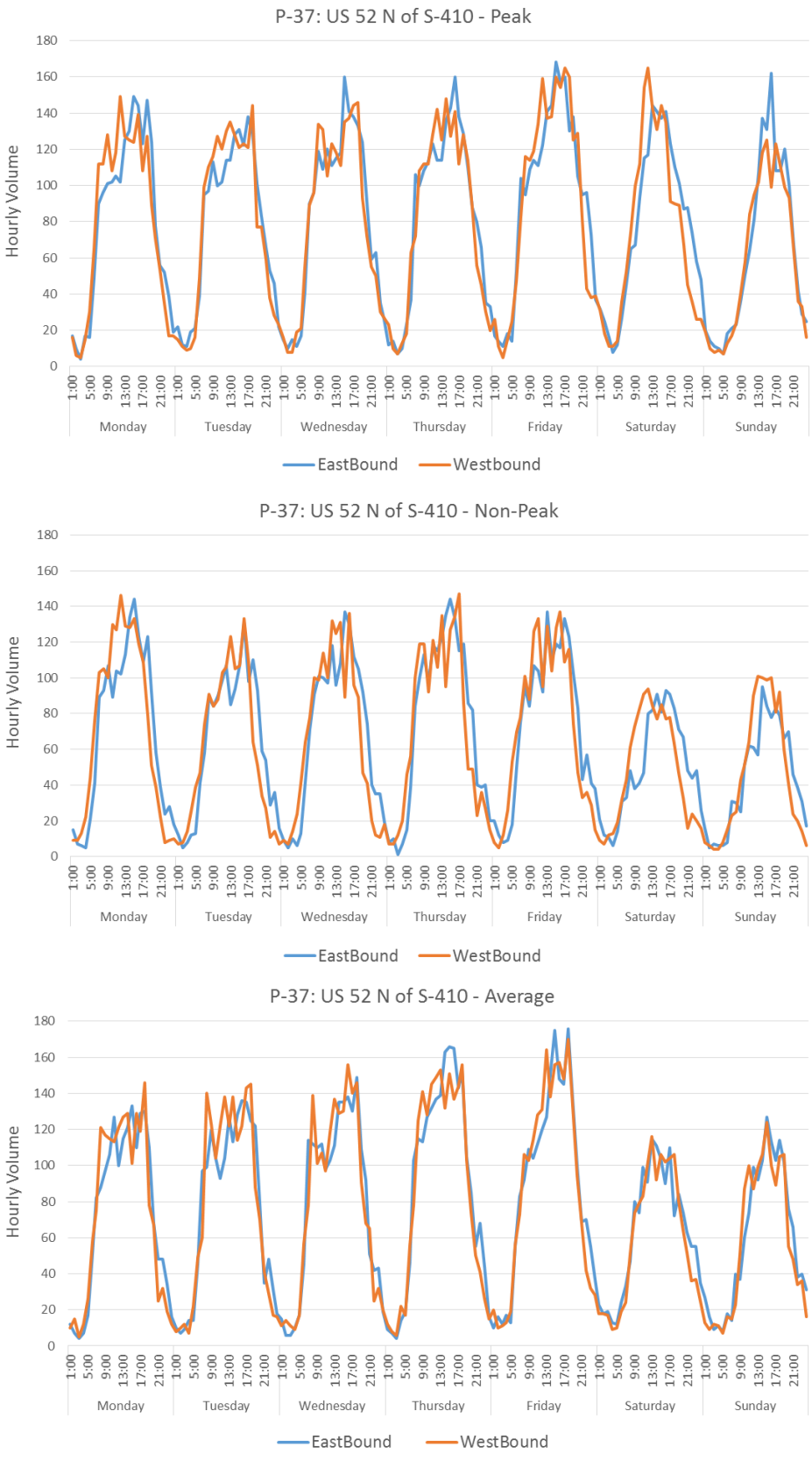


Figure 2-6. Weekly Traffic Profiles at Station P-37: US 52 N of S-410

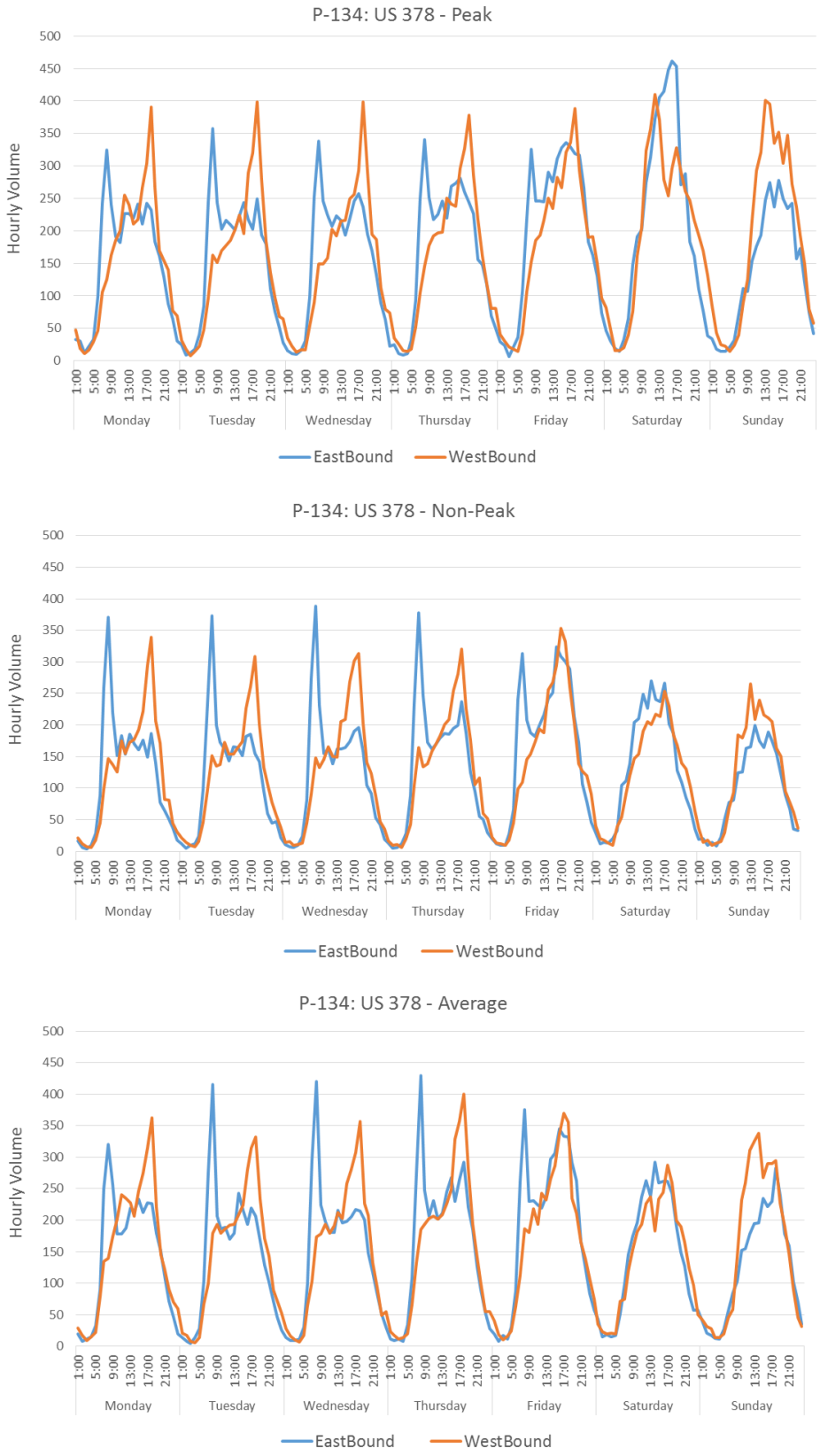


Figure 2-7. Weekly Traffic Profiles at Station P-134: US 378

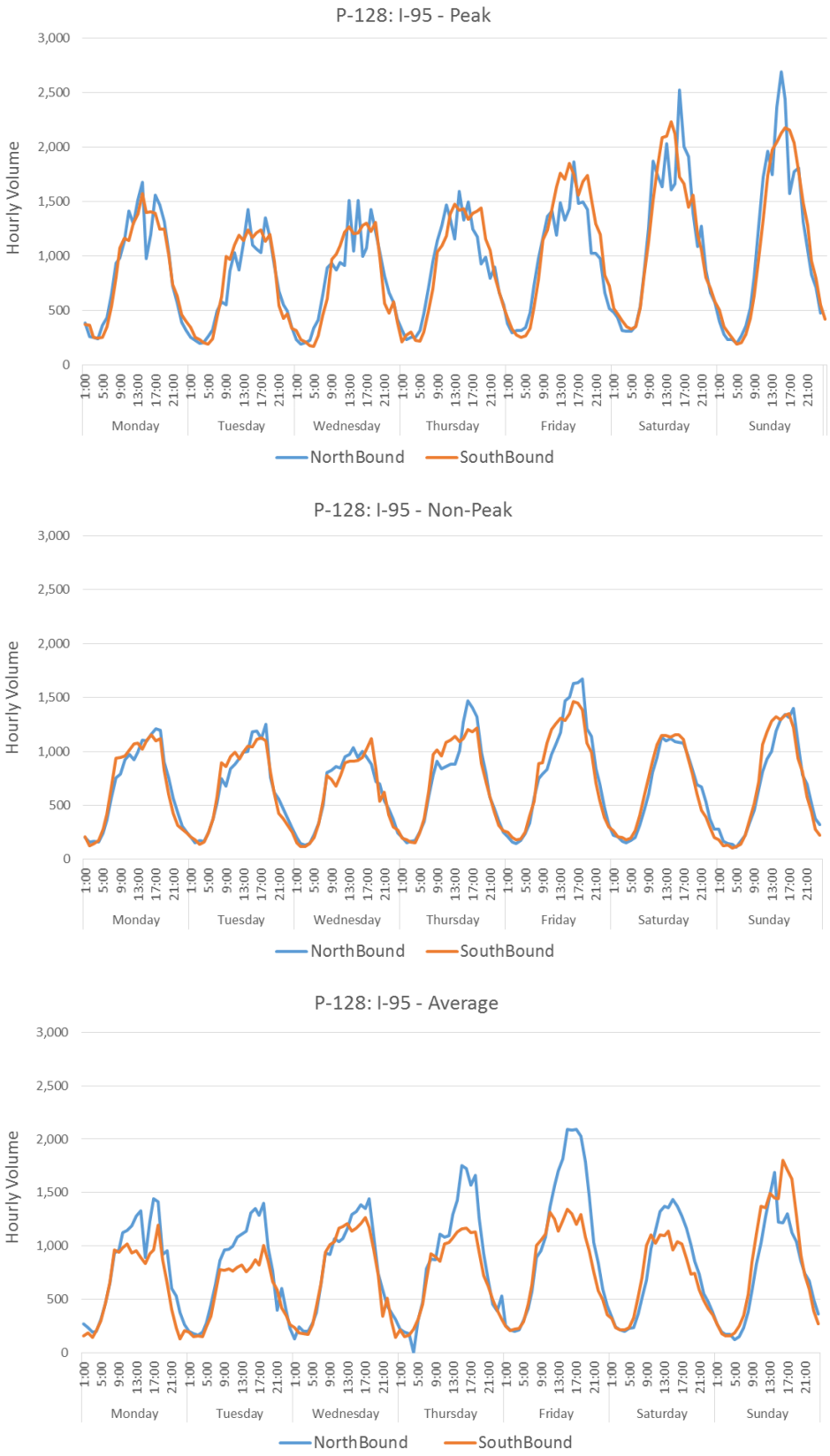


Figure 2-8. Weekly Traffic Profiles at Station P-128: I-95

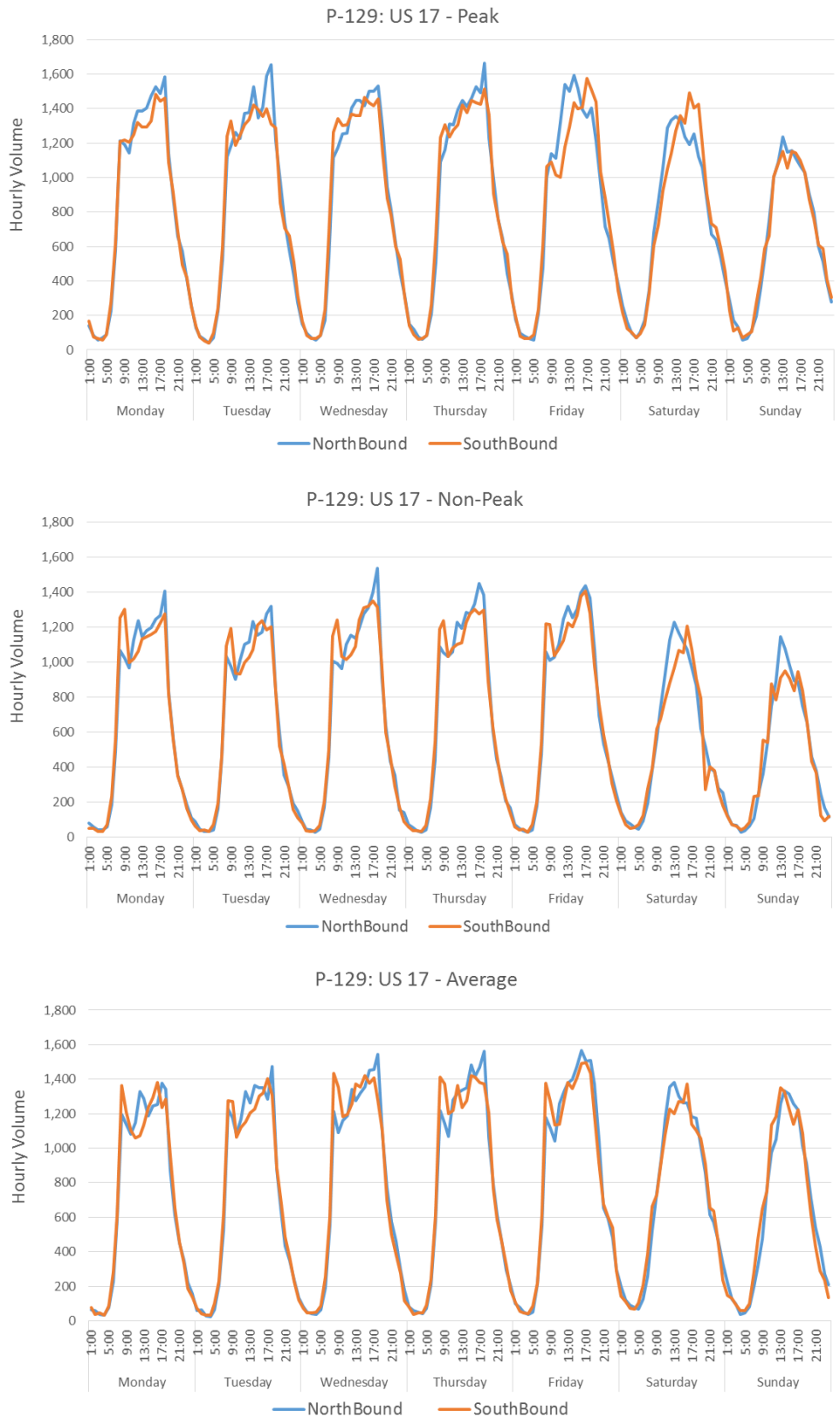


Figure 2-9. Weekly Traffic Profiles at Station P-129: US 17

2.3.3. Seasonality

The following section presents the monthly seasonal patterns based on the permanent count station ADTs. It is important to analyze seasonality on the existing roadways in order to estimate the Project's expected seasonal pattern. The seasonal variation in 2012–2013 and 2013–2014 ADTs from the permanent count stations is illustrated in Figure 2-10 through Figure 2-16. Average monthly factors range from 0.66 to 1.33. Peak periods range from the months of June–August for stations P-105, P-18, and P-30, April–July for stations P-37 and P-134, May–August for station P-129, and April–August for station P-128. Stations P-105 and P-30, near the Myrtle Beach area, exhibit the highest seasonality factors, averaging roughly 1.25 during the peak summer months. The lowest peak seasonality factors are exhibited by station P-37 on US 52.

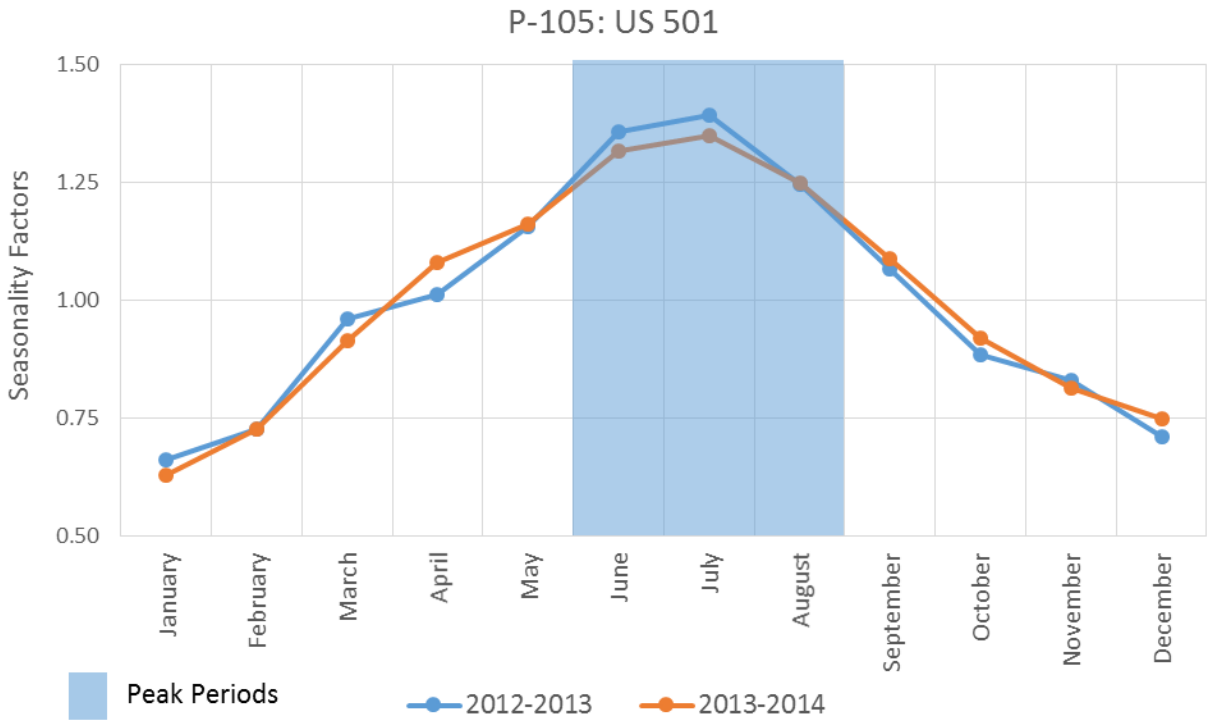


Figure 2-10. Seasonal Variation in Traffic Volumes at Station P-105: US 501

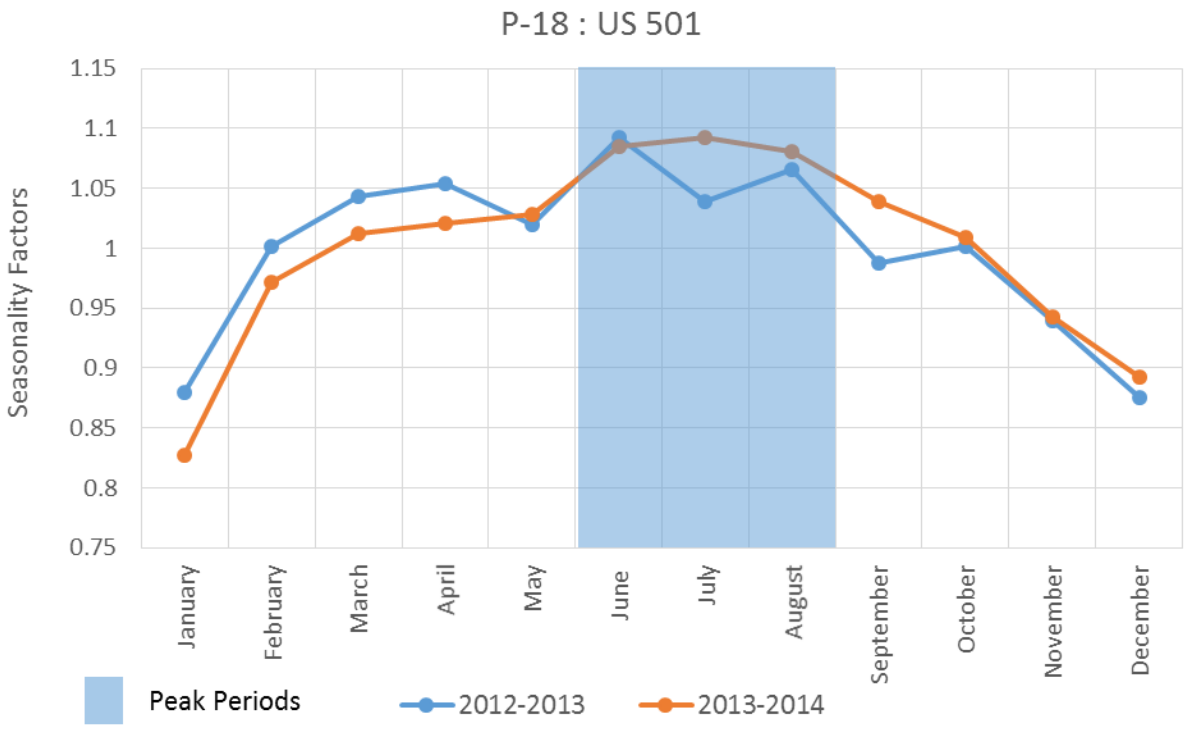


Figure 2-11. Seasonal Variation in Traffic Volumes at Station P-18: US 501

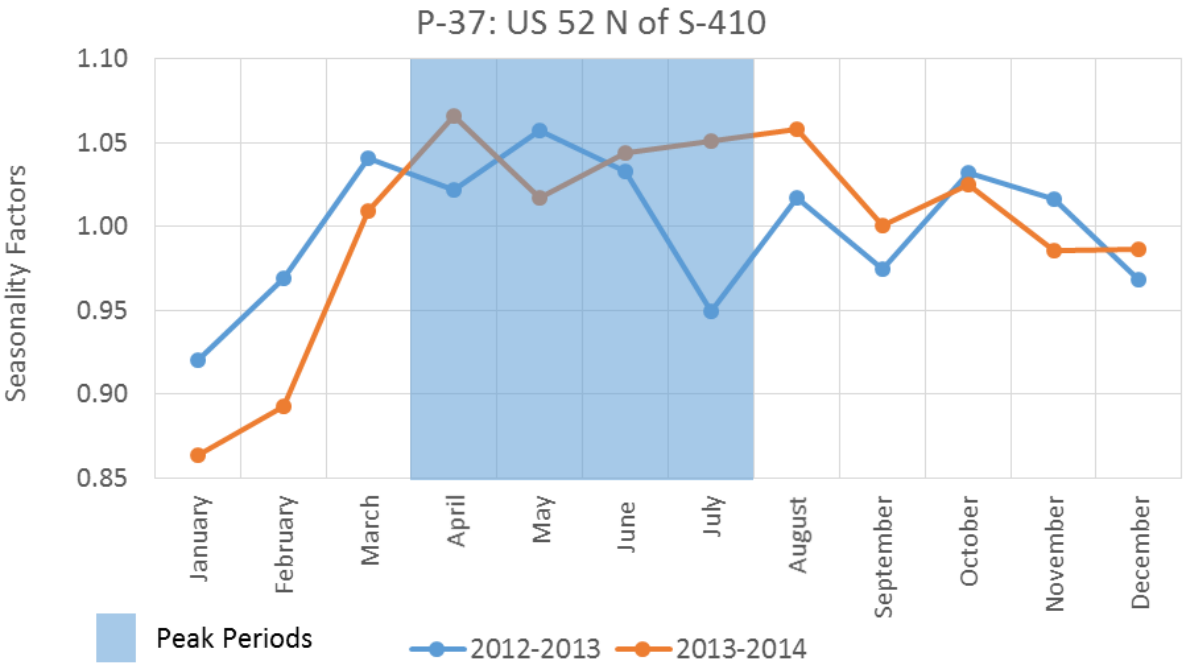


Figure 2-12. Seasonal Variation in Traffic Volumes at Station P-37: US 52 N of S-410

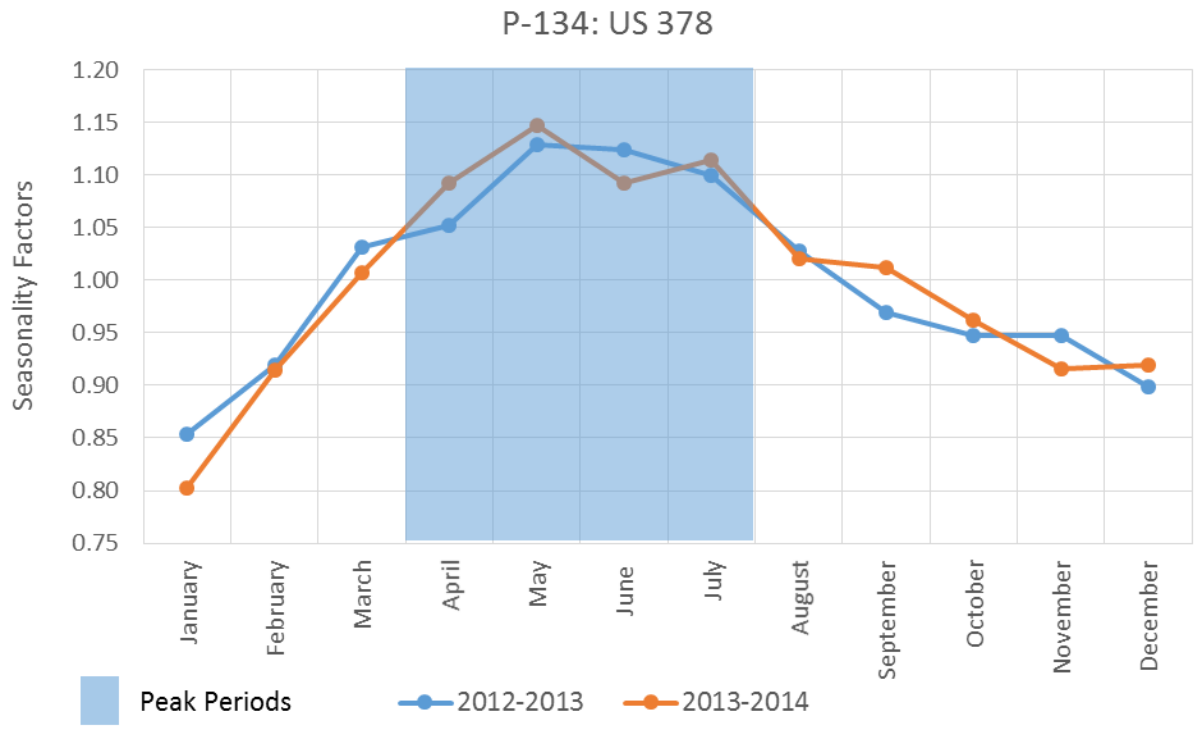


Figure 2-13. Seasonal Variation in Traffic Volumes at Station P-134: US 378

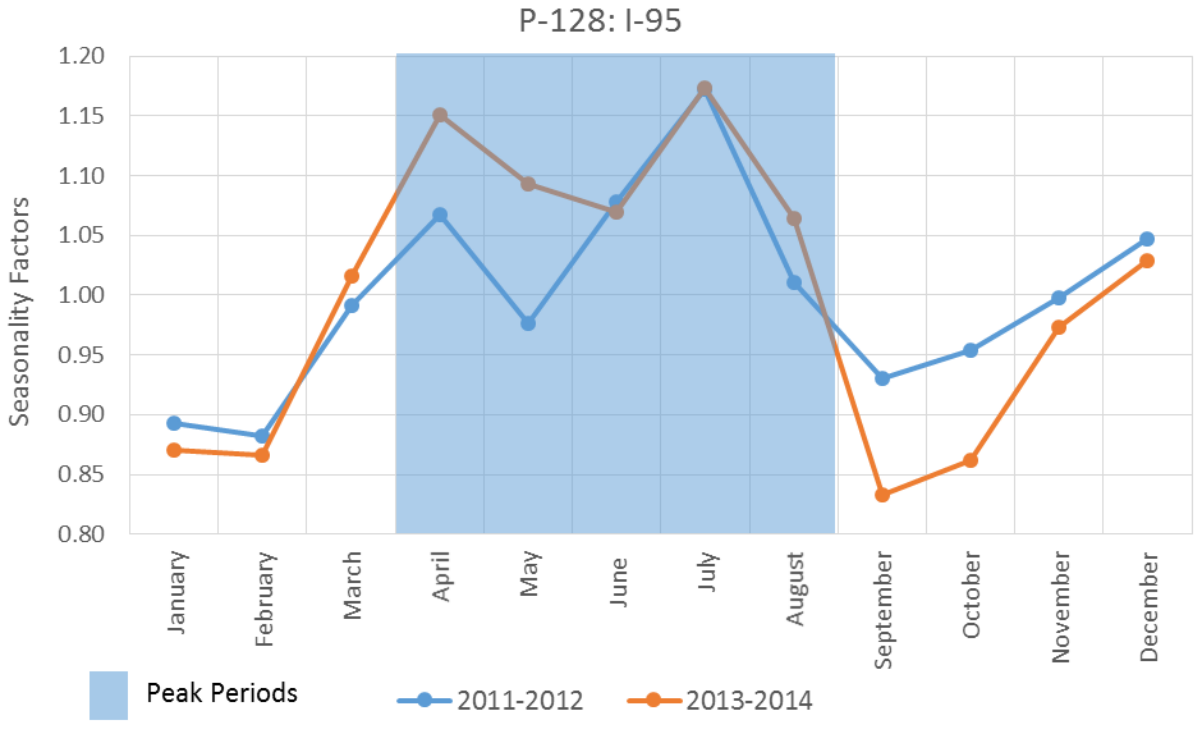


Figure 2-14. Seasonal Variation in Traffic Volumes at Station P-128: I-95

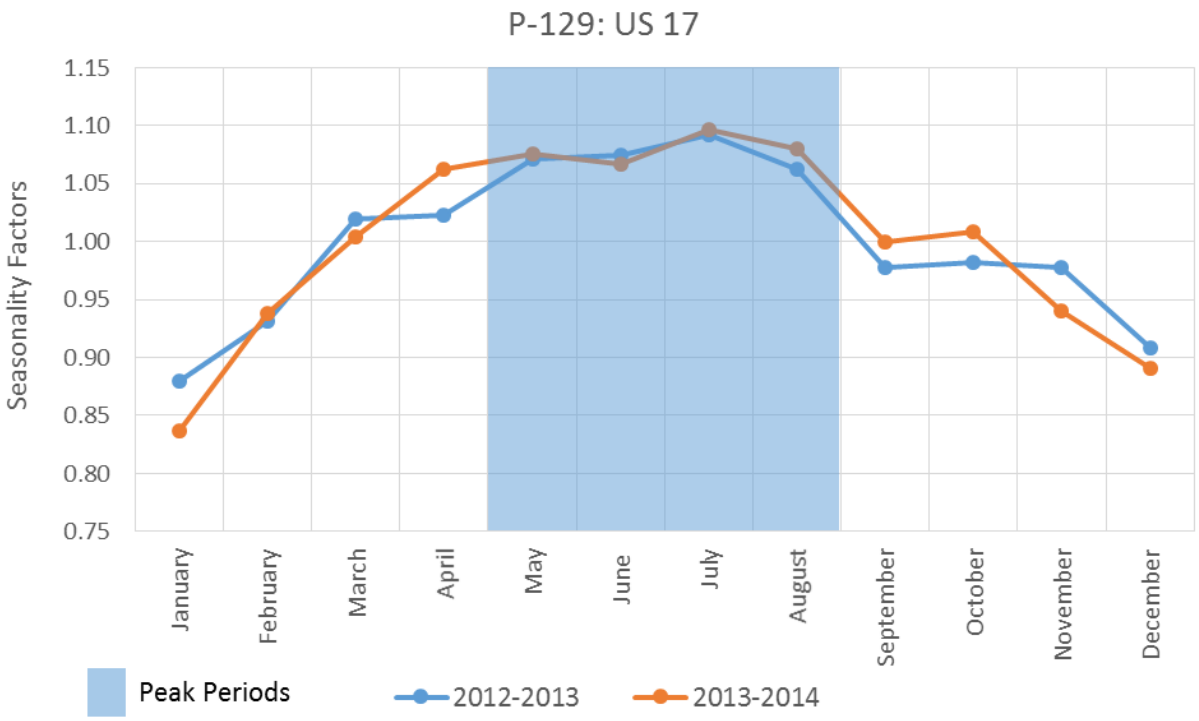


Figure 2-15. Seasonal Variation in Traffic Volumes at Station P-129: US 17

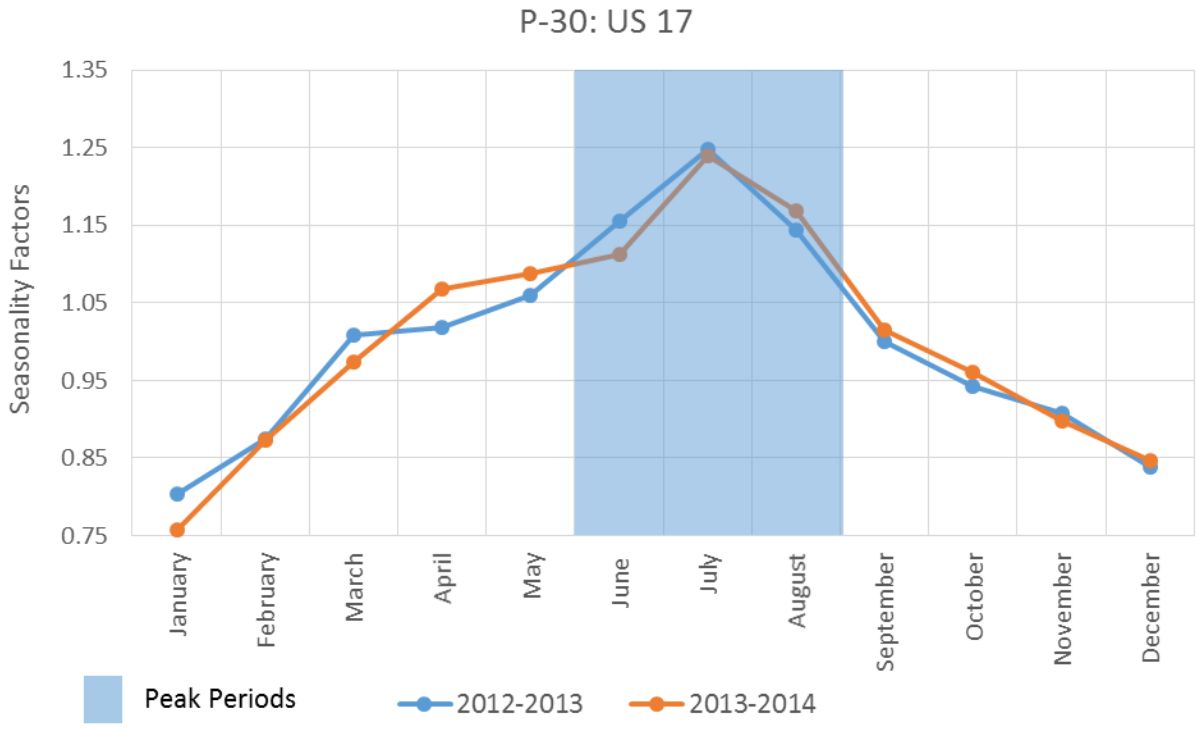


Figure 2-16. Seasonal Variation in Traffic Volumes at Station P-30: US 17

2.4. Bluetooth Origin-Destination Survey

C&M received data from an Origin-Destination (OD) survey performed by SCDOT in the study area. The survey utilized Bluetooth technology and was performed at 28 stations, as presented in Figure 2-17.

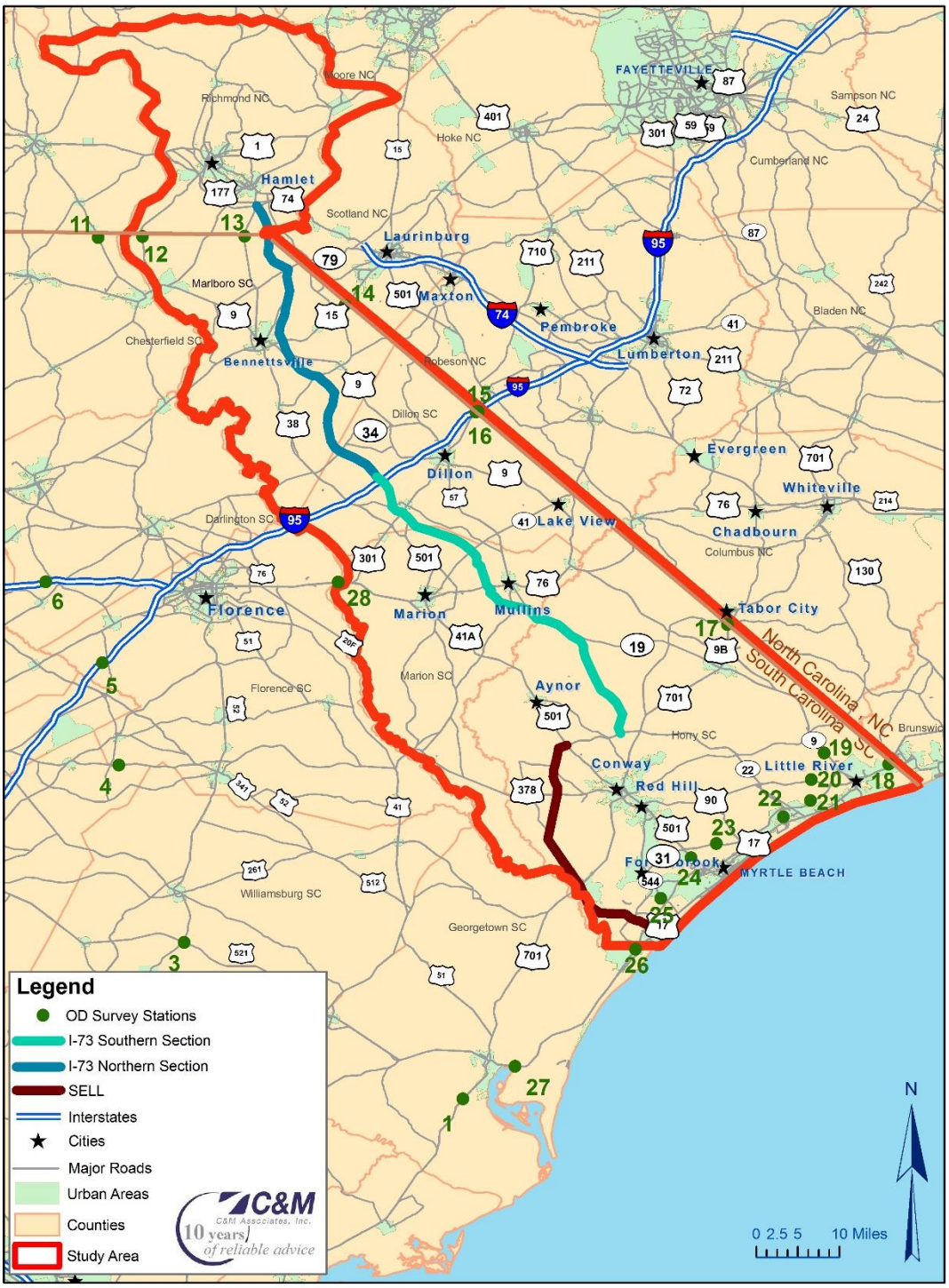


Figure 2-17. Bluetooth Origin-Destination Stations

The data were analyzed separately for weekday and weekend traffic due to the tourist influence in the area, and the results are presented in Figure 2-18 through Figure 2-21. The OD data were expanded and used to calibrate the travel demand model (TDM), as presented in Chapter 4: Modeling Approach.

Figure 2-18. Percentage of Weekday Traffic across the Study Area

Figure 2-19. Percentage of Weekday Traffic into Myrtle Beach

Figure 2-20. Percentage of Weekend Traffic across the Study Area

Figure 2-21. Percentage of Weekend Traffic into Myrtle Beach

Figure 2-18 and Figure 2-20 present the percentage of weekday and weekend thru traffic in the study area, for which the vast majority of drivers use the interstate system. Regarding travelers driving to the Myrtle Beach area, the majority of traffic arrives from the interstate system on both weekdays and weekends, but it is clear that the area is a popular local destination since weekend traffic from North Carolina is higher (see Figure 2-19 and Figure 2-21).

2.5. Speed and Delay Study

C&M, through its sub-consultant All Traffic Data Services, Inc. (ATD), conducted a speed and delay study within the study area in March and April of 2015. This information plays an important role in TDM validation and is normally collected on major roads in the study area that might be affected by the project. Travel times were assessed for the following five routes during select time periods:

- Route 1: Hamlet, NC to Conway, SC via SC-38 and US 501 (PM period only)
- Route 2: Hamlet, NC to Conway, SC via SC-9 (PM period only)
- Route 3: Lumberton, NC to Myrtle Beach, SC (PM period only)
- Route 4: Aynor, SC to Surfside Beach, SC via US 501 and SC-544 (AM and PM periods)
- Route 5: Conway, SC to Surfside Beach, SC via US 501 and US 17 (AM and PM periods)

These routes are illustrated in Figure 2-22 (Routes 1–3) and Figure 2-23 (Routes 4–5).

Summary statistics of the travel runs on Routes 1–3 are provided in Table 2-3 through Table 2-5. The travel runs for Routes 4 and 5 were conducted in both the AM and PM periods for both directions of travel. Summary statistics of the travel runs for Routes 4–5 by time period and direction are provided in Table 2-6 through Table 2-13.

These summary statistics are provided for the different nodes on each segment within the route and include the number of stops made during the run's execution, travel times, and speeds for each segment. The tables also include the total delay and the time spent at or below certain speed thresholds (0, 35, and 55 mph) for each segment, in terms of the number of data points corresponding to each condition. The total number of stops on each segment of a route was based on a stop speed of 5 mph, and the total delay was based on a normal speed of 40 mph.

Route 1 consists of 16 nodes with 15 segments and a total length of 90.2 miles. Route 2 consists of 29 nodes with 28 segments and a total length of 98.2 miles. Route 3 consists of 13 nodes with 12 segments and a total length of 85.4 miles. There are a total of 21 nodes on Route 4 for both AM and PM runs in both directions, with a total length of 34.2 miles in the northbound direction and 33.6 miles in the southbound direction. Route 5 consists of 25 nodes for the AM period runs and 26 nodes for the PM period runs, with a total length of 23.0 miles in the northbound direction and 22.5 miles in the southbound direction.

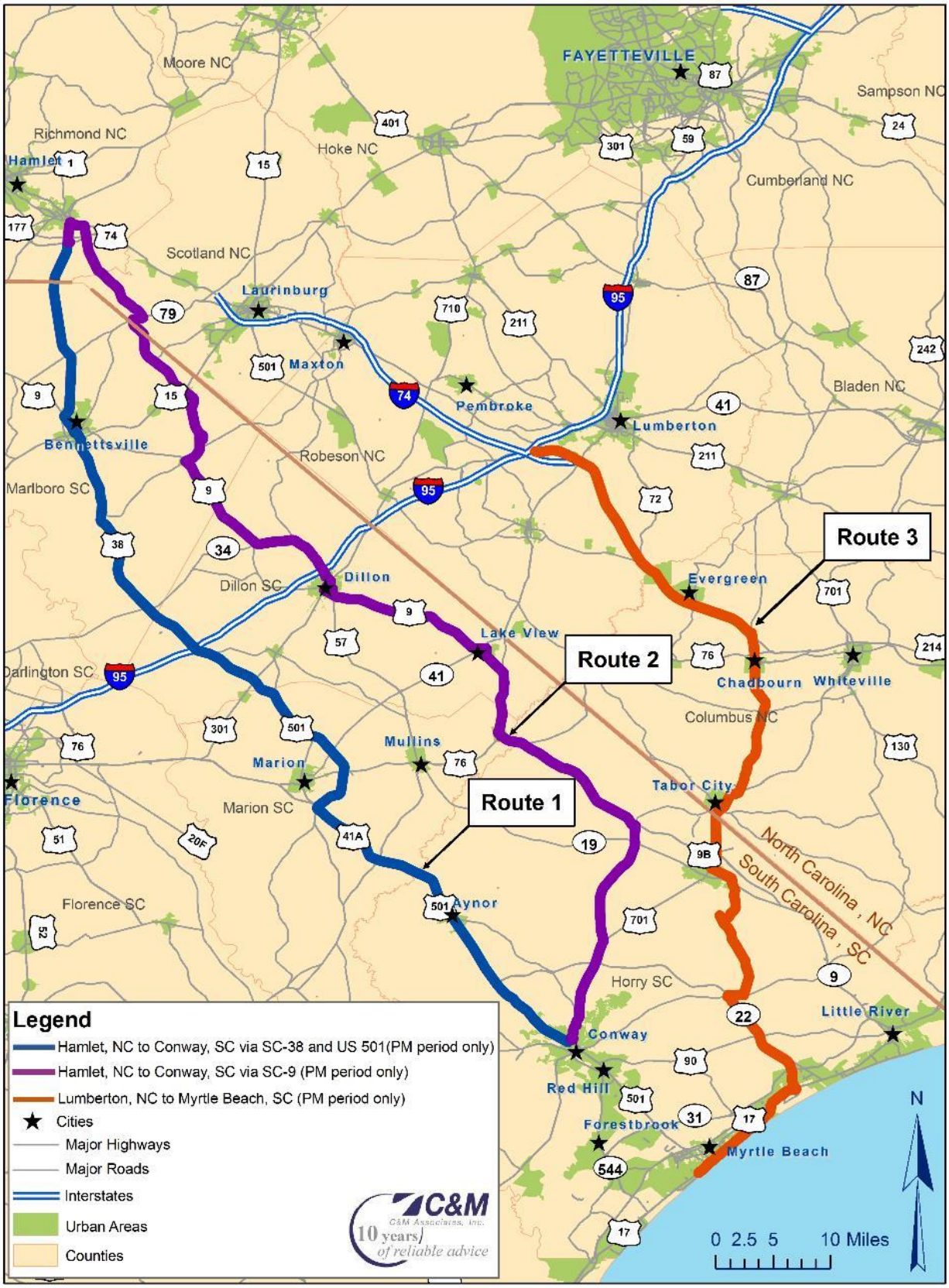


Figure 2-22. Speed and Delay Study Routes 1, 2, and 3

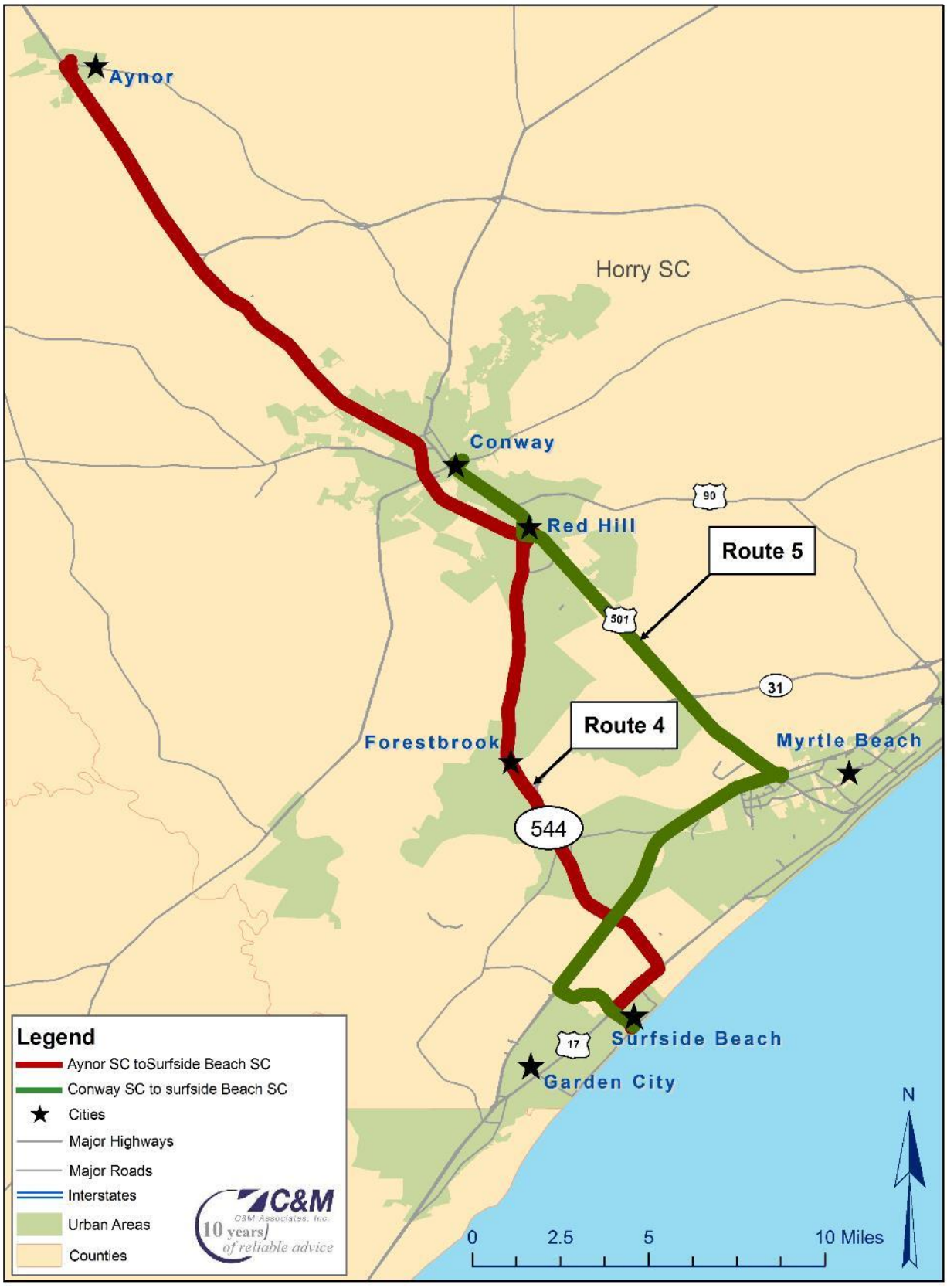


Figure 2-23. Speed and Delay Study Routes 4 and 5

Table 2-3. Summary Statistics of Travel Runs on Route 1 (Hamlet, NC to Conway, SC)

Node Number	Length (mi)	Node	Travel Time (min)	# of Stops	Average Speed (mph)	Total Delay (# of pts)*	Speed <= 0 mph (# of pts)*	Speed <= 35 mph (# of pts)*	Speed <= 55 mph (# of pts)*
1		Start							
2	5.95	State Line	7.53	1	47	0	10	95	180
3	35.51	I-95	43.12	3	49	0	67	309	929
4	5.22	US 301	6.23	1	50	0	4	32	149
5	6.36	US 501 Bus	6.93	0	55	0	0	0	107
6	4.33	US 76	4.58	0	57	0	0	0	6
7	10.56	SR 41	11.55	0	55	0	0	0	311
8	3.84	Pee Dee Hwy	5.08	0	45	0	0	49	291
9	4.19	SR 319	4.37	0	58	0	0	0	41
10	6.50	SC-22	7.08	0	55	0	0	0	113
11	3.16	SR 26-1010	3.42	0	56	0	0	0	76
12	1.09	SC-548	1.32	0	50	0	0	14	28
13	1.13	Cultra Rd	2.08	1	33	24	15	52	125
14	1.60	Mill Pond Rd	2.85	1	34	27	9	60	171
15	0.42	16th Ave	0.98	1	26	21	2	30	59
16	0.31	Elm St	1.45	1	13	59	40	77	87
17	0.02	End	0.15	0	9	7	0	9	9
Total	**90.20**		**108.73**	**9**	**50**	**138**	**147**	**727**	**2,682**

Note: * Values represent the total number of data points for which the condition was observed

Table 2-4. Summary Statistics of Travel Runs on Route 2 (Hamlet, NC to Conway, SC)

Node Number	Length (mi)	Node	Travel Time (min)	# of Stops	Average Speed (mph)	Total Delay (# of pts)*	Speed <= 0 mph (# of pts)*	Speed <= 35 mph (# of pts)*	Speed <= 55 mph (# of pts)*
1		Start							
2	12.17	County Line-State Line	16.52	3	44	0	0	280	580
3	7.00	US 15	8.12	0	52	0	0	26	160
4	5.64	Rte 83	7.63	0	44	0	0	146	348
5	0.89	Carolina Church Rd	2.17	1	25	50	0	81	130
6	0.63	Main St	1.63	1	23	41	0	86	98
7	11.77	Rte 57	13.72	0	52	0	0	46	203
8	3.28	I-95	4.42	0	45	0	0	8	259
9	1.22	N Second Ave	3.17	3	23	80	0	143	190
10	0.93	Rte 34	1.90	1	29	30	0	72	114
11	0.81	Rte 57(S)	2.50	1	19	78	0	130	150
12	1.89	Pee Dee Church Rd	2.68	0	42	0	0	16	161
13	10.67	Rte 41	13.02	0	49	0	0	103	319
14	0.60	Scott St	1.18	1	30	17	0	45	71
15	7.44	Old Mullins Hwy	8.57	0	52	0	0	7	184
16	0.23	US 76	0.55	0	25	13	0	33	33
17	2.65	SR S26-23	3.57	1	45	0	0	52	130
18	6.38	Mt Olive Church Rd	7.12	0	54	0	0	0	86
19	3.92	Green Sea Rd	4.63	0	51	0	0	7	141
20	1.47	Rte 9-417	2.03	1	43	0	0	31	82
21	3.48	Rte 19	3.93	0	53	0	0	9	78
22	5.84	US 701	6.70	0	52	0	0	26	151
23	2.04	SC-22	2.53	0	48	0	0	13	106
24	4.33	Rte 319	5.43	0	48	0	0	25	298
25	0.53	Rte 65	0.87	0	37	5	0	17	52
26	0.87	SR S 26-165	1.93	1	27	38	0	55	116
27	0.74	Mill Pond Rd	1.75	1	25	39	0	52	105
28	0.31	Oak St - Main St	0.53	0	35	4	0	9	32
29	0.38	Laurel St	1.00	1	23	26	0	41	60
30	0.07	End	0.32	0	13	13	0	19	19
Total	**98.15**		**130.12**	**16**	**45**	**434**	**0**	**1,578**	**4,456**

Note: * Values represent the total number of data points for which the condition was observed

Table 2-5. Summary Statistics of Travel Runs on Route 3 (Lumberton, NC to Myrtle Beach, SC)

Node Number	Length (mi)	Node	Travel Time (min)	# of Stops	Average Speed (mph)	Total Delay (# of pts)*	Speed <= 0 mph (# of pts)*	Speed <= 35 mph (# of pts)*	Speed <= 55 mph (# of pts)*
1		Start							
2	46.51	State Line-County Line	53.48	5	52	0	112	449	895
3	3.60	SC-9	4.15	0	52	0	0	0	192
4	14.94	On-Ramp for Conway Bypass	19.88	3	45	0	1	149	1,035
5	0.09	Clover Leaf	0.12	0	46	0	0	0	7
6	0.10	Conway Bypass	0.13	0	43	0	0	0	8
7	0.09	Ramp	0.18	0	29	3	0	7	11
8	4.14	SH 90	4.02	0	62	0	0	9	21
9	3.62	Ramp-Water Tower Road	3.38	0	64	0	0	0	0
10	0.28	Carolina Bays Pkwy	0.28	0	60	0	0	0	0
11	1.79	Off-Ramp to N kings Hwy	1.92	0	56	0	0	0	39
12	1.71	On-Ramp To N Kings Hwy	2.47	0	42	0	0	18	148
13	8.53	End	16.63	8	31	231	25	506	998
Total	**85.40**		**106.65**	**16**	**48**	**234**	**138**	**1,138**	**3,354**

Note: * Values represent the total number of data points for which the condition was observed

Table 2-6. Summary Statistics of Northbound AM Travel Runs on Route 4 (Surfside, SC to Aynor, SC)

Node Number	Length (mi)	Node	Travel Time (min)	# of Stops	Average Speed (mph)	Total Delay (# of pts)*	Speed <= 0 mph (# of pts)*	Speed <= 35 mph (# of pts)*	Speed <= 55 mph (# of pts)*
1		Start							
2	0.16	Willow Dr	0.56	1	17	19	0	34	34
3	0.54	Glenns Bay Rd	1.34	0	24	32	0	81	81
4	1.60	Kings Hwy	2.83	1	34	28	0	58	170
5	2.04	US 17	4.03	1	31	57	0	113	242
6	2.53	SC-707	3.70	1	41	4	0	47	219
7	1.57	S-31/ Carolina Bays Pkwy	2.28	1	41	4	0	29	134
8	4.54	Myrtle Ridge Dr	5.76	0	47	0	0	7	345
9	6.14	Church St Ramp	11.53	7	32	144	0	293	660
10	0.38	Wright Blvd	0.98	1	23	25	0	45	59
11	0.90	16th Ave	1.87	1	29	31	0	61	112
12	0.41	Mill Pond Rd	0.78	0	32	9	0	32	47
13	1.62	SR S 26-165	2.58	1	38	12	0	29	155
14	1.11	SR S 26-1010	1.40	0	48	0	0	10	77
15	2.12	Enoch Rd	2.26	0	56	0	0	0	49
16	1.58	Knotty Branch Rd	1.57	0	60	0	0	0	0
17	1.00	Brunson Spring Rd	0.99	0	61	0	0	0	0
18	2.80	Ridge Rd	2.83	0	59	0	0	0	13
19	1.19	Blue Water Rd	1.19	0	60	0	0	0	6
20	1.45	Jordanville Rd	1.89	0	46	1	0	15	79
21	0.51	End	1.16	1	27	27	0	50	69
Total	**34.21**		**51.51**	**16**	**40**	**392**	**0**	**902**	**2,547**

Note: * Values represent the total number of data points for which the condition was observed

Table 2-7. Summary Statistics of Southbound AM Travel Runs on Route 4 (Aynor, SC to Surfside, SC)

Node Number	Length (mi)	Node	Travel Time (min)	# of Stops	Average Speed (mph)	Total Delay (# of pts)*	Speed <= 0 mph (# of pts)*	Speed <= 35 mph (# of pts)*	Speed <= 55 mph (# of pts)*
1		Start							
2	0.55	Jordanville Rd	1.98	3	17	70	0	96	119
3	1.41	Bluewater Rd	1.63	0	52	0	0	3	56
4	1.18	Ridge Rd	1.16	0	61	0	0	0	0
5	2.80	Brunson Springs Rd	2.75	0	61	0	0	0	0
6	1.01	Knotty Branch Rd	1.03	0	58	0	0	0	6
7	1.58	Enoch Rd	1.61	0	59	0	0	0	0
8	2.14	SR S 26-1010	2.31	0	56	0	0	6	40
9	1.15	SR S 26-165	1.73	1	40	5	0	27	98
10	1.60	Mill Pond Rd	2.62	1	37	13	0	41	157
11	0.41	16th Ave	0.81	0	31	11	0	30	48
12	0.88	Wright Blvd	1.36	0	39	4	0	12	82
13	0.40	Church St Ramp	0.53	0	45	0	0	0	32
14	5.62	Myrtle Ridge Dr	7.94	1	43	0	0	91	457
15	4.56	S-31/ Carolina Bays Pkwy	5.81	0	47	0	0	6	349
16	1.57	SC-707	2.42	1	39	6	0	38	145
17	2.57	US 17	4.03	1	38	11	0	63	241
18	1.88	S Kings Hwy	3.17	1	36	24	0	63	190
19	1.62	Glenns Bay Rd	2.61	1	37	11	0	37	157
20	0.55	Willow Dr	1.53	1	22	42	0	91	92
21	0.14	End	0.34	0	25	8	0	20	20
Total	**33.61**		**47.37**	**10**	**43**	**203**	**0**	**623**	**2,289**

Note: * Values represent the total number of data points for which the condition was observed

Table 2-8. Summary Statistics of Northbound PM Travel Runs on Route 4 (Surfside, SC to Aynor, SC)

Node Number	Length (mi)	Node	Travel Time (min)	# of Stops	Average Speed (mph)	Total Delay (# of pts)*	Speed <= 0 mph (# of pts)*	Speed <= 35 mph (# of pts)*	Speed <= 55 mph (# of pts)*
1		Start							
2	0.16	Willow Dr	0.57	1	17	19	0	34	34
3	0.54	Glenns Bay Rd	1.39	1	23	35	0	83	84
4	1.60	Kings Hwy	3.82	2	25	85	0	131	229
5	2.04	US 17	5.86	2	21	168	0	244	352
6	2.53	SC-707	4.76	2	32	67	0	123	279
7	1.57	S-31/ Carolina Bays Pkwy	2.08	0	45	7	0	22	99
8	4.54	Myrtle Ridge Dr	5.77	1	47	0	0	17	340
9	6.14	Church St Ramp	8.88	2	42	23	0	125	449
10	0.38	Wright Blvd	0.88	1	26	21	0	30	50
11	0.90	16th Ave	1.46	0	37	7	0	20	88
12	0.41	Mill Pond Rd	0.66	0	38	3	0	9	39
13	1.62	SR S 26-165	2.39	0	41	1	0	24	143
14	1.11	SR S 26-1010	1.51	0	44	6	0	16	62
15	2.12	Enoch Rd	2.23	0	57	0	0	0	37
16	1.58	Knotty Branch Rd	1.58	0	60	0	0	0	4
17	1.00	Brunson Spring Rd	0.99	0	60	0	0	0	4
18	2.80	Ridge Rd	2.76	0	61	0	0	0	0
19	1.19	Blue Water Rd	1.18	0	61	0	0	0	1
20	1.45	Jordanville Rd	1.82	0	48	0	0	12	66
21	0.51	End	0.90	1	35	14	0	27	53
Total	**34.21**		**51.47**	**11**	**40**	**455**	**0**	**914**	**2,412**

Note: * Values represent the total number of data points for which the condition was observed

Table 2-9. Summary Statistics of Southbound PM Travel Runs on Route 4 (Aynor, SC to Surfside, SC)

Node Number	Length (mi)	Node	Travel Time (min)	# of Stops	Average Speed (mph)	Total Delay (# of pts)*	Speed <= 0 mph (# of pts)*	Speed <= 35 mph (# of pts)*	Speed <= 55 mph (# of pts)*
1		Start							
2	0.55	Jordanville Rd	1.82	3	18	59	0	82	109
3	1.41	Bluewater Rd	1.64	0	51	0	0	0	56
4	1.18	Ridge Rd	1.18	0	61	0	0	0	3
5	2.80	Brunson Springs Rd	2.76	0	61	0	0	0	9
6	1.01	Knotty Branch Rd	1.00	0	60	0	0	0	4
7	1.58	Enoch Rd	1.62	0	59	0	0	0	9
8	2.14	SR S 26-1010	2.26	0	57	0	0	3	19
9	1.15	SR S 26-165	2.03	1	34	24	0	45	109
10	1.60	Mill Pond Rd	2.72	1	35	19	0	44	163
11	0.41	16th Ave	0.90	1	28	17	0	23	54
12	0.88	Wright Blvd	1.89	1	28	35	0	71	114
13	0.40	Church St Ramp	0.68	0	35	8	0	15	40
14	5.62	Myrtle Ridge Dr	8.48	2	40	20	0	137	481
15	4.56	S-31/ Carolina Bays Pkwy	5.94	0	46	0	0	15	356
16	1.57	SC-707	2.22	1	43	6	0	23	131
17	2.57	US 17	5.21	2	30	81	0	147	312
18	1.88	S Kings Hwy	4.06	2	28	74	0	118	243
19	1.62	Glenns Bay Rd	3.43	2	28	60	0	114	206
20	0.55	Willow Dr	2.19	1	15	82	0	128	131
21	0.14	End	0.28	0	31	3	0	15	17
Total	**33.61**		**52.27**	**16**	**39**	**487**	**0**	**978**	**2,565**

Note: * Values represent the total number of data points for which the condition was observed

Table 2-10. Summary Statistics of Northbound AM Travel Runs on Route 5 (Surfside, SC to Conway, SC)

Node Number	Length (mi)	Node	Travel Time (min)	# of Stops	Average Speed (mph)	Total Delay (# of pts)*	Speed <= 0 mph (# of pts)*	Speed <= 35 mph (# of pts)*	Speed <= 55 mph (# of pts)*
1		Start							
2	0.14	Willow Dr	0.51	1	17	17	0	30	30
3	0.20	Hollywood Dr	0.36	0	33	4	0	21	22
4	0.35	US 17	2.01	1	11	88	62	118	120
5	1.61	Holmestown Rd	4.51	2	21	126	58	222	271
6	2.38	SC-544	3.91	1	37	29	30	78	201
7	2.18	Palmetto Pointe Blvd	3.03	1	43	3	12	45	116
8	0.50	SC-707	0.63	0	48	0	0	2	38
9	2.13	George Bishop Pkwy	2.41	0	53	0	0	0	94
10	1.13	On-Ramp US 17 Bypass	1.79	1	38	10	3	37	100
11	2.67	SR 26-137	3.31	0	48	0	0	32	132
12	0.67	Carolina Bays Pkwy	0.69	0	58	0	0	0	1
13	1.48	Carolina Forest Blvd	2.31	1	39	21	22	43	100
14	1.53	Myrtle Ridge Dr	3.41	1	27	67	64	106	194
15	1.22	William Finlayson Rd	2.04	0	36	16	8	36	122
16	0.08	Singleton Ridge Rd	0.15	0	34	2	0	6	9
17	0.61	SR 26-953	1.12	1	32	13	4	28	67
18	0.66	Cox Ferry Rd	0.98	0	40	4	0	12	59
19	0.33	SC-544 Overpass	0.43	0	46	0	0	0	26
20	0.62	US 501	1.98	1	19	63	36	97	119
21	0.61	Rte 90	1.06	0	35	8	0	22	64
22	1.14	SR 26-14	1.36	0	51	0	0	2	68
23	0.39	2nd Ave	0.55	0	43	0	0	5	33
24	0.19	Unnamed Road	0.88	1	13	35	11	53	53
25	0.18	End	0.32	0	34	5	0	17	18
Total	**23.02**		**39.74**	**10**	**35**	**510**	**309**	**1,010**	**2,054**

Note: * Values represent the total number of data points for which the condition was observed

Table 2-11. Summary Statistics of Southbound AM Travel Runs on Route 5 (Conway, SC to Surfside, SC)

Node Number	Length (mi)	Node	Travel Time (min)	# of Stops	Average Speed (mph)	Total Delay (# of pts)*	Speed <= 0 mph (# of pts)*	Speed <= 35 mph (# of pts)*	Speed <= 55 mph (# of pts)*
1		Start							
2	0.18	2nd Ave	1.09	1	10	49	35	65	65
3	0.52	SR 26-14	1.68	1	19	54	28	82	101
4	1.18	Rte 90	1.58	1	45	4	0	15	89
5	0.63	French Collins Rd	2.44	3	16	90	8	128	147
6	0.43	US 501	1.78	1	15	68	38	103	107
7	0.19	SC-544 Overpass	0.37	0	31	5	0	12	22
8	0.32	Cox Ferry Rd	0.67	1	29	11	2	21	40
9	0.64	SR 26-953	1.66	2	23	44	9	68	100
10	0.63	William Finlayson Rd	2.45	1	15	90	56	120	147
11	1.30	Myrtle Ridge Dr	1.77	0	44	0	0	13	106
12	1.52	Carolina Forest Blvd	2.54	1	36	23	15	54	136
13	1.48	Carolina Bays Pkwy	2.78	1	32	41	10	76	153
14	0.30	Carolina Bays Pkwy Ramp	0.32	0	57	0	0	0	1
15	0.36	SR 26-137	0.38	0	57	0	0	0	0
16	1.21	George Bishop Pkwy	1.26	0	58	0	0	0	4
17	1.09	On-Ramp US 17 Bypass	1.37	0	48	0	0	6	78
18	0.17	US 17 Bypass	0.29	0	36	1	0	7	18
19	2.93	SC-707	3.32	0	53	0	0	0	121
20	0.51	Palmetto Pointe Blvd	1.31	1	24	33	17	51	71
21	2.17	SC-544	3.08	1	42	14	11	53	117
22	2.41	Holmestown Rd	7.10	5	20	209	113	318	390
23	1.61	US 17	3.38	1	29	58	13	162	203
24	0.34	Hollywood Dr	1.19	1	17	40	14	71	71
25	0.20	Willow Dr	0.38	0	33	4	0	22	23
26	0.14	End	0.33	0	24	8	0	20	20
Total	**22.47**		**44.50**	**18**	**30**	**842**	**368**	**1,464**	**2,326**

Note: * Values represent the total number of data points for which the condition was observed

Table 2-12. Summary Statistics of Northbound PM Travel Runs on Route 5 (Surfside, SC to Conway, SC)

Node Number	Length (mi)	Node	Travel Time (min)	# of Stops	Average Speed (mph)	Total Delay (# of pts)*	Speed <= 0 mph (# of pts)*	Speed <= 35 mph (# of pts)*	Speed <= 55 mph (# of pts)*
1		Start							
2	0.14	Willow Dr	0.58	2	15	22	0	35	35
3	0.20	Hollywood Dr	0.38	0	31	5	0	18	23
4	0.35	US 17	1.82	1	12	78	53	105	109
5	1.61	Holmestown Rd	4.56	2	21	129	55	221	274
6	2.38	SC-544	3.36	1	43	5	10	44	175
7	2.18	Palmetto Pointe Blvd	3.25	1	40	12	23	56	138
8	0.50	SC-707	0.64	0	47	0	0	5	34
9	2.13	George Bishop Pkwy	2.37	0	54	0	0	0	80
10	1.13	On-Ramp US 17 Bypass	1.83	1	37	14	12	37	88
11	2.67	SR 26-137	3.37	1	48	0	0	33	133
12	0.67	Carolina Bays Pkwy	0.69	0	58	0	0	0	6
13	1.48	Carolina Forest Blvd	3.14	2	28	54	35	99	157
14	1.53	Myrtle Ridge Dr	3.75	1	25	97	72	137	183
15	1.22	William Finlayson Rd	3.45	2	21	103	31	157	199
16	0.08	Singleton Ridge Rd	0.73	1	7	36	26	42	44
17	0.61	SR 26-953	0.91	0	40	2	0	8	54
18	0.66	Cox Ferry Rd	0.81	0	49	0	0	0	48
19	0.33	SC-544 Overpass	0.45	0	44	1	0	4	27
20	0.62	US 501	1.76	2	21	50	15	91	106
21	0.61	Rte 90	1.58	1	23	39	7	63	95
22	1.14	SR 26-14	1.60	0	43	8	2	19	89
23	0.39	2nd Ave	0.93	1	25	21	2	42	56
24	0.19	Unnamed Road	1.03	1	11	45	17	62	62
25	0.18	End	0.37	0	29	7	0	20	22
Total	**23.02**		**43.34**	**17**	**32**	**724**	**358**	**1,295**	**2,234**

Note: * Values represent the total number of data points for which the condition was observed

Table 2-13. Summary Statistics of Southbound PM Travel Runs on Route 5 (Conway, SC to Surfside, SC)

Node Number	Length (mi)	Node	Travel Time (min)	# of Stops	Average Speed (mph)	Total Delay (# of pts)*	Speed <= 0 mph (# of pts)*	Speed <= 35 mph (# of pts)*	Speed <= 55 mph (# of pts)*
1	0	Start							
2	0.18	2nd Ave	0.72	1	15	27	15	41	43
3	0.52	SR 26-14	1.83	1	17	63	24	94	110
4	1.18	Rte 90	1.42	0	50	0	0	0	80
5	0.63	French Collins Rd	1.00	0	38	3	0	13	60
6	0.43	US 501	2.01	1	13	82	60	111	121
7	0.19	SC-544 Overpass	1.13	1	10	51	41	58	68
8	0.32	Cox Ferry Rd	0.41	0	47	0	0	1	25
9	0.64	SR 26-953	1.83	1	21	56	26	71	110
10	0.63	William Finlayson Rd	2.58	1	15	97	54	132	155
11	1.30	Myrtle Ridge Dr	3.53	2	22	94	29	157	212
12	1.52	Carolina Forest Blvd	3.48	1	26	71	60	114	186
13	1.48	Carolina Bays Pkwy	3.36	2	27	67	21	131	184
14	0.30	Carolina Bays Pkwy Ramp	0.33	0	56	0	0	0	6
15	0.36	SR 26-137	0.36	0	59	0	0	0	2
16	1.21	George Bishop Pkwy	1.27	0	57	0	0	0	13
17	1.09	On-Ramp US 17 Bypass	1.28	0	51	0	0	2	65
18	0.17	US 17 Bypass	0.31	0	34	2	0	9	19
19	2.93	SC-707	3.68	0	48	3	0	25	176
20	0.51	Palmetto Pointe Blvd	0.73	0	42	6	2	11	36
21	2.17	SC-544	2.51	0	52	0	0	1	109
22	2.41	Holmestown Rd	5.70	2	25	125	117	182	335
23	1.61	US 17	4.06	1	24	98	47	198	244
24	0.34	Hollywood Dr	1.51	1	14	60	28	87	91
25	0.20	Willow Dr	0.38	0	32	4	0	16	23
26	0.14	End	0.36	0	22	10	0	22	22
Total	**22.47**		**45.76**	**15**	**30**	**916**	**524**	**1,473**	**2,489**

Note: * Values represent the total number of data points for which the condition was observed

Figure 2-24 through Figure 2-26 illustrate the travel speeds on Routes 1–5. As can be seen, the majority of route segments are displayed in green, representing areas with speeds close to or at free-flow speed, while a few of the segments are in yellow, implying travel conditions below free-flow speed. Decreased speeds were observed in the Myrtle Beach and Surfside Beach areas. The few red segments in the figures primarily result from stops at traffic signals. These conclusions are supported by the speed distance profiles illustrated in Figure 2-27 through Figure 2-37.

These data were validated with publicly available speed databases. Since these data were collected in the non-peak season, congestion levels were adjusted in the TDM model to accurately represent congestion in the area when visitors arrive during the peak summer months.

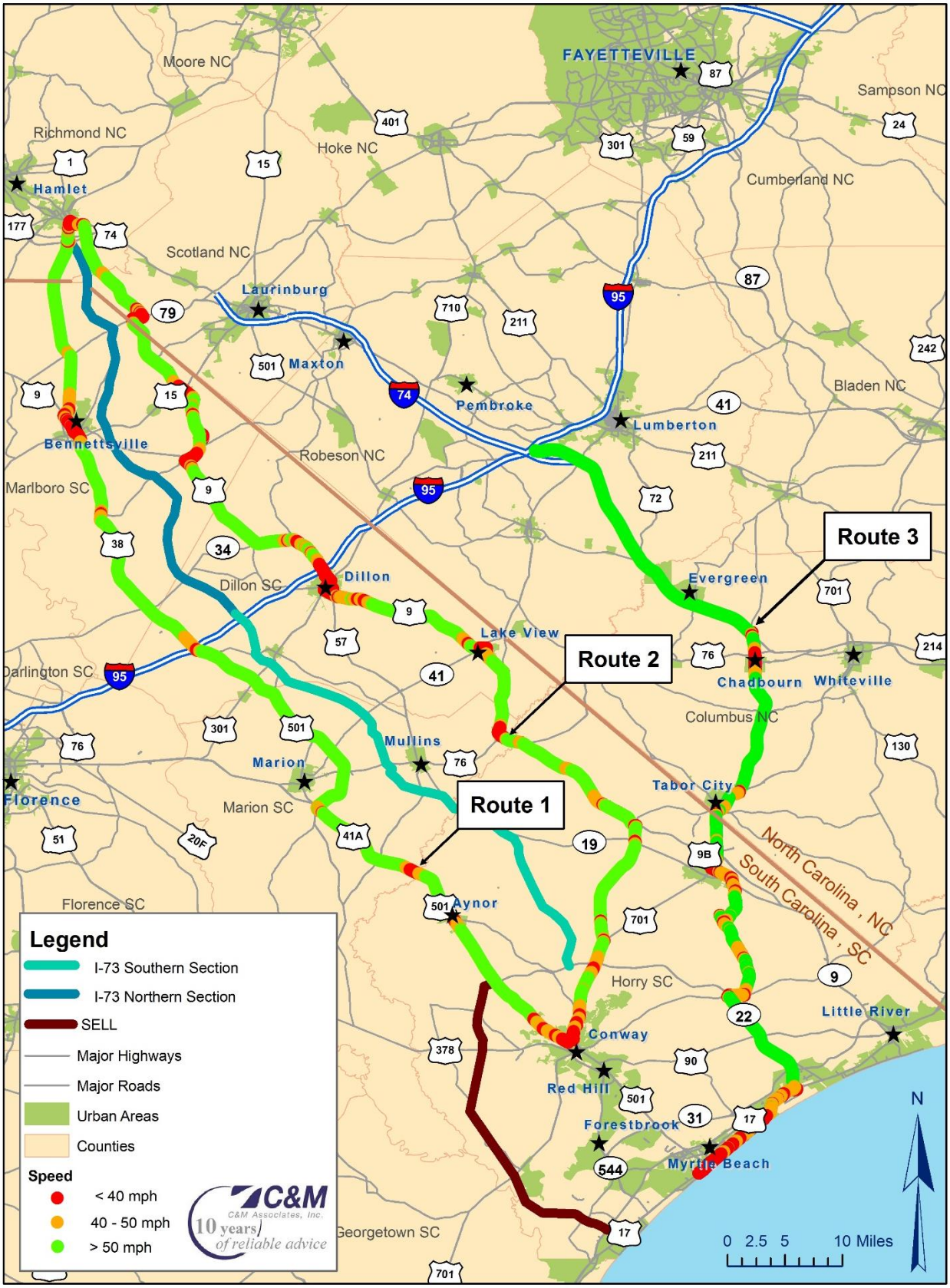


Figure 2-24. Average Travel Speeds on Route 1, Route 2, and Route 3

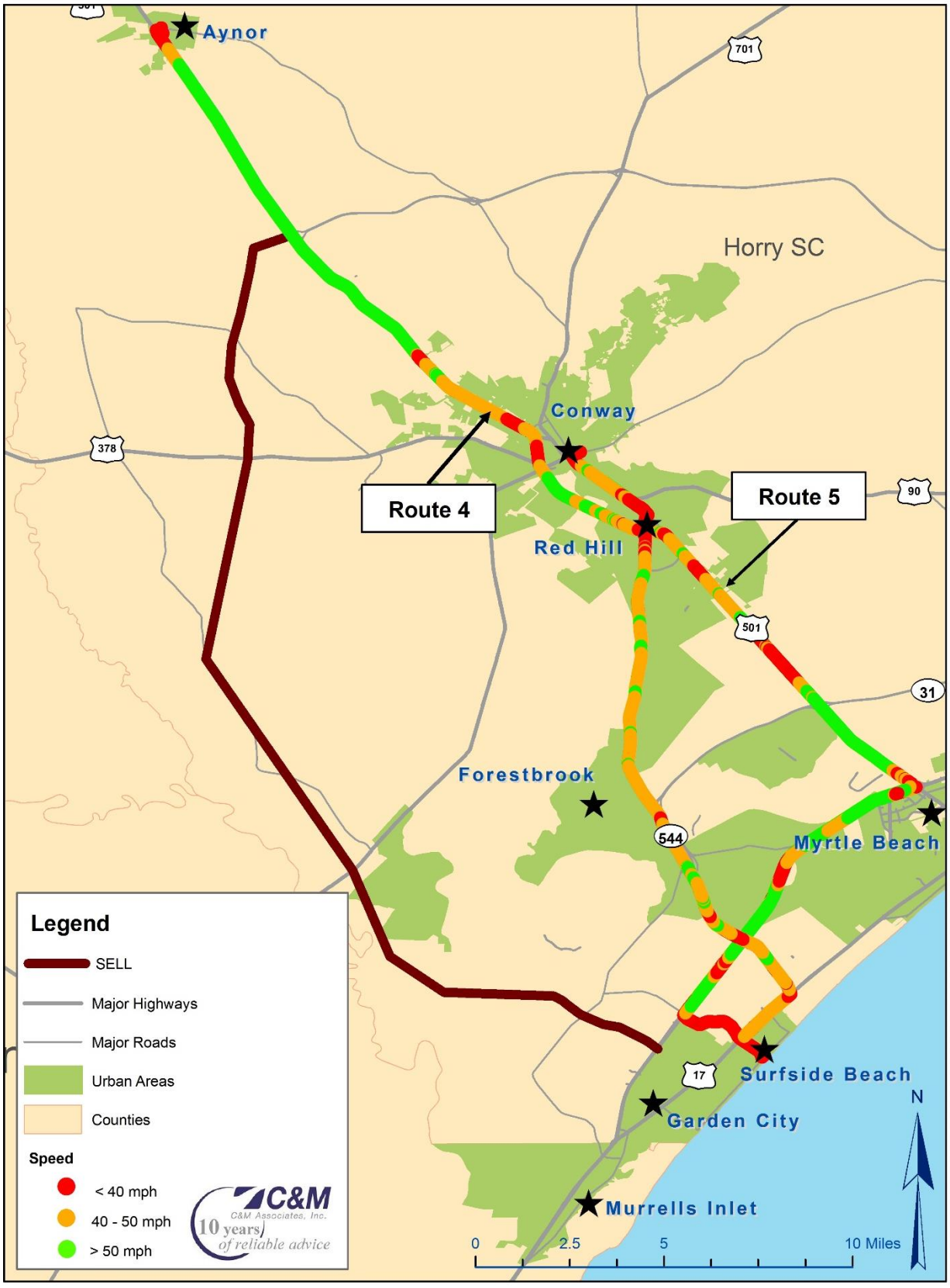


Figure 2-25. Average Travel Speeds on Route 4 and Route 5 (AM)

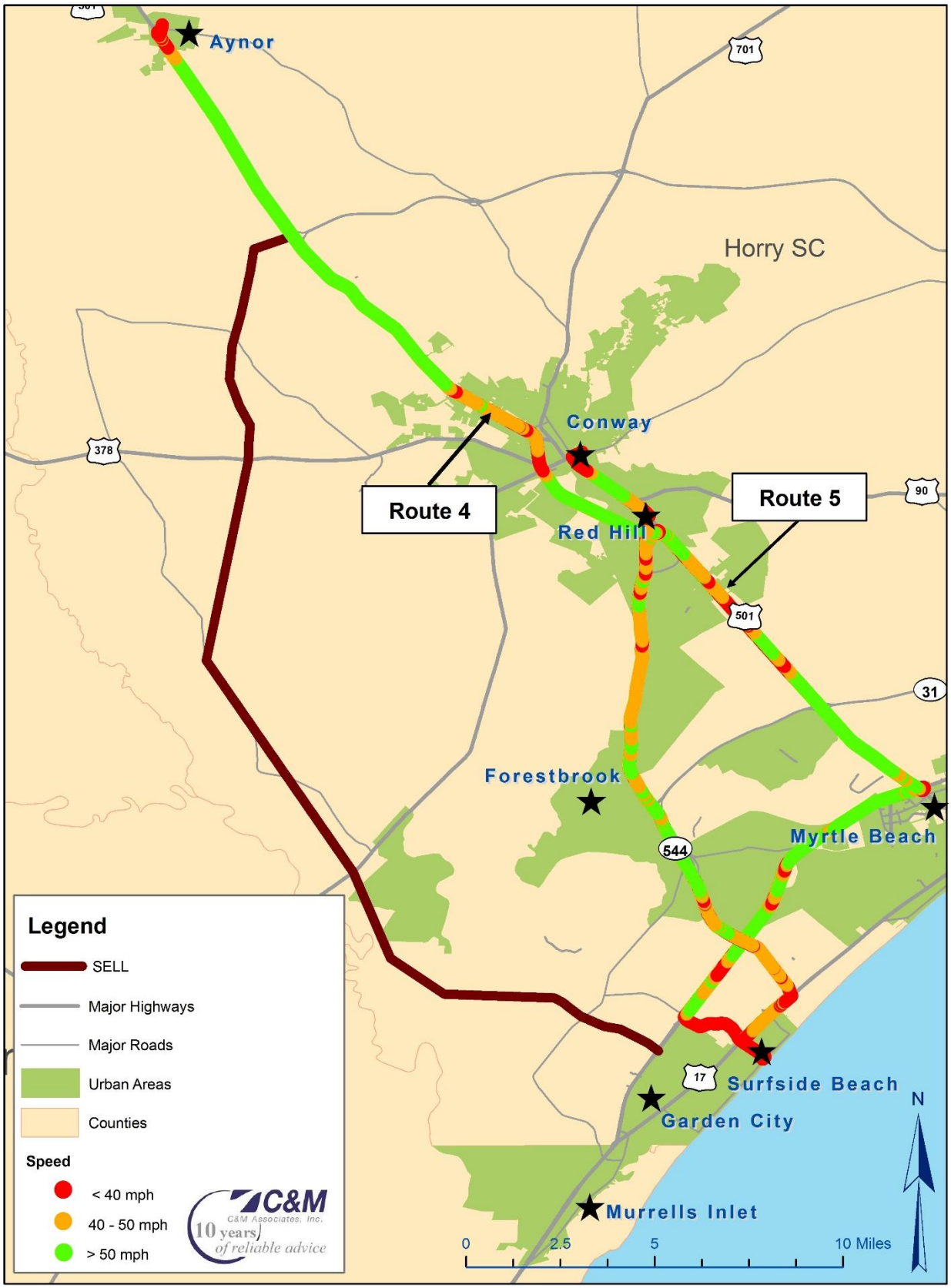


Figure 2-26. Average Travel Speeds on Route 4 and Route 5 (PM)

As illustrated in Figure 2-27, the speed-distance profile on Route 1 shows high speeds of 55 mph or higher for the majority of the route between the starting point and SC-22. Low speeds throughout the profile were primarily the result of delays due to traffic control devices at the intersections along the route. Route 2 also exhibited speeds close to 55 mph along the majority of its segments, as shown in Figure 2-28. However, a greater number of stops and delays were observed on Route 2 compared to Route 1. As with Route 1, these reductions in speed were primarily the result of delays at signalized intersections.

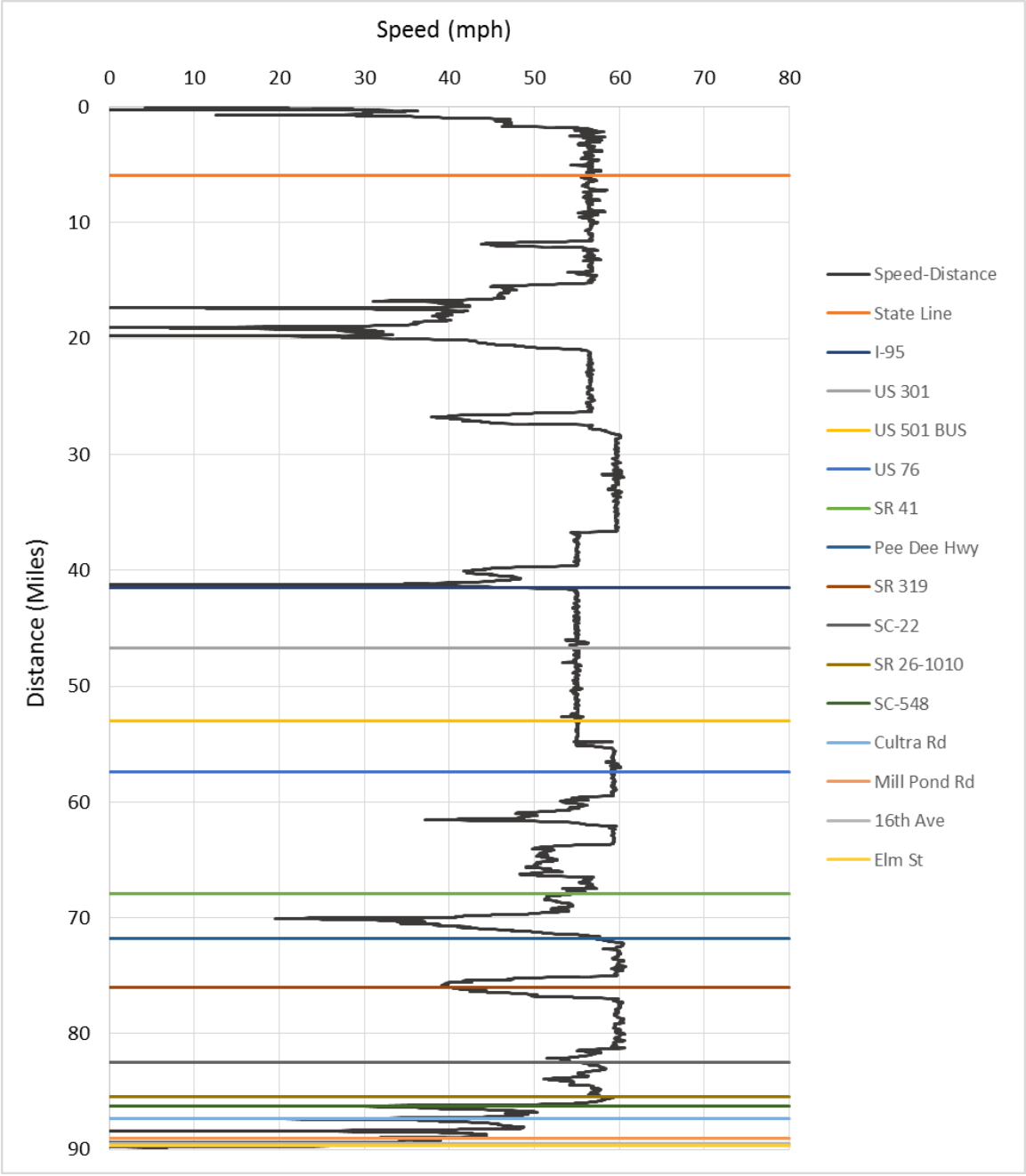


Figure 2-27. Speed-Distance Profile of Travel-Time Runs on Route 1 (Hamlet, NC to Conway, SC)

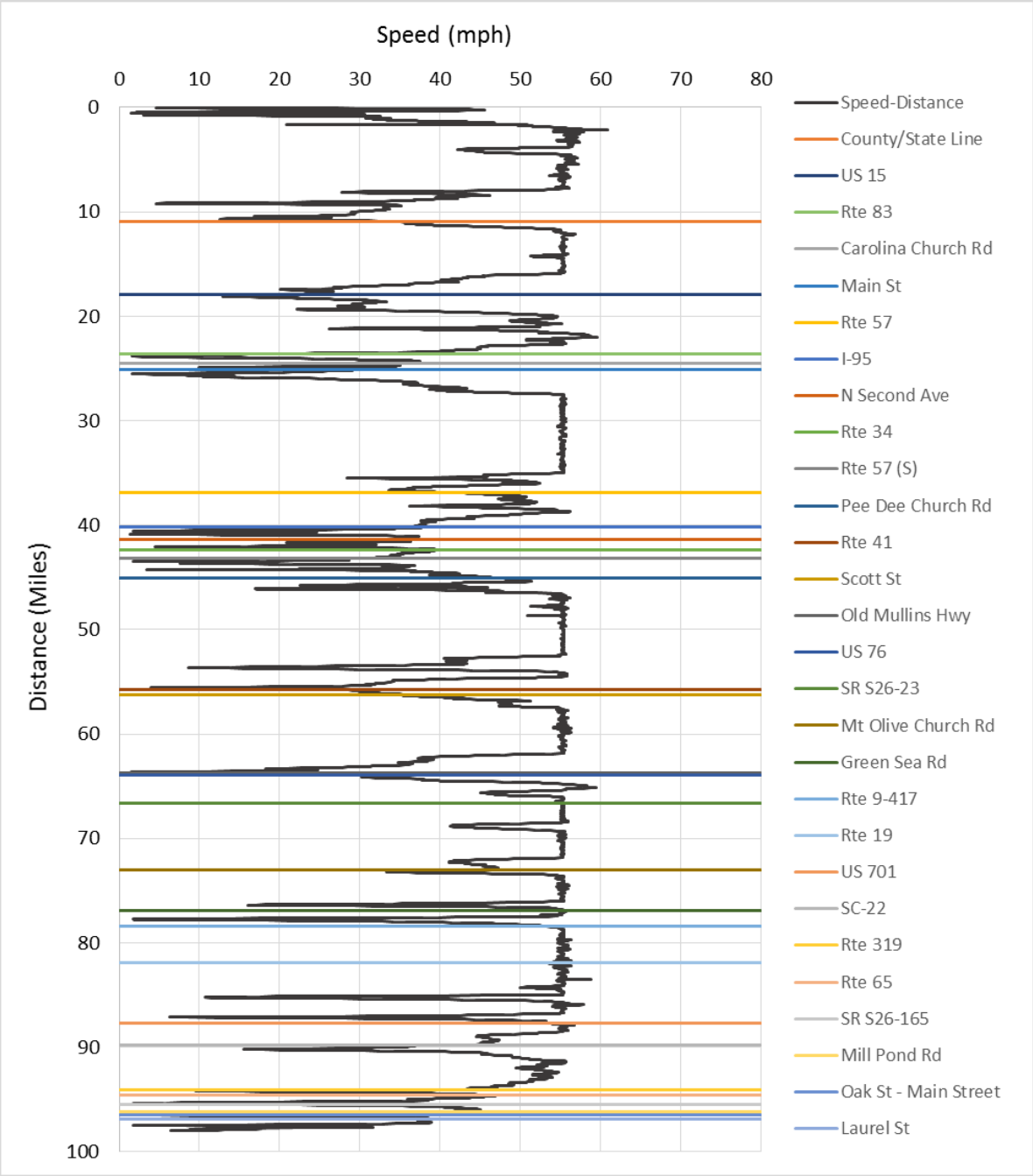


Figure 2-28. Speed-Distance Profile of Travel-Time Runs on Route 2 (Hamlet, NC to Conway, SC)

Regarding Route 3, an examination of Figure 2-29 indicates speeds of 55 mph and above from the state line to SC-9 and from the on-ramp for the Conway Bypass to the on-ramp for North Kings Highway. Speeds slightly lower than 55 mph were detected between SC-9 and the Conway Bypass on-ramp due to several intersections and traffic signals. Several delays and stops were observed from the North Kings Highway on-ramp to the route terminus, implying congestion along North Kings Highway in the Myrtle Beach area.

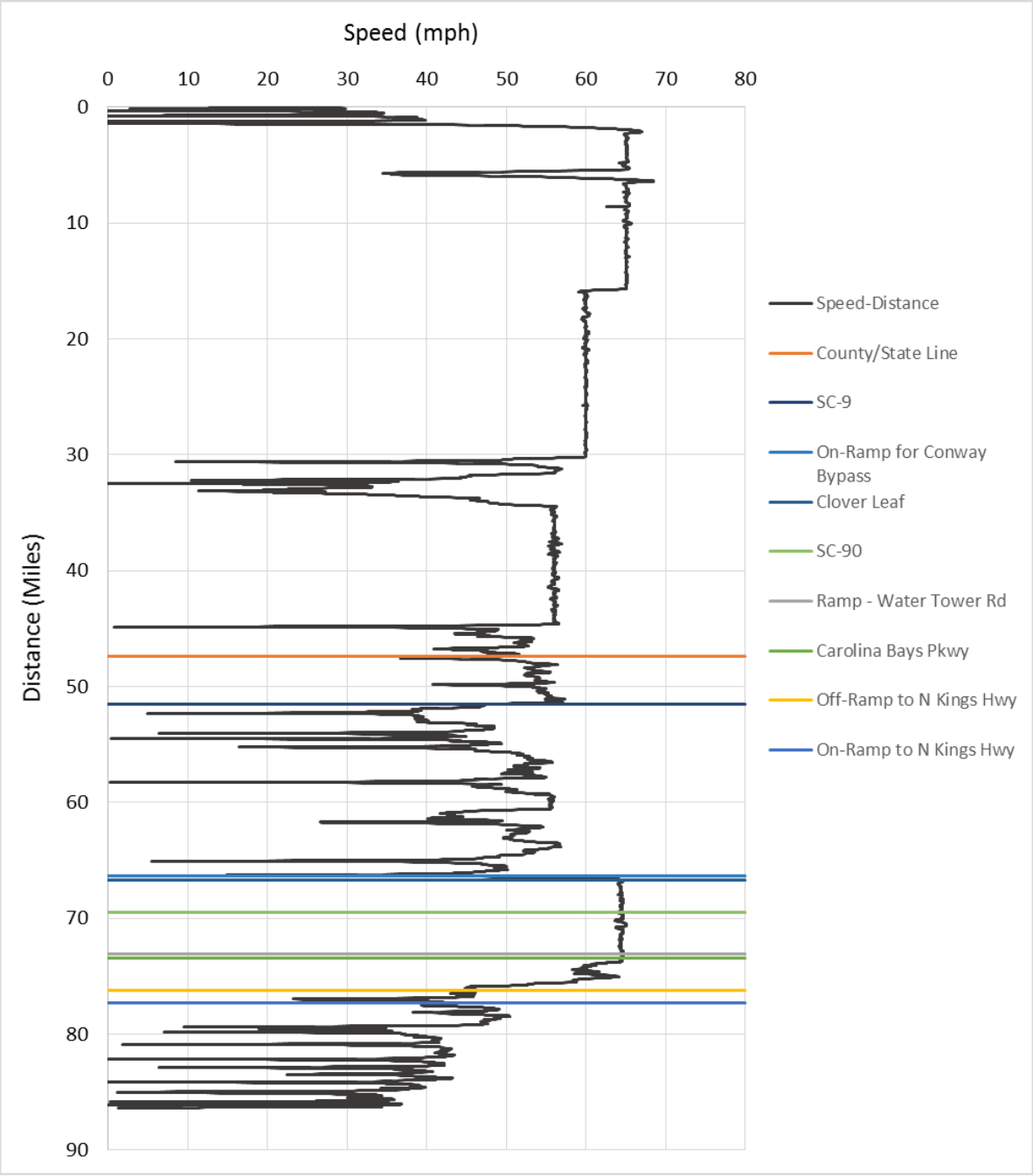


Figure 2-29. Speed-Distance Profile of Travel-Time Runs on Route 3 (Lumberton, NC to Myrtle Beach, SC)

For the AM period on Route 4, the northbound speed-distance profile (see Figure 2-30) indicates delays and stops between Willow Drive and US 17, between Myrtle Ridge Drive and SR S 26-165, and from Blue Water Road to the end of the route. Speeds from 55 to 65 mph were observed from SR S 26-165 to Blue Water Road. The southbound speed profile during the AM period (see Figure 2-31) indicates noticeable delays at the start of the route to Jordanville Road, followed by speeds around 60 mph to Enoch Road and speeds between 35 mph and 55 mph from Knotty Branch Road to Glenns Bay Road. Fewer delays were observed between Myrtle Ridge Road and SR S 26-165 compared to the northbound profile.

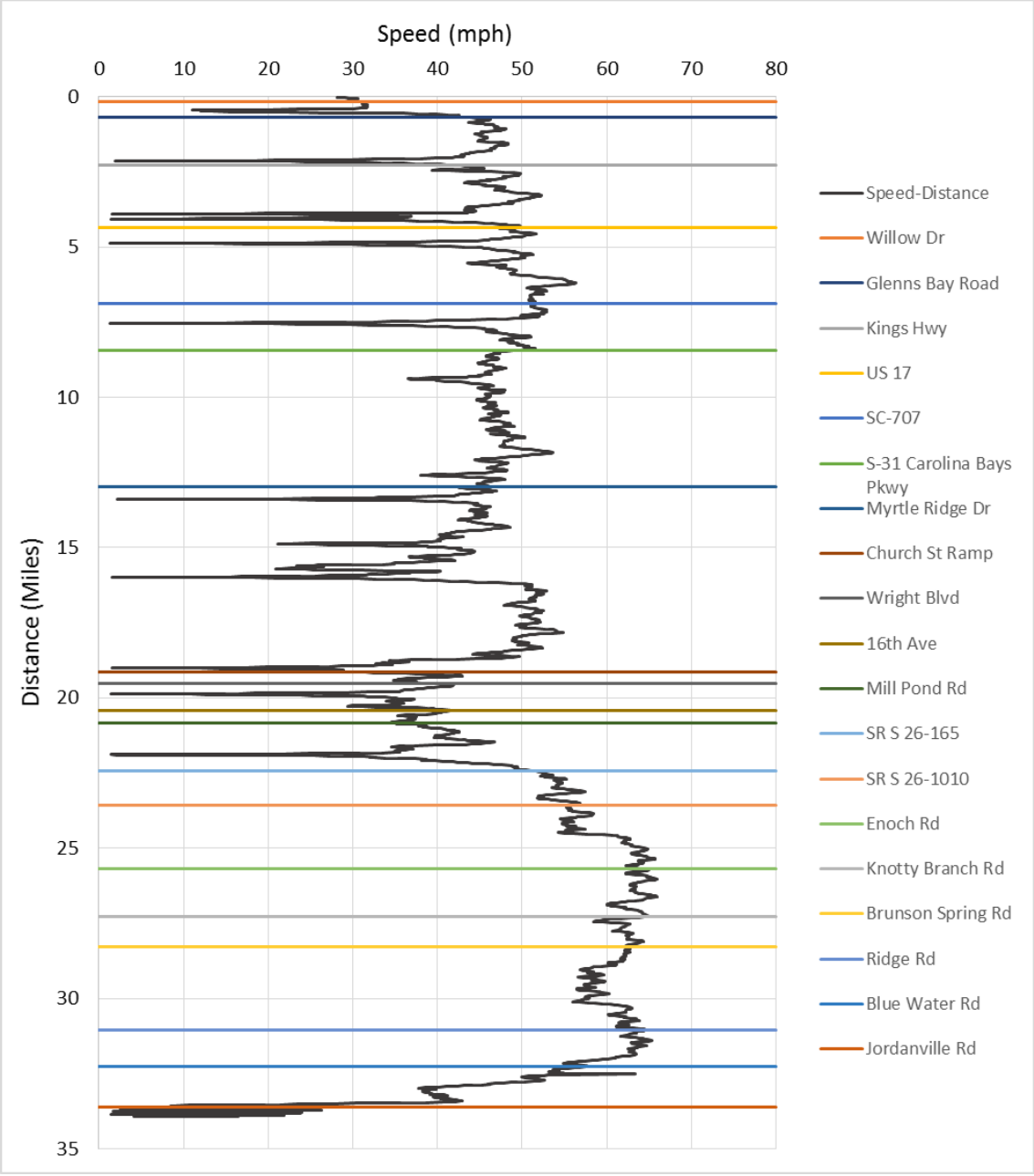


Figure 2-30. Speed-Distance Profile of Northbound AM Travel-Time Runs on Route 4 (Surfside to Aynor)

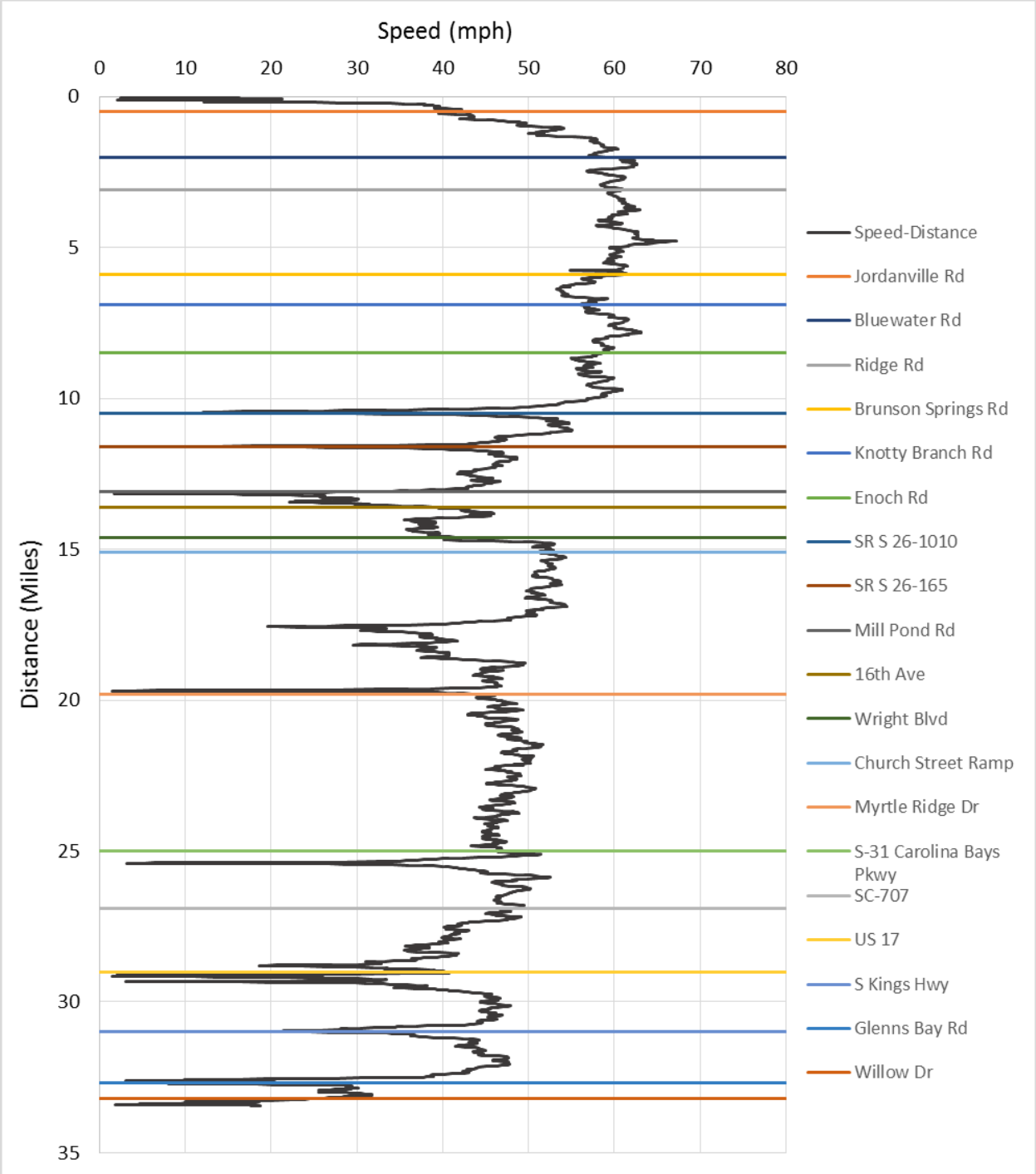


Figure 2-31. Speed-Distance Profile of Southbound AM Travel-Time Runs on Route 4 (Aynor to Surfside)

For the PM period on Route 4, the northbound speed-distance profile (see Figure 2-32) is similar to the AM northbound profile but indicates greater delays from Glens Bay Road to SC-707. Also, as shown in Figure 2-33, the southbound speed-distance profile during the PM period is similar to the AM period but indicates greater delays from SR S 26-1010 to Myrtle Ridge Drive and from SC-707 to Glenns Bay Road.

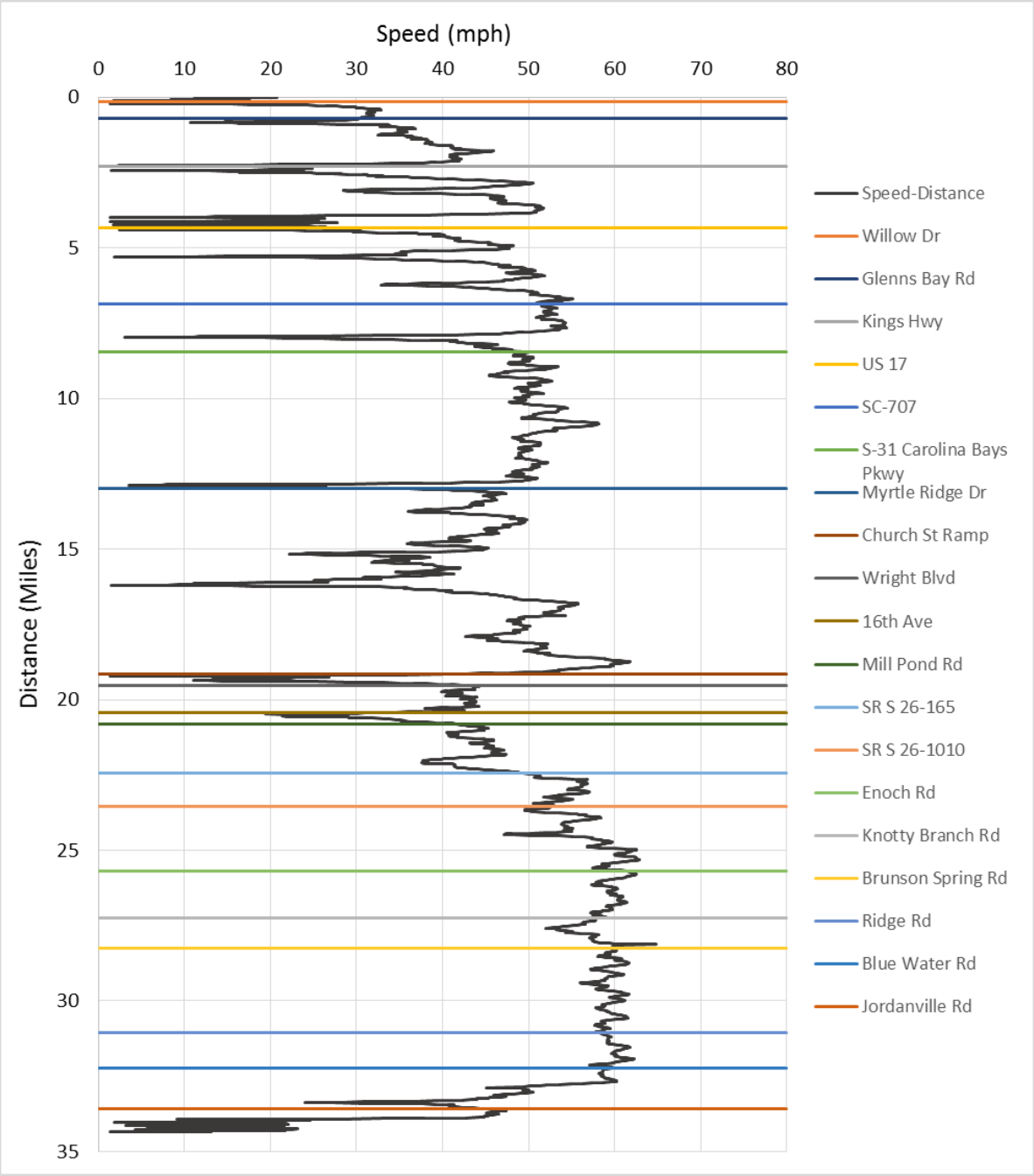


Figure 2-32. Speed-Distance Profile of Northbound PM Travel-Time Runs on Route 4 (Surfside to Aynor)

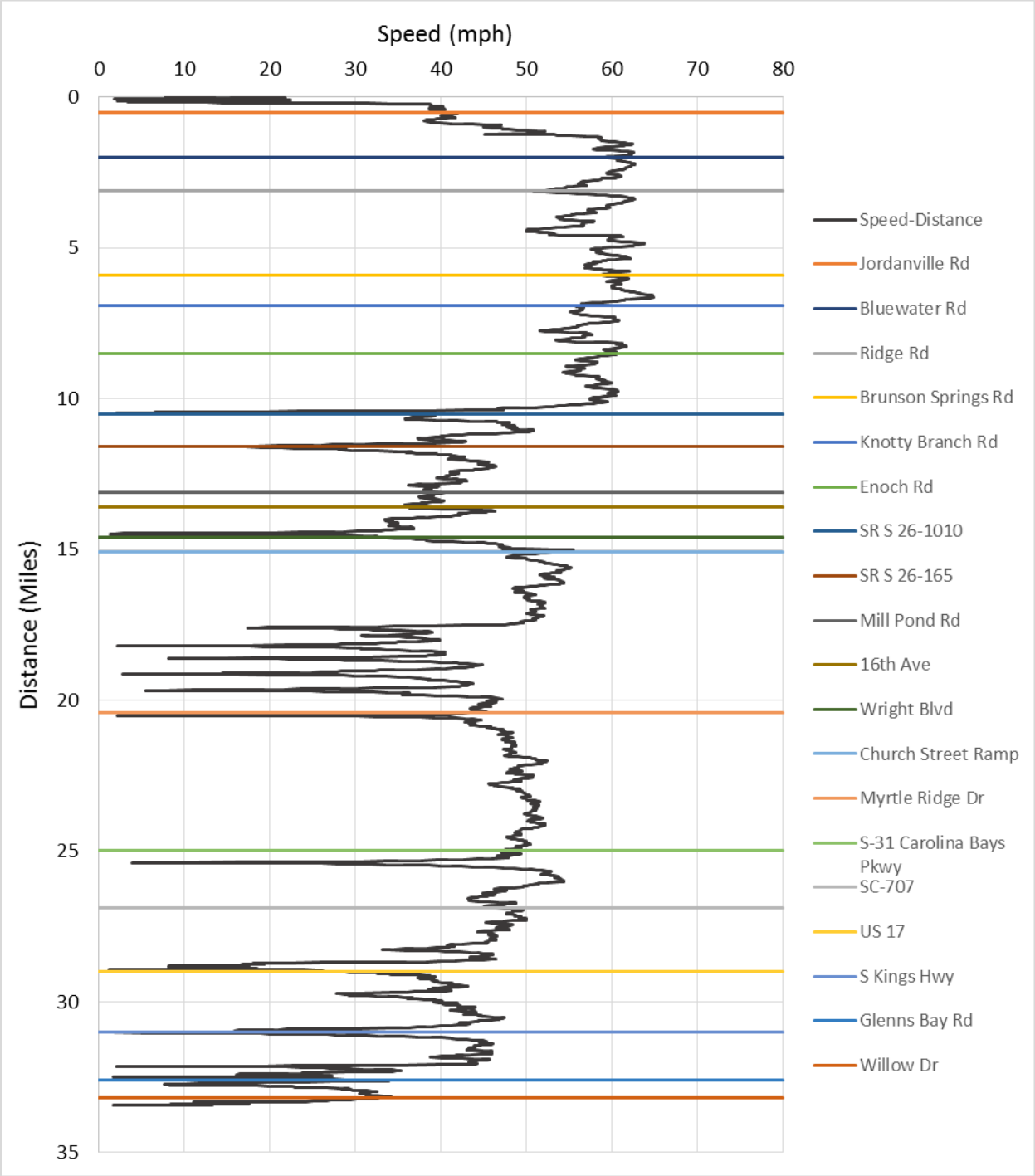


Figure 2-33. Speed-Distance Profile of Southbound PM Travel-Time Runs on Route 4 (Aynor to Surfside)

As shown in Figure 2-34, for the AM period on Route 5, the northbound speed-distance profile indicates speeds between 35 and 55 mph at most of the segments, with noticeable delays and stops observed between Hollywood Drive and Route 544, at Palmetto Point Boulevard, from George Bishop Parkway to the US 17 on-ramp bypass, and between Carolina Forest Blvd and Route 90.

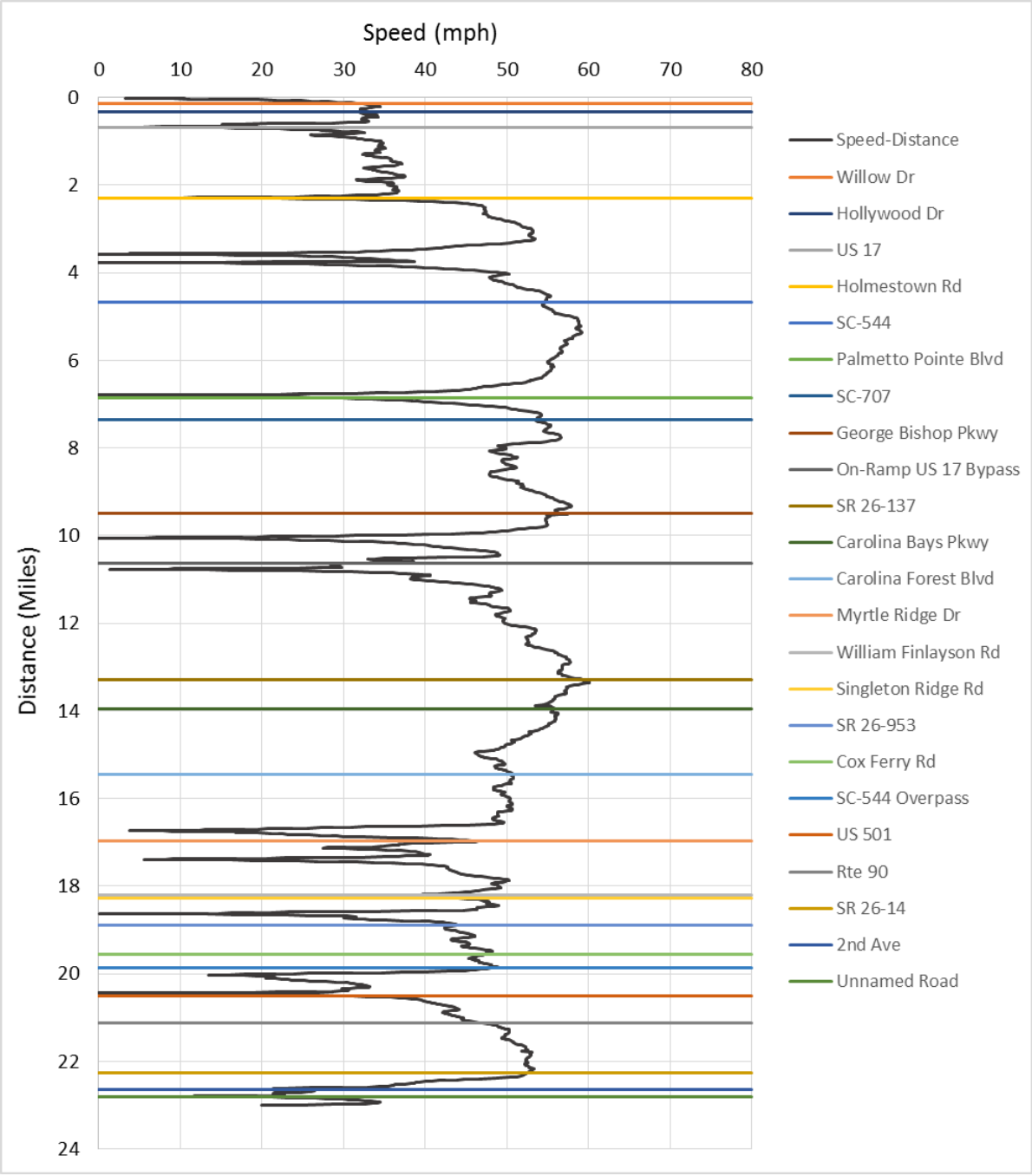


Figure 2-34. Speed-Distance Profile of Northbound AM Travel-Time Runs on Route 5 (Surfside to Conway)

As shown in Figure 2-35, the southbound AM period also indicates speeds between 35 and 55 mph for most segments, with a few segments exhibiting speeds greater than 55 mph. Observed delays are in similar locations compared to the northbound profile. However, reduced delays are observed in the Myrtle Ridge Drive area, and increased delays are observed in the Holmestown Road area and from 2nd Avenue to US 501.

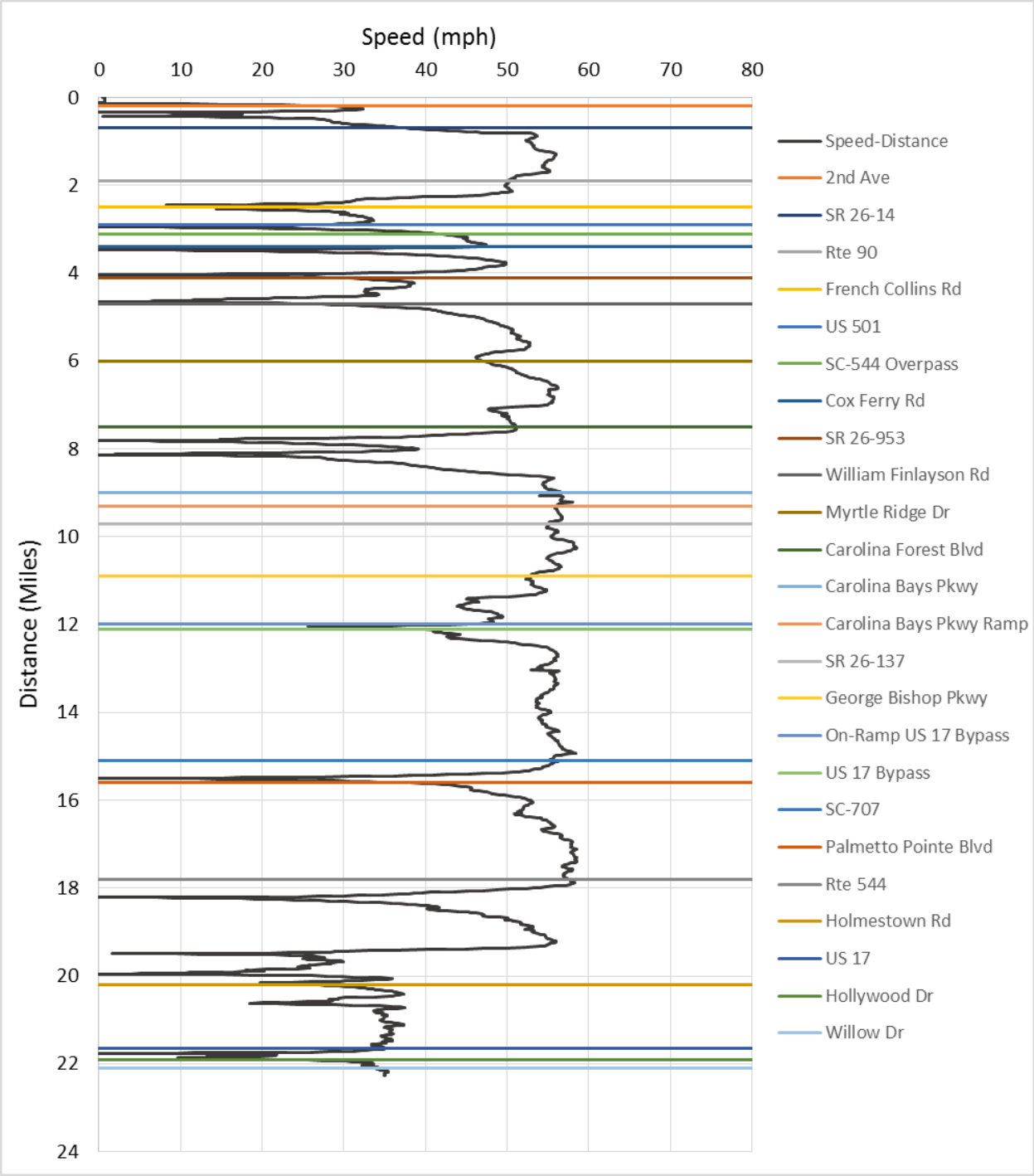


Figure 2-35. Speed-Distance Profile of Southbound AM Travel-Time Runs on Route 5 (Conway to Surfside)

For the PM period on Route 5, the northbound speed-distance profile (see Figure 2-36) indicates speeds between 35 and 55 mph at most segments. Areas with the greatest number of stops and delays are between Willow Drive and Hollywood Drive, from the George Bishop Parkway to the US 17 on-ramp bypass, and from Carolina Forest Boulevard to the end of the route. Delays and stops are observed in similar locations for the southbound profile (see Figure 2-37), though the delays are generally larger, especially between Cox Ferry Road and Carolina Forest Boulevard and from Holmestown Road to Hollywood Drive.

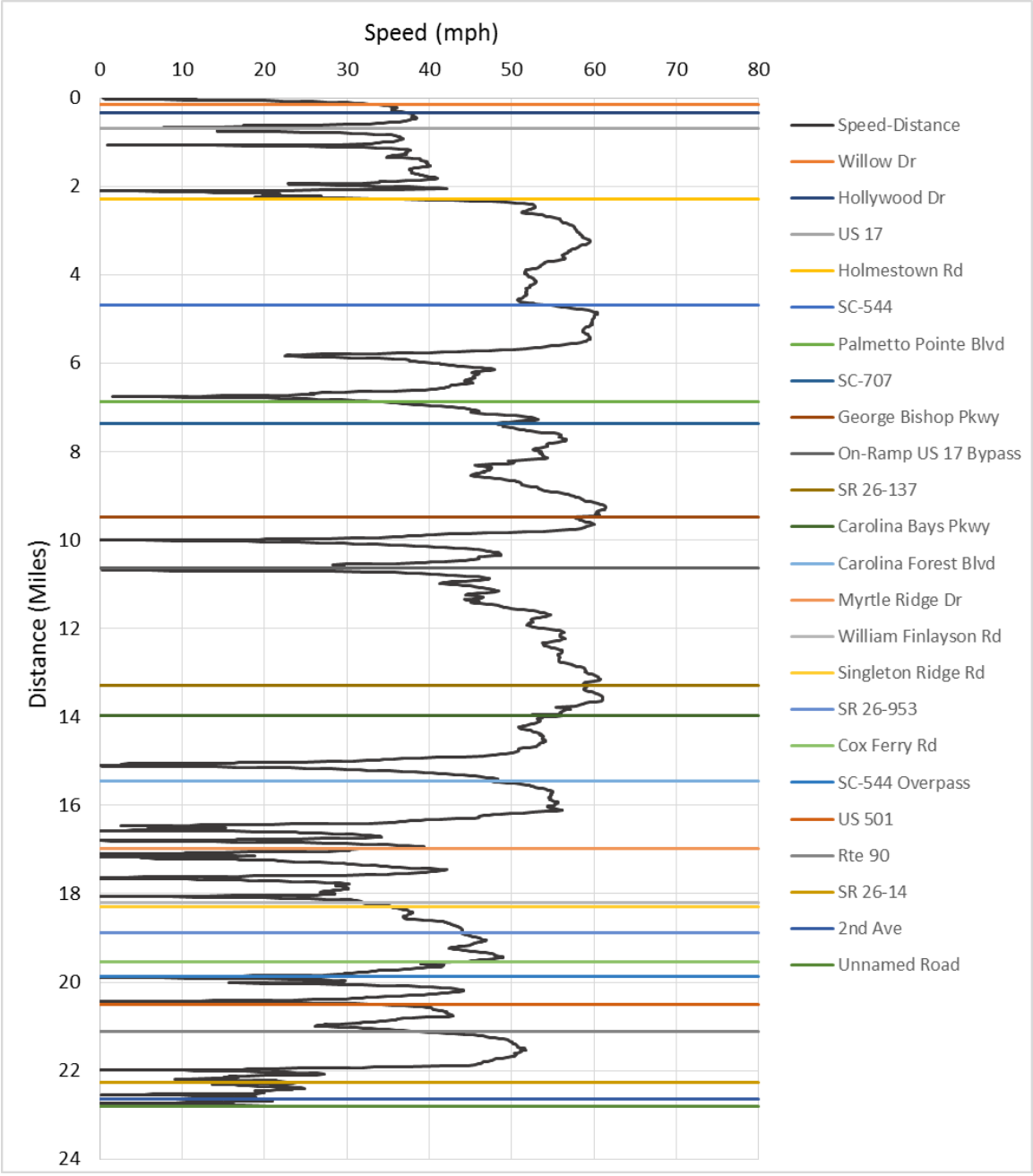


Figure 2-36. Speed-Distance Profile of Northbound PM Travel-Time Runs on Route 5 (Surfside to Conway)

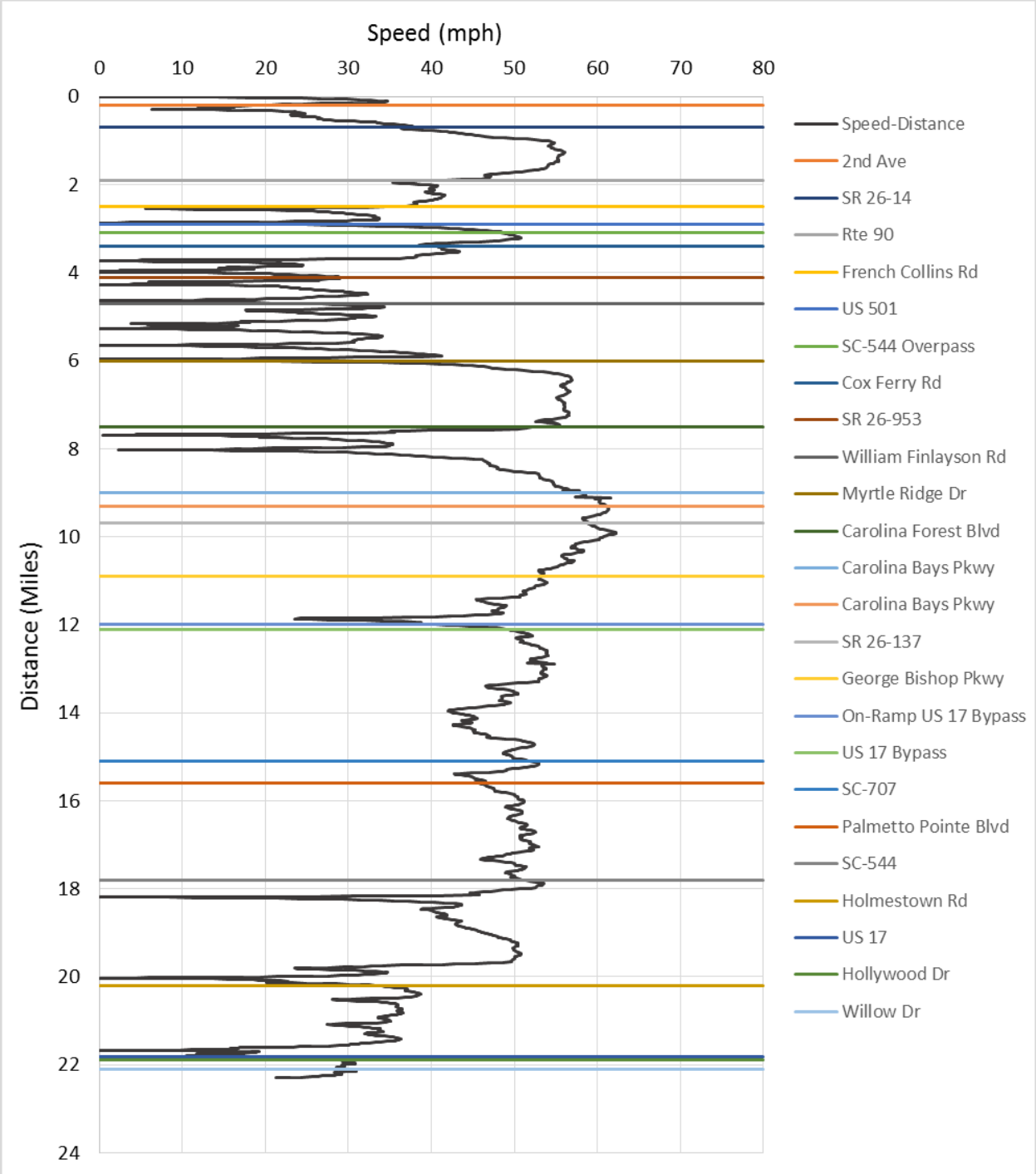


Figure 2-37. Speed-Distance Profile of Southbound PM Travel-Time Runs on Route 5 (Conway to Surfside)

2.6. Road Inventory

C&M visited the study area and produced observations of the main roads and the competing roads. With the assistance of ATD, a field network inventory was performed for the roads along the following five routes:

- Route 1: Hamlet, NC to Conway, SC via SC-38 and US 501
- Route 2: Hamlet, NC to Conway, SC via SC 9
- Route 3: Lumberton, NC to Myrtle Beach, SC
- Route 4: Aynor, SC to Surfside Beach, SC via US 501 and SC-544
- Route 5: Conway, SC to Surfside Beach, SC via US 501 and US 17

Distance and road observations such as traffic signals, operation conditions, posted speeds, and number of moving lanes were conducted and are presented in Appendix A. All relevant observations were incorporated into the T&R study.

2.7. Stated Preference Survey

From April 17 to June 3, 2015, Resource Systems Group, Inc. (RSG) conducted an online stated preference (SP) survey to solicit information from individuals who travel in passenger cars within or through the Project corridor (see Appendix B for the full report from RSG). The survey was designed to gather information about respondents' travel behaviors and obtain data that could be used to estimate their value of time (VOT), or their willingness to pay for and utilize the Project. The results of the survey were used to develop a toll diversion model based on the probability of travelers using the Project as a function of the trade-offs in time savings and trip reliability. Since the South Carolina trucking industry's general opposition to toll projects prevented the collection of a sufficient sample for analysis, C&M used data from previous studies to determine the VOT for commercial vehicles.

2.7.1. Survey Description and Methodology

The SP survey consisted of five main sections: 1) qualifications, 2) trip details, 3) SP questions, 4) debrief and opinion, and 5) demographics. Residents in the greater Myrtle Beach area and visitors identified by the MBACC were invited to complete the survey via email. Incentives were offered upon completion of the survey. Respondents who met the qualification criteria—i.e., traveled at least 15 minutes within or through the study corridor in a personal vehicle within the past 90 days (or within the past year if they were a visitor)— were asked to complete the survey based on their most recent qualifying trip to the area.

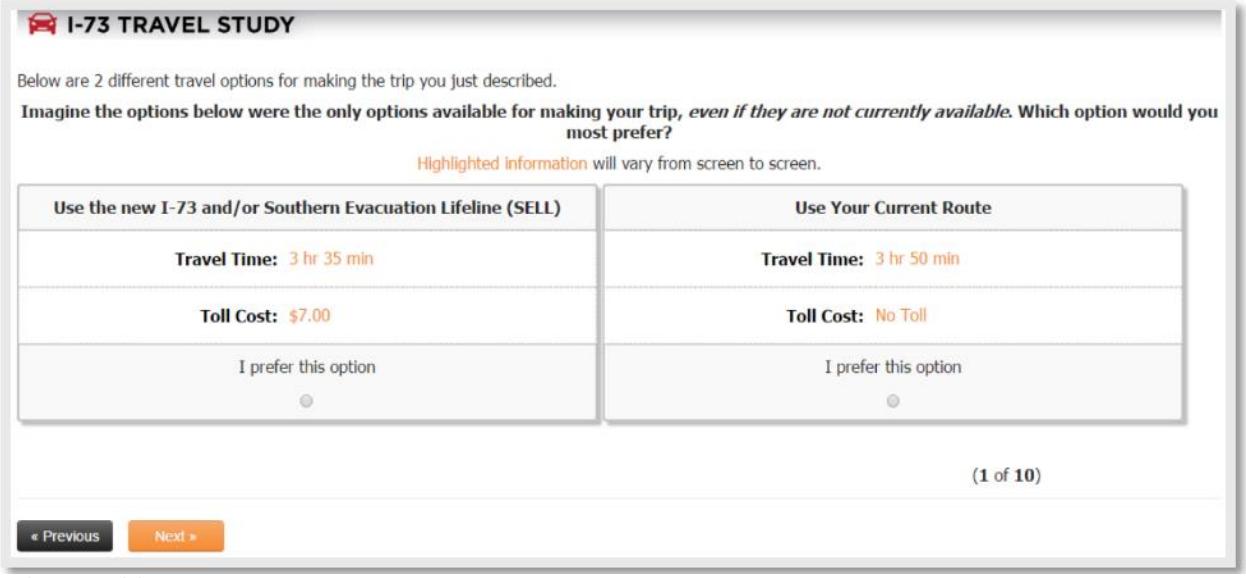
Respondents were asked to think about the one-way portion of their most recent trip that met the necessary criteria. Respondents then provided the following information regarding this trip:

- Day of the week the trip was made
- Trip purpose
- Category of start and end locations (i.e., home, work, or other)

- Road(s) used
- Departure time
- Door-to-door travel time
- Travel time without delay
- Vehicle occupancy
- Trip frequency
- ETC ownership

The trip details provided by respondents were used to split trips into three categories: trips that could use I-73, trips that could use competing routes such as the SELL, and trips that could use both corridors. Based on these categories, each respondent was provided information about the proposed I-73 and/or SELL, as well as information about the payment structure that would be utilized on these roadways.

After being given this information, each respondent was presented with 10 hypothetical scenarios (i.e., SP questions) that required them to choose between two alternative routes for making the trip they described earlier. Each scenario consisted of the same two alternatives: their current route or the new tolled route (either "I-73," "SELL," or "I-73 and/or SELL" depending on their trip type). The scenarios varied in terms of the travel time and toll costs presented for each alternative. Figure 2-38 presents an example SP question.



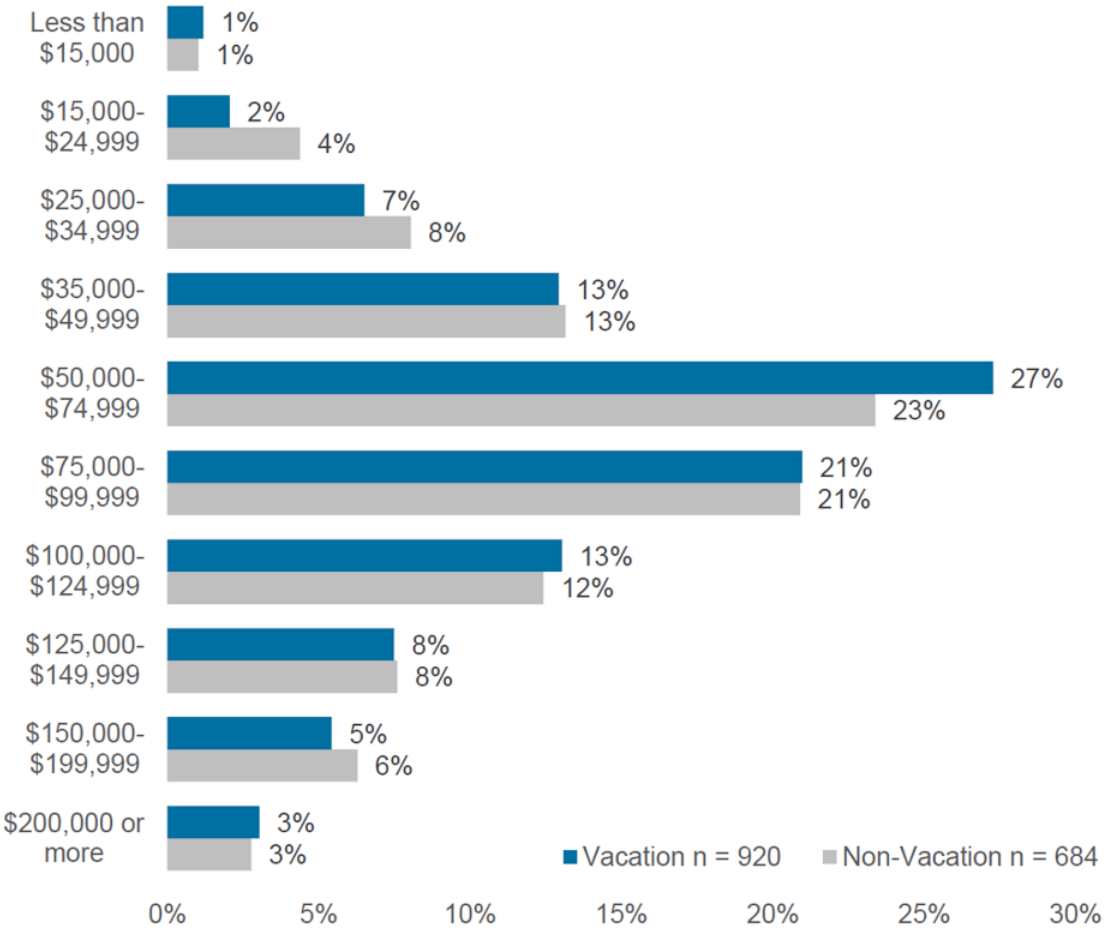
Source: RSG

Figure 2-38. Example Stated Preference Question

2.7.2. Survey Results

A total of 1,973 respondents participated in the survey; after data checks and outlier analysis, the final sample was reduced to 1,840 respondents whose data were used by RSG for subsequent analyses and model estimation. The sample consisted of slightly

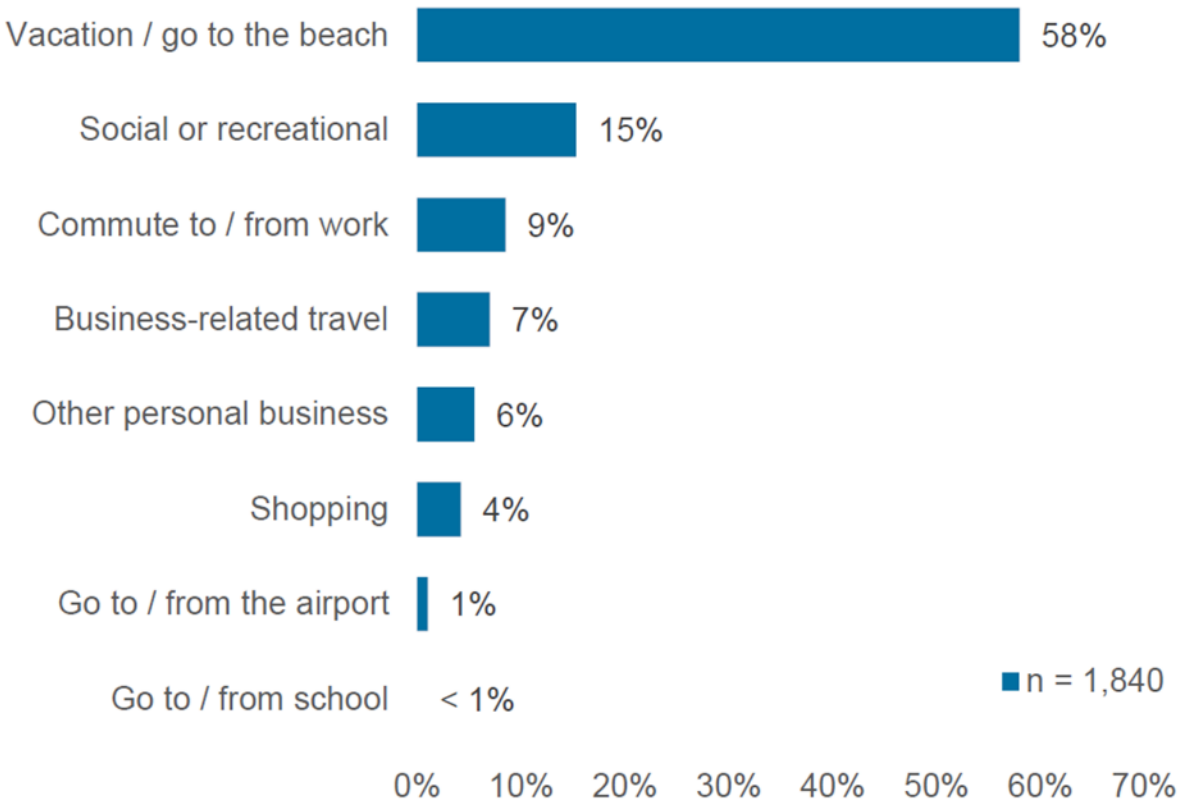
more women (56%) than men (44%), and the median age fell within the 45–54 year-old category. Roughly 27 percent of respondents reported being full-time residents of the Myrtle Beach area, 3 percent identified as seasonal or part-time residents, and 70 percent reported living outside the Myrtle Beach area. Median household income fell between $50,000 and $74,999, with 27 percent of visitors and 23 percent of residents reporting income in this range (though it is worth noting that 13 percent of respondents chose not to report their household income). The second-largest category of reported income was between $75,000 and $99,999, comprising 21 percent of visitors and 21 percent of residents. These results are in line with U.S. Census data regarding median household income within the study area (see Chapter 3: Socioeconomic Review), thus supporting the representative nature of this sample. The full distribution of reported household income is presented in Figure 2-39.



Source: RSG

Figure 2-39. Annual Household Income by Trip Purpose

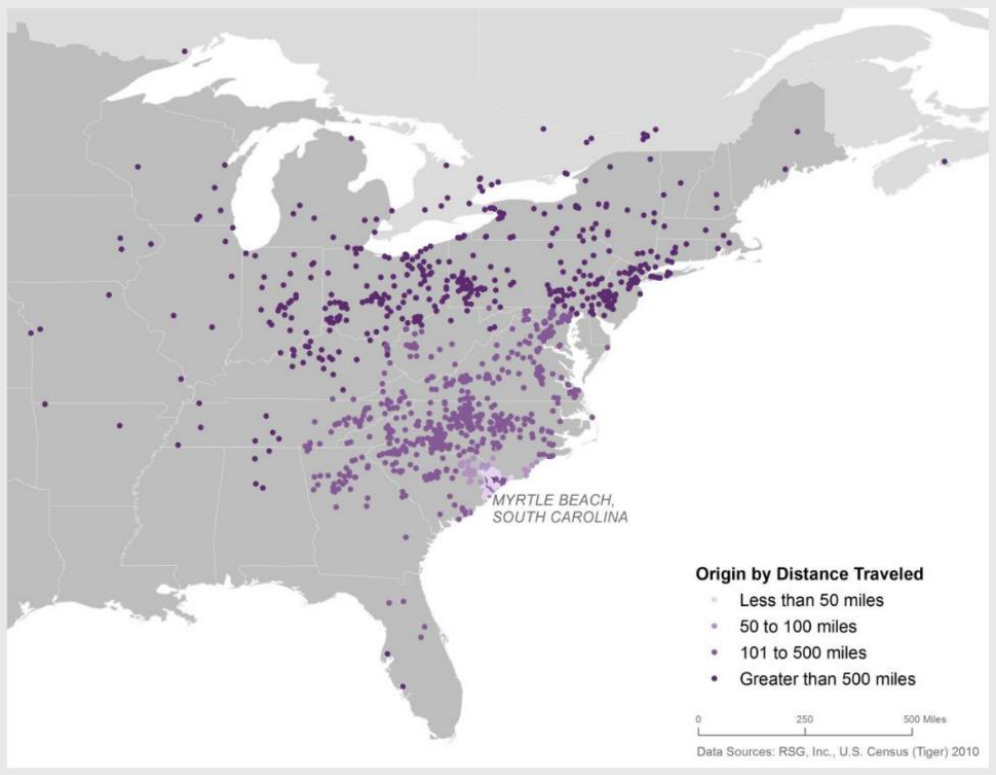
Regarding trip purpose, 58 percent of respondents reported traveling in the area for vacation. The breakdown of respondents' trip purposes is shown in Figure 2-40.



Source: RSG

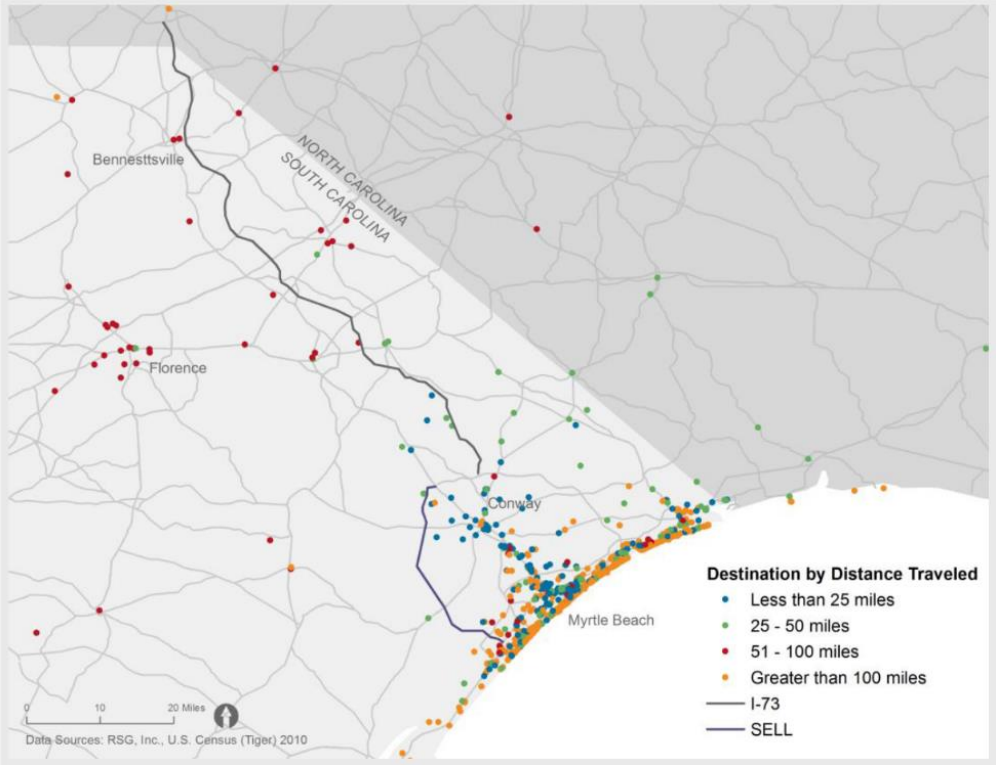
Figure 2-40. Summary of Reported Trip Purposes

An analysis of the geo-coded trip origins by distance traveled indicates that most of the long-distance trips started in North Carolina, Virginia, Ohio, or Pennsylvania, with some originating in Indiana, Michigan, Iowa, and Southeastern Canada (see Figure 2-41). An analysis of the trip destinations indicates that most of the trips longer than 100 miles ended in the Myrtle Beach area, as shown in Figure 2-42.



Source: RSG

Figure 2-41. Trip Origins by Distance Traveled



Source: RSG

Figure 2-42. Trip Destinations by Distance Traveled

Respondents were asked to identify the major roadways they had utilized during their trip. Results indicate that over 50 percent of vacationers utilized I-95. US 501 was utilized almost equally between vacationers and non-vacationers. US 378, one of the main competitors with the Project, was only used by 2 percent of vacationers and 6 percent of non-vacationers. Table 2-14 summarizes the survey results on road use by trip purpose.

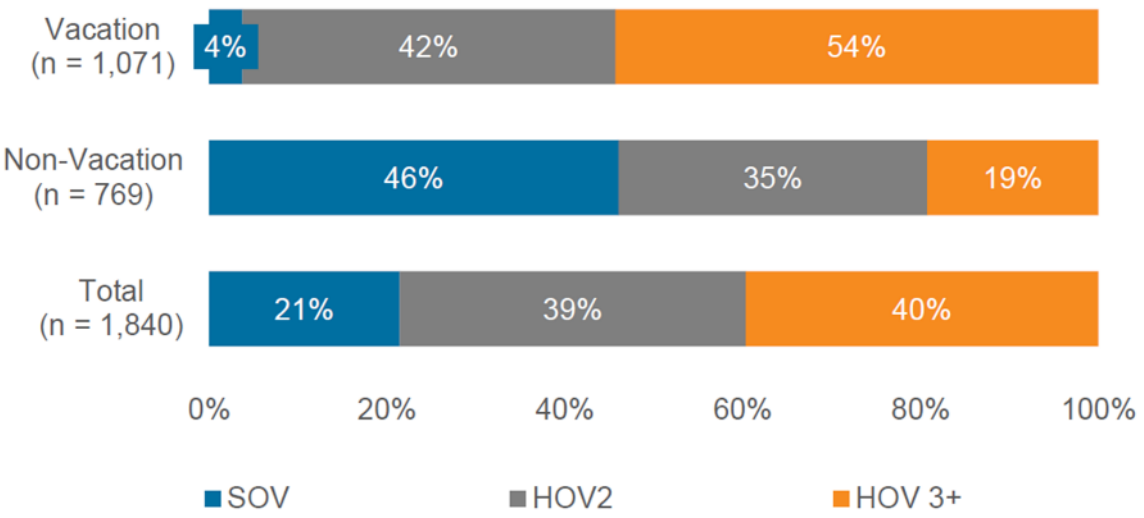
Table 2-14. Summary of Road Use by Trip Purpose

Roads Used	Vacation		Non-Vacation	
	Count	%	Count	%
I-95	570	54%	176	31%
US 501	529	49%	451	59%
US 17	458	43%	266	35%
Other roads	339	32%	249	32%
SC-22 (Conway Bypass)	304	28%	153	20%
SC-38	183	17%	92	16%
SC-31	137	13%	195	25%
US 701	100	9%	104	14%
US 76	95	9%	63	11%
SC-544	91	8%	199	26%
US 301	83	8%	30	5%
SC-410	57	5%	33	6%
Holmestown Rd	40	4%	26	3%
Pee Dee Hwy	38	4%	16	2%
US 378	26	2%	46	6%
SC-707	19	2%	60	8%
SC-57	6	1%	9	2%
SC-381	6	1%	5	1%
SC-917	4	< 1%	10	2%
Total # of Respondents	**1,071**	**-**	**769**	**-**

Source: RSG

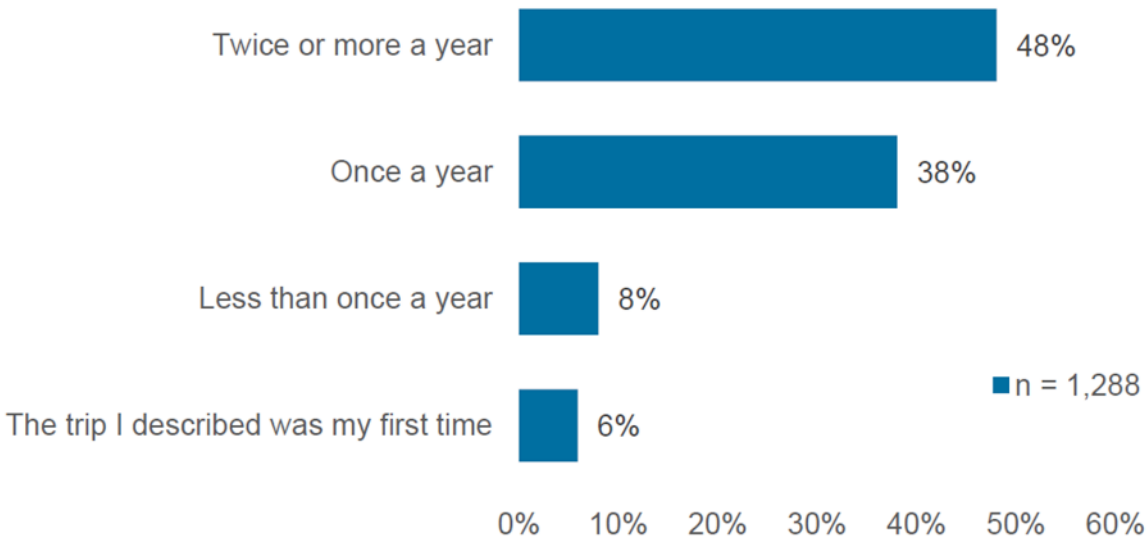
As expected, only 2 percent of the vacation trips were made in single occupancy vehicles (SOV). In comparison, 54 percent of vacation trips were made in high occupancy vehicles with three or more passengers (HOV 3+), and the rest were in HOVs with two passengers (HOV 2). The vehicle occupancies by trip purpose are shown in Figure 2-43.

According to the survey results, most of the visitors to the beach area are repeat visitors, with 86 percent traveling to the region at least once a year, as shown in Figure 2-44.



Source: RSG

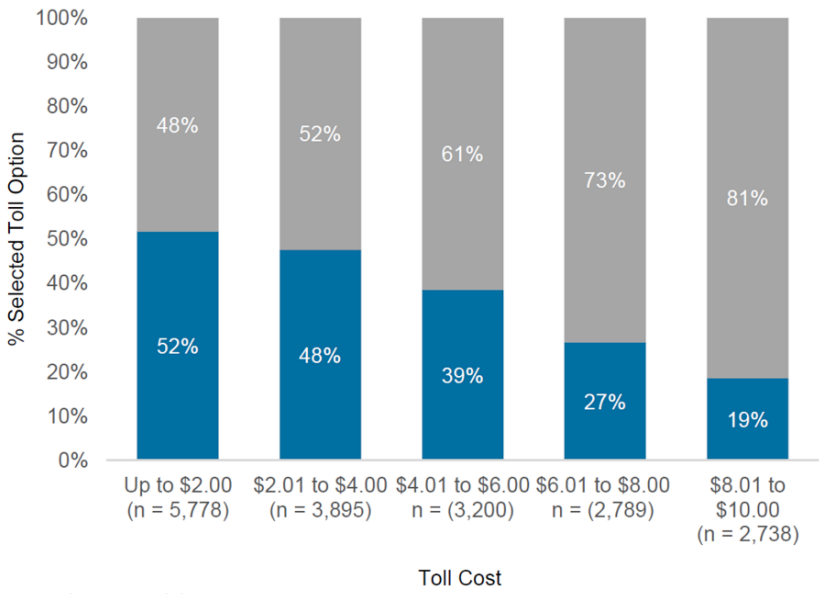
Figure 2-43. Vehicle Occupancy by Trip Purpose



Source: RSG

Figure 2-44. Trip Frequency Summaries

Regarding the SP questions, the survey results show that the probability of the tolled facility being chosen decreases as the toll value increases. When the toll rate was $2.00 or less, 52 percent of respondents chose to use the tolled route, whereas only 19 percent chose the tolled route when the rate was between $8.00 and $10.00, as shown in Figure 2-45.



Source: RSG

Figure 2-45. Toll Alternative Selection Percentages by Toll Cost

A total of 413 respondents (22%) indicated that they would never use a tolled facility. The top three reasons given by these respondents for never using a tolled facility were that the achieved time-savings is not worth the toll (62%), they are generally opposed to paying tolls (52%), and there is not enough time savings (31%). The full breakdown of reasons given is presented in Table 2-15. It is also important to note that despite this opposition to selecting the tolled route, the survey results indicate that the majority of respondents (59%) are in favor of the I-73 and/or SELL projects.

Table 2-15. Reasons Given for Never Selecting the Tolled Route

Reason	Count	%
Time savings not worth the toll cost	255	62%
Opposed to paying tolls	214	52%
Not enough time savings	127	31%
Current route is more convenient	119	29%
Do not want to pay tolls electronically	99	24%
Other	49	12%
Environmental concerns	29	7%
Opposed to building new roads	28	7%
Total Number of Respondents	**413**	-

2.7.3. Multinomial Logit Model Estimation

As mentioned earlier, the primary objective of an SP survey is to calculate VOT, or willingness to pay for utilizing a tolled facility. RSG estimated a multinomial logit choice model based on the survey data (see Appendix B for RSG's full description of their model

estimation). The six market segments chosen for RSG's model are based on a review of the data and are shown in Table 2-16.

Table 2-16. Multinomial Model Specification - Market Segments

Trip Type	Urban/Rural	Trip Location	Trip Purpose	Number of Observations
Vacation	All	Home-Based	All	10,730
	All	Non-Home-Based	All	350
Non-Vacation	Urban	Home-Based	Work	1,940
			Non-Work	3,440
	Rural	Non-Home-Based	All	1,070
		All	All	870
Total				**18,400**

Source: RSG

RSG's multinomial model produced travel time and toll cost coefficients for the six market segments shown above. RSG then calculated VOT by dividing the travel time coefficient by the toll cost coefficient, accounting for the income transformation applied in the model specification. The calculated VOTs by income and market segment are summarized in Table 2-17.

Table 2-17. VOTs ($/hr) by Market Segment and Income

Income	Market Segments					
	Urban HBW	Urban HBNW	Urban NHB	Rural	Vacation HB	Vacation NHB
$15,000	$6.32	$7.51	$6.11	$5.11	$7.48	$8.93
$20,000	$6.99	$8.31	$6.76	$5.66	$8.28	$9.88
$30,000	$7.94	$9.43	$7.68	$6.42	$9.40	$11.22
$42,500	$8.75	$10.40	$8.47	$7.08	$10.36	$12.37
$62,500	$9.65	$11.46	$9.34	$7.81	$11.43	$13.64
$87,500	$10.43	$12.40	$10.10	$8.44	$12.36	$14.75
$112,500	$11.02	$13.09	$10.66	$8.92	$13.05	$15.58
$137,500	$11.49	$13.65	$11.12	$9.30	$13.61	$16.24
$175,500	$12.06	$14.33	$11.67	$9.76	$14.28	$17.04
$200,000	$12.36	$14.69	$11.96	$10.00	$14.64	$17.47

Note: HBW = Home-Based Work; HBNW = Home-Based Non-Work; NHB = Non-Home-Based; HB = Home-Based; NHB = Non-Home-Based; Source: RSG

RSG's calculated VOTs fall between $5 and $17 per hour, which are reasonable for this area. These VOTs and corresponding coefficients were used in C&M's toll diversion model; C&M then aggregated or disaggregated these values as necessary to produce VOTs specific to the market segments used in this study (see Chapter 4: Modeling Approach).

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3. Socioeconomic Review

This chapter provides a summary and analysis of historical, current, and projected socioeconomic data within the Project's study area and surrounding counties. These data were utilized in the development of the 2025, 2035, and 2050 model years for the South Carolina Statewide Travel Demand Model (SCSWM).

The Project study area consists of Marlboro, Dillon, Marion, and Horry Counties, SC, and Richmond County, NC. For the purposes of the socioeconomic review, this study area was expanded to include Chesterfield, Darlington, Florence, Georgetown, and Williamsburg Counties in South Carolina since their economic and traffic activity is closely related to the study area and will be affected by the Project. Therefore, throughout this chapter, "study area" refers to this expanded area.

3.1. SCSWM 2010 and 2040 Socioeconomic Review

Socioeconomic data regarding demographics and employment were previously developed for the SCSWM base year of 2010 and forecast year of 2040. These datasets include the independent forecasts developed from the MPO/COG models and the following sources:

- 2010 U.S. Census
- American Community Survey (ACS)
- South Carolina State Data Center
- Dun & Bradstreet (D&B)
- Woods & Poole Economics (W&P)

Base year 2010 socioeconomic data are based on the 2010 Census and D&B employment data. Forecast year 2040 socioeconomic data are based on MPO/COG data for the urban model areas and W&P data for the Census/rural areas. All 2040 forecasts are scaled to county control totals for population and employment based on population forecasts from the South Carolina State Data Center and employment forecasts from W&P.

The base year socioeconomic dataset includes the following variables from Census and ACS datasets: population in households, population in block groups, household units, and dwelling units from block groups. The SCSWM's employment data are from D&B datasets and include the following categories:

- Agriculture / Forestry / Fishing (SIC CODES: 01-09)
- Mining (SIC CODES: 10-14)
- Construction (SIC CODES: 15-17)
- Manufacturing (SIC CODES: 20-39)
- Transportation /Communications (SIC CODES: 40-49)
- Wholesale Trade (SIC CODES: 50-51)

- Retail Trade (SIC CODES: 52-59)
- Finance / Insurance / Real Estate (SIC CODES: 60-67)
- Services (SIC CODES: 70-89)
- Public Administration (SIC CODES: 91-97)

Table 3-1 presents summary statistics for base year 2010. These model areas are further discussed in Chapter 4: Modeling Approach.

Table 3-1. Base Year 2010 Summary Statistics

Model Area	Acres	% Acres	Population	% Population	Employment	% Employment
AIKEN	255,297	1%	135,832	3%	50,436	2%
APCOG	2,994,237	15%	1,238,011	27%	600,625	29%
BCDCOG	1,656,944	8%	637,352	14%	303,431	15%
CATCOG	1,017,828	5%	119,024	3%	39,463	2%
CENSUS/Rural	6,541,644	32%	594,694	13%	199,347	10%
CMCOG	714,528	4%	620,738	13%	348,094	17%
FLATS	155,537	1%	96,480	2%	55,386	3%
GSATS	1,294,114	6%	329,440	7%	155,965	8%
LCOG	1,941,120	10%	246,999	5%	87,891	4%
Metrolina	488,312	2%	245,801	5%	85,513	4%
SLCOG	1,601,525	8%	213,380	5%	73,442	4%
USCOG	1,482,094	7%	147,557	3%	57,550	3%
Statewide	**20,143,179**	**100%**	**4,625,308**	**100%**	**2,057,143**	**100%**

Source: SCDOT[1]

3.2. C&M's Socioeconomic Review

For the present study, C&M reviewed the following socioeconomic factors that are likely to impact travel behaviors and traffic demand: population, employment, number of households, median household income, consumer price index (CPI), and gross domestic product (GDP). Data regarding these factors were obtained from the following sources:

- U.S. Census Bureau (Census)
- Bureau of Labor Statistics (BLS)
- South Carolina Department of Revenue and Fiscal Affairs (SCDRFA)
- Moody's Analytics (Moody's)
- Woods & Poole Economics (W&P)

C&M enlisted Chmura Economics & Analytics (Chmura) as an independent economist to review the socioeconomic data of the study area for the travel demand model (TDM) years (for the full report by Chmura, please see Appendix C). Chmura evaluated the latest socioeconomic forecasts for accuracy and reasonableness, detailed to the TAZ level. The

focus was narrowed to TAZs directly affecting the Project corridor. The following tasks were performed by Chmura:

Reviewed Socioeconomic Projections

Chmura reviewed socioeconomic projections that were included in the SCSWM for the years 2010 and 2040.

Developed a TAZ-Level Forecast

The corridor-level analysis results are independent of TAZs in areas outside the Project's influence. Therefore, to reduce the model run time, C&M created a TAZ structure specific to the I-73 Project, aggregating the 6,544 TAZs in the statewide model to 665. This structure maintains the TAZ geographies in the Project area and its vicinity. Further discussion and illustration of these TAZs is presented in Chapter 4.

Chmura developed reasonable projections at the TAZ level for the 2025 opening year and the 2050 forecast year; projections were also prepared for years 2030, 2035, and 2040. The projections include two scenarios: Build (with the I-73 Project) and No-Build (without the I-73 Project).

As stated previously, the southern and northern sections of the Project are assumed to have different opening dates; I-73 South (from the coast to I-95) is expected to open in 2025, and the opening date for I-73 North is currently expected to be 2035.

Reviewed Local Conditions

Chmura reviewed local conditions by utilizing commercially available and government-processed data from multiple sources, including a consideration of historical trends and forecasts for the opening and future years of the Project. Chmura then estimated socioeconomic distributions at the county level. This review determined the short- and long-term planned development in the study area, the type of development, and the probability of implementation, as well as the general location and intensity of future development resulting from expected growth induced by the Project and its construction.

C&M evaluated Chmura's analysis results by reviewing historical socioeconomic growth patterns—at the national, county, and study area level—and the socioeconomic projections produced by other sources.

The following sections summarize the results of C&M's socioeconomic review.

3.3. Population

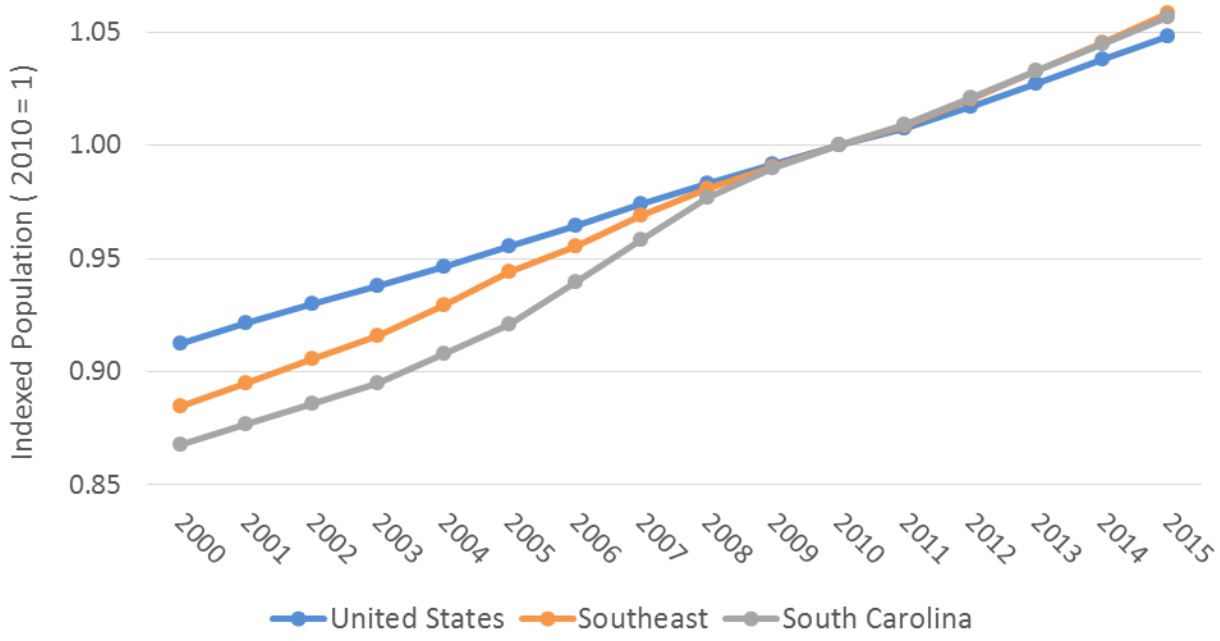
3.3.1. Historical Population Trends

At the national and regional level, South Carolina exhibits a higher or similar compound annual growth rate (CAGR) compared to the United States and the southeast states. As shown in Table 3-2, South Carolina's population grew faster than the United States and the southeast states from 1969 to 2010. Since then, South Carolina's growth has slowed down, but it is still greater than the United States and similar to the southeast states.

Figure 3-1 presents historical total population trends indexed to 2010. As can be seen, population growth in South Carolina accelerated around 2005 and has since outpaced the United States.

Table 3-2. Population CAGRs for Selected Periods

Region	1969-2000	2000-2010	2010-2015
South Carolina	1.5%	1.4%	1.1%
Southeast	1.5%	1.2%	1.1%
United States	1.1%	0.9%	0.9%



Source: U.S. Census

Figure 3-1. Historical Total Population Trends by Region

The baseline assessment of population was derived from county-level data. The counties that make up the study area differ in terms of their populations and growth rates, as presented in Table 3-3. Horry and Florence Counties have relatively large populations that reached approximately 296,000 and 142,000, respectively, in 2014. Horry County experienced a rapid population expansion in the last decade, with a 2000–2010 CAGR of 3.2 percent, though growth has slowed to 2.3 percent as of 2014. The study area's other counties have exhibited lower growth rates compared to Horry County.

As shown in Table 3-3, in recent years the study area has exhibited a higher growth rate than the state of South Carolina as a whole. In other words, these counties combined represent above-average growth in a state that already has above-average growth.

Table 3-3. Historical Population Trends by County

Region	1990	2000	2010	2011	2012	2013	2014
Chesterfield	38,667	42,911	46,667	46,557	46,942	47,333	47,727
CAGR		1.0%	0.8%	-0.2%	0.8%	0.8%	0.8%
Darlington	62,016	67,523	68,638	68,299	68,737	69,179	69,623
CAGR		0.9%	0.2%	-0.5%	0.6%	0.6%	0.6%
Dillon	29,118	30,699	32,132	31,758	31,842	31,926	32,011
CAGR		0.5%	0.5%	-1.2%	0.3%	0.3%	0.3%
Florence	114,690	125,767	137,067	137,862	139,327	140,811	142,308
CAGR		0.9%	0.9%	0.6%	1.1%	1.1%	1.1%
Georgetown	46,654	56,080	60,140	59,991	60,826	61,673	62,532
CAGR		1.9%	0.7%	-0.2%	1.4%	1.4%	1.4%
Horry	145,177	198,019	270,644	276,340	282,828	289,474	296,273
CAGR		3.2%	3.2%	2.1%	2.3%	2.3%	2.3%
Marion	33,926	35,463	32,984	32,846	32,954	33,063	33,172
CAGR		0.4%	-0.7%	-0.4%	0.3%	0.3%	0.3%
Marlboro	29,734	28,800	28,888	28,509	28,561	28,614	28,666
CAGR		-0.3%	0.0%	-1.3%	0.2%	0.2%	0.2%
Williamsburg	36,769	37,145	34,355	34,084	34,183	34,282	34,382
CAGR		0.1%	-0.8%	-0.8%	0.3%	0.3%	0.3%
Richmond, NC	44,608	46,611	46,637	46,656	46,433	46,405	46,493
CAGR		0.4%	0.0%	0.0%	-0.5%	-0.1%	0.2%
Study Area	581,359	669,018	758,152	762,902	772,633	782,760	793,187
CAGR		1.4%	1.3%	0.6%	1.3%	1.3%	1.3%
South Carolina	3,501,155	4,024,223	4,637,106	4,679,230	4,733,158	4,788,139	4,844,037
CAGR		1.4%	1.4%	0.9%	1.2%	1.2%	1.2%
United States	249,622,814	282,162,411	309,330,219	311,591,917	314,659,175	317,790,897	320,976,914
CAGR		1.2%	0.9%	0.7%	1.0%	1.0%	1.0%

Source: U.S. Census

3.3.2. Population Projections by Selected Sources

C&M reviewed and compared population projections and CAGR forecasts from Chmura, W&P, and SCDRFA. However, for Richmond County, NC, data were analyzed from Moody's and W&P, as Chmura's analysis did not include North Carolina. As shown in Table 3-4, projections by W&P predict the highest growth rates for most counties and years, whereas the SCDRFA predicts the lowest growth. All sources predict the study area's population to be between 835,000 and 972,000 by 2030. According to W&P forecasts, it is expected that from 2014 to 2040 Horry County will have a CAGR of at least 1.96 percent, which is higher than the U.S. and South Carolina CAGRs for 1990–2014 according to Census data (see Table 3-3).

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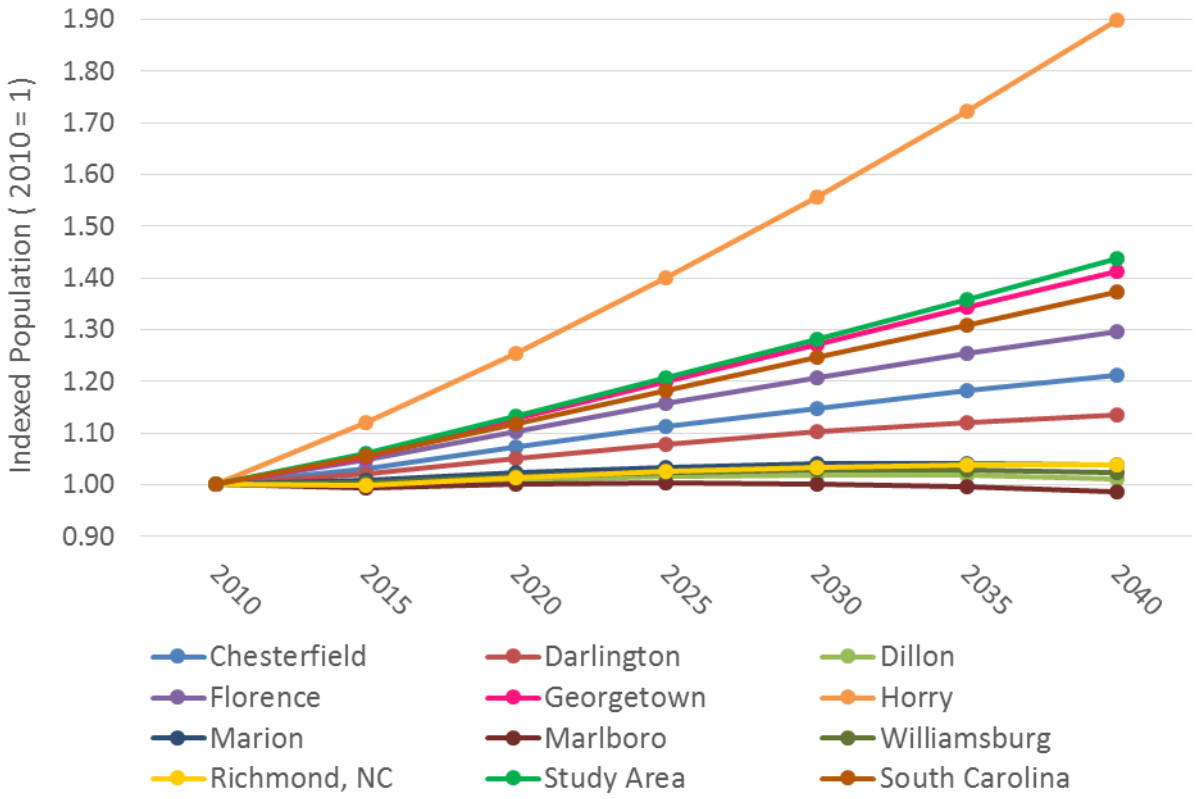
Table 3-4. Population Projections for Model Years by Source

County	Source	Population						CAGR				
		2010	2020	2025	2030	2035	2040	2010-2020	2020-2025	2025-2030	2030-2035	2035-2040
Chesterfield	Chmura	46,734	49,438	50,257	50,683	50,662	50,200	0.56%	0.33%	0.17%	-0.01%	-0.18%
	SCDRFA	46,667	48,900	49,600	50,300			0.47%	0.28%	0.28%		
	W&P		50,056	51,900	53,593	55,118	56,500	0.70%	0.73%	0.64%	0.56%	0.50%
Darlington	Chmura	68,677	73,048	74,464	75,302	75,466	75,000	0.62%	0.38%	0.22%	0.04%	-0.12%
	SCDRFA	68,638	69,300	69,900	70,500			0.10%	0.17%	0.17%		
	W&P		72,170	74,067	75,667	76,955	77,971	0.50%	0.52%	0.43%	0.34%	0.26%
Dillon	Chmura	32,063	32,784	32,765	32,486	31,917	31,100	0.22%	-0.01%	-0.17%	-0.35%	-0.52%
	SCDRFA	32,132	32,800	33,100	33,400			0.21%	0.18%	0.18%		
	W&P		32,442	32,675	32,759	32,697	32,512	0.10%	0.14%	0.05%	-0.04%	-0.11%
Florence	Chmura	136,884	149,401	154,295	158,096	160,577	161,700	0.88%	0.65%	0.49%	0.31%	0.14%
	SCDRFA	137,067	143,100	147,000	150,900			0.43%	0.54%	0.53%		
	W&P		151,263	158,518	165,365	171,733	177,676	0.99%	0.94%	0.85%	0.76%	0.68%
Georgetown	Chmura	60,185	65,171	68,634	73,038	78,690	85,600	0.80%	1.04%	1.25%	1.50%	1.70%
	SCDRFA	60,140	62,500	63,800	65,100			0.39%	0.41%	0.40%		
	W&P		67,774	72,186	76,536	80,784	84,947	1.20%	1.27%	1.18%	1.09%	1.01%
Horry	Chmura	269,255	315,894	343,416	374,516	409,635	449,298	1.61%	1.68%	1.75%	1.81%	1.87%
	SCDRFA	270,644	319,900	345,800	371,700			1.69%	1.57%	1.46%		
	W&P		339,719	379,230	421,411	466,180	513,769	2.30%	2.22%	2.13%	2.04%	1.96%
Marion	Chmura	33,063	35,167	35,847	36,250	36,325	36,100	0.62%	0.38%	0.22%	0.04%	-0.12%
	SCDRFA	32,984	32,000	31,900	31,800			-0.30%	-0.06%	-0.06%		
	W&P		33,750	34,103	34,302	34,348	34,264	0.23%	0.21%	0.12%	0.03%	-0.05%
Marlboro	Chmura	28,930	28,310	27,680	26,849	25,806	24,600	-0.22%	-0.45%	-0.61%	-0.79%	-0.95%
	SCDRFA	28,888	29,000	29,100	29,200			0.04%	0.07%	0.07%		
	W&P		28,908	28,992	28,943	28,763	28,478	0.01%	0.06%	-0.03%	-0.12%	-0.20%
Williamsburg	Chmura	34,420	35,303	35,339	35,092	34,531	33,700	0.25%	0.02%	-0.14%	-0.32%	-0.49%
	SCDRFA	34,355	33,100	33,000	32,900			-0.37%	-0.06%	-0.06%		
	W&P		34,899	35,194	35,331	35,309	35,155	0.16%	0.17%	0.08%	-0.01%	-0.09%
Richmond, NC	Moody's	46,620	45,400	45,050	44,640	44,370	44,120	-0.26%	-0.15%	-0.18%	-0.12%	-0.11%
	W&P	46,637	47,229	47,786	48,220	48,426	48,376	0.13%	0.23%	0.18%	0.09%	-0.02%
Study Area	Chmura	710,211	784,515	822,698	862,312	903,610	947,298	1.00%	0.95%	0.94%	0.94%	0.95%
	SCDRFA	758,152	770,600	803,200	835,800			0.16%	0.83%	0.80%		
	W&P		858,210	914,651	972,127	1,030,313	1,089,648	1.25%	1.28%	1.23%	1.17%	1.13%
South Carolina	Chmura	4,625,308	5,109,218	5,344,632	5,588,124	5,823,913	6,060,098	1.00%	0.91%	0.90%	0.83%	0.80%
	SCDRFA	4,637,106	5,020,800	5,235,500	5,451,700			0.80%	0.84%	0.81%		
	W&P		5,188,225	5,482,169	5,776,466	6,069,719	6,364,889	1.13%	1.11%	1.05%	1.00%	0.95%

As an illustrative example, Figure 3-2 presents W&P's population projections by region. Horry County's influence on population growth rates within the study area can be seen, as its projected population growth rate far surpasses that of other counties in the study area or South Carolina as a whole.



Source: W&P

Figure 3-2. Population Projections by Region

Figure 3-3 presents 2010 population density by county. Figure 3-4 through Figure 3-7 present the No-Build scenario population densities from 2025 to 2050; Figure 3-8 through Figure 3-11 present the Build scenario population densities.

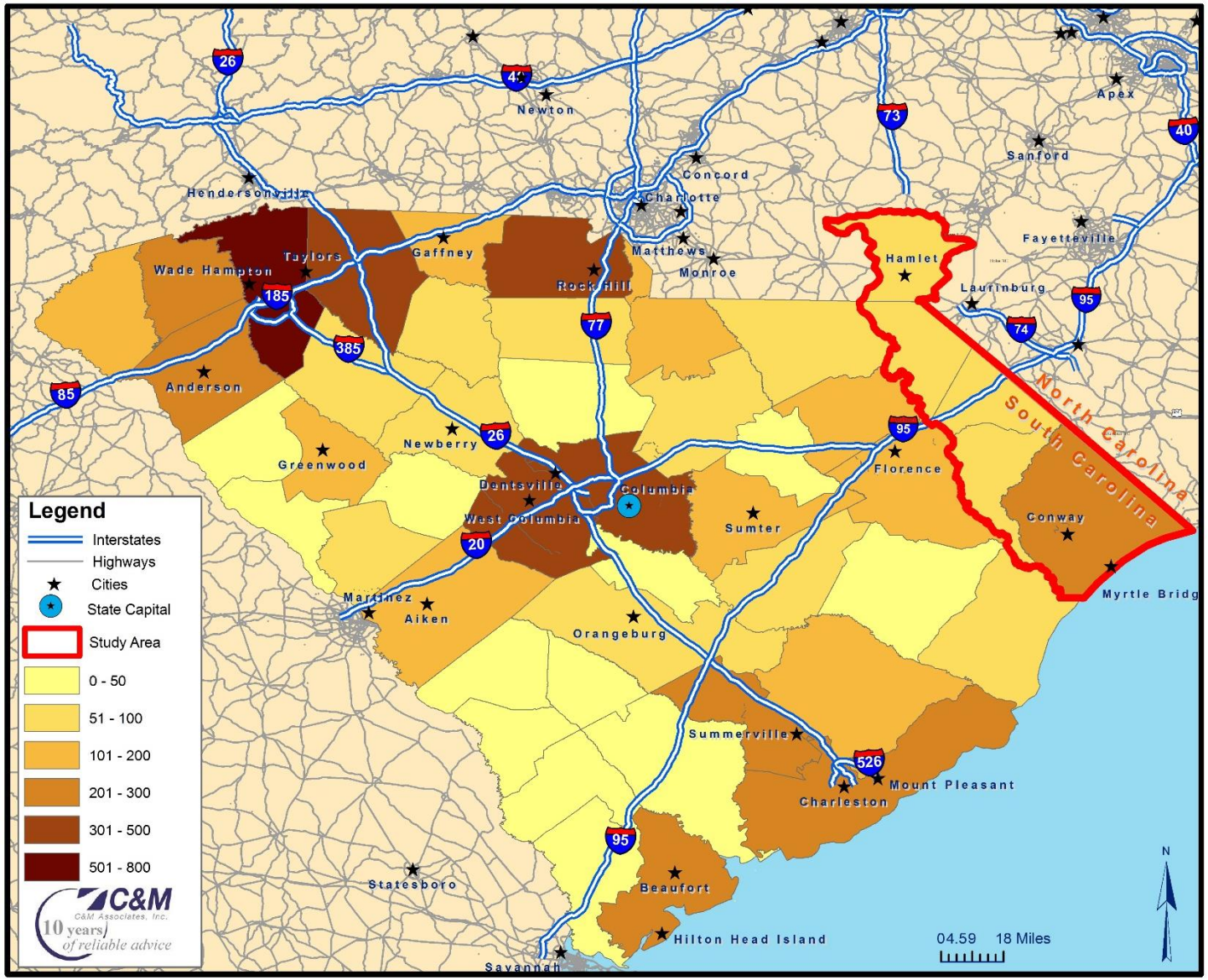


Figure 3-3. Population Density by County – 2010

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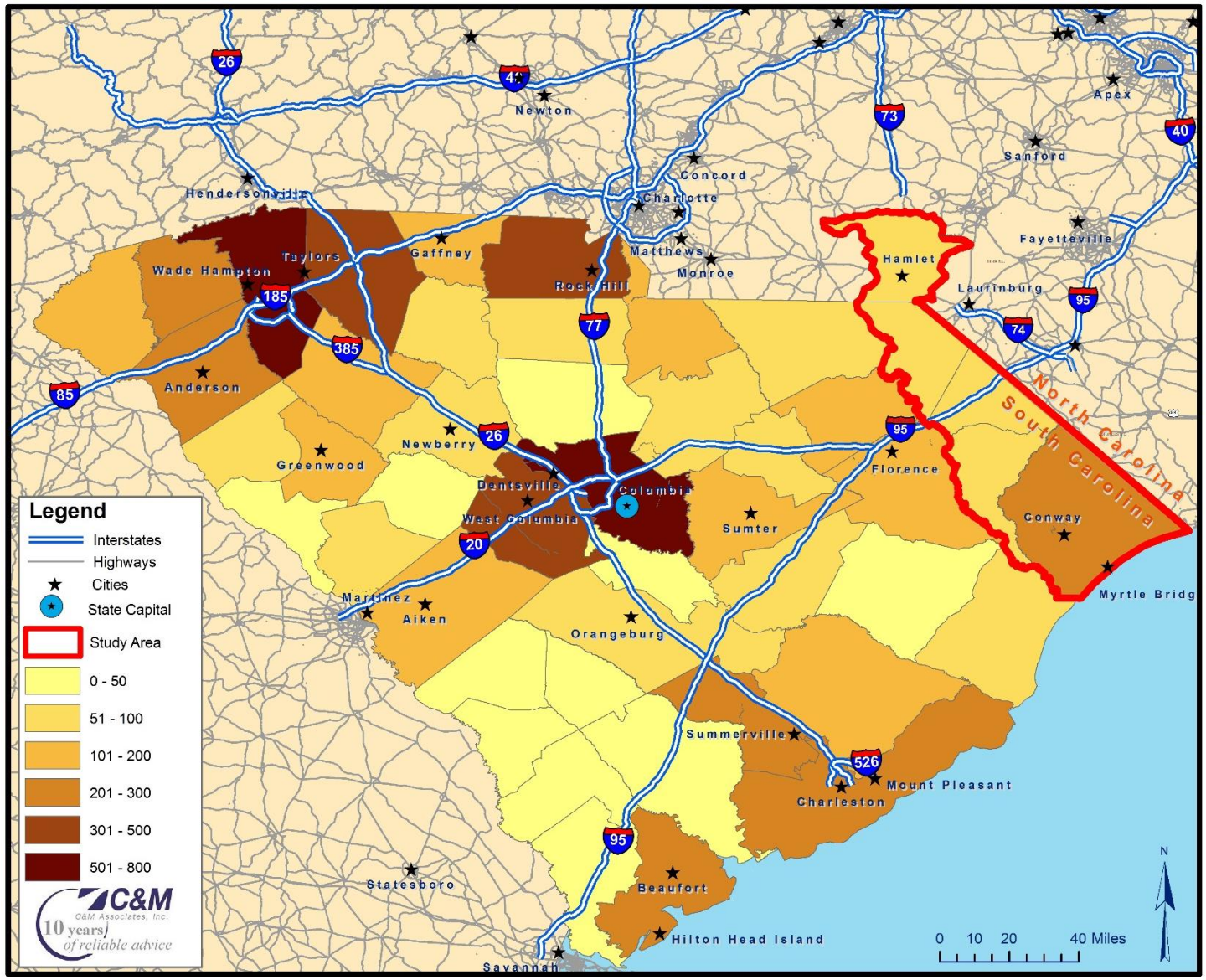

Figure 3-4. Population Density by County – No-Build 2025

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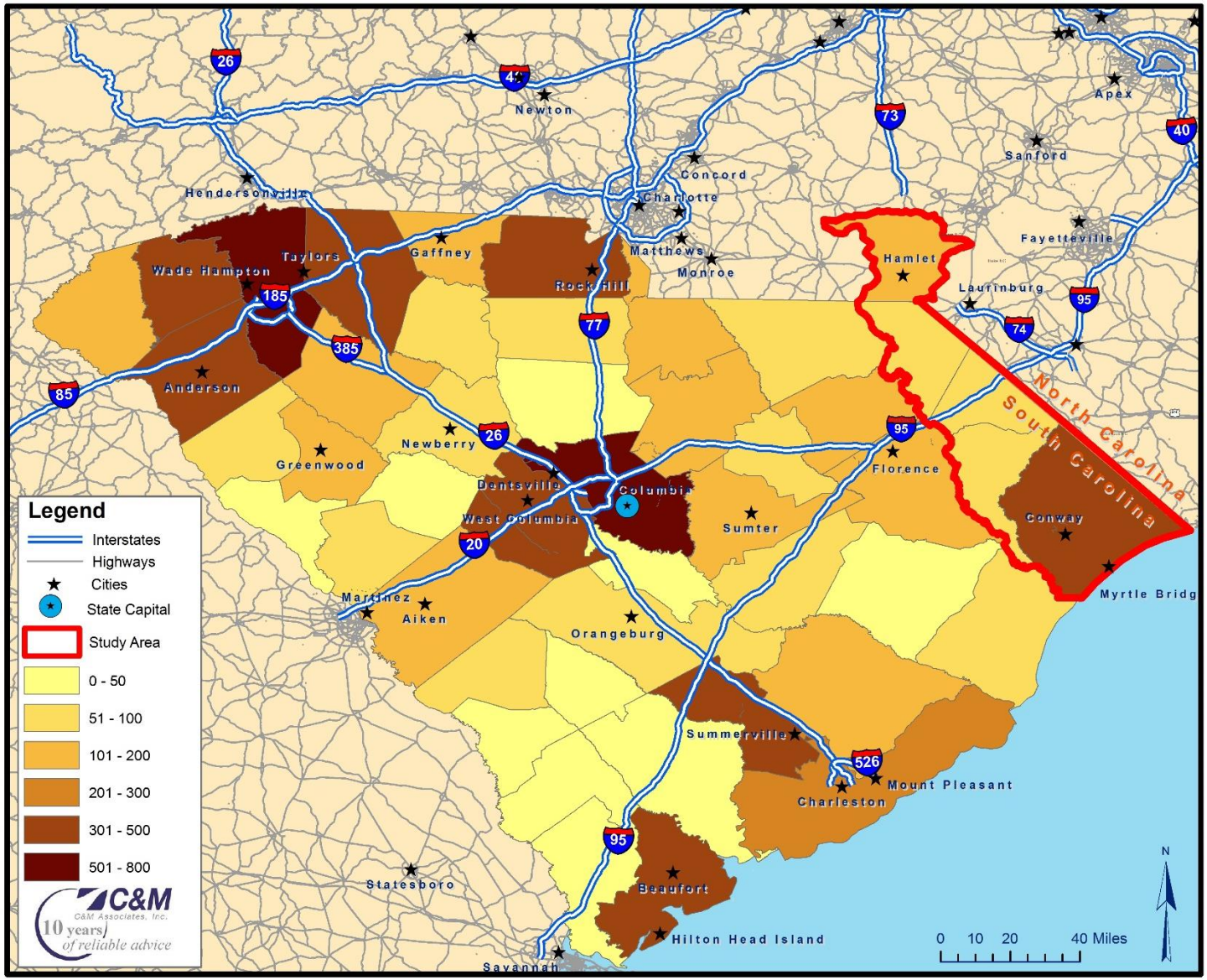

Figure 3-5. Population Density by County – No-Build 2035

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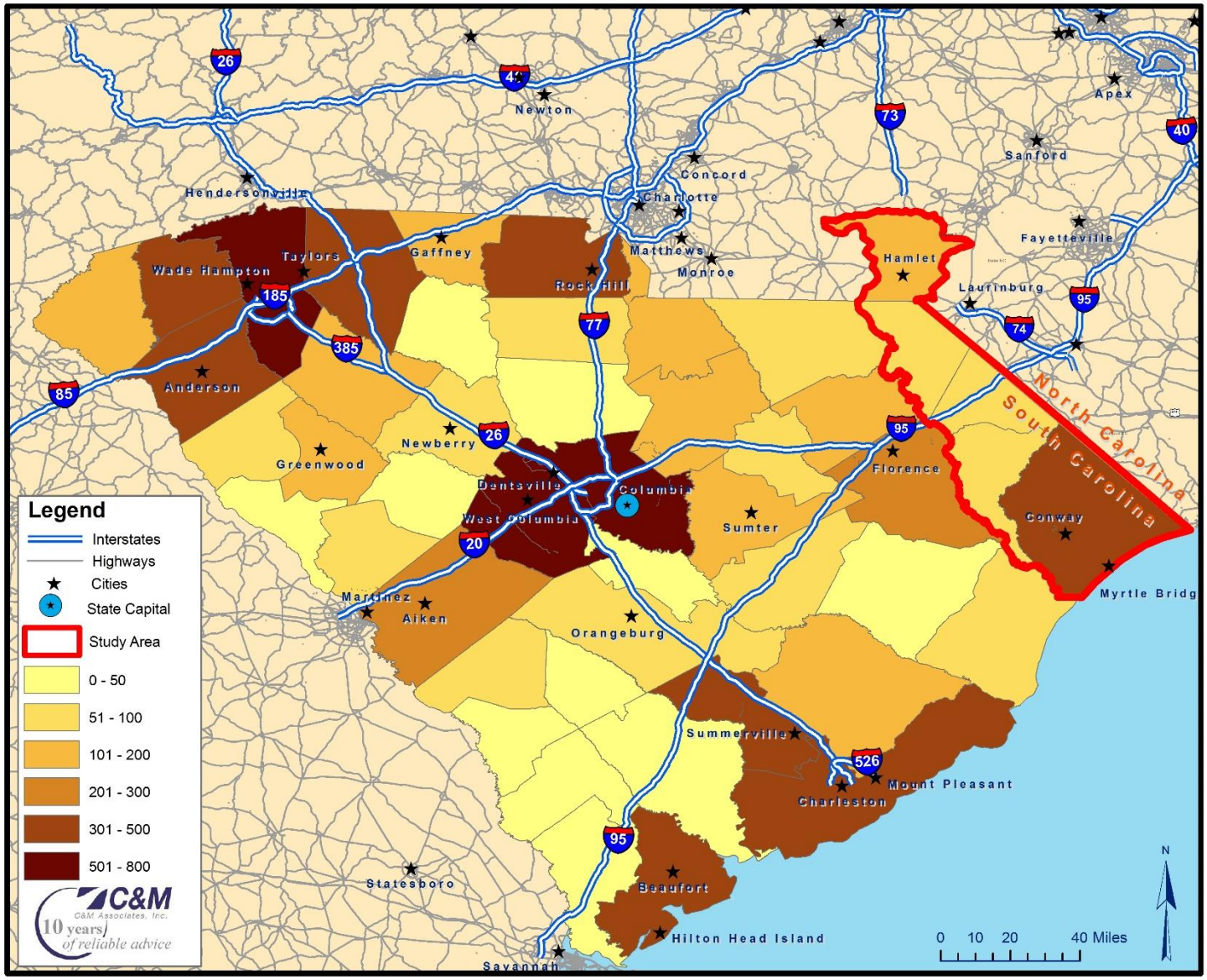

Figure 3-6. Population Density by County – No-Build 2040

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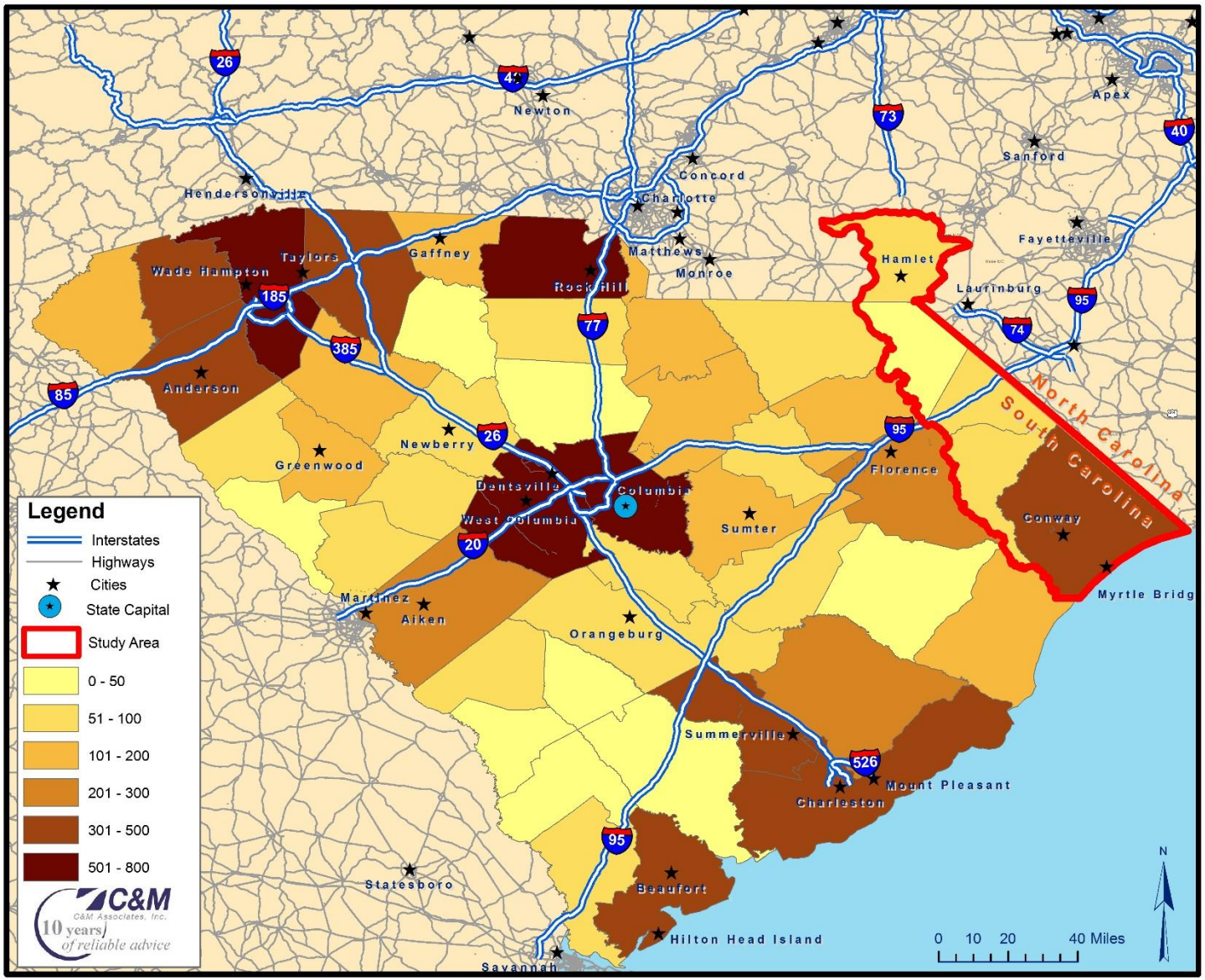

Figure 3-7. Population Density by County – No-Build 2050

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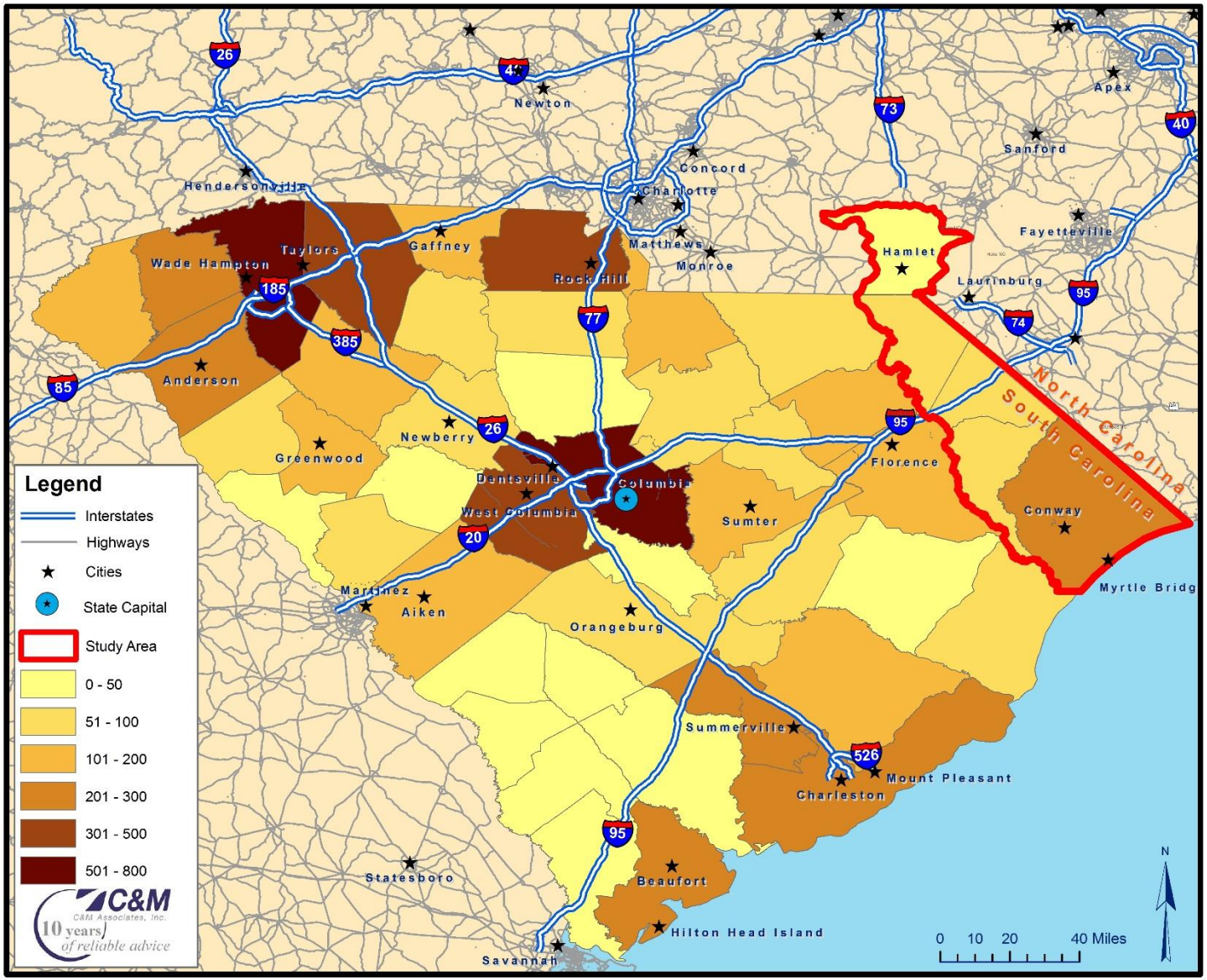

Figure 3-8. Population Density by County – Build 2025

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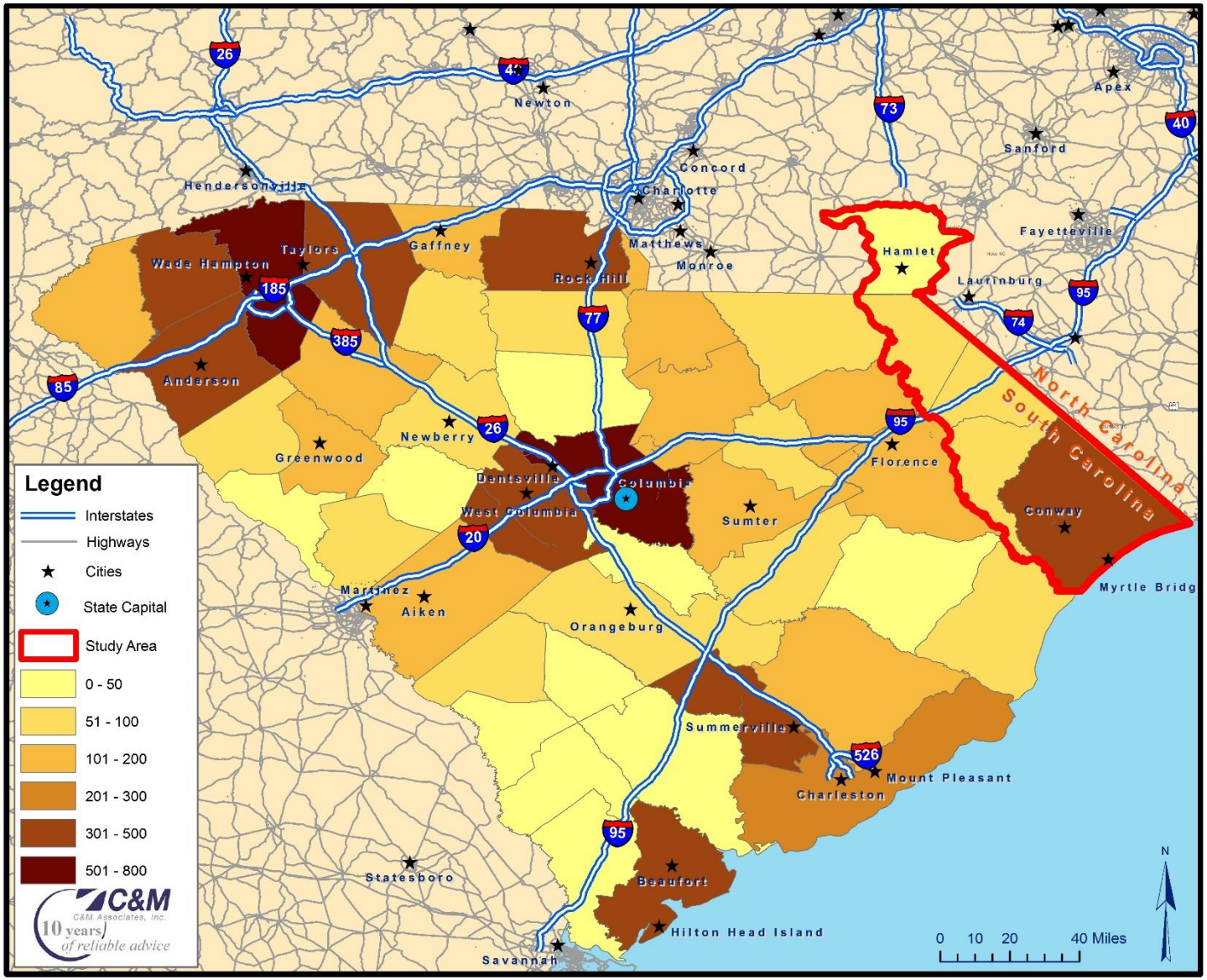

Figure 3-9. Population Density by County – Build 2035

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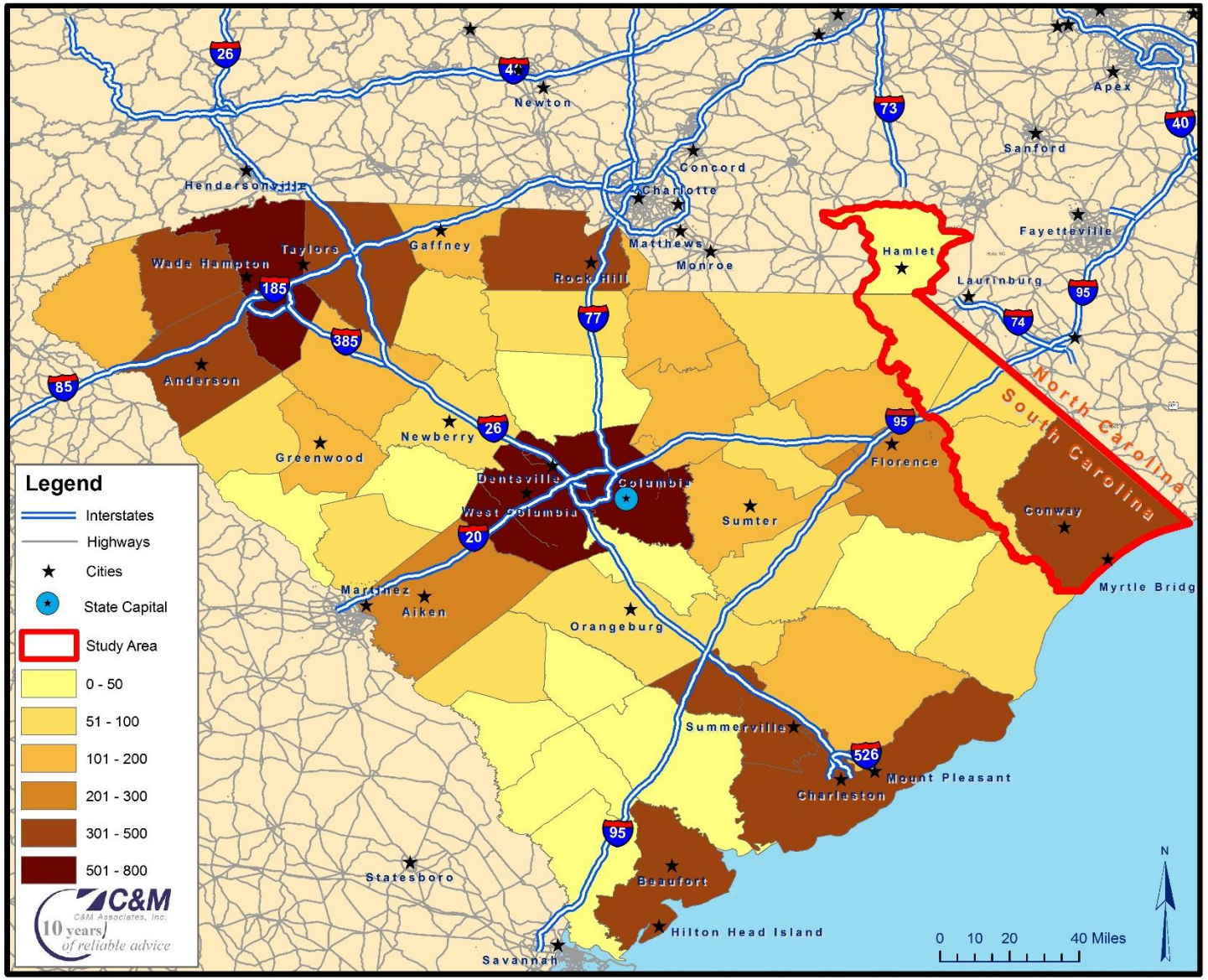

Figure 3-10. Population Density by County – Build 2040

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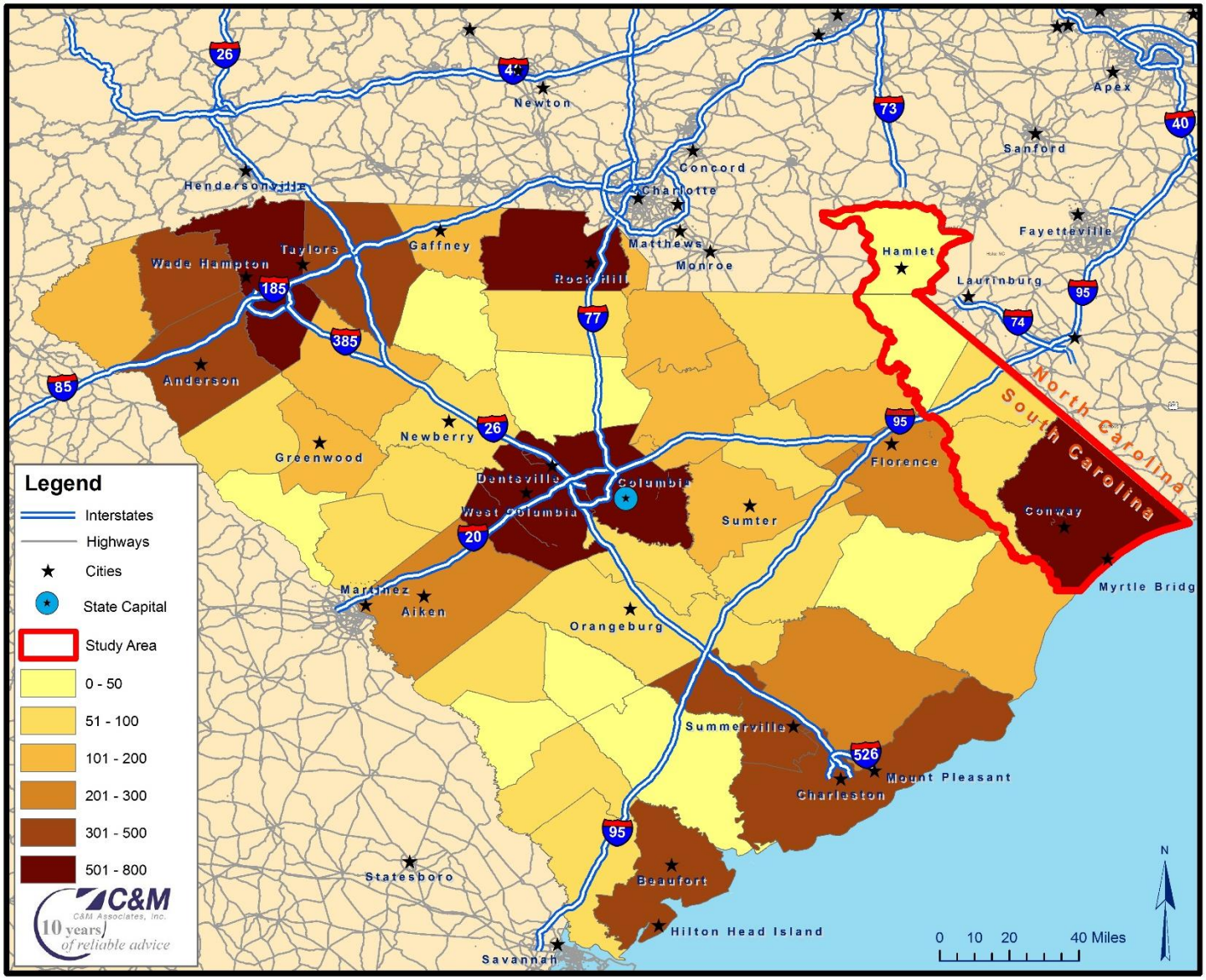


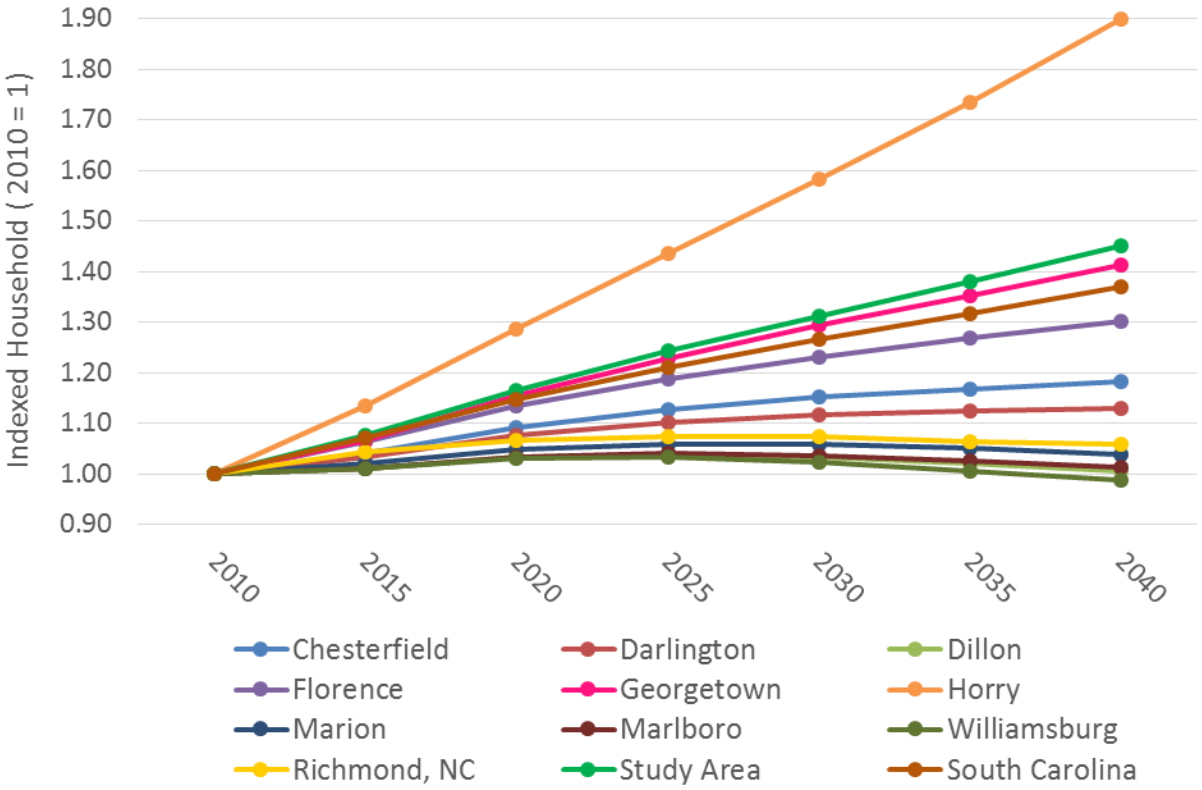
Figure 3-11. Population Density by County – Build 2050

3.4. Number of Households

3.4.1. Household Projections by Selected Sources

Projections regarding the number of households in the study area serve as a useful validation tool for population projections, as the two should be reasonably matched. C&M reviewed projected household data for the study area from Chmura and W&P. As with population, household projections for Richmond County, NC were obtained from Moody's and W&P. Table 3-5 presents a comparison of projected households and CAGRs for selected years.

Figure 3-12 illustrates W&P's household projections by region. As with population projections (see Figure 3-2), Horry County's household growth rate surpasses all other counties within the study area and South Carolina as a whole. In general, the household projections by region are in line with the population projections.



Source: W&P

Figure 3-12. Projected Number of Households by Region

Figure 3-13 presents the 2010 household density by county. Figure 3-14 to Figure 3-17 present the No-Build scenario household density from 2025 to 2050; Figure 3-18 through Figure 3-21 present the Build scenario household densities.

Table 3-5. Projected Number of Households for Model Years by Source

County	Source	Households						CAGR				
		2010	2020	2025	2030	2035	2040	2010-2020	2020-2025	2025-2030	2030-2035	2035-2040
Chesterfield	Chmura	18,174	19,225	19,579	19,916	20,060	20,012	0.56%	0.37%	0.34%	0.14%	-0.05%
	W&P	18,148	19,826	20,460	20,895	21,201	21,469	0.89%	0.63%	0.42%	0.29%	0.25%
Darlington	Chmura	26,532	28,226	28,829	29,409	29,703	29,723	0.62%	0.42%	0.40%	0.20%	0.01%
	W&P	26,516	28,508	29,206	29,599	29,796	29,926	0.73%	0.48%	0.27%	0.13%	0.09%
Dillon	Chmura	11,923	12,191	12,206	12,207	12,085	11,856	0.22%	0.03%	0.00%	-0.20%	-0.38%
	W&P	11,949	12,337	12,403	12,335	12,185	12,009	0.32%	0.11%	-0.11%	-0.24%	-0.29%
Florence	Chmura	52,652	57,590	59,652	61,719	63,242	64,194	0.90%	0.71%	0.68%	0.49%	0.30%
	W&P	52,727	59,743	62,617	64,918	66,848	68,675	1.26%	0.94%	0.72%	0.59%	0.54%
Georgetown	Chmura	24,535	26,957	28,680	31,060	34,032	37,639	0.95%	1.25%	1.61%	1.84%	2.04%
	W&P	24,519	28,312	30,133	31,725	33,176	34,615	1.45%	1.25%	1.04%	0.90%	0.85%
Horry	Chmura	112,206	133,152	145,829	161,269	178,641	198,199	1.73%	1.84%	2.03%	2.07%	2.10%
	W&P	112,797	145,105	161,864	178,612	195,763	214,075	2.55%	2.21%	1.99%	1.85%	1.80%
Marion	Chmura	13,058	13,889	14,184	14,468	14,609	14,618	0.62%	0.42%	0.40%	0.20%	0.01%
	W&P	13,028	13,666	13,800	13,785	13,677	13,538	0.48%	0.20%	-0.02%	-0.16%	-0.20%
Marlboro	Chmura	10,382	10,160	9,952	9,736	9,430	9,051	-0.22%	-0.41%	-0.44%	-0.64%	-0.82%
	W&P	10,367	10,712	10,786	10,742	10,626	10,488	0.33%	0.14%	-0.08%	-0.22%	-0.26%
Williamsburg	Chmura	13,006	13,340	13,378	13,399	13,287	13,055	0.25%	0.06%	0.03%	-0.17%	-0.35%
	W&P	12,982	13,371	13,399	13,276	13,060	12,812	0.30%	0.04%	-0.18%	-0.33%	-0.38%
Richmond, NC	Moody's	18,430	18,550	18,550	18,580	18,670	18,730	0.06%	0.00%	0.03%	0.10%	0.06%
	W&P	18,437	19,635	19,804	19,788	19,621	19,497	0.63%	0.17%	-0.02%	-0.17%	-0.13%
Study Area	Chmura	282,468	314,729	332,289	353,183	375,089	398,345	1.09%	1.09%	1.23%	1.21%	1.21%
	W&P	301,470	351,215	374,472	395,675	415,953	437,104	1.54%	1.29%	1.11%	1.00%	1.00%
South Carolina	Chmura	1,801,141	1,994,015	2,089,200	2,190,962	2,290,158	2,389,991	1.02%	0.94%	0.96%	0.89%	0.86%
	W&P	1,805,891	2,070,532	2,185,609	2,286,141	2,379,240	2,474,754	1.38%	1.09%	0.90%	0.80%	0.79%

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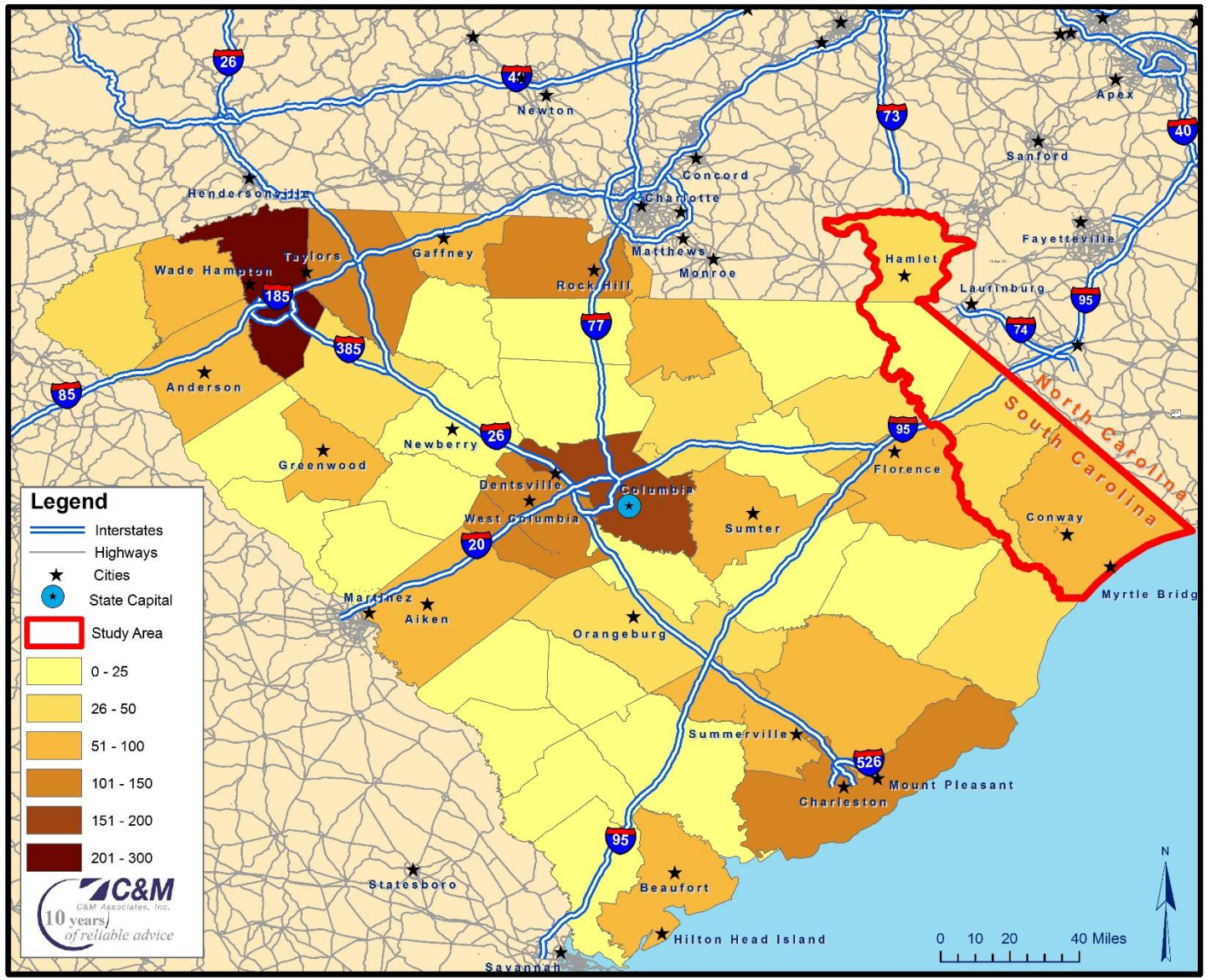

Figure 3-13. Household Density by County – 2010

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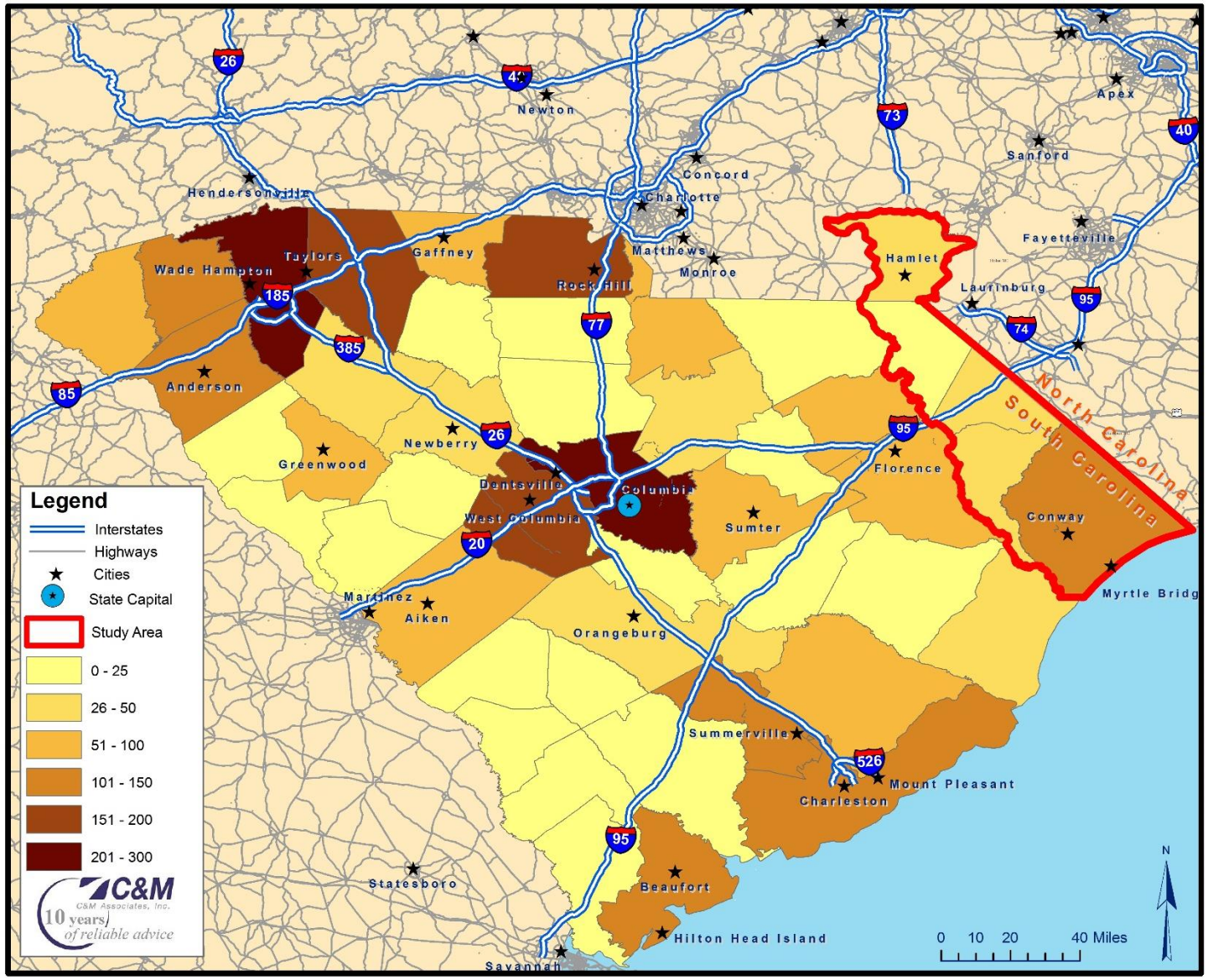

Figure 3-14. Household Density by County – No-Build 2025

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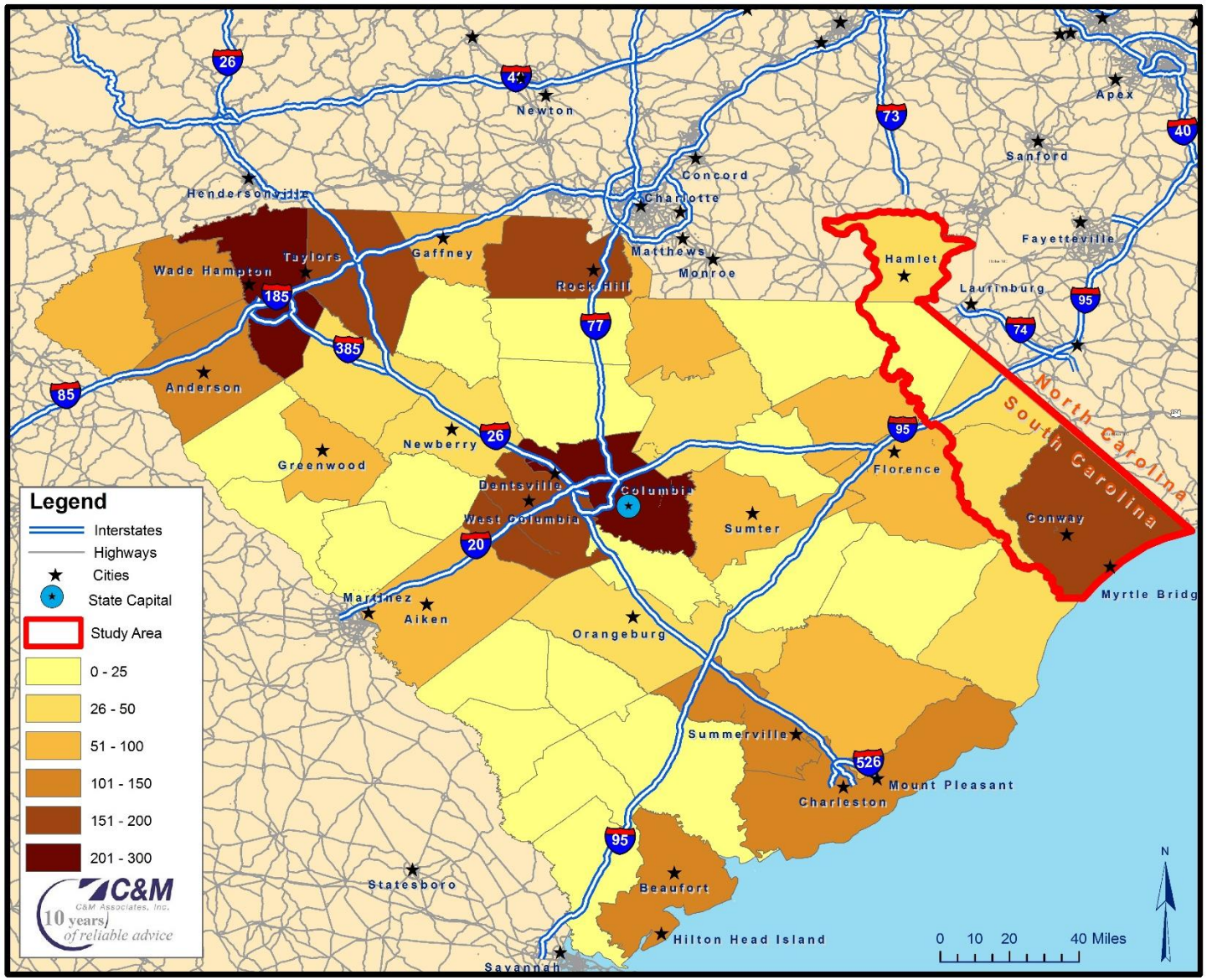

Figure 3-15. Household Density by County – No-Build 2035

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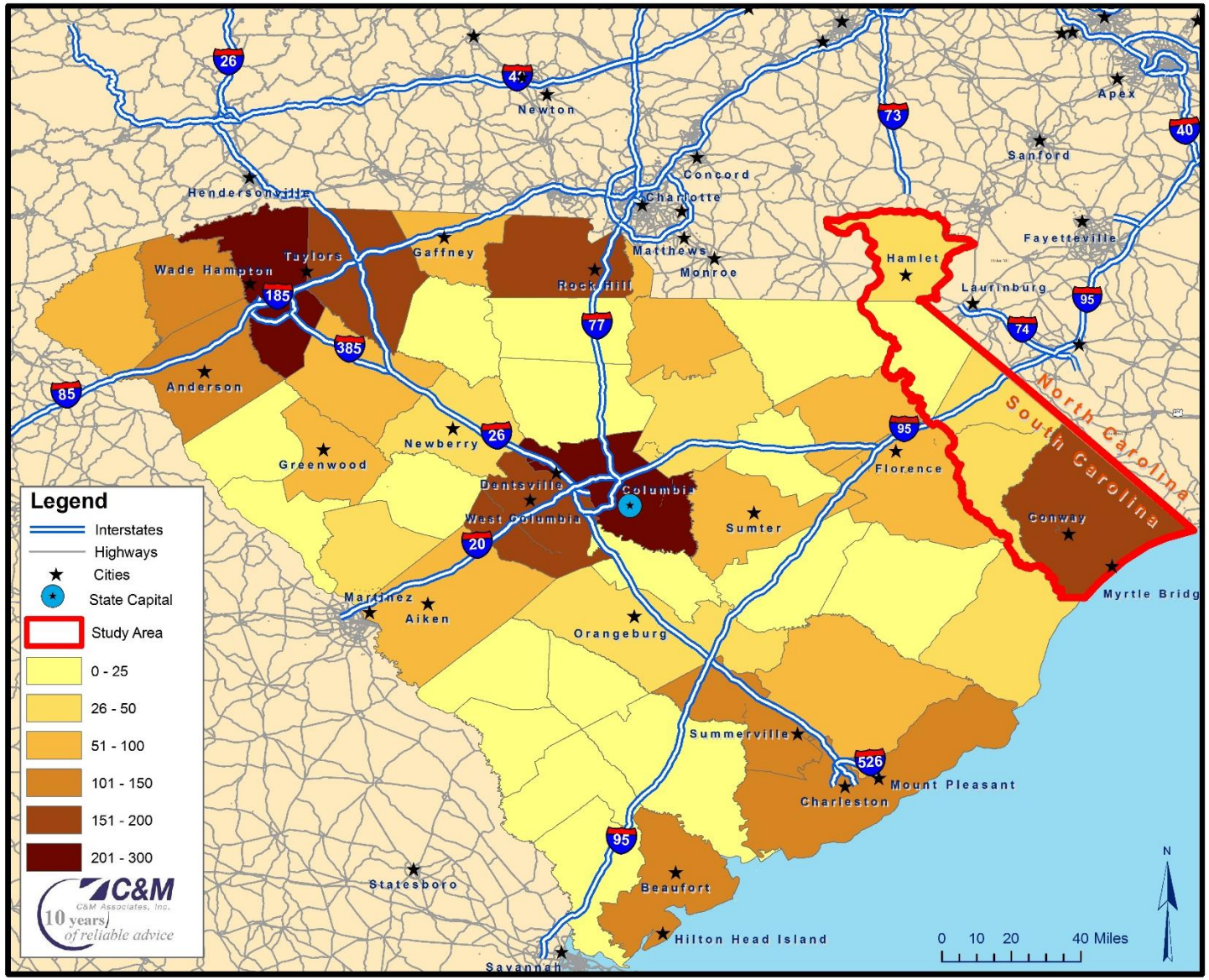

Figure 3-16. Household Density by County – No-Build 2040

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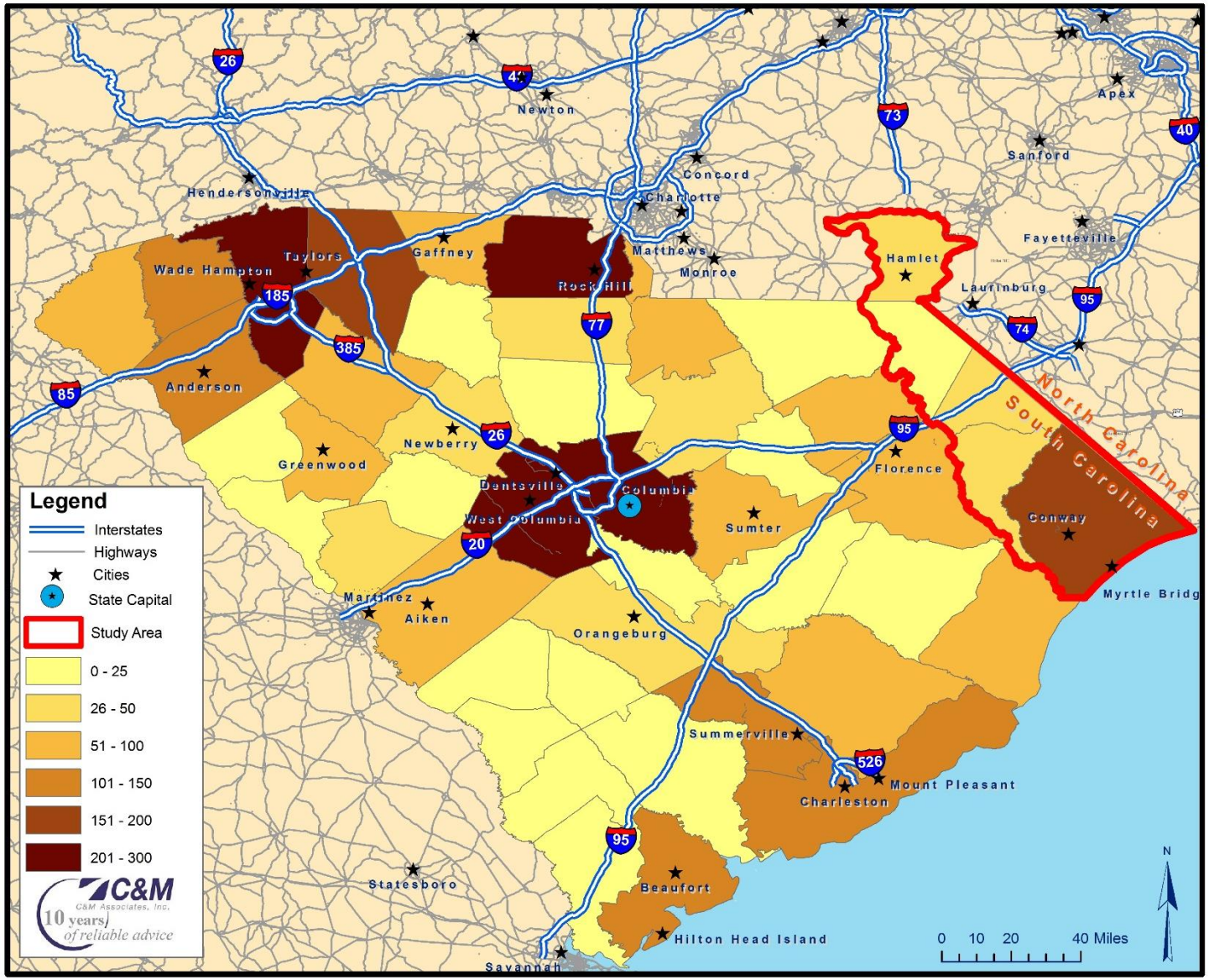

Figure 3-17. Household Density by County – No-Build 2050

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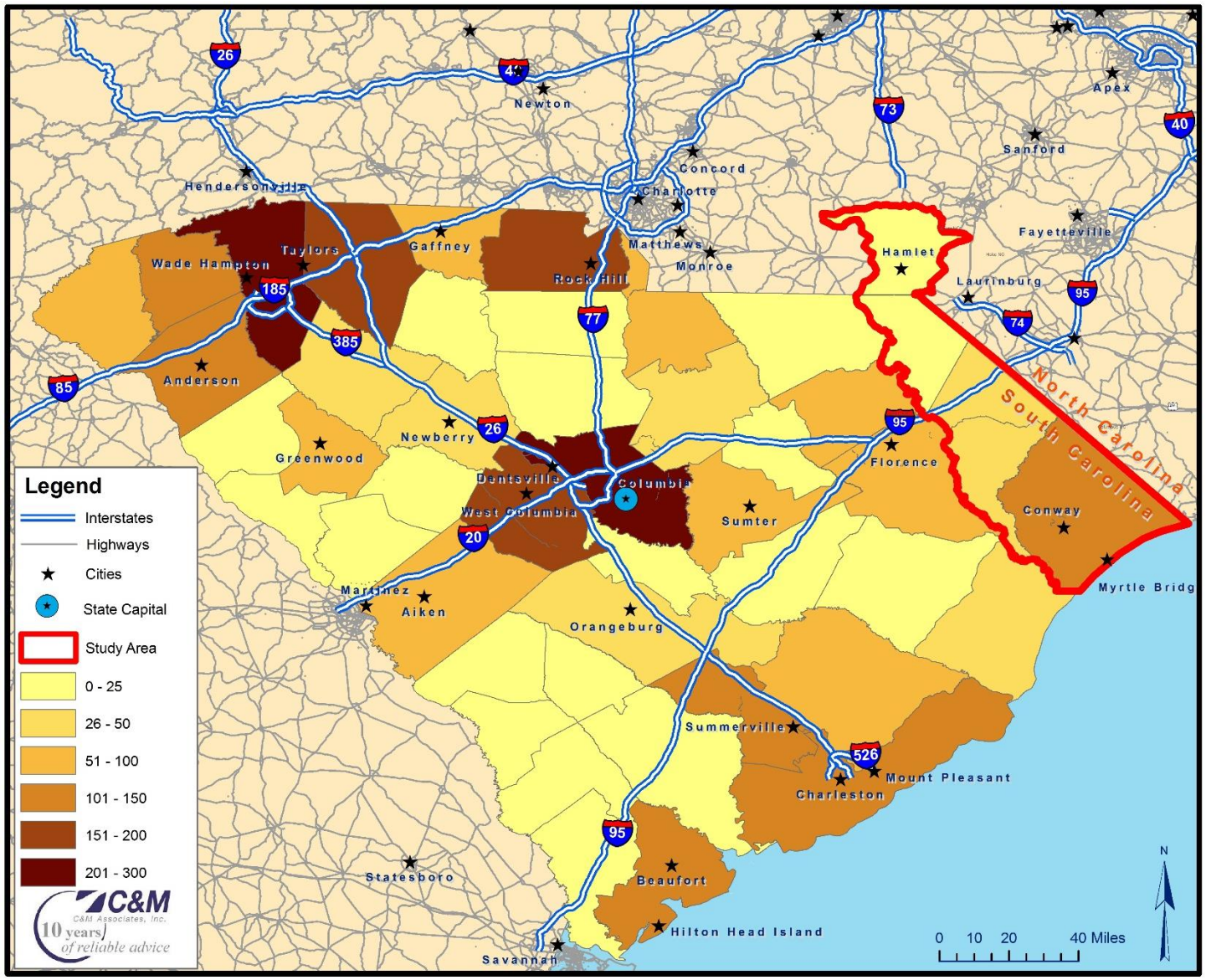

Figure 3-18. Household Density by County – Build 2025

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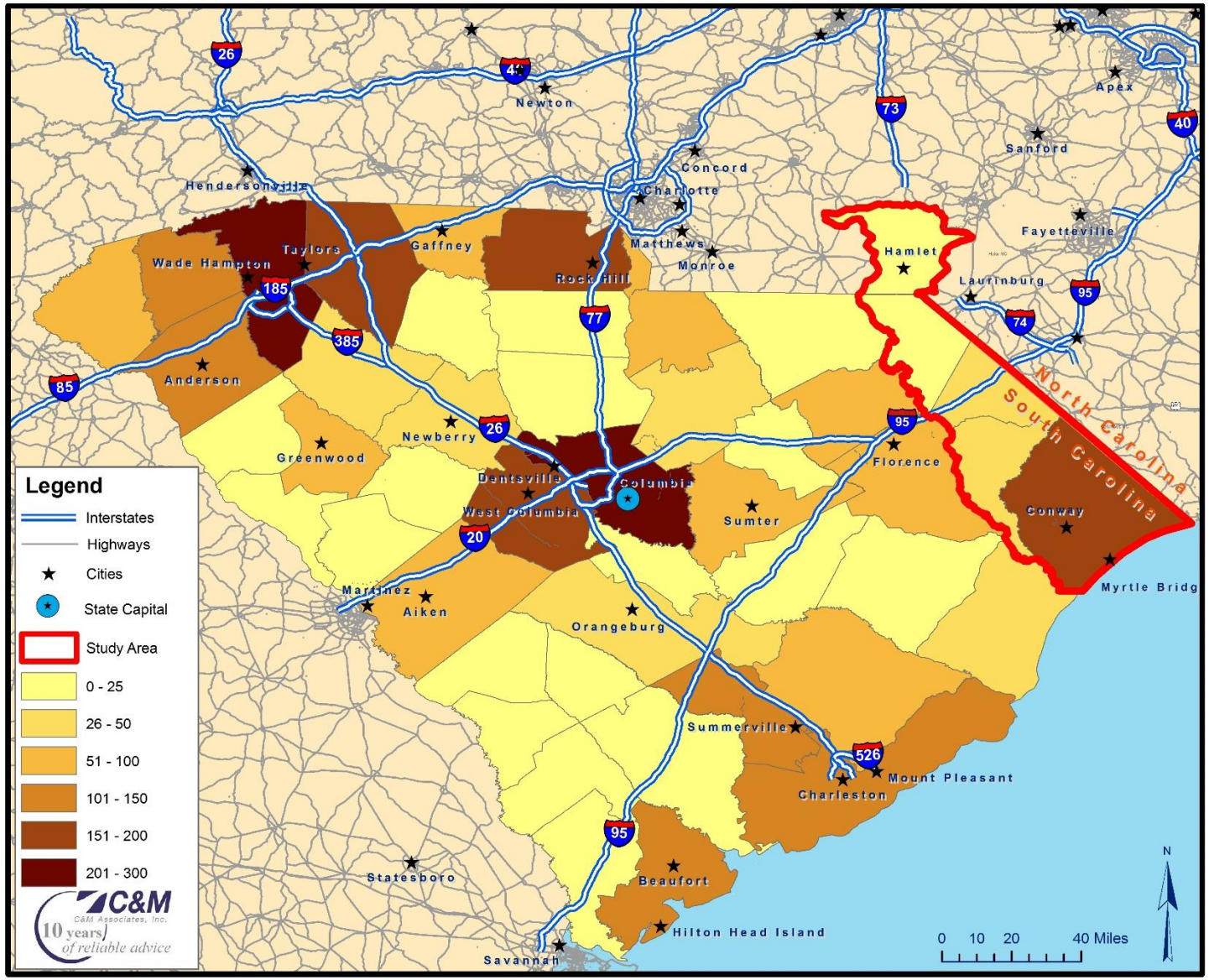

Figure 3-19. Household Density by County – Build 2035

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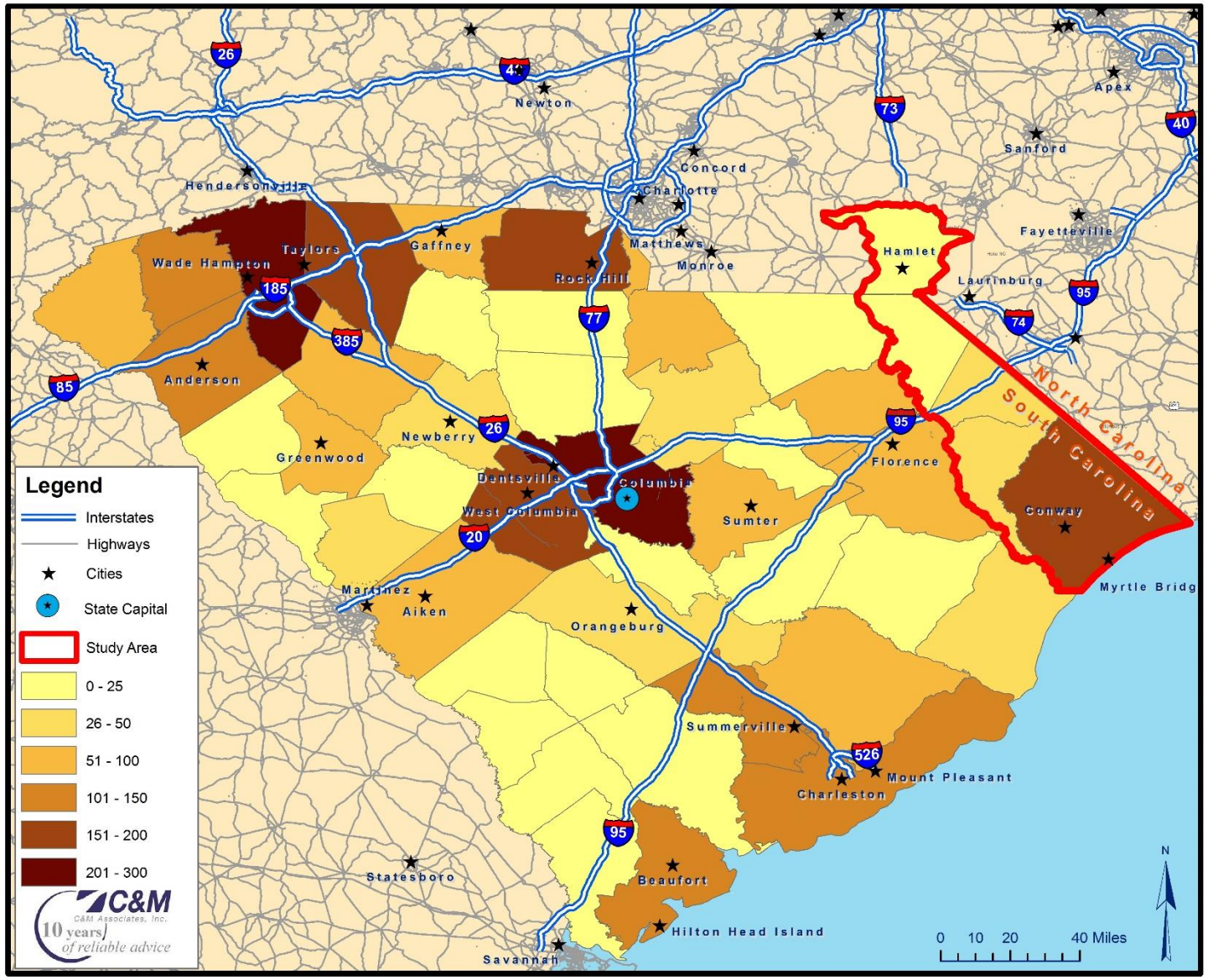

Figure 3-20. Household Density by County – Build 2040

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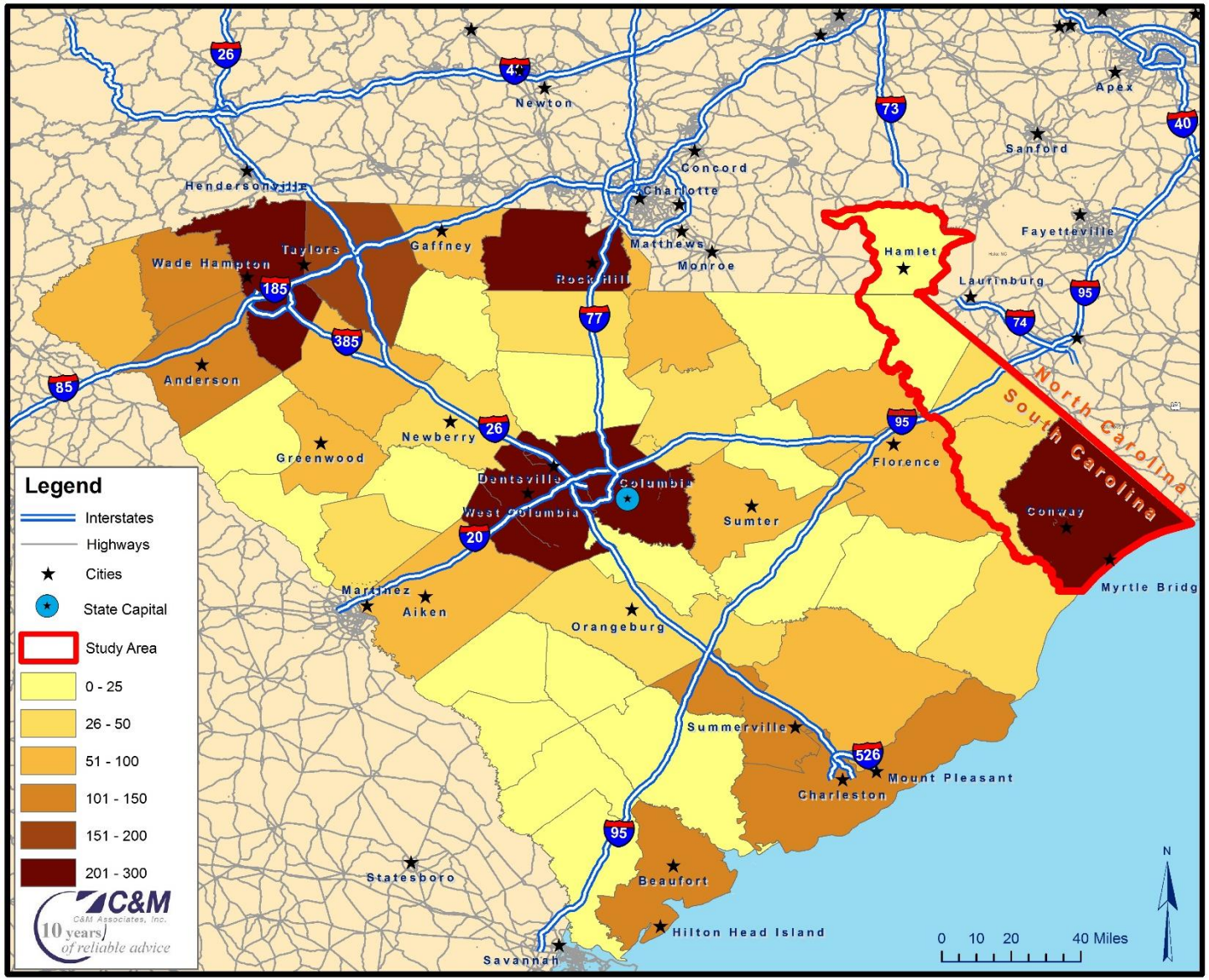


Figure 3-21. Household Density by County – Build 2050

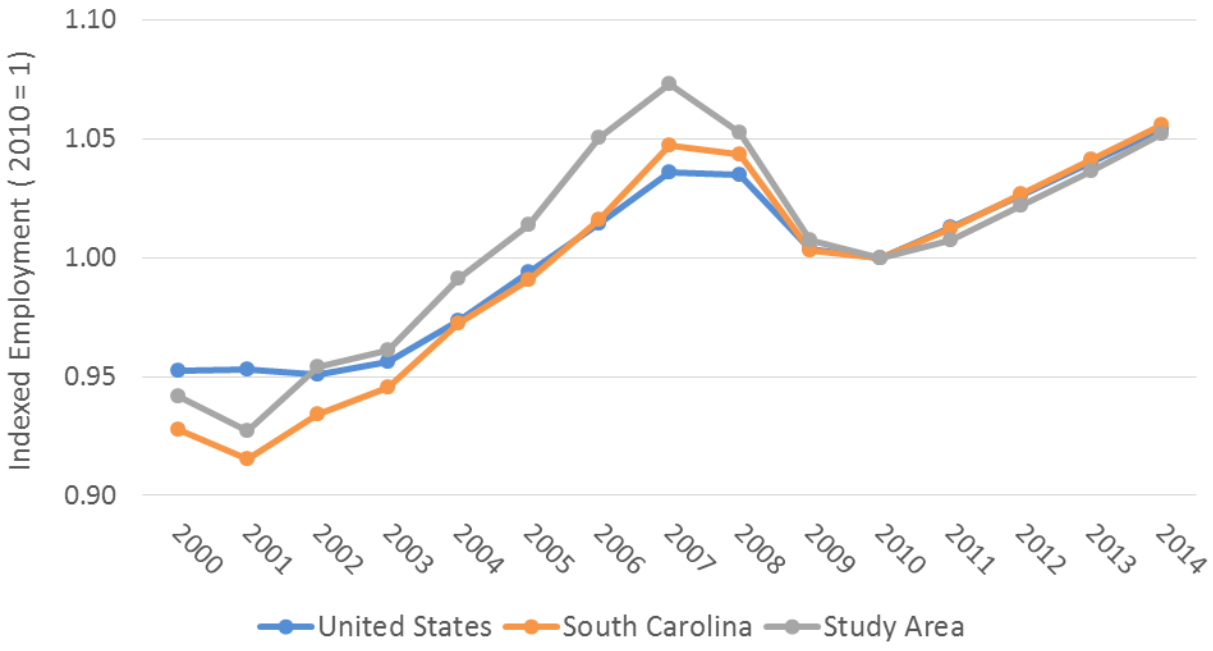
3.5. Employment

From a transportation planning perspective, workplace-based employment in a region provides a more straightforward picture of trip destinations, particularly those trips that take place during peak periods. Employment trends and growth in a study area highlight potential increases in traffic demand and indicate work-based trip productions and attractions in that study area. In an effort to develop such a picture, C&M studied and evaluated the study area's current job markets and historical employment trends, comparing them to the corresponding state-level data.

Historical economic data were gathered from the U.S. Census. Based on these data, employment forecasts were developed for the study area and for the TAZs within the study area.

3.5.1. Historical Employment Trends

C&M collected and analyzed data regarding historical labor force size and employment trends within the study area counties, South Carolina, and the United States overall. Table 3-6 presents the employment growth pattern since 1990 for these regions. The effect of last decade's Great Recession can be seen, as the 2000–2010 period exhibits the lowest employment CAGRs. This effect can also be seen in Figure 3-22, which illustrates historical employment for the study area, South Carolina as a whole, and the United States.



Source: U.S. Census

Figure 3-22. Historical Employment Trends by Region

It is important to note that due to the size difference between counties, the study area CAGRs are driven primarily by Horry County. With approximately 153,000 jobs as of

2014, Horry County represents one of the top employment centers in the study area, accounting for about 36 percent of employment.

Table 3-6. Historical Employment Trends

Region	1990	2000	2010	2011	2012	2013	2014
Chesterfield	18,589	20,680	18,307	18,562	18,707	18,856	19,006
CAGR		1.07%	-1.21%	1.39%	0.78%	0.80%	0.80%
Darlington	26,645	29,151	27,320	27,425	27,652	27,885	28,112
CAGR		0.90%	-0.65%	0.38%	0.83%	0.84%	0.81%
Dillon	11,450	12,783	12,625	12,340	12,447	12,551	12,660
CAGR		1.11%	-0.12%	-2.26%	0.87%	0.84%	0.87%
Florence	93,813	108,426	113,383	113,768	115,147	116,550	117,973
CAGR		1.46%	0.45%	0.34%	1.21%	1.22%	1.22%
Georgetown	22,406	30,394	36,610	36,440	37,018	37,605	38,196
CAGR		3.10%	1.88%	-0.46%	1.59%	1.59%	1.57%
Horry	87,110	125,093	140,918	143,387	146,489	149,634	152,832
CAGR		3.69%	1.20%	1.75%	2.16%	2.15%	2.14%
Marion	14,775	14,475	14,798	14,733	14,902	15,079	15,252
CAGR		-0.20%	0.22%	-0.44%	1.15%	1.19%	1.15%
Marlboro	11,378	9,929	9,278	9,326	9,340	9,359	9,377
CAGR		-1.35%	-0.68%	0.52%	0.15%	0.20%	0.19%
Williamsburg	14,717	12,689	12,615	12,902	12,980	13,062	13,145
CAGR		-1.47%	-0.06%	2.28%	0.60%	0.63%	0.64%
Richmond, NC	21,784	20,223	18,083	17,952	17,849	17,745	17,888
CAGR		-0.74%	-1.11%	-0.72%	-0.57%	-0.58%	0.81%
Study Area	322,667	383,843	403,937	406,835	412,531	418,326	424,441
CAGR		1.75%	0.51%	0.72%	1.40%	1.40%	1.46%
South Carolina	1,912,760	2,274,636	2,451,222	2,481,664	2,516,614	2,552,089	2,588,117
CAGR		1.75%	0.75%	1.24%	1.41%	1.41%	1.41%
United States	138,331,066	165,371,004	173,626,671	175,834,720	178,203,085	180,604,538	183,038,210
CAGR		1.80%	0.49%	1.27%	1.35%	1.35%	1.35%

Source: U.S. Census

3.5.2. Employment Projections by Selected Sources

C&M reviewed employment projections for the study area by Chmura and W&P for counties within South Carolina and Moody's and W&P for Richmond County, NC. As shown in Table 3-7, W&P predicts a slightly higher employment forecast for most counties, but both Chmura and W&P predict higher growth for the study area than the state of South Carolina as a whole. As an illustrative example, the projections by W&P are presented in Figure 3-23.

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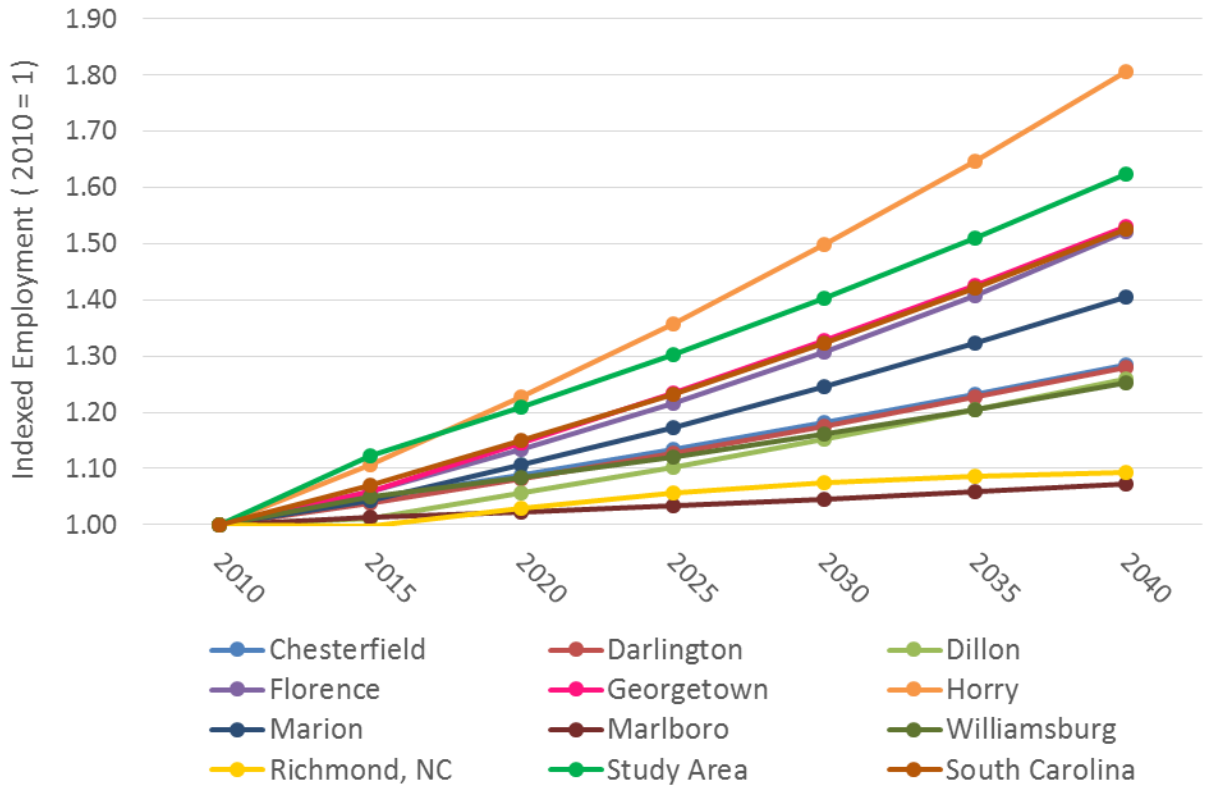
Table 3-7. Employment Projections for Model Years by Source

County	Source	Employment						CAGR				
		2010	2020	2025	2030	2035	2040	2010-2020	2020-2025	2025-2030	2030-2035	2035-2040
Chesterfield	Chmura	14,488	16,272	16,443	17,026	17,476	17,781	1.17%	0.21%	0.70%	0.52%	0.35%
	W&P	18,307	19,931	20,750	21,617	22,542	23,529	0.85%	0.81%	0.82%	0.84%	0.86%
Darlington	Chmura	24,252	27,755	28,074	29,284	30,167	31,051	1.36%	0.23%	0.85%	0.60%	0.58%
	W&P	27,320	29,548	30,804	32,121	33,507	34,971	0.79%	0.84%	0.84%	0.85%	0.86%
Dillon	Chmura	10,093	10,676	10,486	10,541	10,492	10,372	0.56%	-0.36%	0.10%	-0.09%	-0.23%
	W&P	12,625	13,329	13,919	14,543	15,205	15,900	0.54%	0.87%	0.88%	0.89%	0.90%
Florence	Chmura	67,413	76,833	80,519	85,526	90,252	95,046	1.32%	0.94%	1.21%	1.08%	1.04%
	W&P	86,063	97,533	104,648	112,517	121,216	130,849	1.26%	1.42%	1.46%	1.50%	1.54%
Georgetown	Chmura	28,418	32,333	35,871	38,881	42,085	45,065	1.30%	2.10%	1.62%	1.60%	1.38%
	W&P	36,610	41,892	45,159	48,605	52,230	56,033	1.36%	1.51%	1.48%	1.45%	1.42%
Horry	Chmura	127,484	145,989	161,436	177,433	194,691	215,941	1.36%	2.03%	1.91%	1.87%	2.09%
	W&P	140,918	173,096	191,414	211,065	232,067	254,434	2.08%	2.03%	1.97%	1.92%	1.86%
Marion	Chmura	11,119	12,607	12,868	13,418	13,842	14,203	1.26%	0.41%	0.84%	0.62%	0.52%
	W&P	14,798	16,360	17,355	18,424	19,571	20,806	1.01%	1.19%	1.20%	1.22%	1.23%
Marlboro	Chmura	8,428	8,830	8,634	8,637	8,566	8,427	0.47%	-0.45%	0.01%	-0.16%	-0.33%
	W&P	9,278	9,491	9,591	9,706	9,828	9,959	0.23%	0.21%	0.24%	0.25%	0.27%
Williamsburg	Chmura	10,100	10,676	10,490	10,546	10,505	10,380	0.56%	-0.35%	0.11%	-0.08%	-0.24%
	W&P	12,615	13,664	14,127	14,636	15,191	15,805	0.80%	0.67%	0.71%	0.75%	0.80%
Richmond, NC	Moody's	15,390	15,270	14,630	13,970	13,620	13,480	-0.08%	-0.85%	-0.92%	-0.51%	-0.21%
	W&P	18,083	18,617	19,093	19,435	19,650	19,781	0.29%	0.51%	0.36%	0.22%	0.13%
Study Area	Chmura	317,185	357,240	379,452	405,262	431,697	461,746	1.20%	1.21%	1.32%	1.27%	1.35%
	W&P	376,617	433,461	466,860	502,669	541,007	582,067	1.42%	1.50%	1.49%	1.48%	1.47%
South Carolina	Chmura	2,056,676	2,280,093	2,398,514	2,525,275	2,653,277	2,795,097	1.04%	1.02%	1.04%	0.99%	1.05%
	W&P	2,451,222	2,816,096	3,022,481	3,244,975	3,484,701	3,742,910	1.40%	1.42%	1.43%	1.44%	1.44%



Source: W&P

Figure 3-23. Employment Projections by Region

Figure 3-24 presents the 2010 employment density by county. Figure 3-25 through Figure 3-28 present the No-Build scenario employment densities from 2025 to 2050; Figure 3-29 through Figure 3-32 present the Build scenario employment densities.

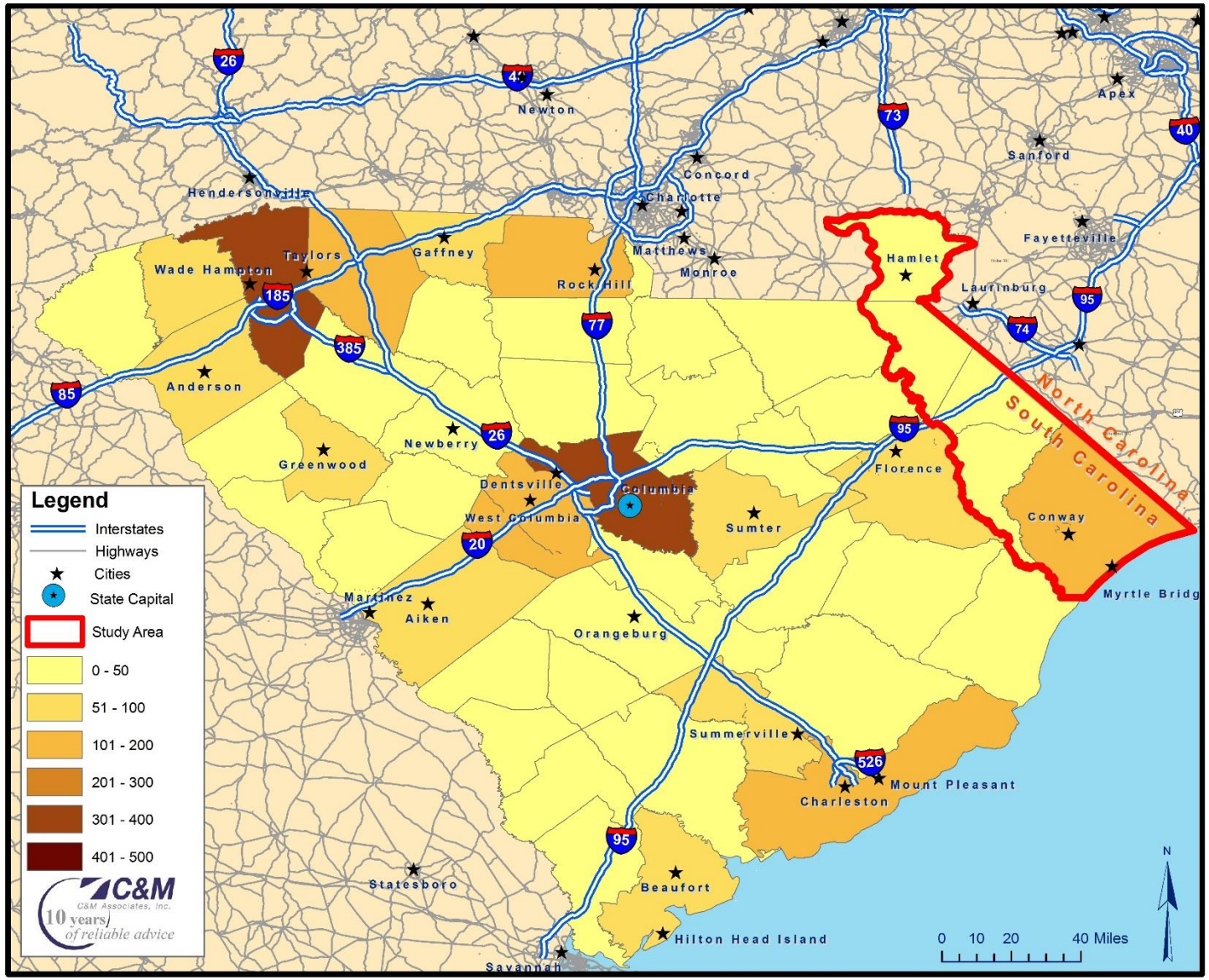


Figure 3-24. Employment Density by County – 2010

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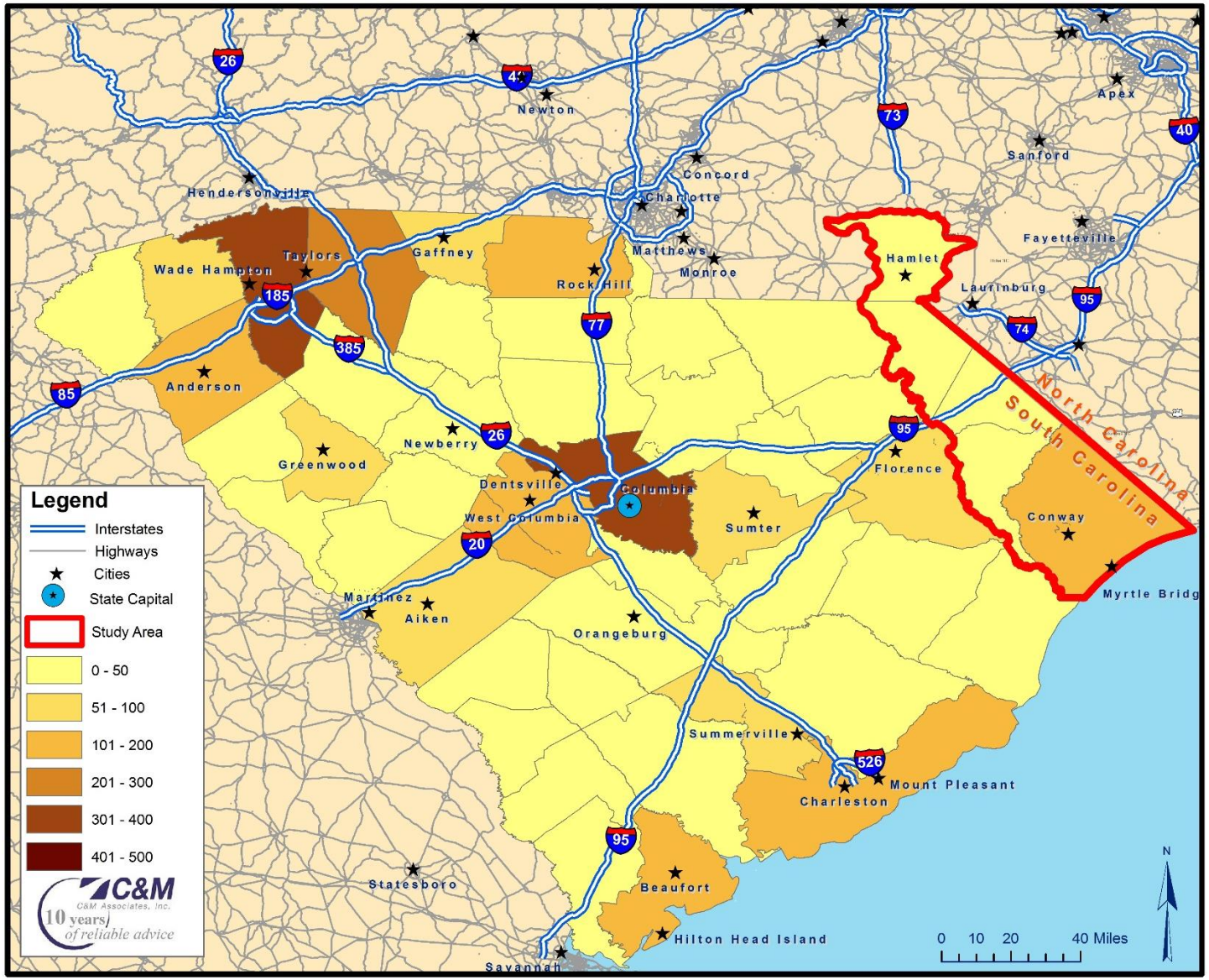

Figure 3-25. Employment Density by County – No-Build 2025

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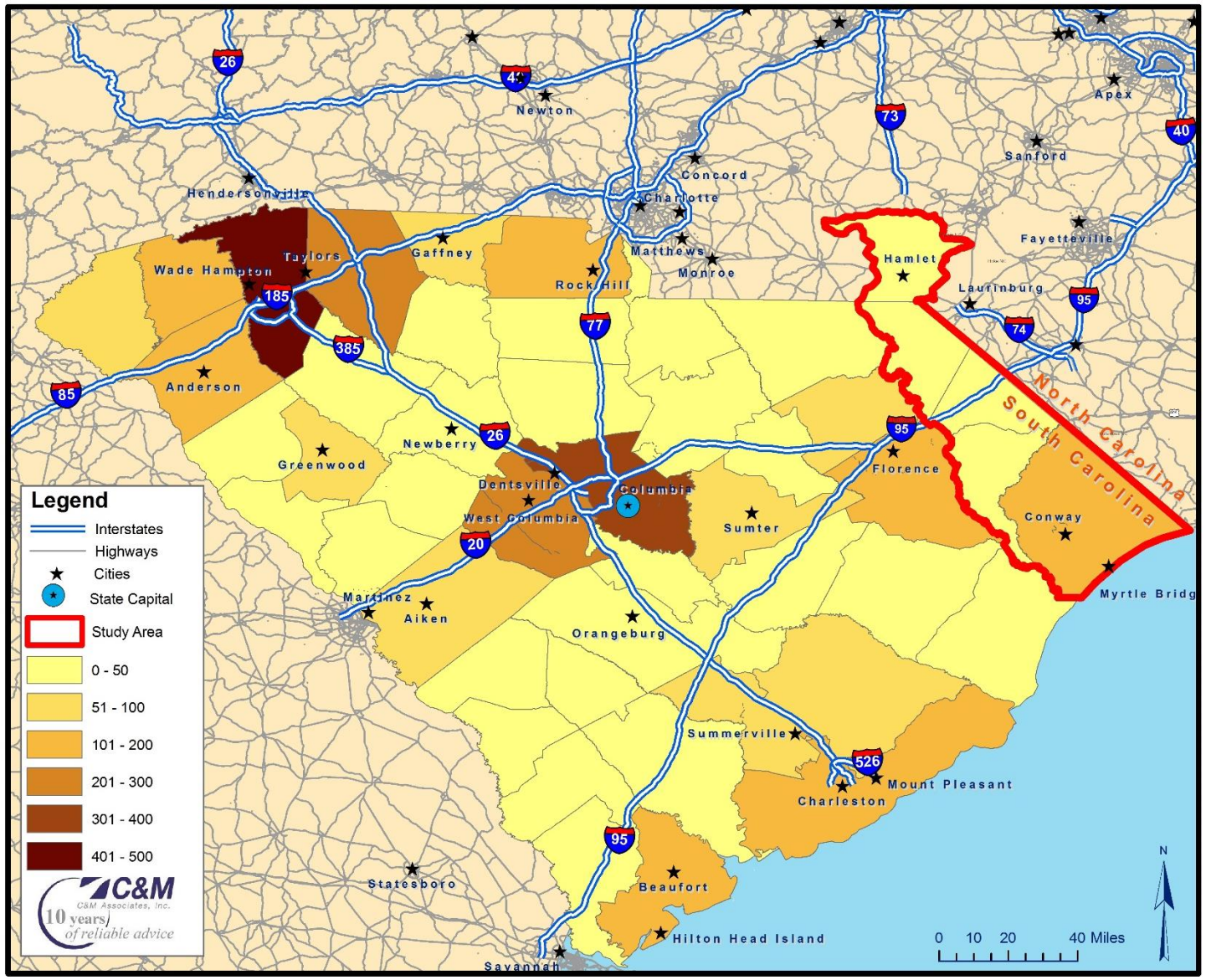

Figure 3-26. Employment Density by County – No-Build 2035

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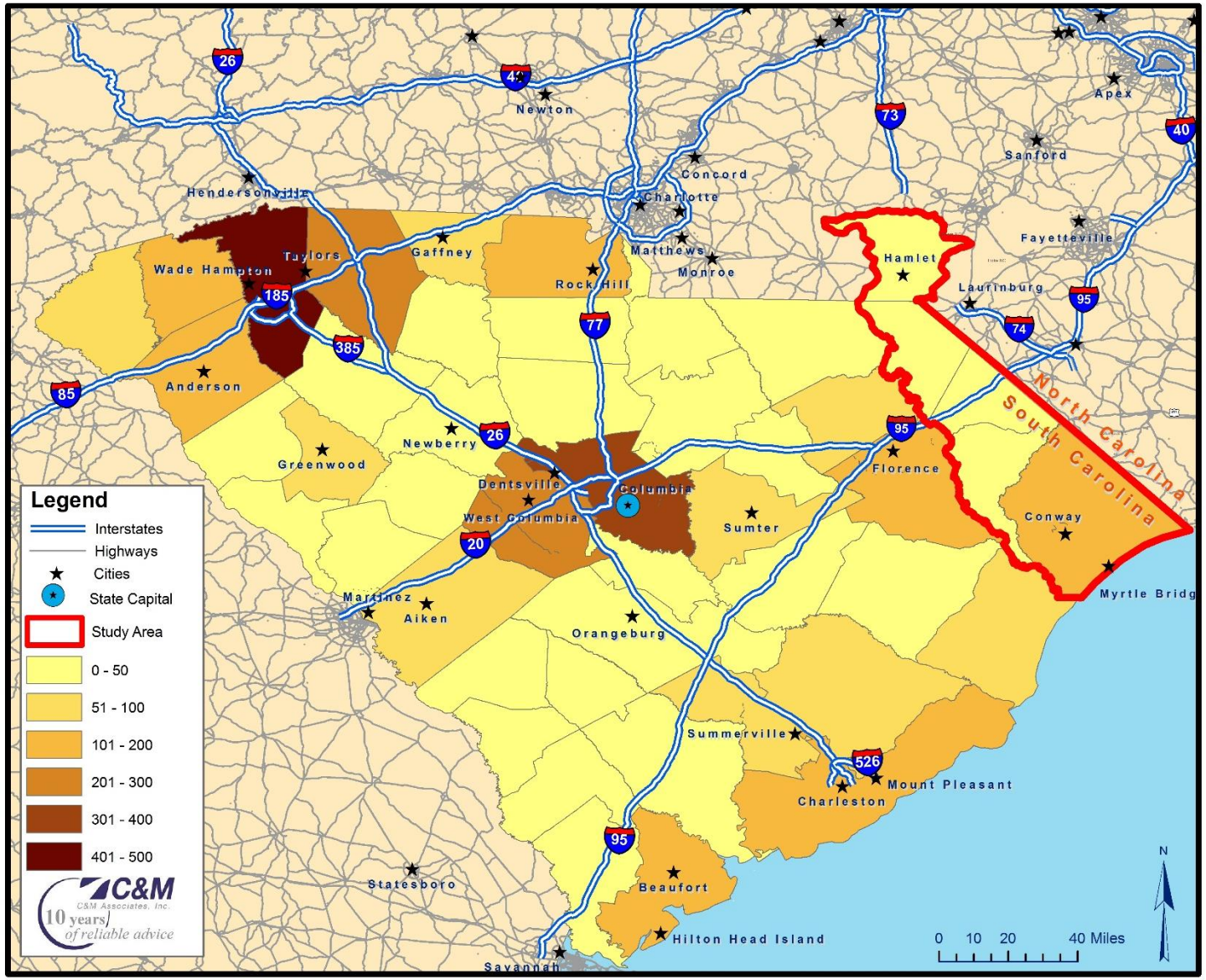

Figure 3-27. Employment Density by County – No-Build 2040

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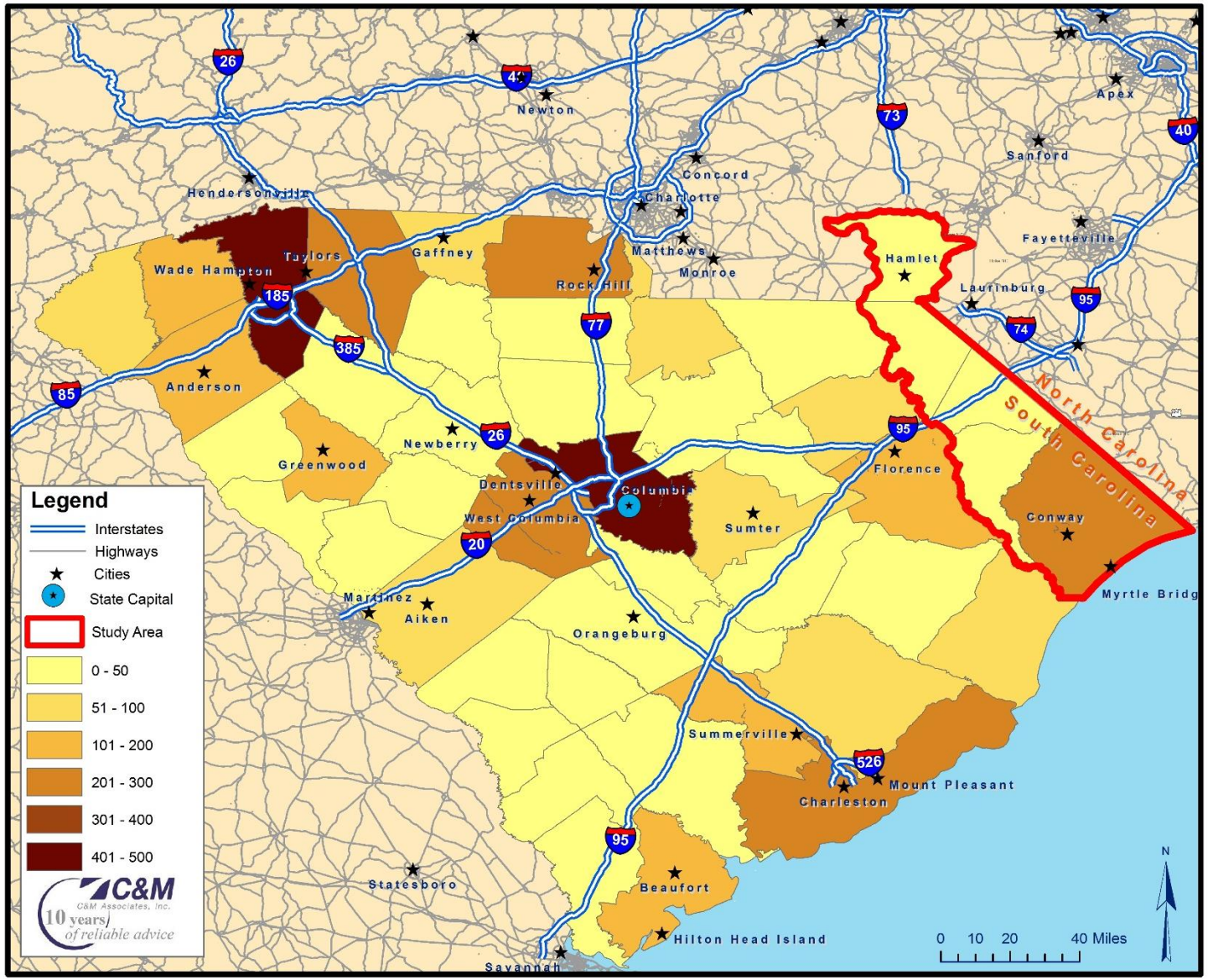

Figure 3-28. Employment Density by County – No-Build 2050

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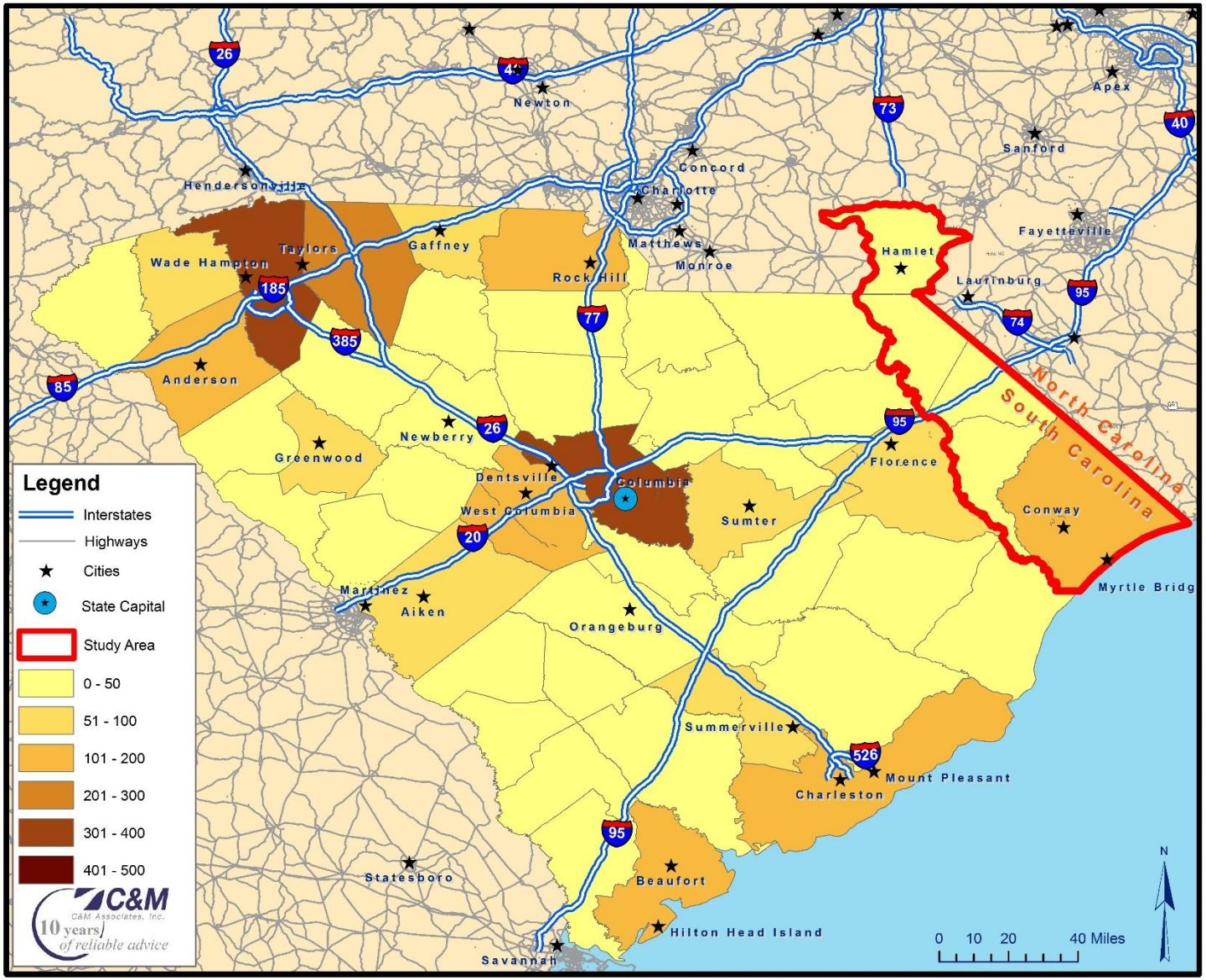

Figure 3-29. Employment Density by County – Build 2025

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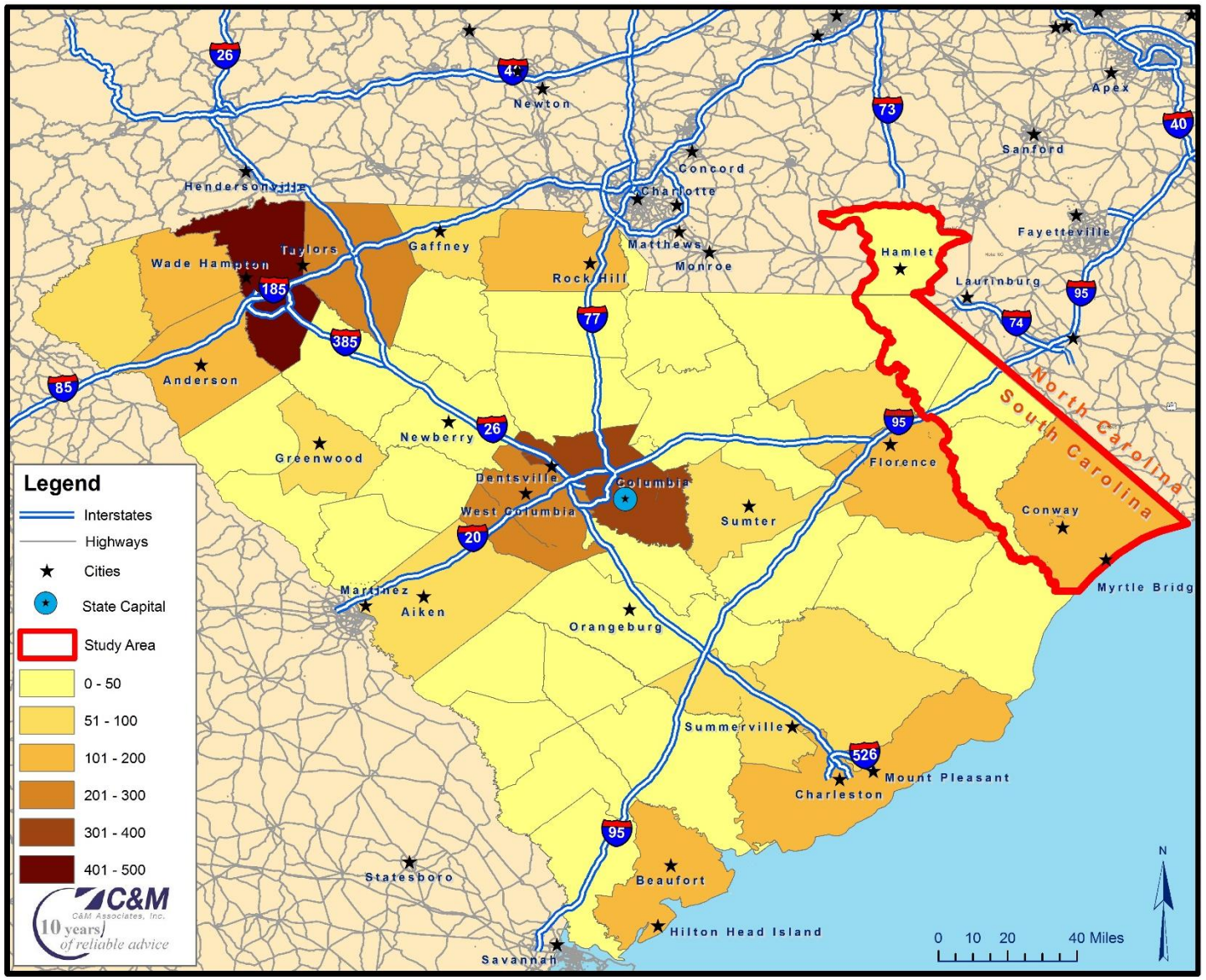

Figure 3-30. Employment Density by County – Build 2035

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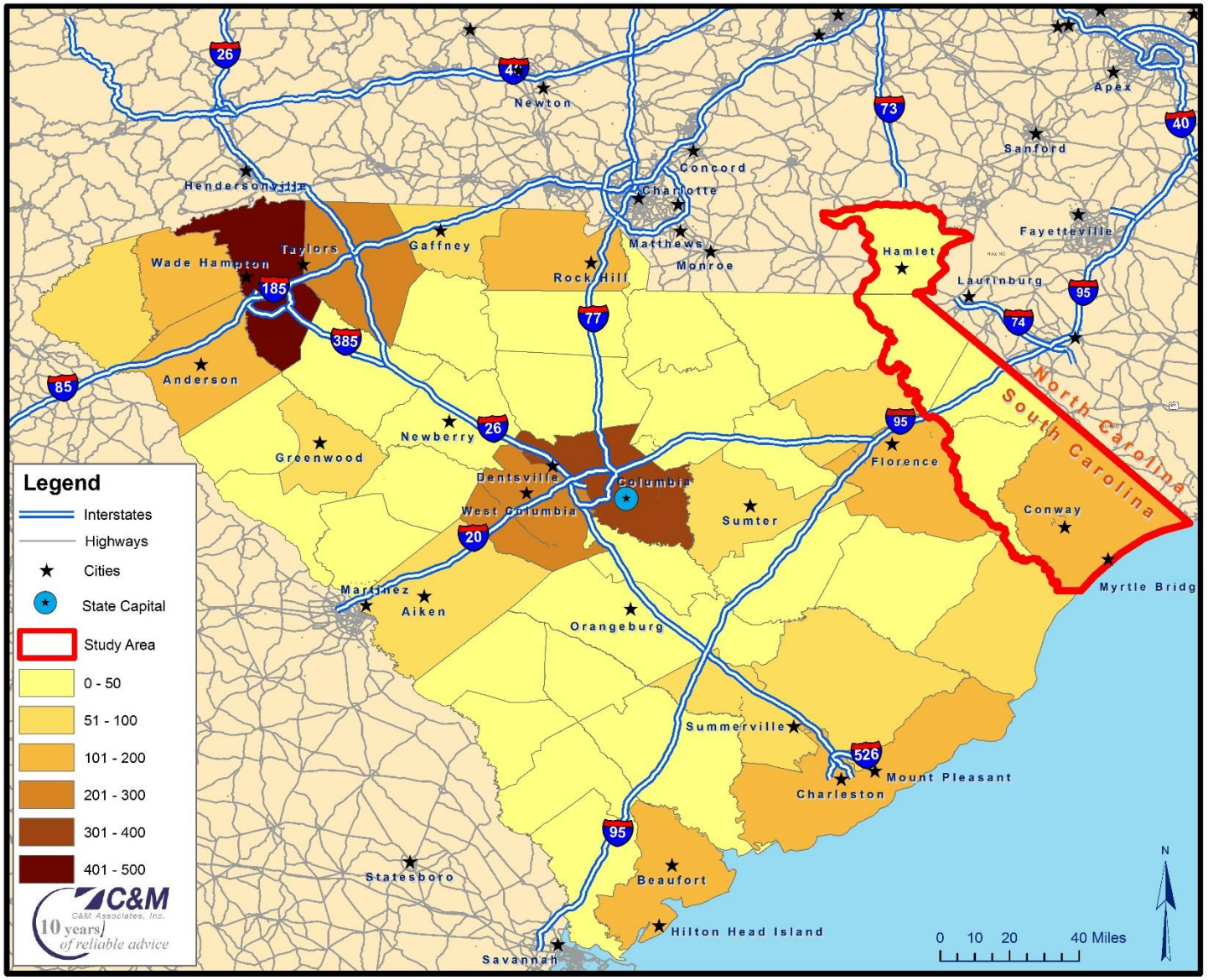

Figure 3-31. Employment Density by County – Build 2040

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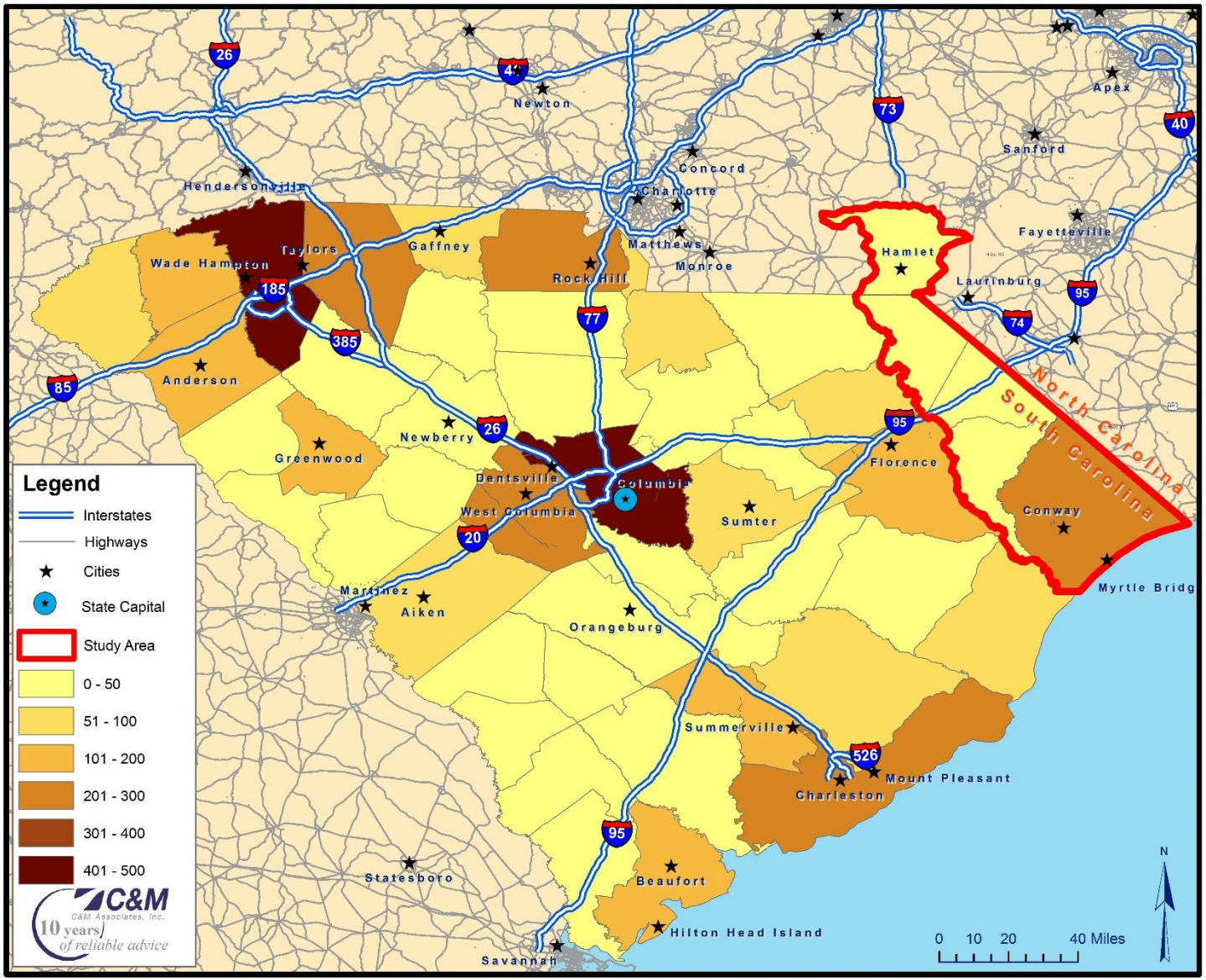


Figure 3-32. Employment Density by County – Build 2050

3.6. Economic Characteristics

3.6.1. Median Household Income

Traffic demand for toll roads is particularly sensitive to the economic characteristics of the region. One of the most useful indicators of a study area's economic situation is median household income. County-level historical median household income trends were obtained from the U.S. Census. Table 3-8 presents a summary of historical median household income trends for the study area counties, South Carolina, and the United States overall, from 2000 to 2013, in 2013 dollars. As can be seen, the overall median household income for the study area has struggled to keep up with both South Carolina and the United States overall.

Table 3-8. Historical Median Household Income Trends (2013 Dollars)

Region	2000	2010	2011	2012	2013
Chesterfield	39,806	36,066	33,896	31,895	31,252
CAGR		-1.0%	-6.0%	-5.9%	-2.0%
Darlington	42,261	41,972	40,467	38,228	36,323
CAGR		-0.1%	-3.6%	-5.5%	-5.0%
Dillon	35,959	29,329	27,351	27,193	28,817
CAGR		-2.0%	-6.7%	-0.6%	6.0%
Florence	47,523	44,277	43,361	42,560	41,910
CAGR		-0.7%	-2.1%	-1.8%	-1.5%
Georgetown	47,958	46,660	44,780	43,309	40,131
CAGR		-0.3%	-4.0%	-3.3%	-7.3%
Horry	49,392	47,181	44,990	43,014	42,431
CAGR		-0.5%	-4.6%	-4.4%	-1.4%
Marion	35,849	33,496	33,327	31,164	29,149
CAGR		-0.7%	-0.5%	-6.5%	-6.5%
Marlboro	36,348	30,280	29,916	29,176	28,297
CAGR		-1.8%	-1.2%	-2.5%	-3.0%
Williamsburg	33,445	26,456	25,739	25,670	25,849
CAGR		-2.3%	-2.7%	-0.3%	0.7%
Richmond, NC	39,069	33,289	33,416	32,351	32,384
CAGR		-1.6%	0.4%	-3.2%	0.1%
Study Area	40,761	36,901	35,724	34,456	33,654
CAGR		-1.0%	-3.2%	-3.6%	-2.3%
South Carolina	50,395	48,052	46,784	45,502	44,779
CAGR		-0.5%	-2.6%	-2.7%	-1.6%
United States	57,078	56,774	55,362	54,091	53,046
CAGR		-0.1%	-2.5%	-2.3%	-1.9%

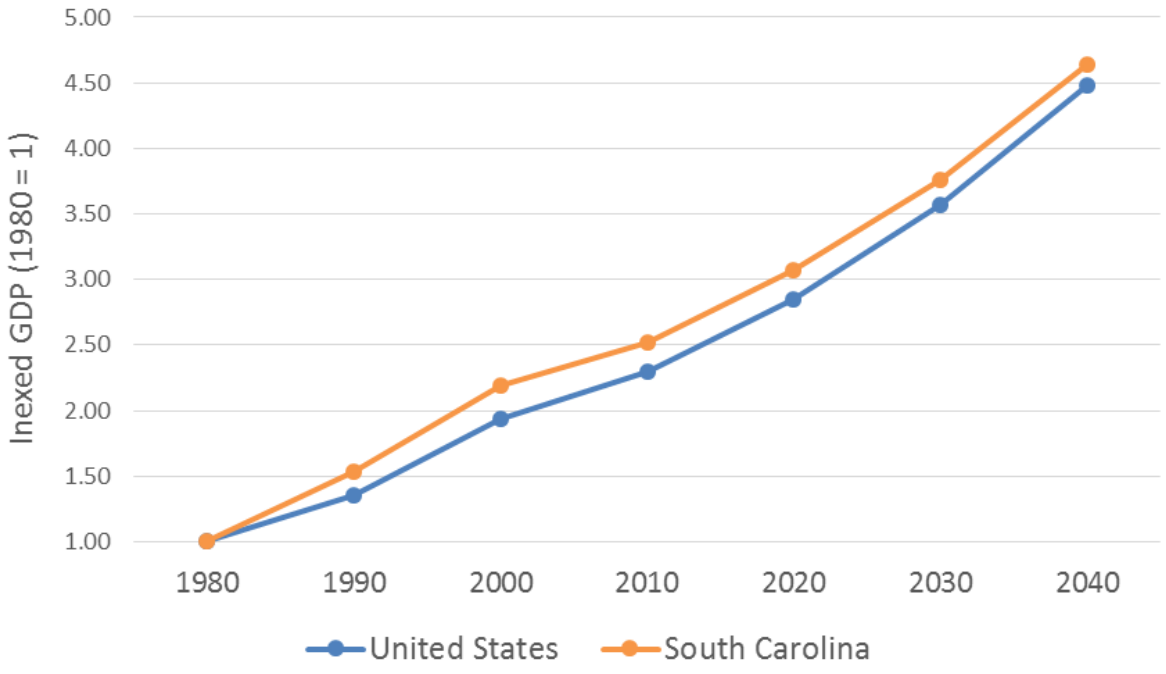
Source: Based on U.S. Census

3.6.2. Gross Domestic Product

GDP is widely viewed as the most comprehensive measure of economic activity. An industry's GDP, or its value added, is calculated as the sum of incomes earned by labor and capital and the costs incurred in the production of goods and services.

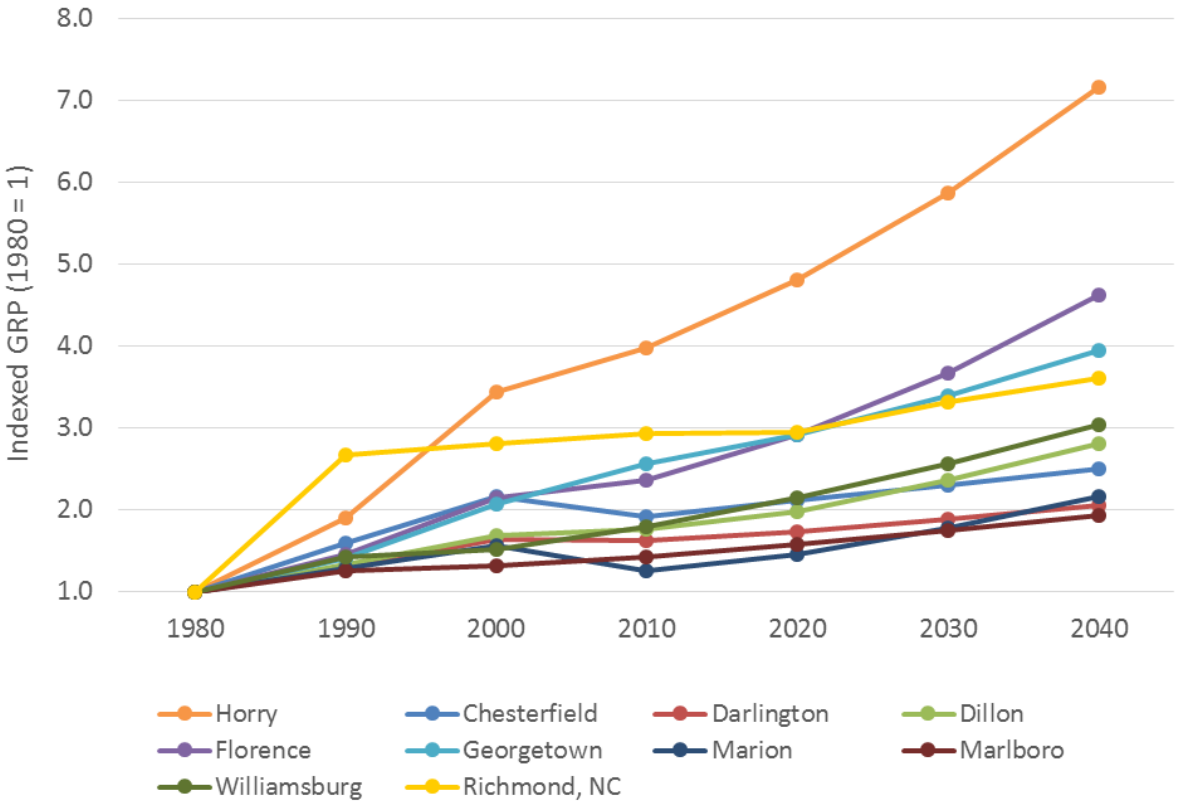
Moody's provides historical and projected values for South Carolina's GDP based on historical growth and other economic factors. As illustrated in Figure 3-33, South Carolina's GDP has grown faster than the nation's GDP. Moody's also provides GDP projections for the counties in the study area, referred to as Gross Regional Product (GRP). Whereas Figure 3-33 presents historical and projected GDP for South Carolina, Figure 3-34 presents projected GRP for selected counties. The corresponding growth rates over the model years are presented in Table 3-9.

As can be seen, the growth rate of South Carolina's GDP is projected to be stable throughout the study period, with a CAGR of about 2.1 percent. Horry County has grown at a faster pace than other counties in the study area—with the exception of Florence county, which exhibits the highest CAGR—and is expected to continue to grow at a faster pace of 2.0 percent.



Source: Moody's

Figure 3-33. GDP Projections Comparison



Source: Moody's

Figure 3-34. Study Area GRP Projections by County

Table 3-9. Growth Rates for South Carolina GDP and County-Level GRP

Region	2010-2025	2025-2035	2035-2040
South Carolina	2.0%	2.1%	2.1%
Chesterfield	1.0%	0.9%	0.9%
Darlington	0.7%	0.9%	0.9%
Dillon	1.4%	1.8%	1.8%
Florence	2.2%	2.3%	2.3%
Georgetown	1.4%	1.5%	1.5%
Horry	1.9%	2.0%	2.0%
Marion	1.7%	2.0%	2.0%
Marlboro	1.0%	1.0%	1.0%
Williamsburg	1.8%	1.7%	1.7%
Richmond, NC	0.5%	1.0%	0.8%

Source: Moody's

3.6.3. Tourist Socioeconomic Variables

The study area includes the city of Myrtle Beach, an important economic engine in the region due to tourism. Myrtle Beach is situated in the center of a continuous stretch of beach in northeastern South Carolina known as the Grand Strand. The city is a major tourism center in the United States because of its warm subtropical climate and extensive beaches, attracting over 16 million visitors in 2013.[2]

C&M contacted the Myrtle Beach Area Chamber of Commerce (MBACC), which has represented the Grand Strand's business community for close to 80 years, to collect data related to the tourism industry. The following sections summarize the data provided by MBACC, supplemented by data obtained from Moody's.

Information from the Myrtle Beach Area Chamber of Commerce

Myrtle Beach has been receiving over 13 million visitors a year since 2006. As shown in Table 3-10, the area felt the effects of the Great Recession, as the number of visitors dropped over 10 percent from 2007 to 2009. However, by 2012 Myrtle Beach had recovered in terms of the number of visitors, which continues to grow at about 5 percent per year.

Table 3-10. Annual Visitors to Myrtle Beach

Year	Estimated Number of Visitors (millions)	Percent Change
2006	14.60	
2007	15.20	4.1%
2008	14.60	-3.9%
2009	13.70	-6.2%
2010	14.00	2.2%
2011	14.50	3.6%
2012	15.20	4.8%
2013	16.10	5.9%

Source: MBACC

The MBACC estimates that Myrtle Beach plays host to visitors from several nations including Germany, Canada, Mexico, and the United Kingdom. It also estimates that about 80 percent of American visitors are from out-of-state. As shown in Table 3-11, North Carolina contributes the greatest proportion of domestic tourists, representing about 30 percent of visitors from other states.

Table 3-11. Top Ten States by Percent of Domestic Visitors

State	2008	2009	2010	2011	2012
NC	30.8%	29.8%	32.2%	30.2%	26.0%
SC	18.9%	16.5%	18.4%	22.0%	14.0%
VA	7.6%	8.3%	7.7%	7.8%	8.2%
OH	6.1%	5.9%	5.1%	4.9%	6.9%
PA	4.6%	4.7%	4.1%	3.7%	5.8%
GA	4.6%	4.7%	4.8%	4.9%	4.6%
NY	3.5%	4.5%	3.5%	3.4%	5.4%
TN	3.2%	3.8%	3.7%	3.4%	3.5%
WV	2.8%	3.0%	2.7%	2.8%	3.0%
MD	2.7%	3.2%	2.7%	2.8%	3.3%
All Other US States	15.2%	15.6%	15.1%	14.1%	19.3%

Source: MBACC

To keep up with visitor volumes, the tourism industry has increased the number of accommodation units available. As shown in Table 3-12, total bedroom accommodations increased by 26 percent between 2004 and 2012.

Table 3-12. Change in Vacation Accommodations 2004–2012

Accommodation Type	2004		2012		% Change in Units	% Change in Bedroom Equivalents
	Units	Bedroom Equivalents	Units	Bedroom Equivalents		
Hotels/Condo-hotels	37,021	41,467	39,402	53,165	6%	28%
Timeshare Units	3,261	5,982	5,971	11,085	83%	85%
Campsites	4,554	6,831	5,125	7,688	13%	13%
Vacation Rental Properties	4,182	20,074	5,305	21,751	27%	8%
Total	**49,018**	**74,354**	**55,803**	**93,688**	**14%**	**26%**

Source: MBACC

The MBACC produced a Visitors Travel Survey in 2012 in which 1,000 people were interviewed in the Myrtle Beach area. As shown in Table 3-13, the survey found that the most popular time to visit Myrtle Beach is the summer, representing about 40 percent of total visits.

Table 3-13. Myrtle Beach Visitors by Month

Month	Percent
January	5.0%
February	5.8%
March	9.2%
April	8.3%
May	7.2%
June	19.9%
July	11.7%
August	6.7%
September	10.0%
October	7.0%
November	7.8%
December	1.3%

Source: MBACC

By far, the majority of visitors to Myrtle Beach are repeat visitors, as shown in Table 3-14. Furthermore, the majority of these visitors drive to Myrtle Beach, as shown in Table 3-15.

Table 3-14. First Visit to Myrtle Beach

Answer	Percentage
Yes	13.9%
No	86.1%

Source: MBACC

Table 3-15. Transportation Mode to Visit Myrtle Beach

Travel Model	Percentage
Automobile	90.9%
RV/Motorhome	2.7%
Airplane	5.4%
Motorcoach/Tour Bus	0.2%
Motorcycle	0.5%
Other	0.2%

Source: MBACC

Employment Tied to Tourism

Despite the effects of the Great Recession in 2008, employment tied to tourism activities has seen continued growth since 1990, as shown in Table 3-16. According to Moody's, this employment is expected to continue to grow through the year 2040, albeit at a slower pace.

Table 3-16. Employment Tied to Tourism in Horry County

Employment	1990	2000	2010	2020	2030	2040
Traveler accommodation	5,473	7,300	8,518	8,789	9,754	11,432
CAGR		2.9%	1.6%	0.3%	1.0%	1.6%
Restaurants and eating places	7,265	12,895	16,774	23,544	29,220	36,150
CAGR		5.9%	2.7%	3.4%	2.2%	2.2%

Source: Moody's

Total Retail Sales

As shown in Table 3-17, total retail sales in Horry County have exhibited continued growth, even during the Great Recession. They are expected to continue to grow at a high rate of about 5 percent.

Table 3-17. Total Retail Sales in Horry County

	1990	2000	2010	2020	2030	2040
Total Retail Sales, (Mil $)	$1,755	$3,721	$5,684	$10,589	$17,352	$27,883
CAGR		7.8%	4.3%	6.4%	5.1%	4.9%

Source: Moody's

[1] CDM Smith (2014, December). *South Carolina Statewide Travel Demand Documentation (SCSWMv2 Build 141126)*. Prepared for SCDOT.

[2] Myrtle Beach Area Chamber of Commerce (MBACC) (2015, February). *The Myrtle Beach area statistical abstract* (24th ed.). Myrtle Beach, SC: Author.

4. Modeling Approach

This chapter presents C&M's modeling approach for the I-73 T&R study by discussing the development, validation, and calibration of the South Carolina Statewide Travel Demand Model (SCSWM). C&M adopted the SCSWM to model current traffic conditions within the Project area and to forecast future travel demand and traffic patterns.

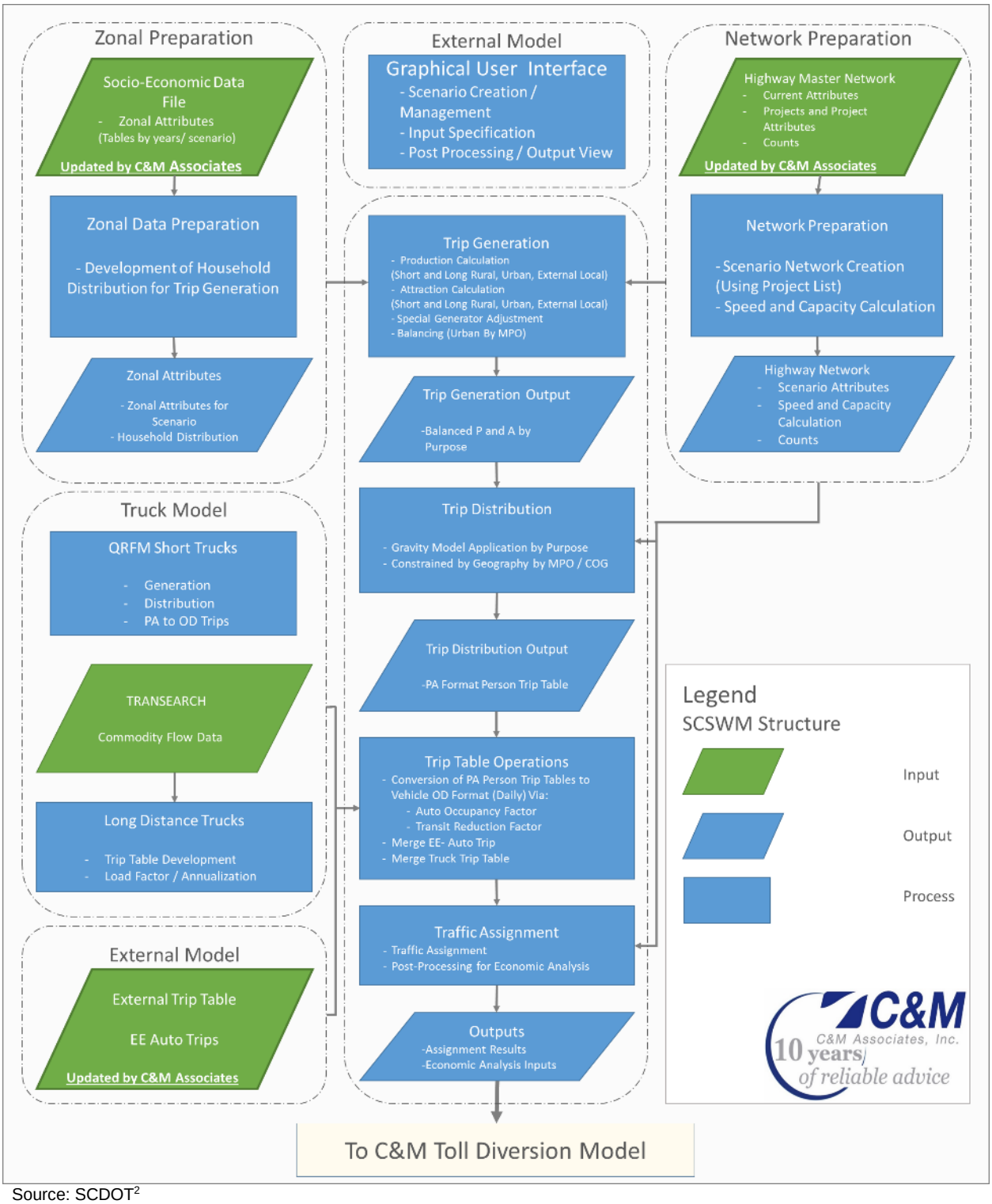
The SCSWM is a traditional four-step travel demand model (TDM) that includes trip generation, trip distribution, mode-choice (with the National Household Travel Survey's [NHTS] vehicle occupancy shares), and traffic assignment. It was developed by CDM Smith in July 2014 in TransCAD (version 6 r2 build 9085) and was updated as of December 2014 to SCSWMv2 build 141126, which is the version C&M utilized for the current study.[1]

The SCSWM encompasses all of South Carolina and is built upon the existing Metropolitan Planning Organization (MPO) and Council of Governments (COG) models of the state. The model comprises 6,544 traffic analysis zones (TAZs), with 6,347 internal zones and 97 external zones. The highway networks and the TAZ systems of the existing TDMs within South Carolina were used directly in the SCSWM. These model areas include AIKEN, the Appalachian COG (APCOG), the Berkeley-Charleston-Dorchester COG (BCDCOG), the Catawba Region COG (CATCOG), the Central Midlands COG (CMCOG), the Florence MPO (FLATS), the Grand Strand MPO (GSATS), the Lowcountry COG (LCOG), Metrolina, the Santee-Lynches COG (SLCOG), and the Upper Savannah COG (USCOG). The non-MPO/COG areas were developed using roadway data from the Highway Performance Monitoring System (HPMS) and socioeconomic data from the U.S. Census.

The model provides daily traffic data output on the highway network for two analysis years: 2010 as the base year and 2040 as a forecast year. As detailed later in this chapter, C&M developed the additional modeling years of 2025, 2035, and 2050, with 2025 representing the opening of I-73 South and the SELL as well as the conversion of SC-22 to a tolled facility, 2035 representing the opening of I-73 North, and 2050 being the final modeling year.

The trip tables are separated by trip purposes and by auto and truck vehicle types. Auto traffic can be further defined by urban and rural trips and by Home-Based Work (HBW), Home-Based Other (HBO), Non-Home-Based (NHB), and external trips. Truck volumes can be further defined by local trucks, long distance trucks, and external trucks. These outputs are useful in several components of the South Carolina Multimodal Transportation Plan (MTP) including the Interstate Plan, Corridor Plan, and economic analysis components. Figure 4-1 presents a flowchart of the SCSWM model structure.

C&M implemented a toll diversion model within the SCSWM modeling structure by using the adjusted assignment results from the SCSWM in the toll diversion process, as illustrated in Figure 4-2. C&M's toll diversion models are structured as logit functions, dividing toll and non-toll trips on the basis of travel time savings and toll costs with respect to the socioeconomic characteristics of the individual traveler. The toll diversion model used for this study is described in more detail later in this chapter.



Source: SCDOT[2]

Figure 4-1. SCSWM Structure Flowchart

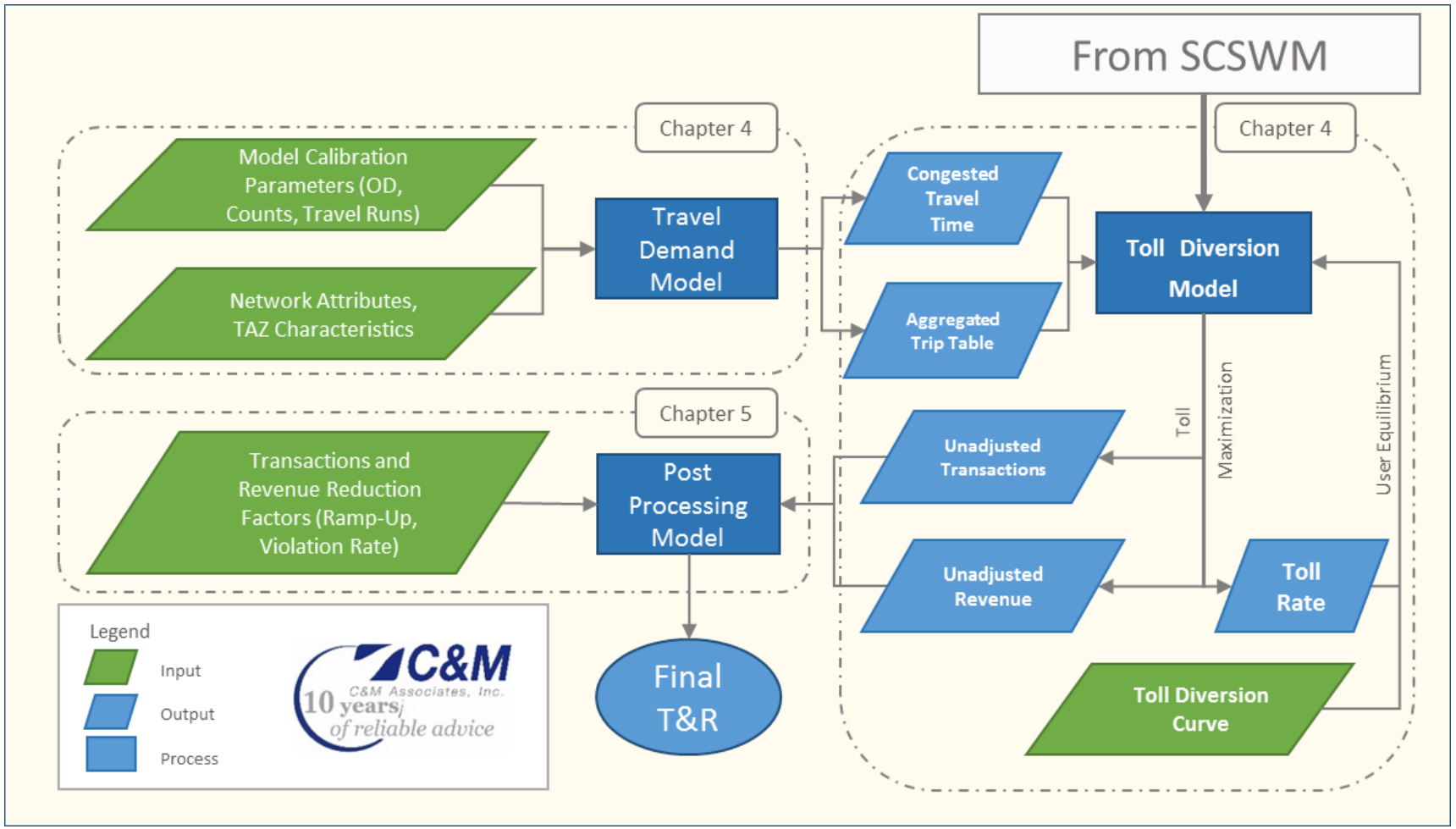


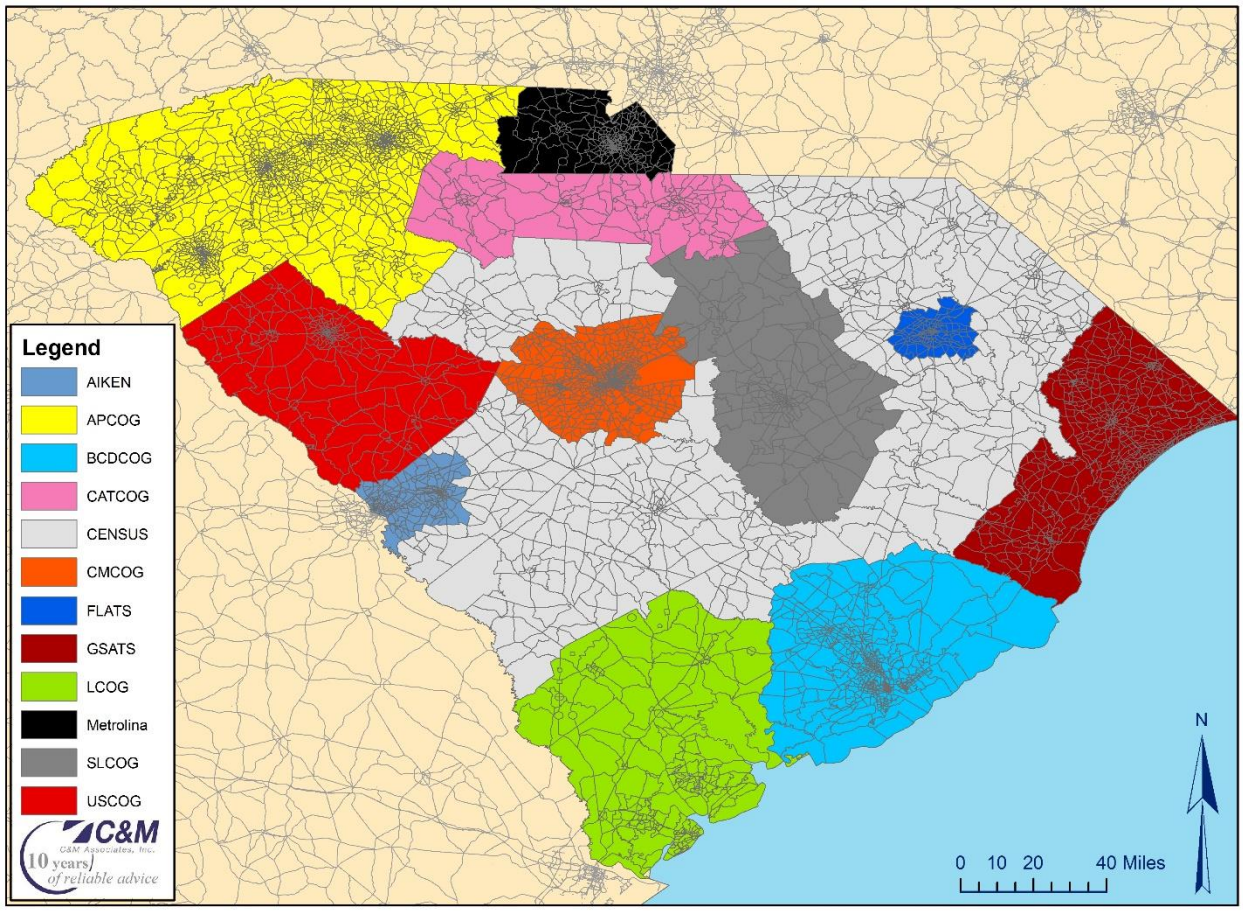
Figure 4-2. C&M Toll Diversion Flowchart

4.1. Description of the SCSWM

The following sections describe the SCSWM in terms of the necessary input files, namely the zonal geography, trip tables, the roadway network geography and attributes, and existing trip purposes.

4.1.1. Zonal Geography

In the SCSWM, the state of South Carolina is divided into geographic boundaries and incorporates 11 COG/MPO areas. This geographic zone system provides the framework for the model to load trip ends on and off the roadway network from housing units and employment centers, as well as from special generators such as regional airports, major employers, and military bases. The SCSWM zonal geography consists of internal zones, external zones, and dummy zones. There are 6,544 zones in total. The zone structure of the SCSWM and the COG/MPO boundaries are illustrated in Figure 4-3.



Source: SCDOT[3]

Figure 4-3. SCSWM Zone Structure with CGO/MPO Boundaries

Internal Zones

The geographic zone system determines the boundaries for socioeconomic data and provides a sense of population and employment densities, which are used to define the zonal area types. Typically, the denser a zone becomes, the smaller the size of the TAZ.

Of the 6,544 zones in the SCSWM, 6,347 are internal zones. These internal zones include socioeconomic data, which serves as the basis for trip generation in four-step travel demand modeling. There are 11 MPO/COG regions with available zone systems that are used in the SCSWM: AIKEN, APCOG, BCDCOG, CATCOG, CMCOG, FLATS, GSATS, SLCOG, Metrolina, LSCOG, and USCOG. Over 89 percent of the zones and 68 percent of the model area are in these MPO/COG regions. Areas outside of these regions are based on 2010 U.S. Census geographies.

External Zones

In addition to the 6,347 internal zones, the SCSWM contains 97 external station zones. Unlike the internal zones, the external zones do not have corresponding socioeconomic data. The external zones reflect external stations where major roadways cross the state boundary. External station volumes have been adjusted to the traffic counts of the corresponding major roads.

4.1.2. Network Geography

The SCSWM's network geography consists of link and node geographies for base year 2010 traffic conditions and forecast year 2040 projects. Link geographies include the roadways that route vehicles throughout the state and centroid connectors to load vehicles onto the roadway network. Node geographies consist of the roadway nodes, which reflect intersections, and centroid nodes, which reflect centers of land use activity for loading trips onto the roadway network.

Table 4-1 presents the lane miles of the 2010 and 2040 SCSWM networks by link functional classification. The functional classification of a link and its location in a certain area type (i.e., Rural, Suburban, Urban, or Central Business District) determine the link's attributes such as free-flow speed and capacity. Figure 4-4 illustrates the functional classes within the SCSWM network.

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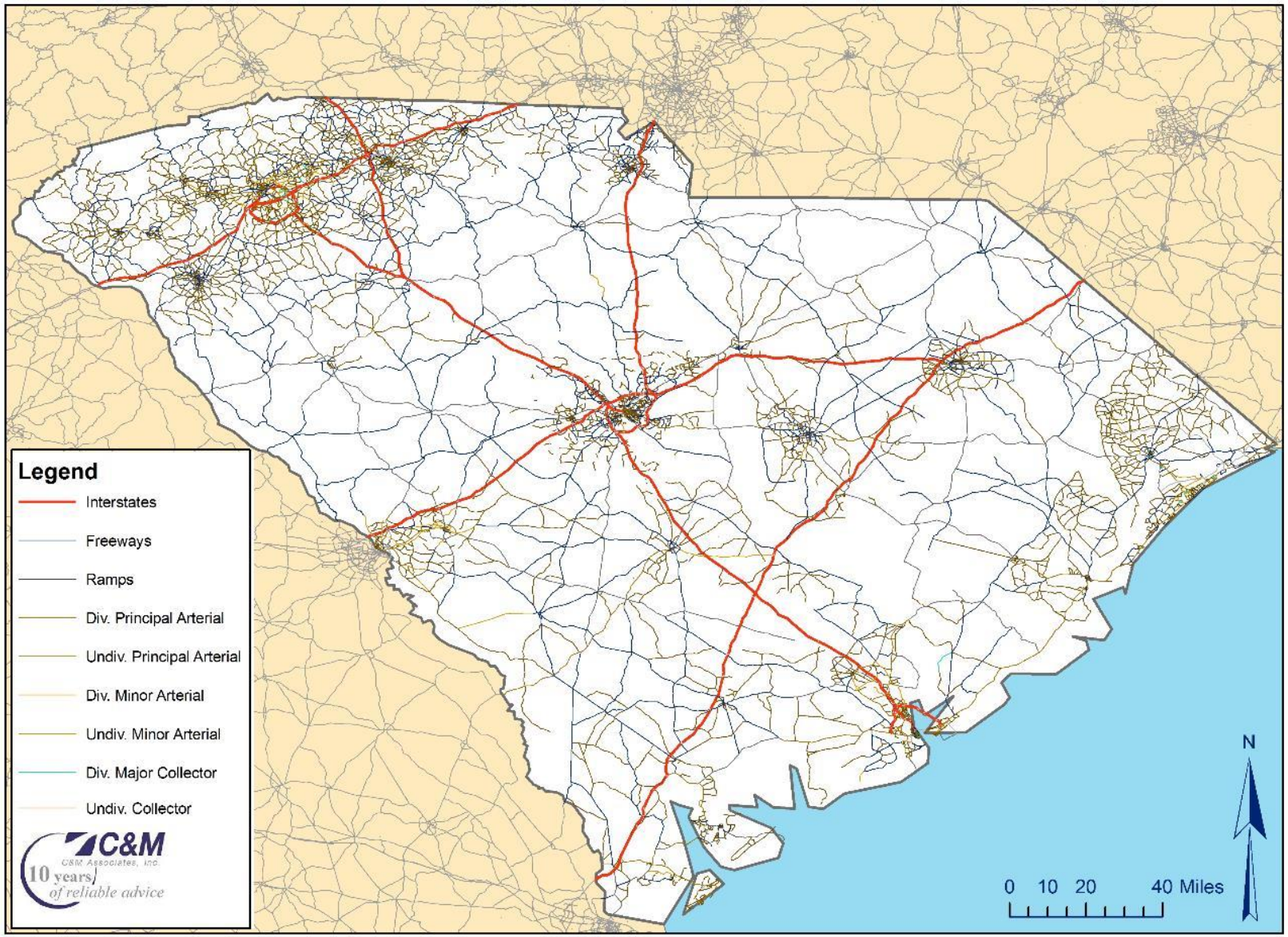

Source: SCDOT[4]

Figure 4-4. 2010 SCSWM Roadway Network by Functional Class

Table 4-1. Lane Miles by Functional Class

Function Class	Functional Class Description	Lane Miles		CAGR
		2010	2040	
1	Interstate	3,753	3,862	0.10%
2	Expressway	489	535	0.30%
3	Ramp	340	347	0.07%
4	Freeway-Freeway Ramp	26	49	2.13%
11	Divided Principal Arterial	2,680	3,127	0.52%
12	Undivided Principal Arterial	6,165	5,960	-0.11%
13	Divided Minor Arterial	1,302	1,792	1.07%
14	Undivided Minor Arterial	10,215	10,042	-0.06%
15	Divided Major Collector	178	279	1.51%
16	Undivided Major Collector	6,084	6,042	-0.02%
21	Divided Collector	140	232	1.70%
22	Undivided Collector/Local	13,819	13,797	-0.01%
Total		**45,191**	**46,064**	**0.06%**

4.2. Model Development

C&M changed the study-specific inputs of the SCSWM to generate daily traffic volumes for the base and future model years. The following sections provide a detailed explanation of these changes.

4.2.1. Road Network

C&M updated the SCSWM to 2015 conditions by incorporating all the model improvements from the base year into the future year models. Figure 4-5 presents road network updates to the entire SCSWM, and Figure 4-6 presents road network changes within the study area. In the study area, the only major improvements are the I-73 Project and the SELL.

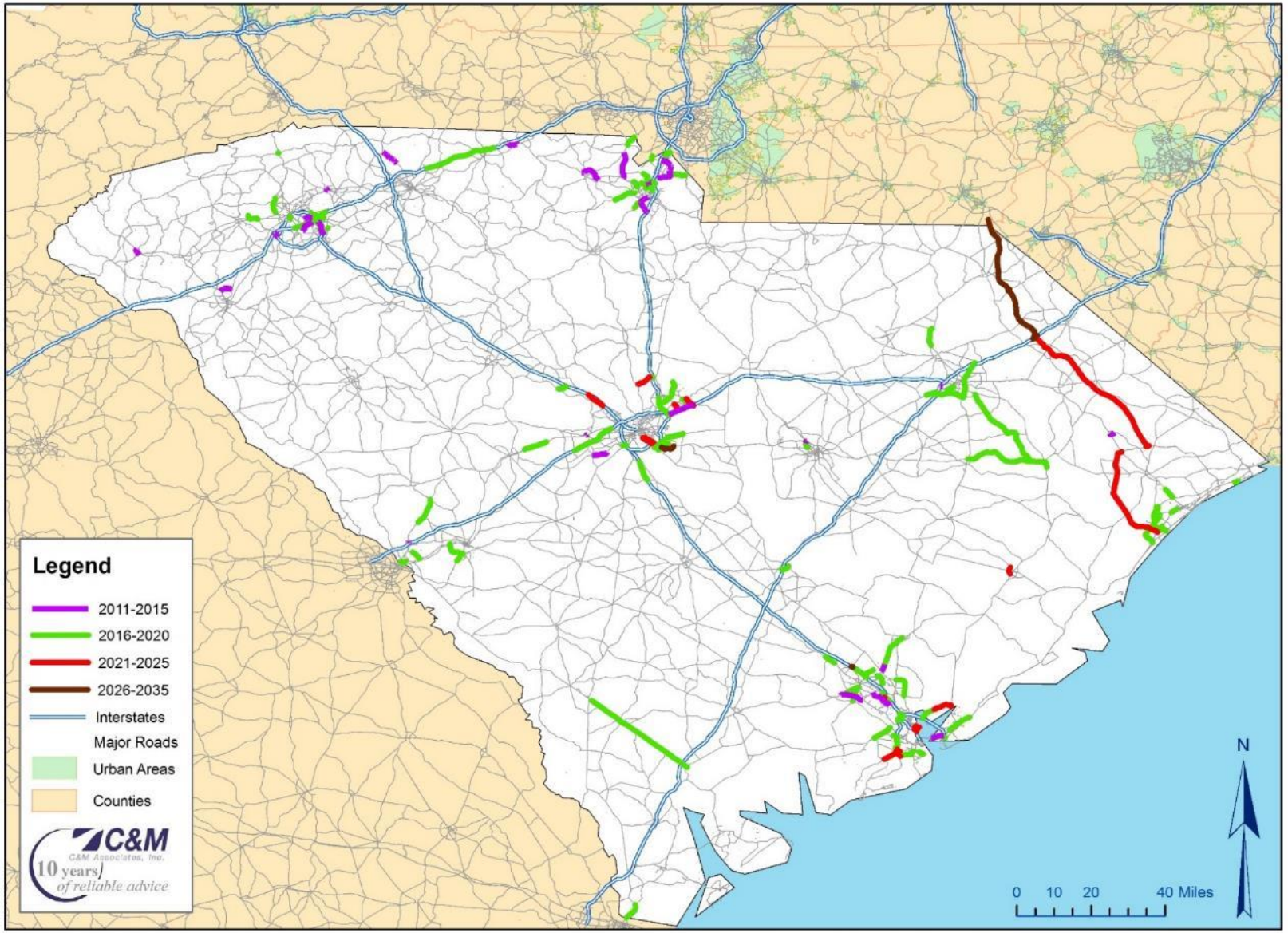

Figure 4-5. SCSWM Roadway Network Changes from 2015 to 2035 by Implementation Period

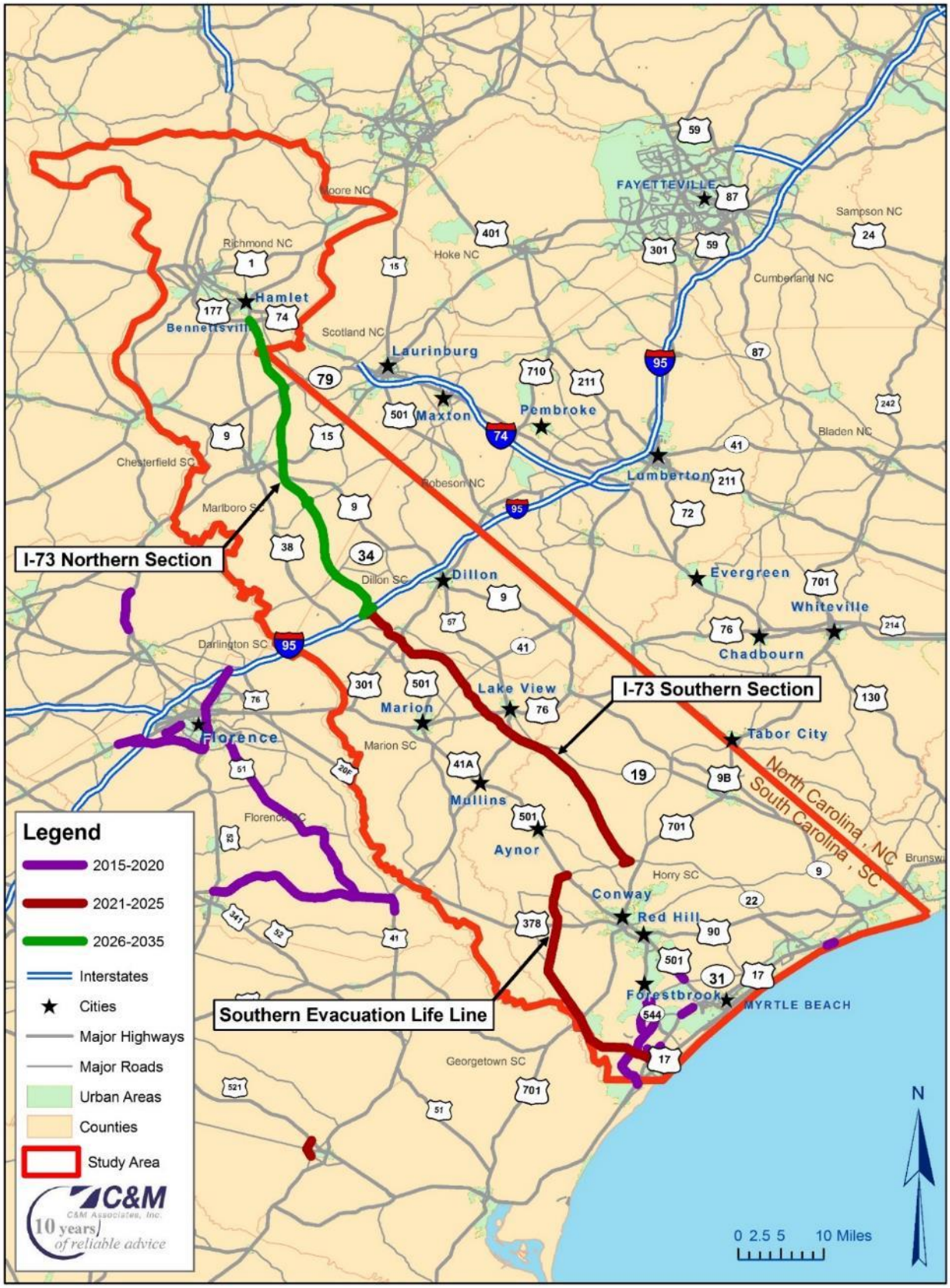

Figure 4-6. Roadway Network Changes from 2015 to 2035 in the Study Area by Implementation Period

The SCSWM project-based master network was used to develop the additional model years specific to the Project. For this approach, the existing/base conditions were coded into specific fields that are required to develop all the other fields needed for the model to run. The master network was coded to turn different projects within the network on or off using the master project list. The model years include 2025 and 2035 in addition to the original 2010 base year and 2040 forecast year. The scenarios for each model year were created based on a subset of the master project list, where projects with years lesser than or equal to that model year were included in the scenario project list. Once the scenario for a model year and its corresponding network were created, the network was examined by checking that all selected project IDs and corresponding links from the master project list for that model year were included in the scenario network.

The travel time contours in Figure 4-7 to Figure 4-10 illustrate the travel time savings achieved through the Project and the SELL in the study area. Uncongested travel time between Myrtle Beach and Hamlet, NC or Dillon, SC improves by about 15 minutes in 2025 with the Project and the SELL in place. By 2040, this travel time improvement increases to at least 20 minutes.

4.2.2. Future Year Traffic Forecast

Given the Project's specific requirements, C&M created Peak, Non-Peak, and Average Season trip tables in order to account for the significant annual variation observed in the traffic counts (see Chapter 2: Existing Information and Field Data). Specifically, the Peak Season is a major contributor to potential traffic on the Project, with tourists traveling to and from Myrtle Beach in the summer. By producing separate trip tables, C&M was able to replicate traffic conditions for these three distinct annual periods.

The final daily transaction forecast was prepared based on the Peak period model, as this model had much better validation data compared to the other time periods. Additionally, C&M created different trip tables for three scenarios: No-Build, Build with I-73 only, and Build with I-73 and SELL. These scenarios were developed for each of the future model years (2025, 2035 and 2040).

These processes are explained in more detail in the following sections.

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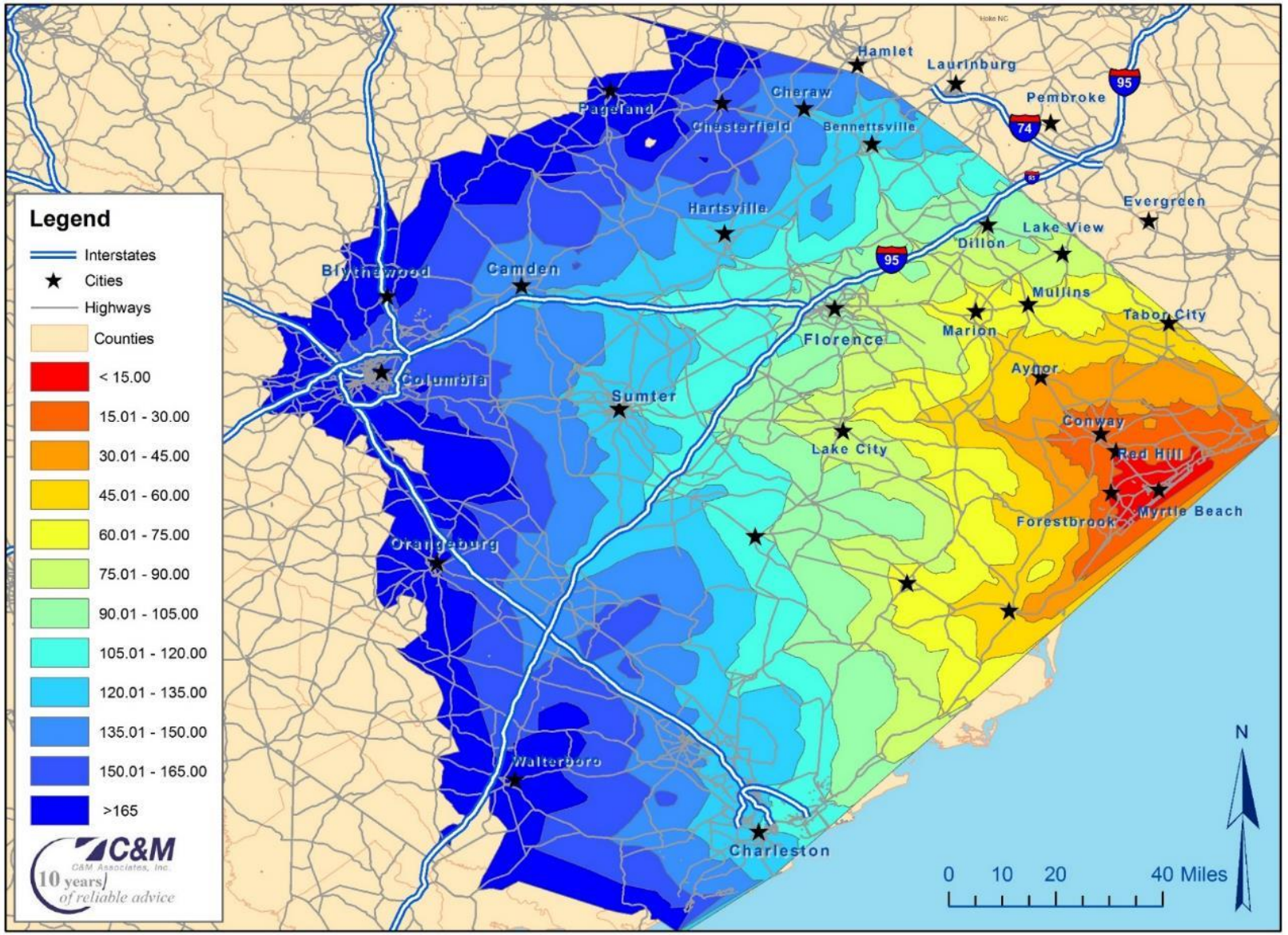

Figure 4-7. Myrtle Beach Uncongested Travel-Time Contours in 15-Minute Intervals – 2025 No-Build

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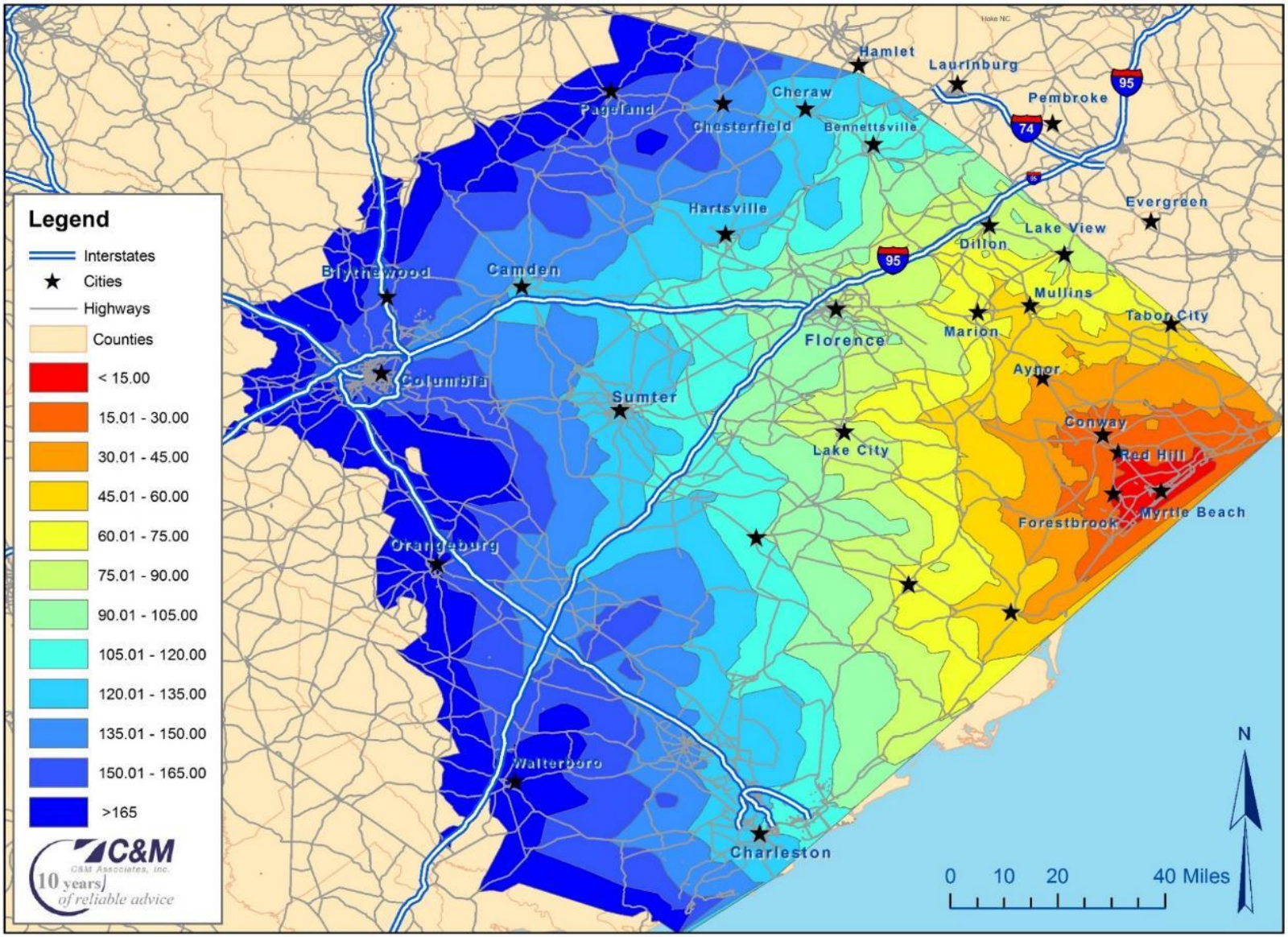

Figure 4-8. Myrtle Beach Uncongested Travel-Time Contours in 15-Minute Intervals – 2025 Build

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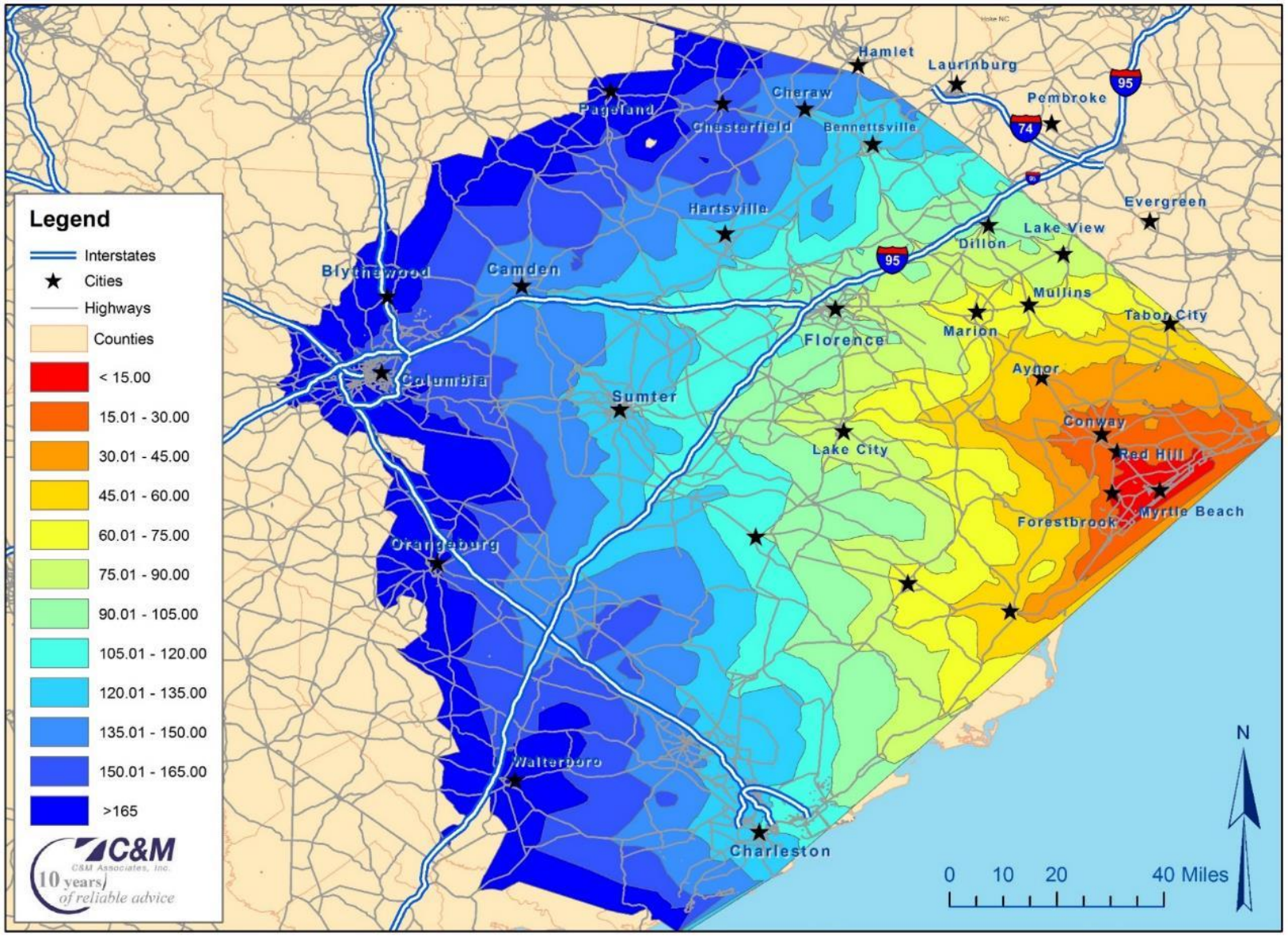

Figure 4-9. Myrtle Beach Uncongested Travel-Time Contours in 15-Minute Intervals – 2040 No-Build

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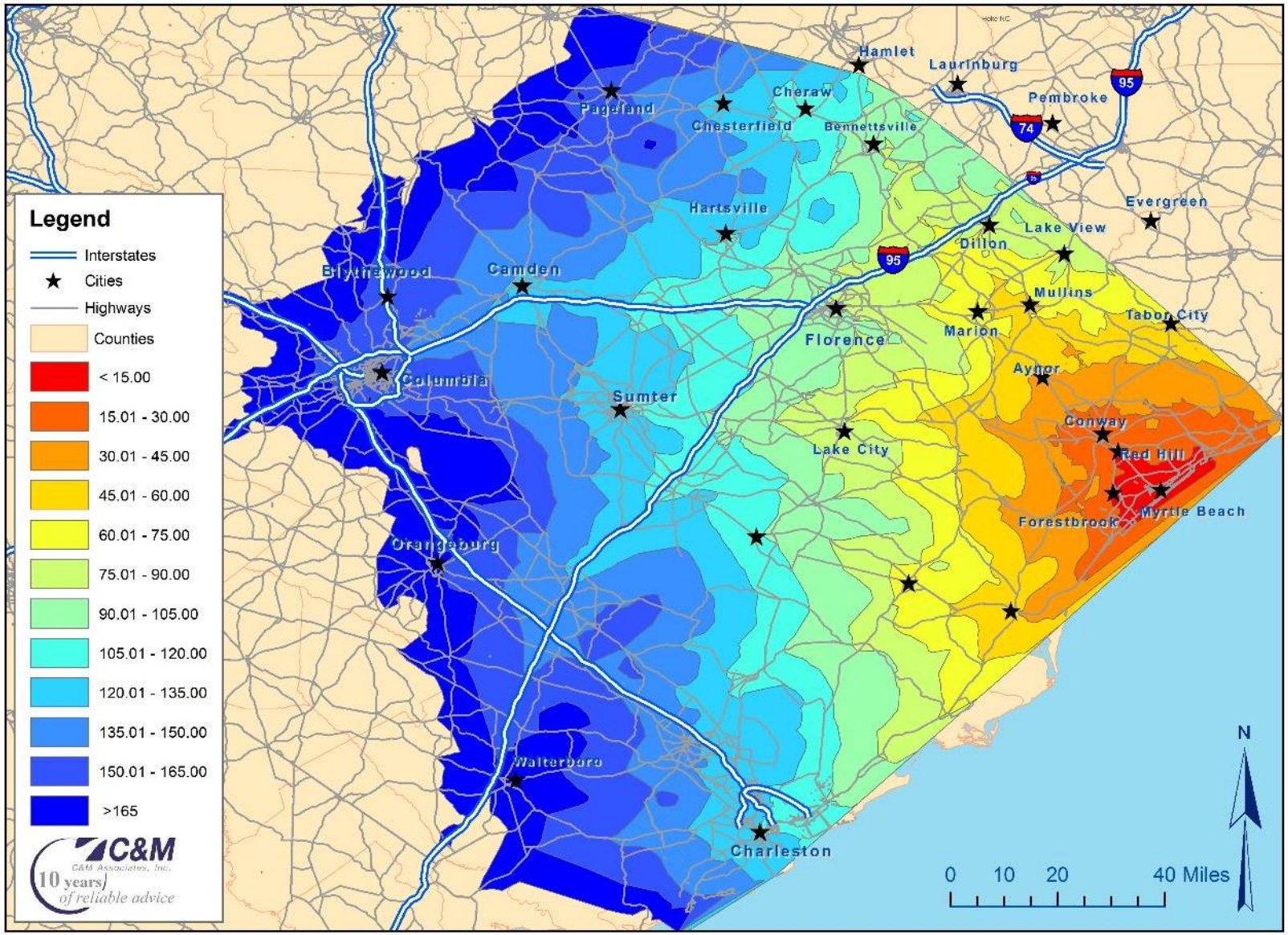


Figure 4-10. Myrtle Beach Uncongested Travel-Time Contours in 15-Minute Intervals – 2040 Build

Seasonally-Adjusted Trip Tables

A screenline is an imaginary line that splits a study area and along which traffic counts and interviews may be conducted and compared. Screenlines are used in travel demand modeling and transportation planning to validate model flows against existing traffic conditions. Based on C&M's evaluation of traffic patterns within the Project corridor, seven screenlines were selected: four intersecting I-73's alignment within the Project corridor, two to the east and west of I-73's alignment, and one for the SELL. Figure 4-11 illustrates the locations of these screenlines.

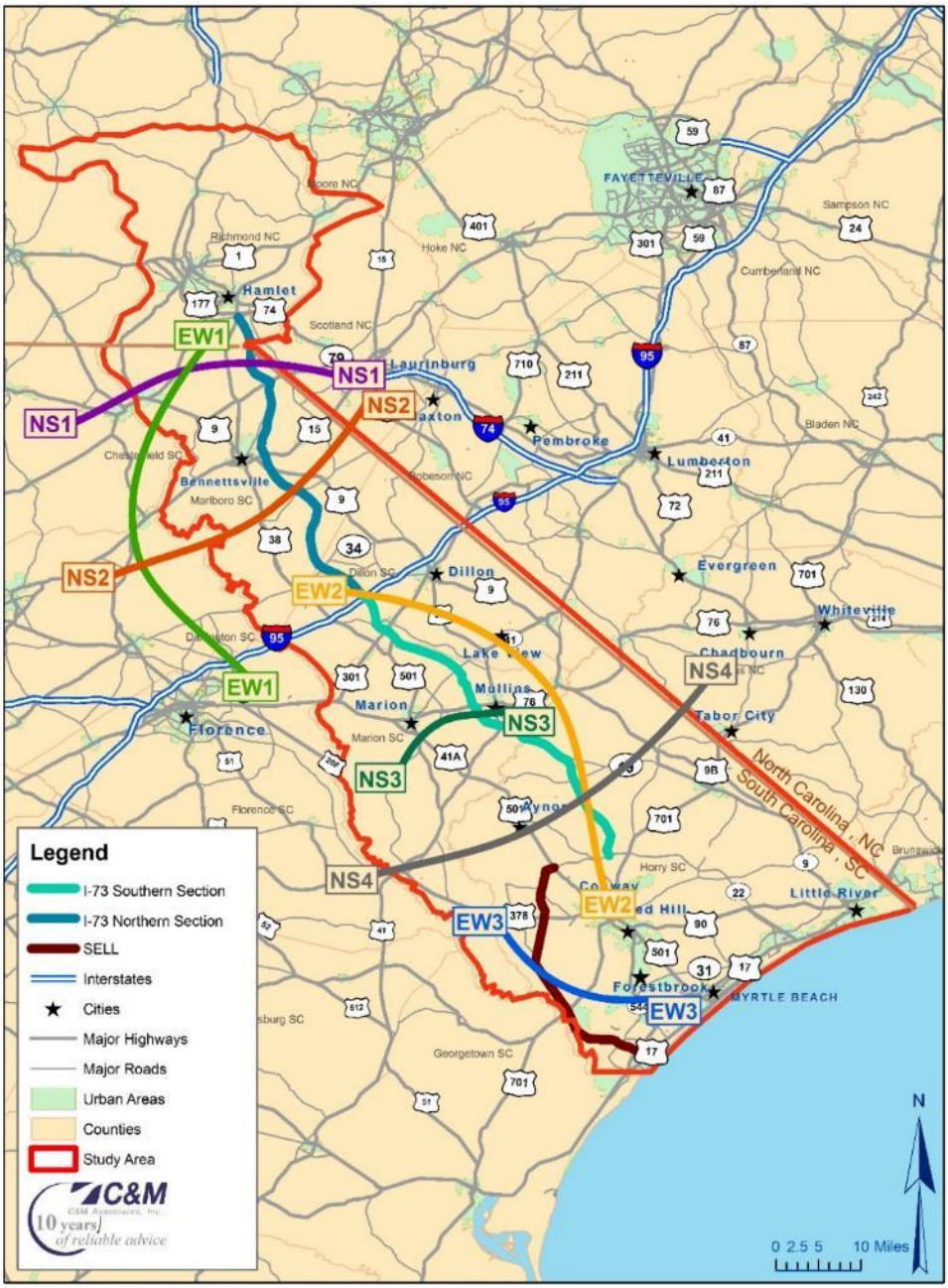


Figure 4-11. C&M's Selected Screenlines

Based on the traffic counts across the screenlines and the permanent count station data (see Chapter 2), C&M produced seasonally-adjusted traffic volumes. These adjusted volumes were used to convert the existing trip table into Peak, Non-Peak, and Average trip tables. Figure 4-12 and Figure 4-13 present the annual seasonality at the selected permanent count stations for each period. The horizontal lines in these graphs show the magnitude and length of each period for the screenline volume factors. Station P-37 represents screenlines EW1, NS1 and NS2, while Station P-105 is representative of screenlines EW3 and EW2; Screenlines NS3 and NS4 were validated using several different permanent count stations within the study area. Non-Peak and Peak factors were determined from Non-Peak and Peak ratios. The red horizontal lines represent average monthly count volumes across all average months, while the orange and green horizontal lines in the chart represent the average Non-Peak and Peak count volumes across their corresponding periods, respectively. The length of the horizontal lines corresponds to the number of months in each of the periods.

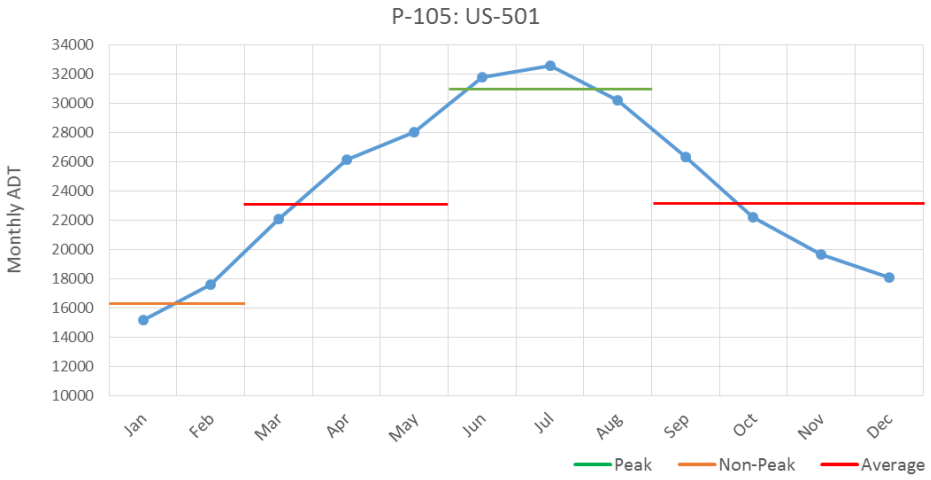


Figure 4-12. Peak, Non-Peak, and Average Monthly ADT at Station P-105: US 501

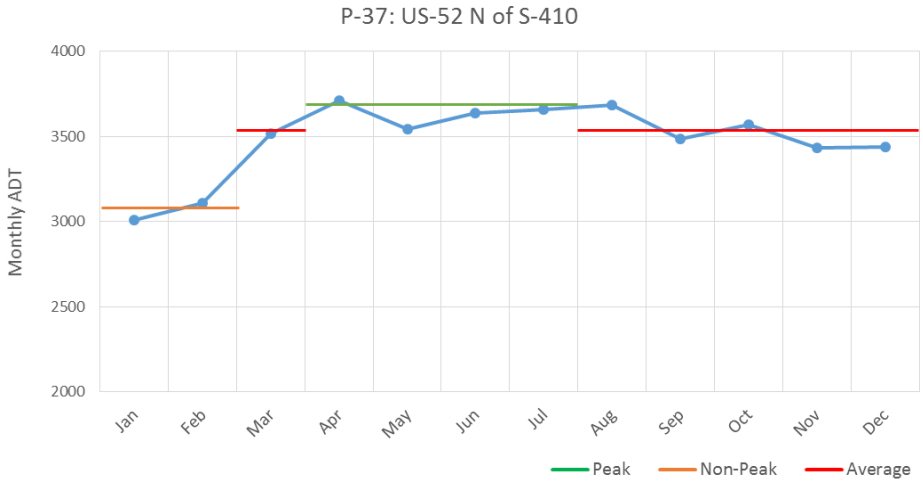


Figure 4-13. Peak, Non-Peak, and Average Monthly ADT at Station P-37: US 52

C&M also adjusted the model's origin and destination inputs with the OD data presented in Chapter 2. In order to adjust the model OD table to the observed traffic pattern, C&M aggregated the survey sample from the SCDOT peak-period OD survey, as presented in Figure 4-14. Table 4-2 presents the comparison between the data from the OD survey and the TDM.

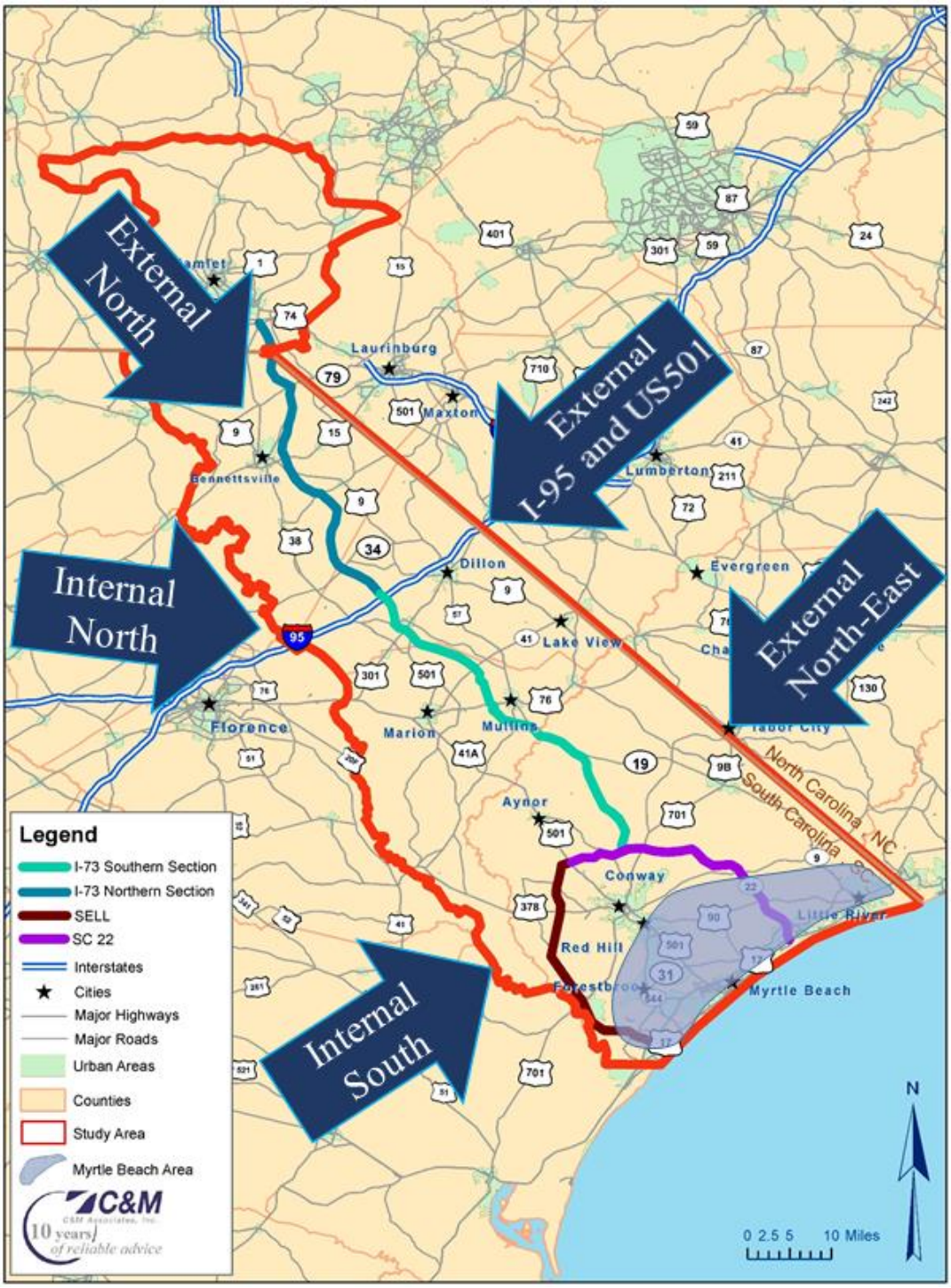


Figure 4-14. OD Aggregation

Table 4-2. OD Adjustment Comparison

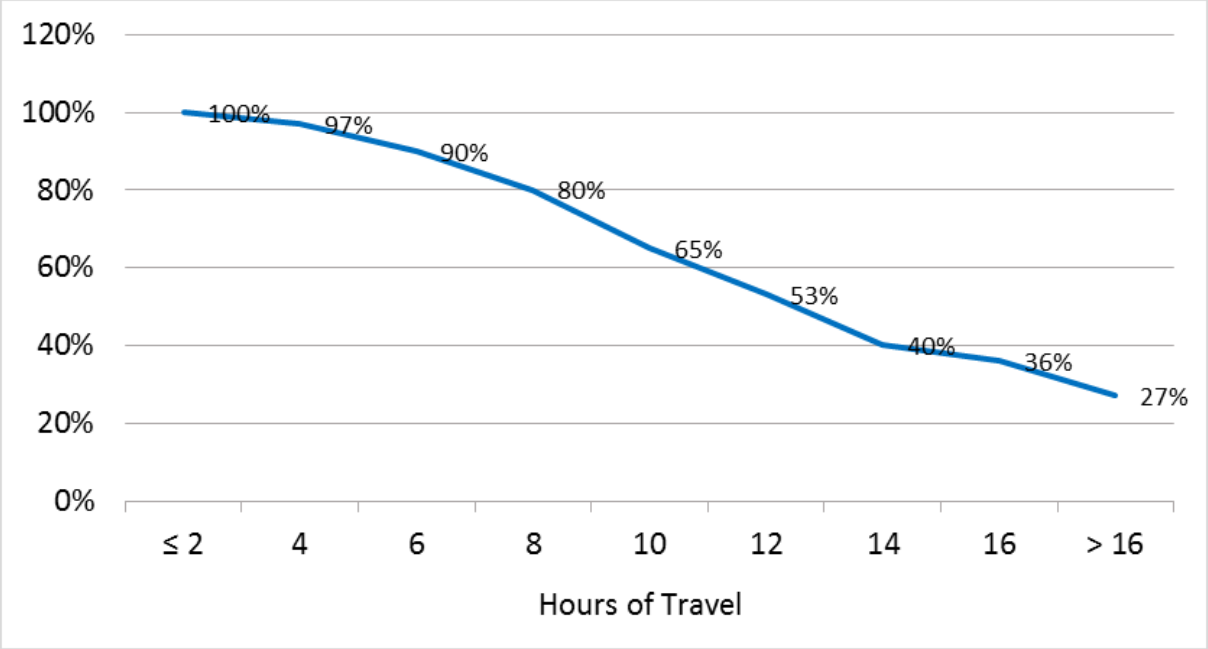
Origin/Destination	OD Survey	Peak Model
Internal South	17%	22%
Internal North	13%	11%
External North	14%	16%
External I-95 & US 501	8%	12%
External Northeast	48%	40%

No-Build and Build Traffic for External Zones

C&M developed external station demand using different approaches depending on the corresponding scenario. For the No-Build scenario, C&M used the SCSWM traffic inputs as provided by SCDOT.

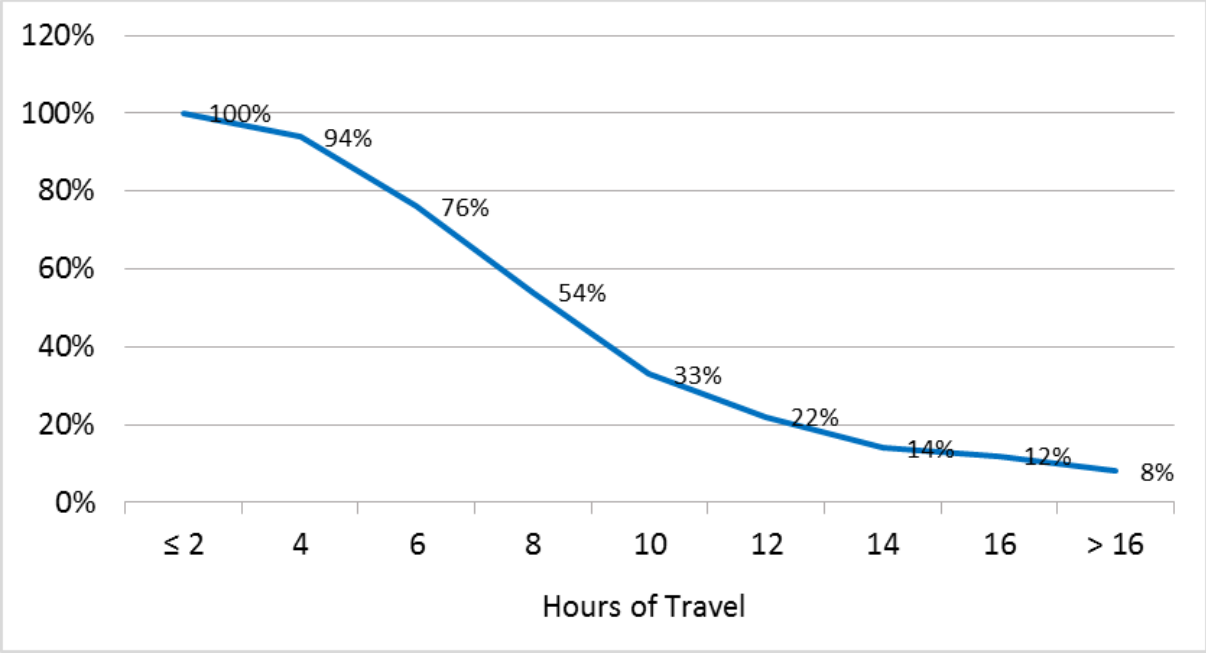
For the Build scenarios, C&M produced an econometric model to determine traffic volumes for every external station in the SCSWM. C&M also accounted for induced demand due to the Project's travel time savings. To validate the econometric model results, C&M used the I-73 induced demand figures from Chmura's "Economic Impact of I-73 in South Carolina" report, where it was estimated that each extra hour of travel time leads to a decrease of 4.1 to 5.1 percent of tourist trips depending on the trip length.[5] Figure 4-15 and Figure 4-16 present Chmura's full results.

C&M's econometric model results were within a reasonable range compared to Chmura's induced demand calculations.



Source: Chmura

Figure 4-15. Hours Willing to Travel to Myrtle Beach (5–7 day vacation)



Source: Chmura

Figure 4-16. Hours Willing to Travel to Myrtle Beach (3–4 day vacation)

Future Traffic Volumes

The resulting future year traffic volumes and its growth rates are shown in Table 4-3 for the No-Build scenario during the Peak period.

Table 4-3. Future Screenline Volumes for No-Build Peak Model

Screenline	Model Volumes				CAGR		
	2010	2025	2035	2040	2010-2025	2025-2035	2035-2040
NS1	17,801	21,464	23,646	24,287	1.3%	1.0%	0.5%
NS2	17,643	26,421	33,158	35,732	2.7%	2.3%	1.5%
EW1	52,103	67,155	76,299	79,007	1.7%	1.3%	0.7%
NS3	42,119	54,043	62,559	65,174	1.7%	1.5%	0.8%
NS4	52,859	65,157	73,411	77,075	1.4%	1.2%	1.0%
EW2	76,118	103,879	117,039	122,401	2.1%	1.2%	0.9%
EW3	36,062	47,826	54,420	56,913	1.9%	1.3%	0.9%

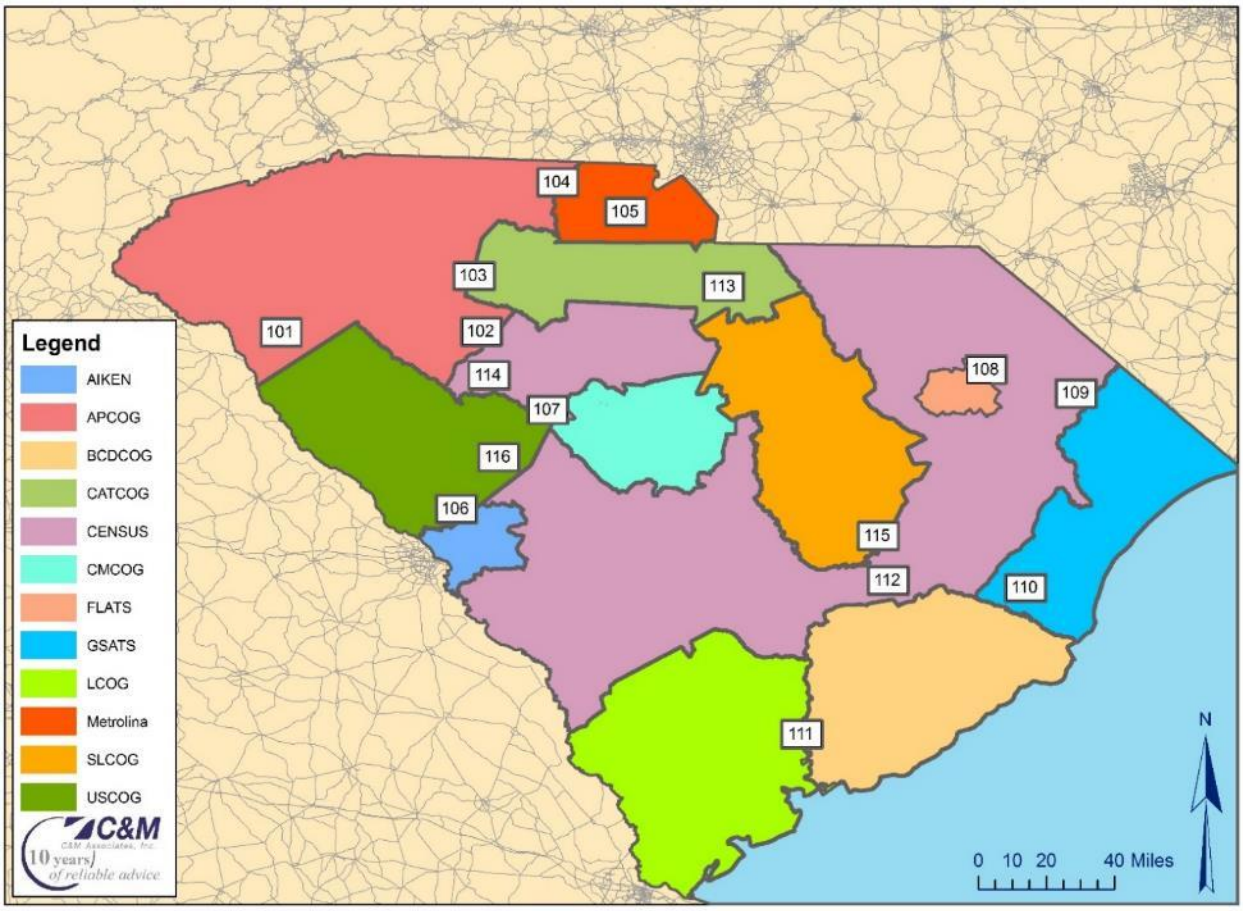
4.3. Model Calibration

C&M calibrated the TDM to replicate the traffic counts and field-collected travel times in the study area through common modeling practices. The first validation point for C&M was the replication of the SCSWM model volumes.

4.3.1. SCSWM Validation

C&M replicated the model runs of the SCSWM 2010 base year model and 2040 future year model. In these model runs, C&M ensured that all four model steps had been replicated as documented in the South Carolina Statewide Travel Demand Model Documentation (SCSWMv2 build 141126).[6]

In the SCSWM, there are a total of 16 screenlines with 122 count stations that were utilized in the original validation process, as shown in Figure 4-17.



Source: SCDOT[7]

Figure 4-17. SCSWM Screenline Locations

4.3.2. Study Area Calibration

In addition to examining flows across screenlines within the entire model area, C&M examined assignment flows specific to the Project study area, which consists of Marlboro, Dillon, Horry, and Marion Counties, SC, and Richmond County, NC. These counties are identified as the study area because of their influence on potential traffic flow to I-73.

For calibration and validation purposes, the 2010 model's traffic volumes were compared to observed traffic counts (i.e., ADT) along six screenlines within the study area, as defined earlier in this chapter. The screenline alignments were chosen such that C&M

could analyze model performance in terms of traffic traveling along the Project corridor as well as traffic moving across the study area.

Table 4-4 through Table 4-6 present the comparisons between the 2014 traffic counts and the calibrated TDM volumes along each screenline for the Peak, Non-Peak, and Average seasons, respectively.

Table 4-4. Comparison of Daily Peak Counts to Model Output Volumes by Screenline

Screenline	Peak Counts	Model Output	% Difference
Screenline NS1	18,600	17,801	-4.3%
Screenline NS2	16,300	17,643	8.2%
Screenline EW1	52,300	52,103	-0.4%
Screenline NS3	40,400	42,119	4.3%
Screenline NS4	50,900	52,859	3.8%
Screenline EW2	74,100	76,118	2.7%
Screenline EW3	37,000	36,062	-2.5%

Table 4-5. Comparison of Daily Non-Peak Counts to Model Output Volumes by Screenline

Screenline	Non-Peak Counts	Model Output	% Difference
Screenline NS1	15,400	14,734	-4.0%
Screenline NS2	13,200	14,280	8.0%
Screenline EW1	41,200	39,704	-3.6%
Screenline NS3	19,500	18,693	-4.1%
Screenline NS4	29,400	28,534	-2.9%
Screenline EW2	53,100	52,280	-1.5%
Screenline EW3	30,100	28,300	-6.0%

Table 4-6. Comparison of Daily Average Counts to Model Output Volumes by Screenline

Screenline	Average Counts	Model Output	% Difference
Screenline NS1	17,700	16,850	-4.8%
Screenline NS2	15,150	16,647	9.9%
Screenline EW1	47,700	48,949	2.6%
Screenline NS3	22,500	21,966	-2.4%
Screenline NS4	33,900	33,440	-1.4%
Screenline EW2	61,300	61,388	0.1%
Screenline EW3	33,900	30,709	-9.4%

Overall, the model reasonably replicates counts at the screenlines, with the largest difference being around 9.9 percent for Peak counts at screenline NS2.

Figure 4-18 shows the percentage deviation between the daily counts and model volumes for each screenline and compares these to the curve recommended by the National Cooperative Highway Research Program (NCHRP).[8] As can be seen, the model deviations are well below the acceptable limit.

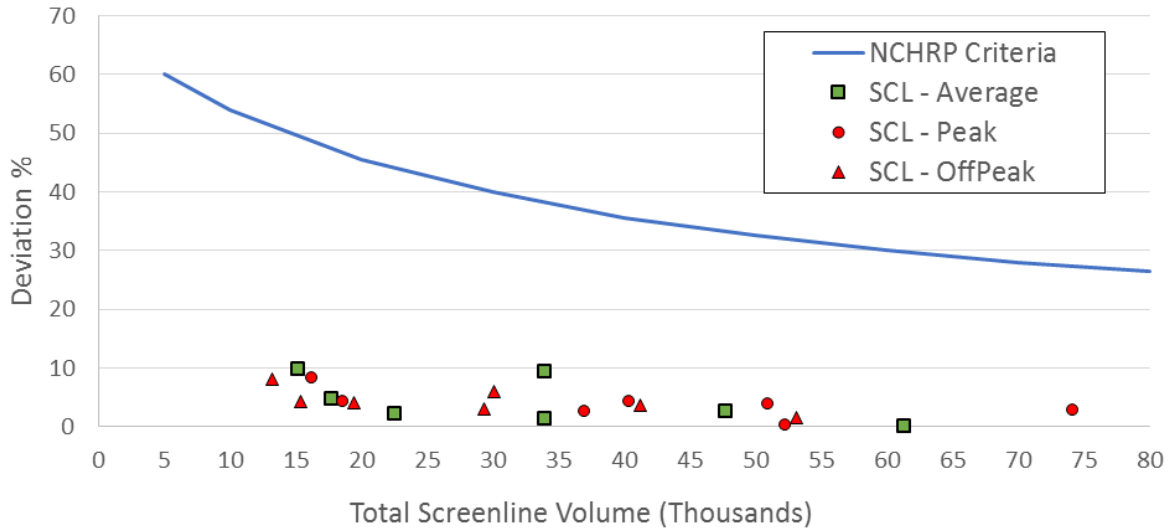


Figure 4-18. Screenline Model Volume Deviation from Actual Counts

4.3.3. Travel Times

Data from the travel-time runs performed by ATD (see Chapter 2) were used to calibrate the travel times produced by the SCSWM. Figure 4-19 through Figure 4-25 present comparisons of observed and modeled travel times on travel run Corridors 1 through 5 (based on Routes 1–5 in Chapter 2).

Overall, modeled travel times are slightly longer than observed travel times, but they replicate the observed travel times very closely at the beginning of each corridor. Along Corridors 1, 2, and 3, modeled travel times replicate observed travel times closely, with a difference of less than 5 minutes. The model replicates observed travel times well for Corridor 4 during the AM period in both the northbound and southbound directions, with a maximum observed difference of about 5 minutes towards the end of the corridor. Similar results were obtained for the PM period along Corridor 4, with modeled and observed travel times in both northbound and southbound directions very close at the beginning and end of the corridor and minor differences of less than 5 minutes in the middle segments of the corridor. The travel time figures for Corridor 5 during the AM and PM periods also show that the model replicates the observed travel times very closely, with minimal differences along the corridor.

These comparisons confirm that the model is sufficiently calibrated to replicate real-time reported traffic conditions and can reliably be used for the T&R study.

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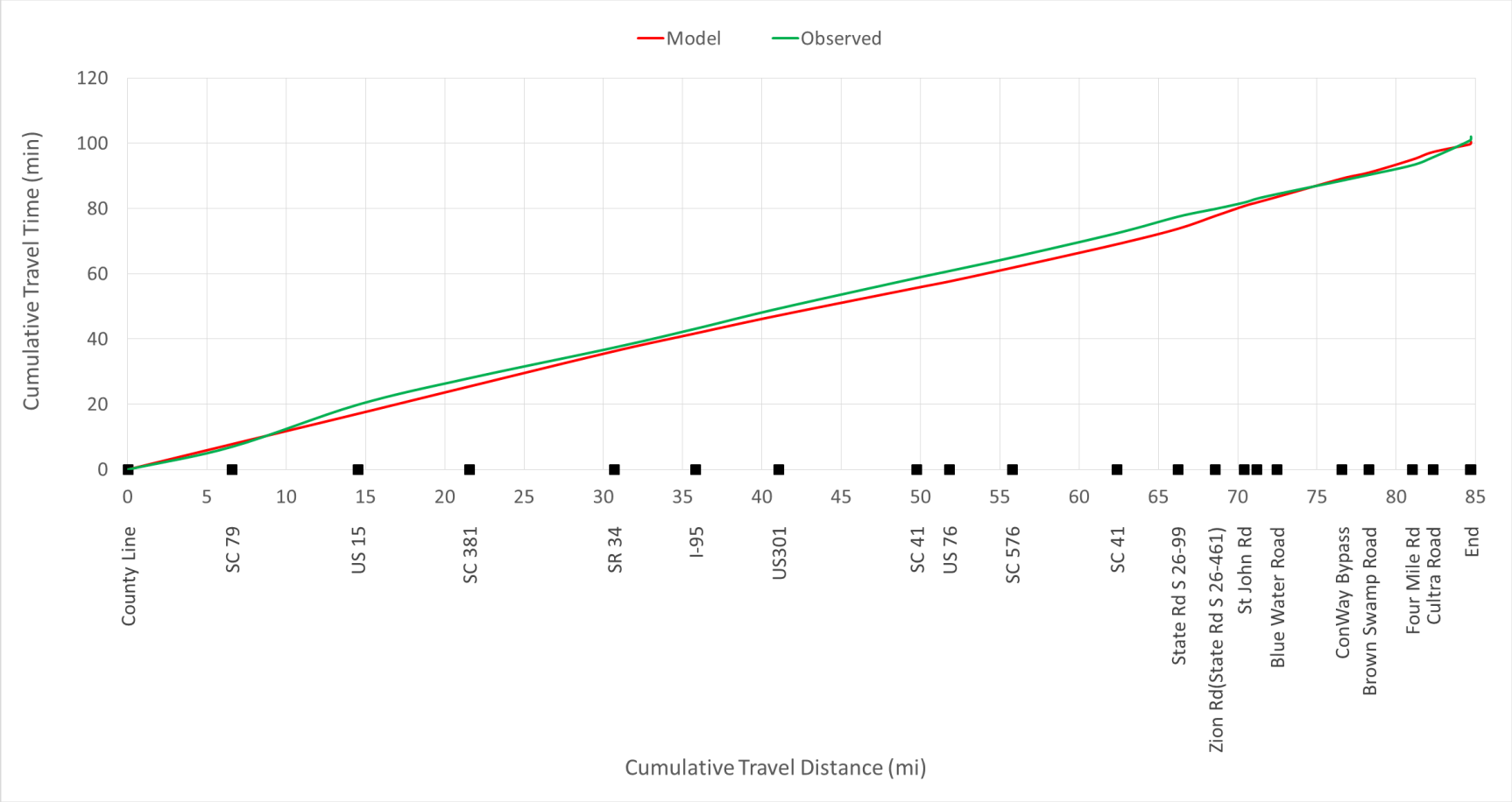

Figure 4-19. Comparison of Modeled and Observed Travel Times – Corridor 1

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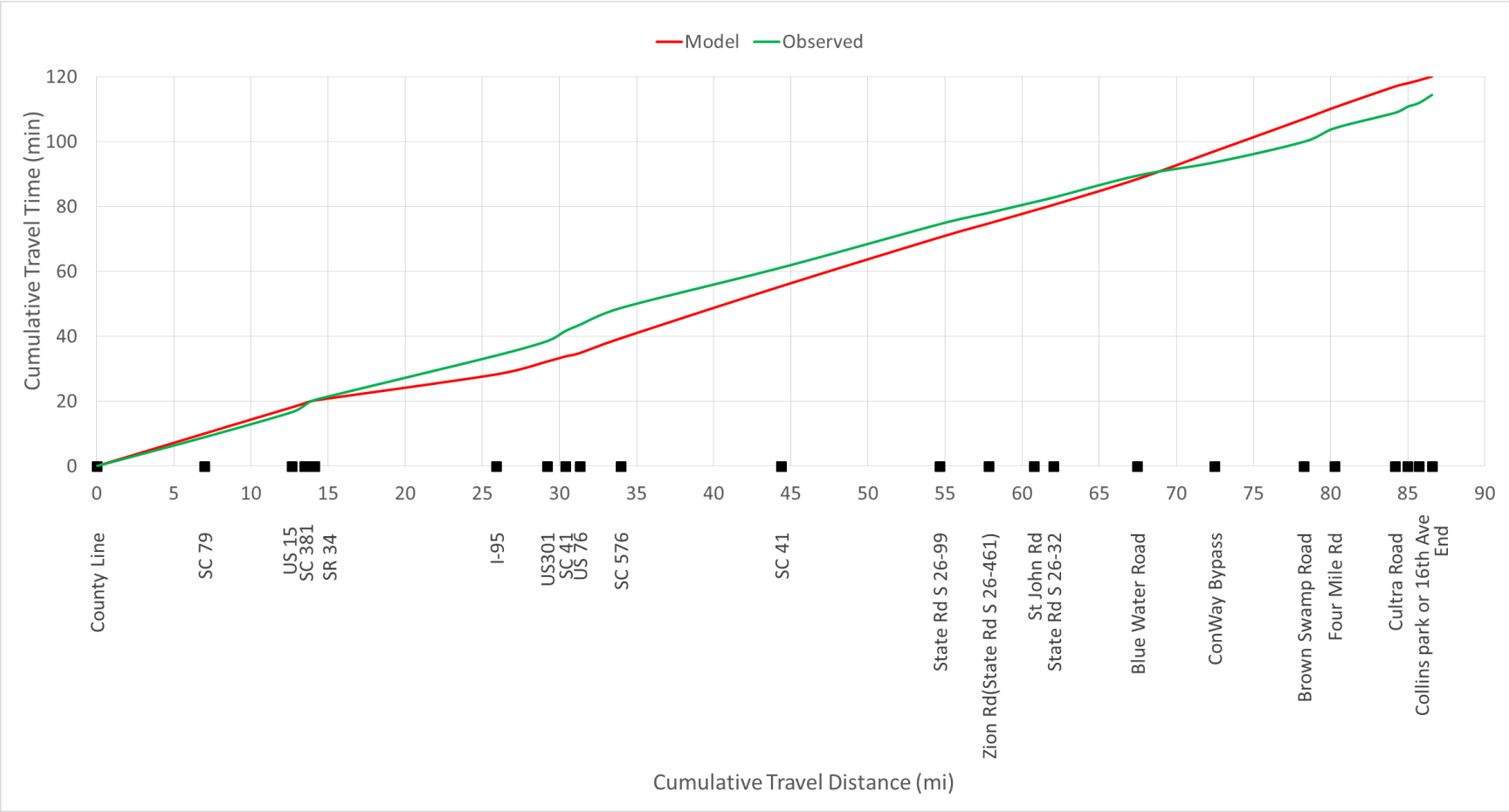

Figure 4-20. Comparison of Modeled and Observed Travel Times – Corridor 2

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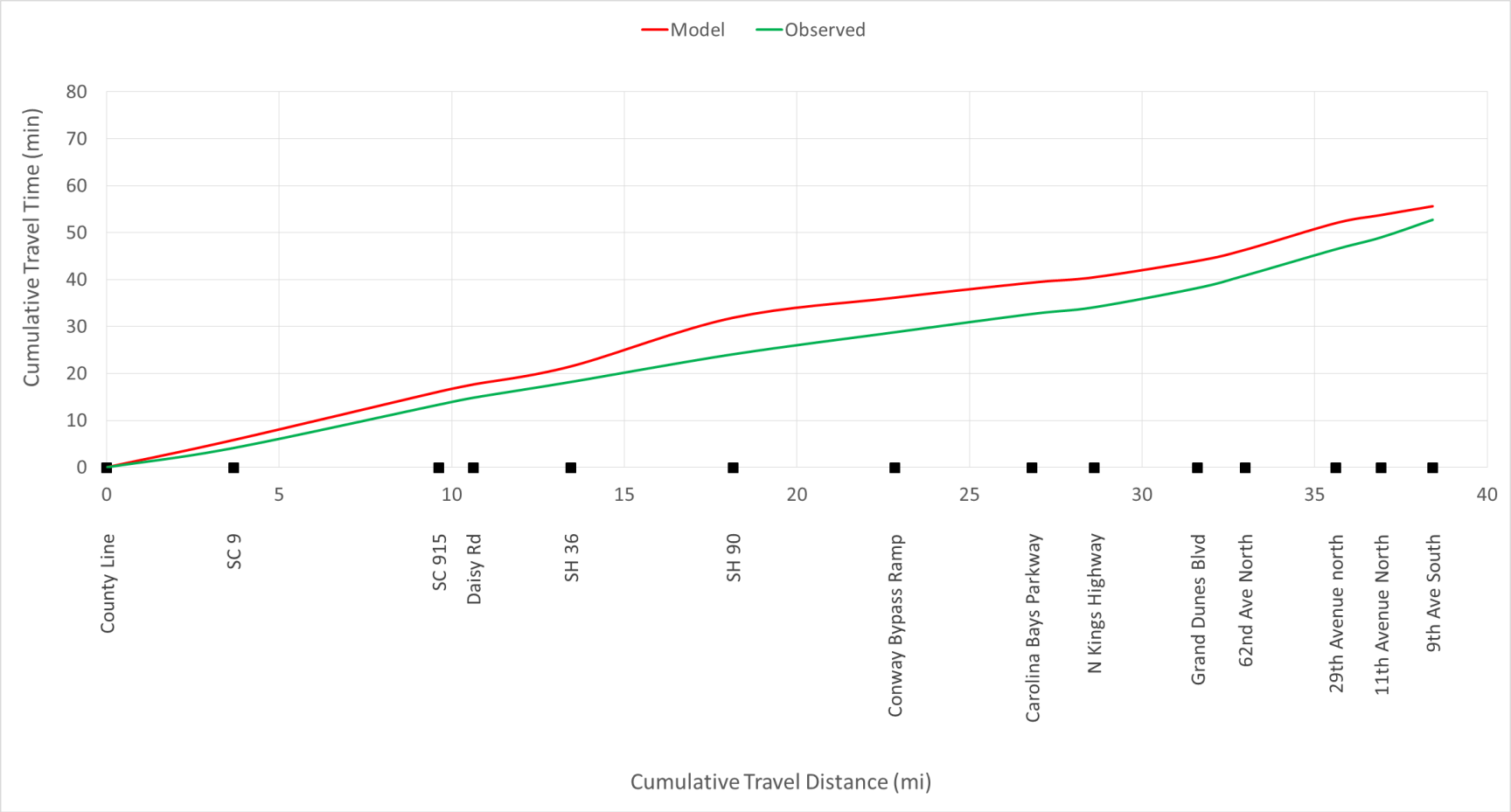

Figure 4-21. Comparison of Modeled and Observed Travel Times – Corridor 3

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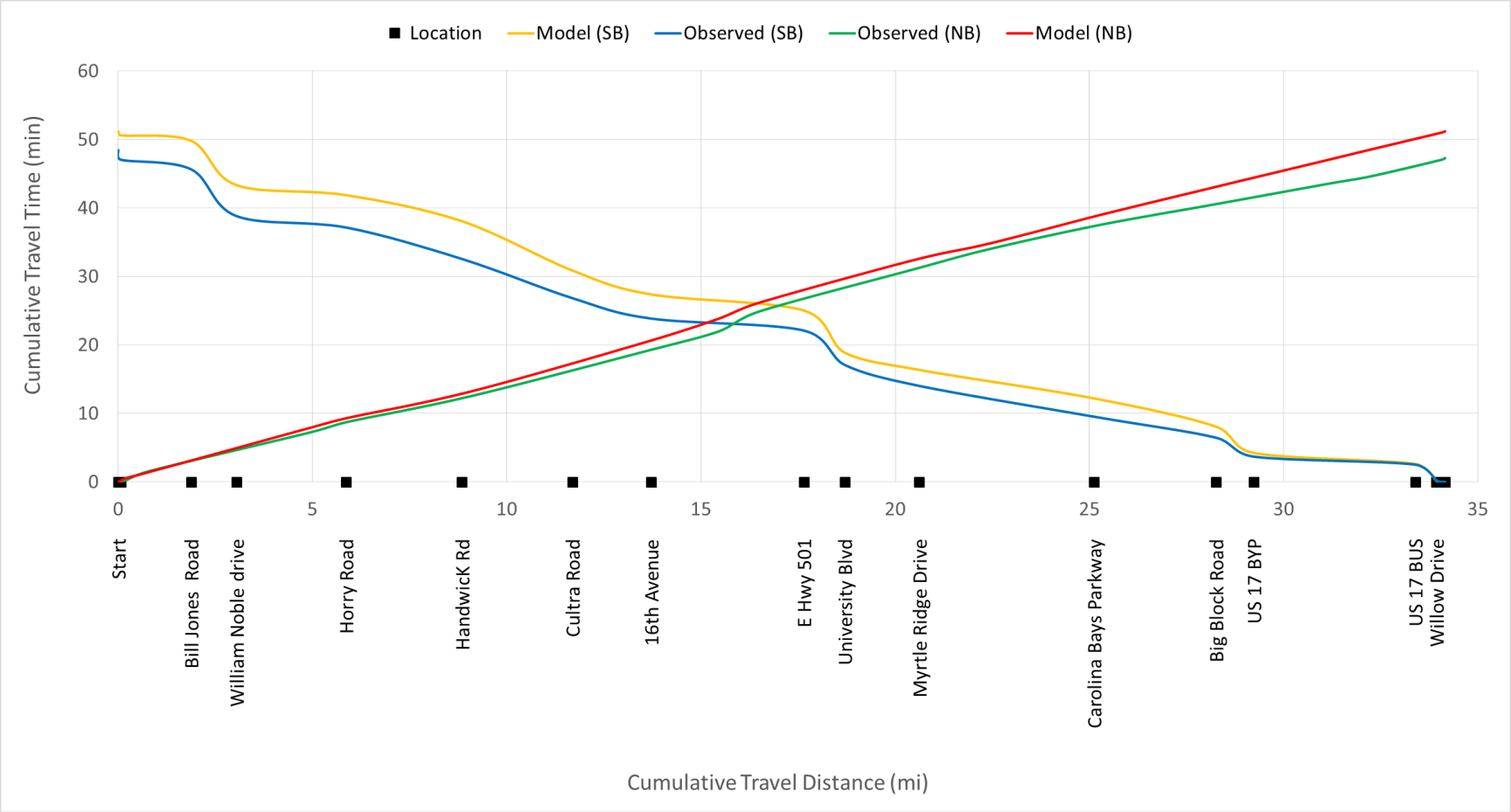

Figure 4-22. Comparison of Modeled and Observed Travel Times – Corridor 4 (AM Period)

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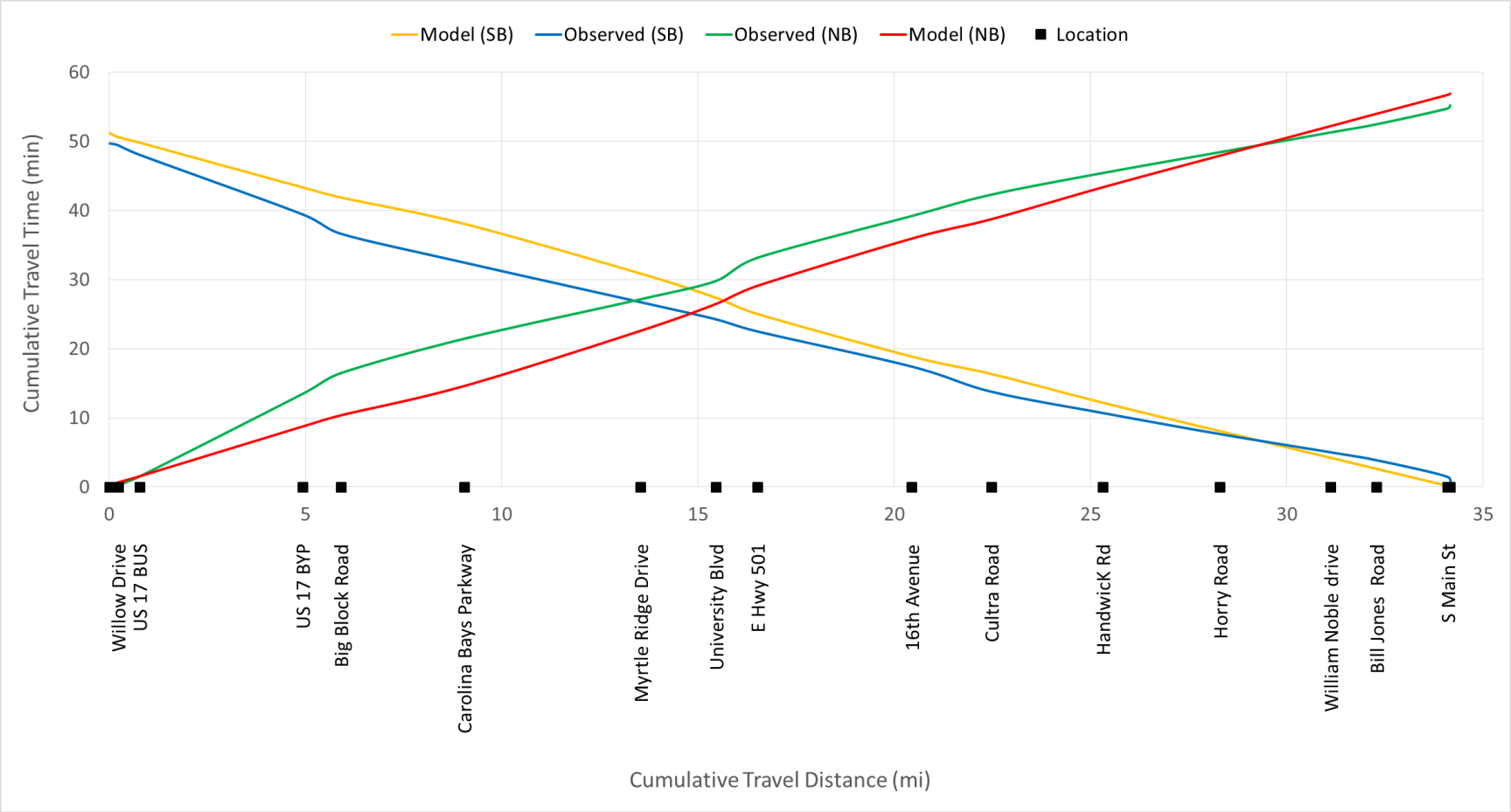

Figure 4-23. Comparison of Modeled and Observed Travel Times – Corridor 4 (PM Period)

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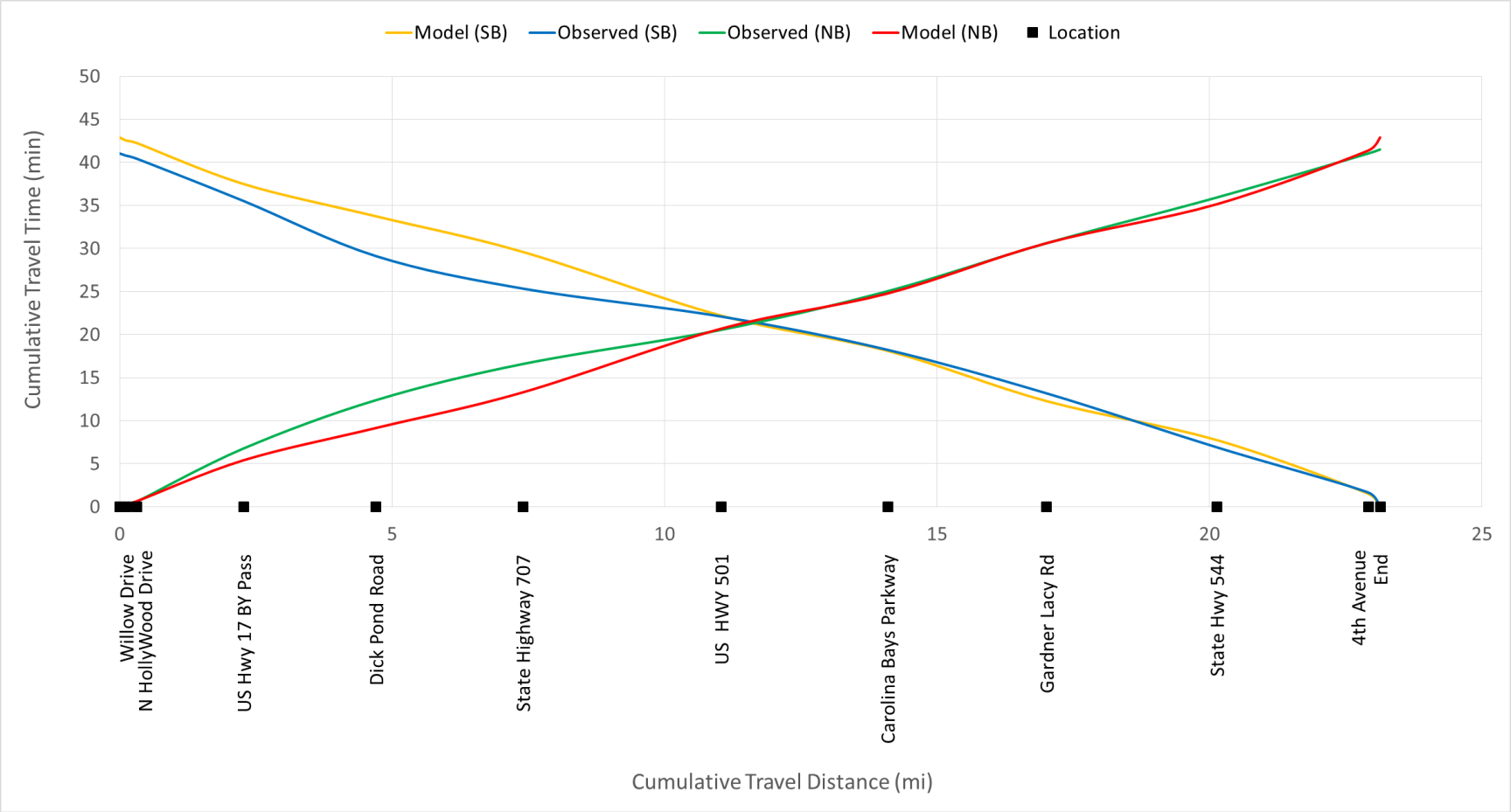

Figure 4-24. Comparison of Modeled to Observed Travel Times – Corridor 5 (AM Period)

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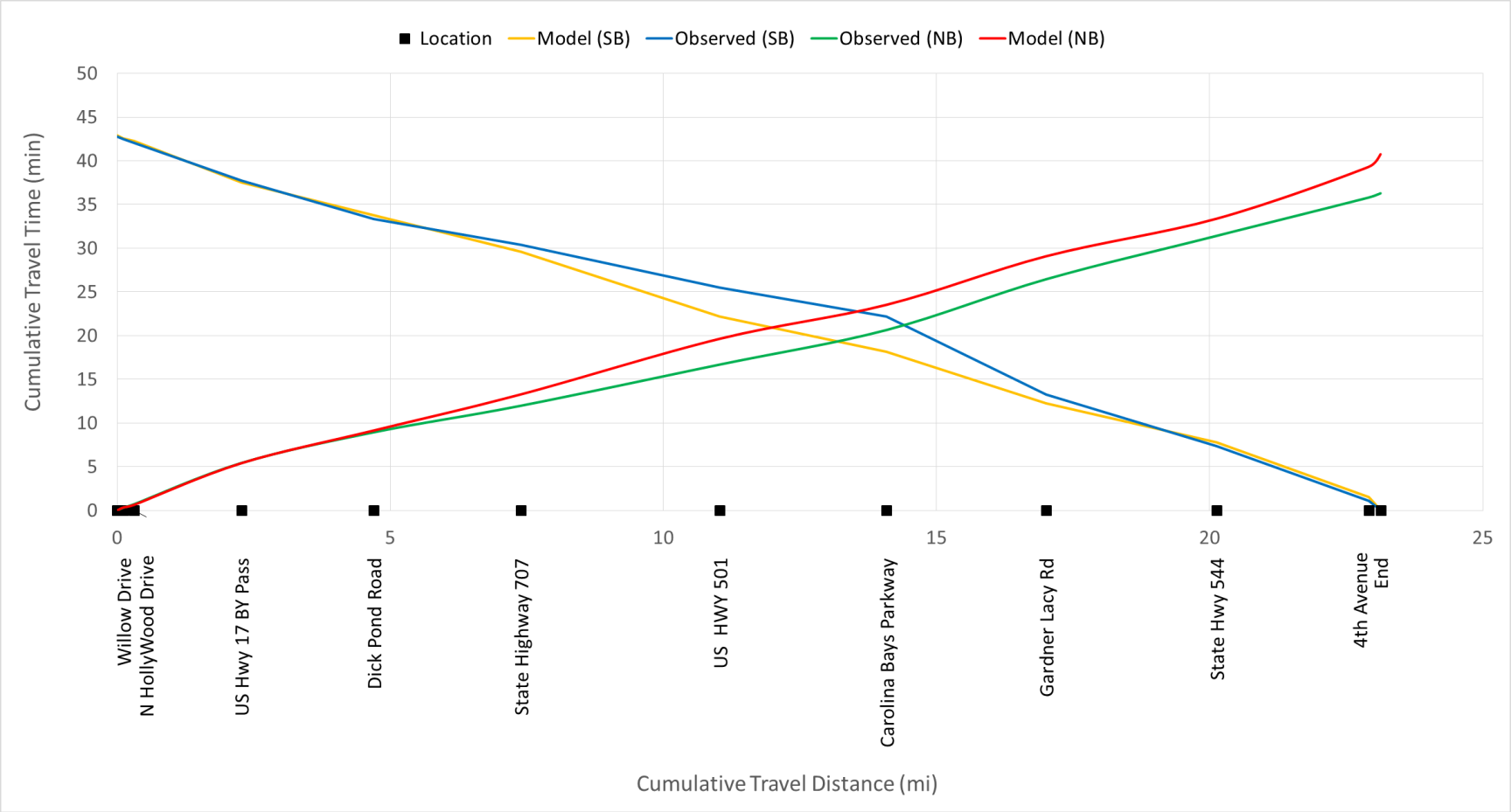


Figure 4-25. Comparison of Modeled to Observed Travel Times – Corridor 5 (PM Period)

4.4. Toll Diversion Model

Toll diversion models are used to estimate traffic demand for facilities such as toll roads, toll bridges, and managed lanes. C&M implemented the following toll diversion methodology within the toll diversion model.

C&M's toll diversion models are structured as logit functions, dividing toll and non-toll trips on the basis of travel time savings and toll costs with respect to the socioeconomic characteristics of individual travelers. The final product of the logit model is a probability that reflects the share of toll and non-toll trips between any given OD pair that may utilize the toll facility. C&M uses a general binary logit model, as shown in the following equation:

PT = 1 / (1+ e^U)

Where:

PT = Probability of selecting a tolled facility

e = Base of Natural Logarithm

U = (CT * ΔT + CC * Cost+ C)

CT = Coefficient of time savings

CC = Coefficient of cost

ΔT = TT - TF

TT = Travel time on toll route in minutes

TF = Travel time on free route in minutes

Cost = Toll in Dollars

C = Constant

Prior to implementing the toll diversion model, C&M created an aggregated TAZ layer in order to reduce the model's run time. Figure 4-26 presents the original SCSWM TAZ structure and the aggregated TAZ structure.

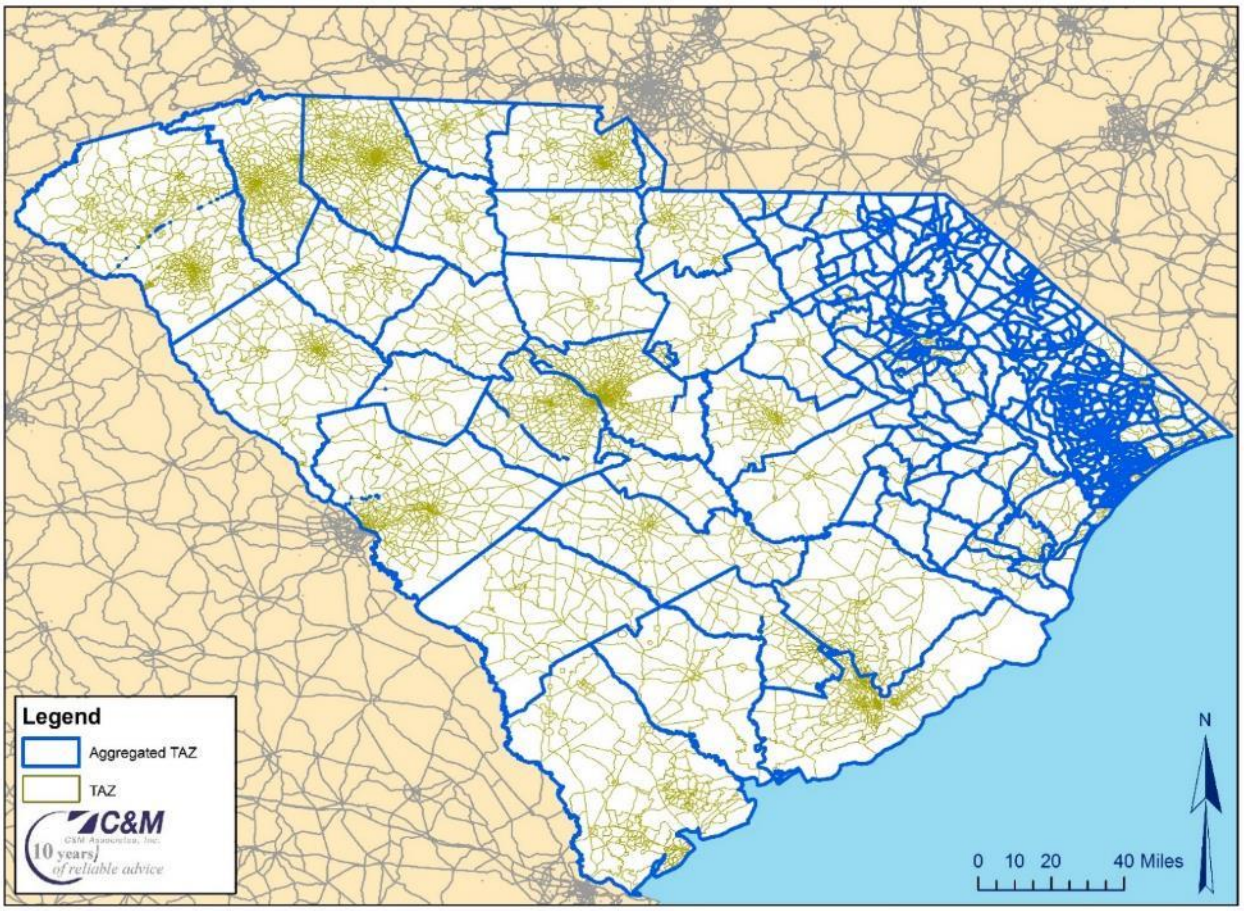


Figure 4-26. Original and Aggregated TAZ Structure Layers

C&M confirmed that the volumes before and after the aggregation represent the exact volumes from the SCSWM on the study area screenlines. This aggregation not only reduced the model run time but also facilitated the calibration and validation procedures because it focuses on just the study area. C&M reduced the number of TAZs from 6,544 to 665 aggregated TAZs for the toll diversion model. The traffic assignment run time was reduced from about 1.5 hours to approximately 10 minutes as a result of this TAZ aggregation.

C&M then created toll diversion models for all trip purposes and for the Peak, Non-Peak, and Average seasons. Table 4-7 shows the corresponding Value of Time (VOT) for each trip purpose and seasonally adjusted traffic demand scenario. The auto VOTs are based on the SP survey VOTs calculated by RSG (see Chapter 2), which were aggregated or disaggregated as necessary to apply to C&M's trip purpose categories and seasonal periods. As mentioned in Chapter 2, truck VOTs were calculated based on previous studies due to an insufficient sample size in RSG's SP survey.

Table 4-7. VOT by Trip Purpose and Season

Trip Purpose	VOT ($/hr)		
	Peak	Non-Peak	Average
HBW_URB	$11.02	$9.65	$10.43
HBO_URB	$12.15	$10.46	$11.43
NHB_URB	$15.62	$13.56	$14.75
HBW_RUR	$8.44	$7.81	$7.81
HBO_RUR	$8.94	$7.76	$8.44
NHB_RUR	$9.41	$8.25	$8.92
EI_Auto	$15.62	$13.56	$14.75
EE_Auto	$15.62	$13.56	$14.75
TRK1_II	$16.24	$16.24	$16.24
TRK1_EIIE	$16.24	$16.24	$16.24
TRK2_II	$35.58	$26.60	$26.61
TRK2_EIIE	$35.58	$26.60	$26.61
TRK2_EE	$35.58	$26.60	$26.61

Note: URB = Urban; RUR = Rural; HBW = Home-Based Work; HBO = Home-Based Other; NHB = Non-Home-Based; EI = External-to-Internal; EE = External-to-External; II = Internal-to-Internal; EIIE = External-to-Internal-to-Internal-to-External; TRK1 = local trucks; TRK2 = long-distance trucks

4.5. Travel Time Benefits

The Project will provide users with travel time savings, as well as reliability and safety. As congestion grows on competing roads, it is expected that the Project will provide additional time savings. This section illustrates the projected travel time savings associated with utilizing the Project when compared to alternative routes in the study area for the years 2025 and 2040.

As illustrated in Figure 4-27, the main competing routes for the Project are SC-9 and US 501 to SC-22.

As shown in Table 4-8 through Table 4-10, C&M compared the projected travel times on these competing routes to I-73 in the years 2025 and 2040 and calculated the travel time savings. As can be seen, the minimum travel time savings is about 15 minutes in 2025 during the Non-Peak season, and the maximum time savings is almost 2 hours in 2040 during the Peak season.

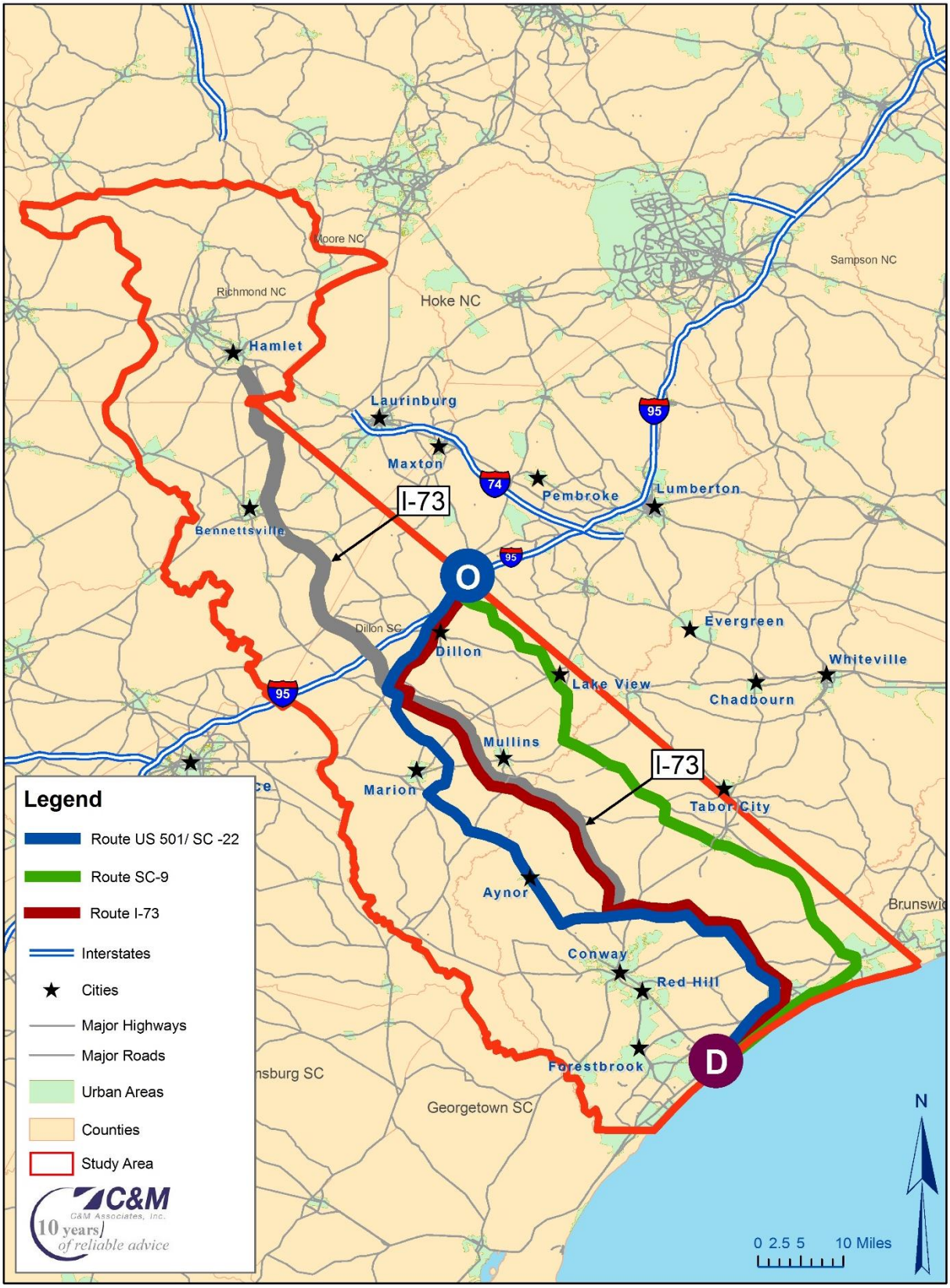


Figure 4-27. Competing Routes

Table 4-8. Travel Time Savings in 2025 and 2040 – Peak Season

Facility	Travel Length (mi)	2025		2040	
		Travel Time (min)	I-73 Time Savings (min)	Travel Time (min)	I-73 Time Savings (min)
US 501 / SC-22	88	134	**33**	213	**88**
SC-9	89	145	**44**	235	**110**
I-73	83	101		125	

Table 4-9. Travel Time Savings in 2025 and 2040 – Non-Peak Season

Facility	Travel Length (mi)	2025		2040	
		Travel Time (min)	I-73 Time Savings (min)	Travel Time (min)	I-73 Time Savings (min)
US 501 / SC-22	88	106	**14**	155	**39**
SC-9	89	107	**15**	165	**49**
I-73	83	92		116	

Table 4-10. Travel Time Savings in 2025 and 2040 – Average Season

Facility	Travel Length (mi)	2025		2040	
		Travel Time (min)	I-73 Time Savings (min)	Travel Time (min)	I-73 Time Savings (min)
US 501 / SC-22	88	112	**17**	178	**59**
SC-9	89	122	**27**	188	**69**
I-73	83	95		119	

4.6. Traffic and Revenue Scenario Model Development

In coordination with SCDOT, C&M developed the following eight T&R scenarios to determine the full traffic and revenue potential of I-73 and its competing routes by providing independent toll revenue forecasts for the facilities within each scenario:

- Scenario 1: I-73 North and South, without the SELL and SC-22 No Toll
- Scenario 2: I-73 North and South, with the SELL and SC-22 No Toll
- Scenario 3: I-73 South, without the SELL and SC-22 No Toll
- Scenario 4: I-73 South, with the SELL and SC-22 No Toll
- Scenario 5: I-73 North and South, without the SELL and SC-22 Tolled
- Scenario 6: I-73 North and South, with the SELL and SC-22 Tolled
- Scenario 7: I-73 South, without the SELL and SC-22 Tolled
- Scenario 8: I-73 South, with the SELL and SC-22 Tolled

The “I-73 North and South” scenarios assume that both northern and southern sections are open at their corresponding opening years. The “I-73 South” scenarios assume that only the southern section of the Project will be built throughout the entire forecast period. The truncation “with/without the SELL” shows whether the SELL is considered in the scenario. Scenarios with “SC-22 Tolled” consider SC-22 as a tolled facility; “SC-22 No Toll” scenarios assume there is no toll on SC-22, which represents the existing condition of this facility.

These eight scenarios differ in terms of their model demand and supply; the demand within the TDM is based on the trip tables, and the supply is based on the road networks. The trip tables are the result of trip generation, which is based on socioeconomic data, and trip distribution, which is based on the road network. C&M created eight scenario-specific road networks. These networks include or exclude the required facilities. In the case of SC-22, C&M coded additional toll plazas on the existing facility.

Scenarios 1 through 4 represent the base scenarios, with the socioeconomic data described in Chapter 4 used as input for the trip generation step. In the trip distribution step, each of these base scenarios utilized the relevant scenario-specific network as input. These inputs resulted in different demand and supply for every scenario.

Scenarios 5 through 8 were developed independently and include SC-22 as a tolled facility. Scenario-specific socioeconomic data was developed using the base scenarios. The socioeconomic input was modified, as needed, by redistributing population and employment. The specific socioeconomic variables that were revised in the development of Scenarios 5 through 8 include population, income group, number of households and dwelling units, and employment.

The following sections describe the development process of the socioeconomic data for Scenarios 5 through 8.

4.6.1. Scenario 5: I-73 North and South, without the SELL and SC-22 Tolled

Scenario 5 required the addition of SC-22 as a tolled facility to the Base case while excluding the SELL. The socioeconomic changes corresponding to the SELL were decoded and returned to their No-Build condition. To develop the socioeconomic data corresponding to this scenario, a select link analysis was performed on the area corresponding to the SELL corridor. This was done to identify TAZs in the study area whose socioeconomic data were impacted by the existence of the SELL. The TAZs that are more strongly influenced by I-73 North and South than the SELL remain as they were in the Build condition, while the socioeconomic data of the TAZs more strongly influenced by the SELL were decoded to the No-Build condition, as shown in Figure 4-28.

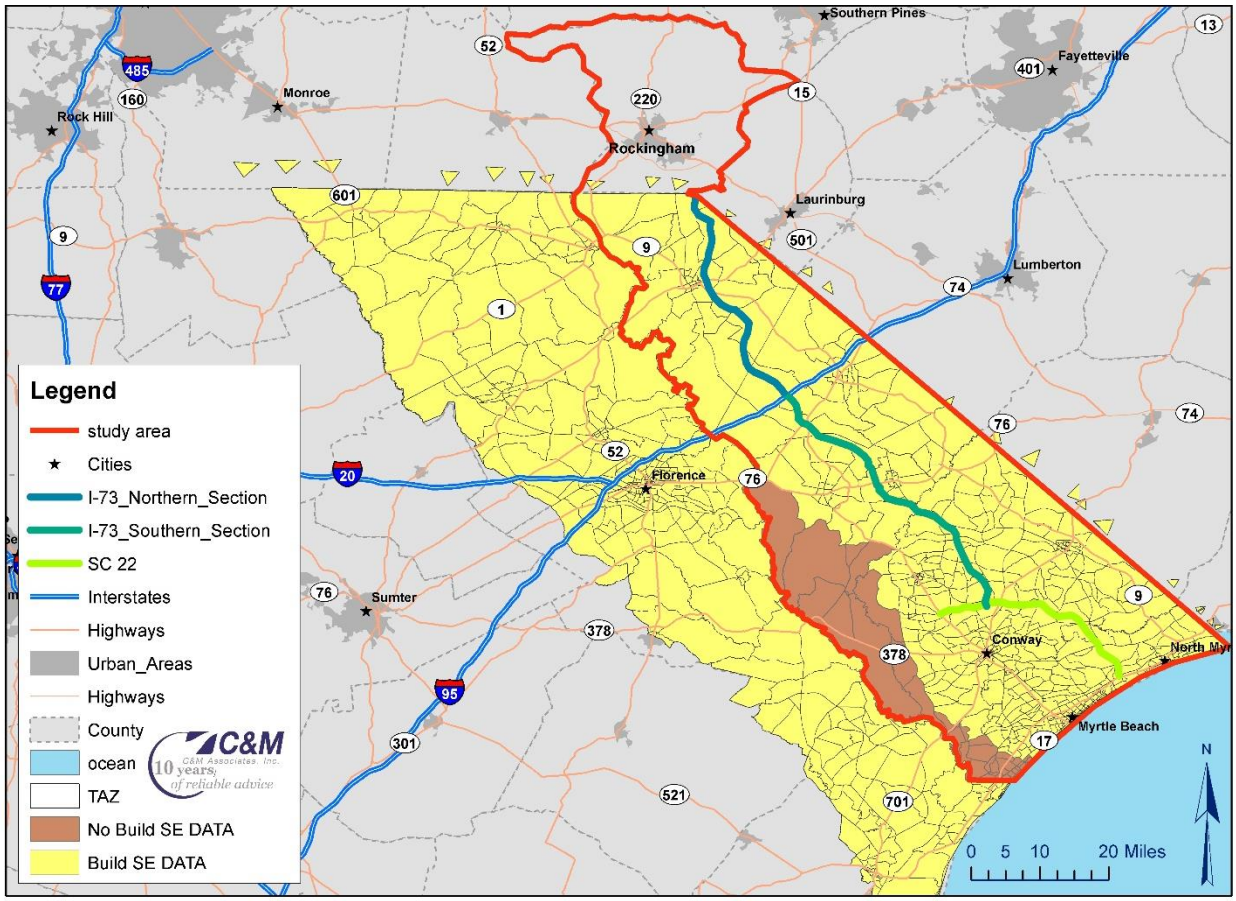


Figure 4-28. Socioeconomic Data and Network Settings – Scenario 5

4.6.2. Scenario 6: I-73 North and South, with the SELL and SC-22 Tolled

For Scenario 6, SC-22 was added as a tolled facility to the Base case, which includes I-73 North, I-73 South, and the SELL. All the socioeconomic information was considered the same as the Base case Build condition, but with SC-22 being tolled. The socioeconomic settings for this scenario are illustrated in Figure 4-29.

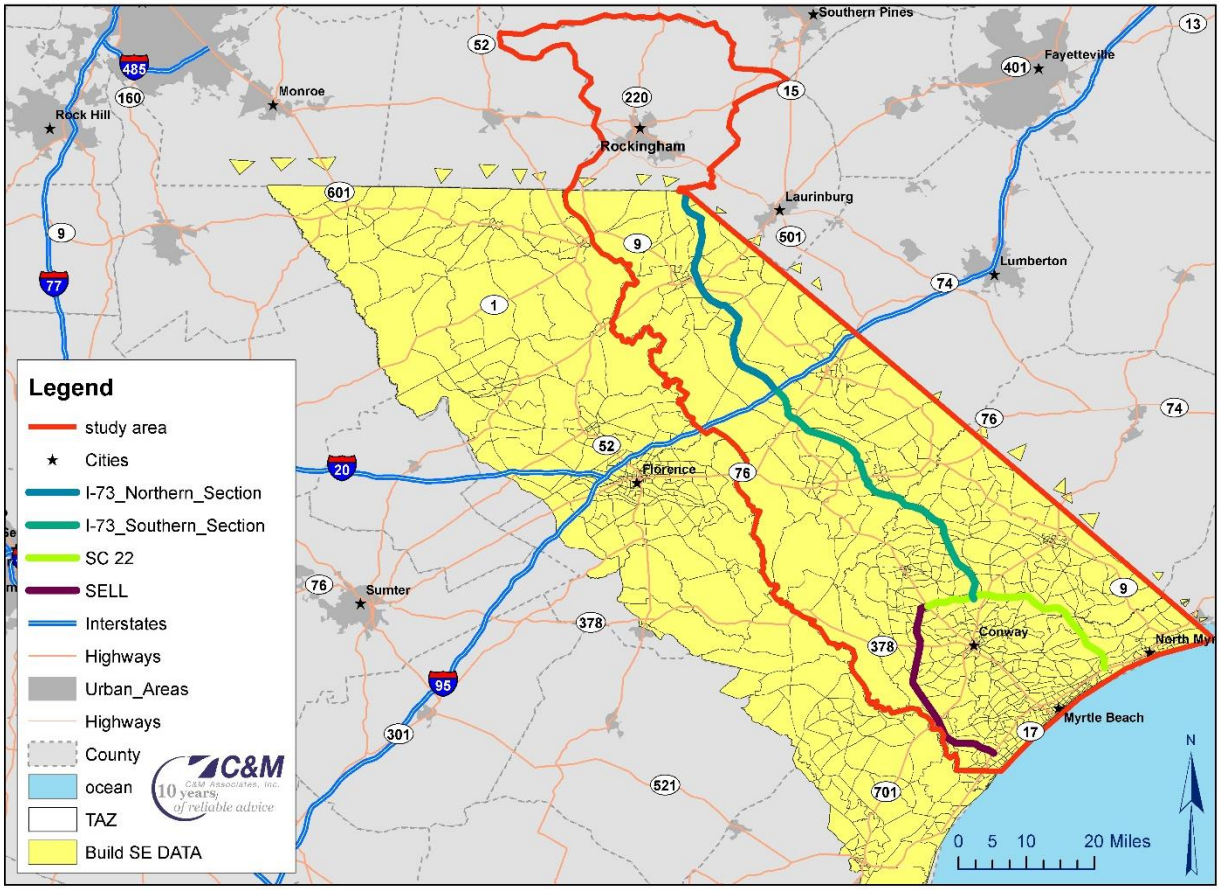


Figure 4-29. Socioeconomic Data and Network Settings – Scenario 6

4.6.3. Scenario 7: I-73 South, without the SELL and SC-22 Tolled

For Scenario 7, SC-22 was added as a tolled facility to the Base case while excluding I-73 North and the SELL. The socioeconomic changes corresponding to I-73 North and the SELL were returned to their No-Build condition. This was achieved by decoding the TAZs identified as mostly impacted by the existence of the SELL (identified in Scenario 5) and I-73 North (identified in Scenario 8). The socioeconomic data of the identified TAZs, illustrated in Figure 4-30, were reset to their No-Build condition.

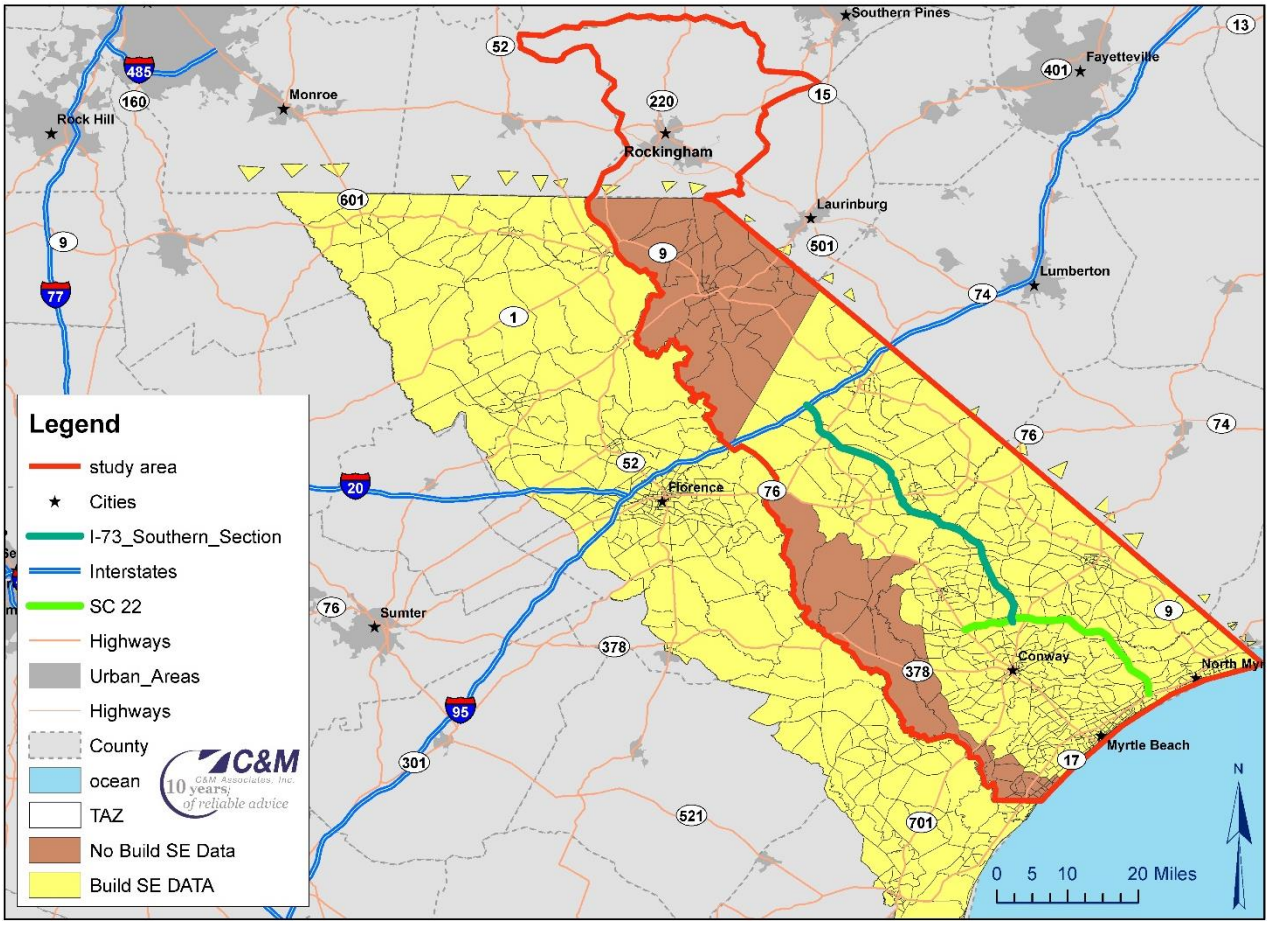


Figure 4-30. Socioeconomic Data and Network Settings – Scenario 7

4.6.4. Scenario 8: I-73 South, with the SELL and SC-22 Tolled

For Scenario 8, SC-22 was added as a tolled facility to the Base case while excluding I-73 North. The socioeconomic changes corresponding to I-73 North in the Base case were decoded and returned to their No-Build condition. This was achieved by performing a select link analysis of roads in the I-73 North area to identify the TAZs within the corresponding corridor that were directly impacted by the existence of I-73 North. The socioeconomic data of the identified TAZs were reset to the No-Build condition. The selected TAZs are illustrated in Figure 4-31.

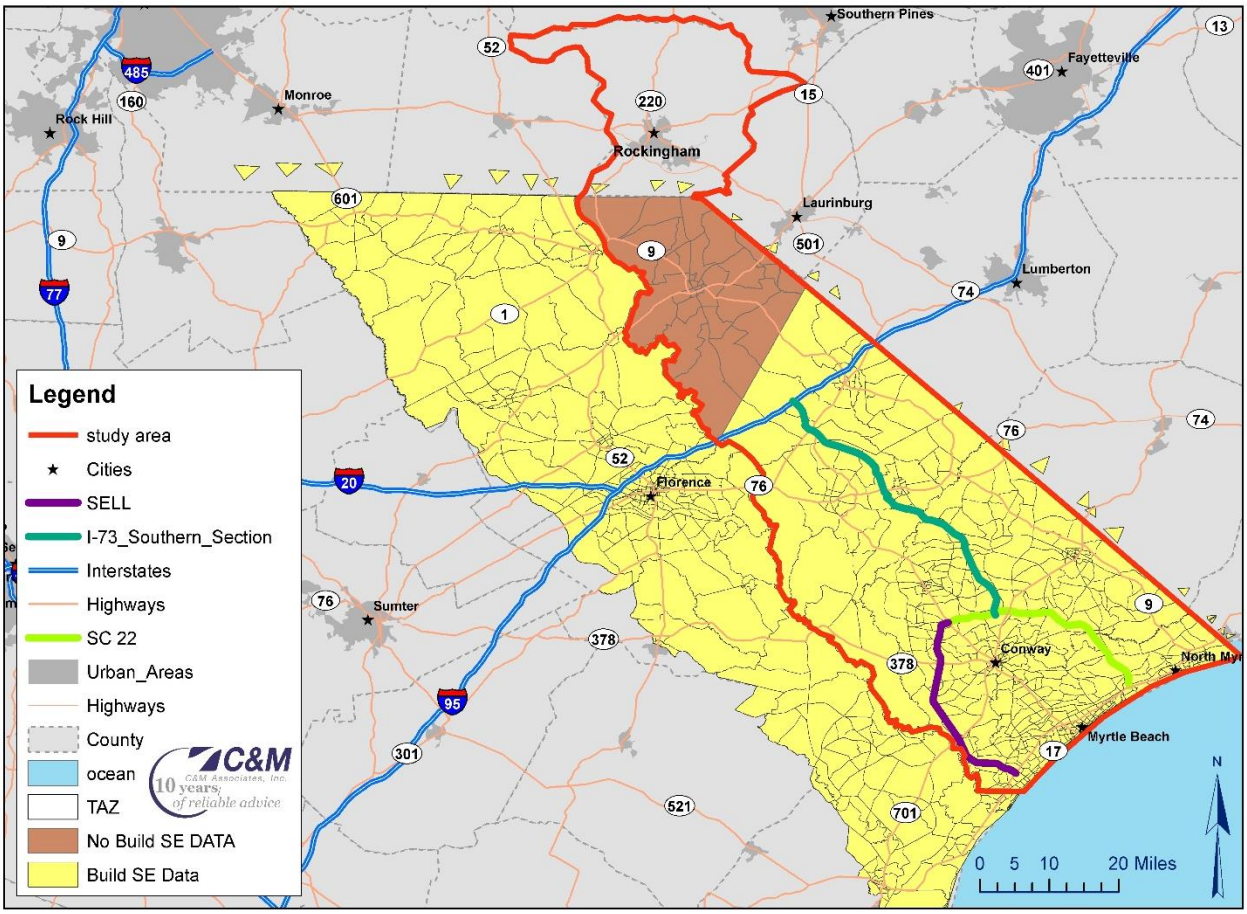


Figure 4-31. Socioeconomic Data and Network Settings – Scenario 8

[1] CDM Smith (2014, December). *South Carolina Statewide Travel Demand Documentation (SCSWMv2 Build 141126)*. Prepared for SCDOT.

[2] Ibid.

[3] Ibid.

[4] Ibid.

[5] Chmura (2011). *Economic Impact of I-73 in South Carolina*, Prepared for Northeastern Strategic Alliance (NESA).

[6] CDM Smith (2014, December). *South Carolina Statewide Travel Demand Documentation (SCSWMv2 Build 141126)*. Prepared for SCDOT.

[7] Ibid.

[8] Pedersen, N. J., & Samdahl, D. R. (1982). *Highway traffic data for urbanized area project planning and design*. National Cooperative Highway Research Program Report #255. Washington, DC: Transportation Research Board.

5. Traffic and Revenue Forecast

The following chapter presents the traffic and revenue (T&R) projections for I-73 (the Project), the SELL, and SC-22 over a forecast period of 40 years. C&M used the SCSWM to model T&R for a typical day in the peak period in 2010 and performed future scenario runs to forecast T&R for the years 2025, 2035, and 2040, as discussed in Chapter 4.

C&M incorporated this information into its post-processing model designed to forecast annual T&R. Traffic volume was interpolated between the model years and extrapolated to the final forecast year 2065 to cover the entire forecast period. In addition to annualizing the T&R numbers, C&M incorporated T&R assumptions into its post-processing model. These assumptions are based on the existing data and C&M's experience with toll road facilities, particularly toll system implementation and enforcement. Additionally, C&M's T&R analysis was conducted with the assumption that mainlanes, exit ramps, and entrance ramps will be built with proper geometric configurations and traffic control to ensure that traffic is not negatively affected.

Finally, various T&R sensitivity scenarios were analyzed to validate the functionality of the model and show the weight of particular assumptions in the final T&R forecast. The results of C&M's sensitivity analysis are provided later in this chapter. The following section discusses details regarding toll collection on I-73, the SELL, and SC-22.

5.1. Toll Collection

I-73, the SELL, and SC-22 are assumed to utilize an all-electronic toll (AET) system. Toll gantries are strategically located on the mainlanes to ensure that all movements in the system are tolled. C&M used a revenue-maximization method to define the toll rate per mile. The toll rate is assumed to increase every year based on Consumer Price Index (CPI). This assumption is necessary to preserve the toll's value over the forecast years, but the actual toll increase schedule will be decided by the governing toll authority.

In 2015, the electronic toll collection (ETC) rate for two-axle vehicles is $0.125 per mile for I-73 and $0.15 for the SELL and SC-22. The video toll is 150 percent of the ETC rate. Toll collection is assumed to be conducted through a combination of ETC and Video tolling.

The toll collection configurations and projected peak summer period average daily traffic (ADT) for I-73, the SELL, and SC-22 are presented in Figure 5-1 through Figure 5-3, respectively, and the 2015 toll rates for the I-73, the SELL, and SC-22 are presented in Table 5-1 through Table 5-3, respectively. These tables also show the cumulative cost for traveling through multiple gantries. For example, on I-73, the cost for traveling through only one gantry ranges from $0.66 (MLG6) to $1.76 (MLG2), and traveling through all 10 gantries costs a total of $10.00. For the SELL, the cost for traveling through only one gantry ranges from $0.30 (SMLG5) to $1.08 (SMLG4), and traveling through all five gantries costs a total of $4.20. For SC-22, the single gantry toll ranges from $0.26 (SC22MLG7) to $1.63 (SC22MLG4), and traveling through all seven gantries costs a total of $4.23. The total lengths of SC-22 and SELL are the same, which is why the cumulative toll rates of all gantries are roughly the same for both facilities, even though SC-22 has a greater number of toll gantries.

Since the toll configuration for these facilities—also known as a barrier system—consists of multiple gantries, a single vehicle can have multiple transactions. Therefore, the calculated total transactions do not translate into ADT.

Table 5-1. I-73 Toll Rates by Gantry (2015)

Gantry	Toll Distance (miles)	Cost	Cumulative Northbound Cost (MLG1 to MLG10)	Cumulative Southbound Cost (MLG10 to MLG1)
MLG1	10.2	$1.28	$1.28	$10.00
MLG2	14.1	$1.76	$3.04	$8.72
MLG3	4.5	$0.56	$3.60	$6.96
MLG4	7.4	$0.93	$4.53	$6.40
MLG5	5.8	$0.73	$5.26	$5.47
MLG6	5.3	$0.66	$5.92	$4.74
MLG7	9.9	$1.24	$7.16	$4.08
MLG8	5.6	$0.70	$7.86	$2.84
MLG9	8.6	$1.07	$8.93	$2.14
MLG10	8.6	$1.07	$10.00	$1.07

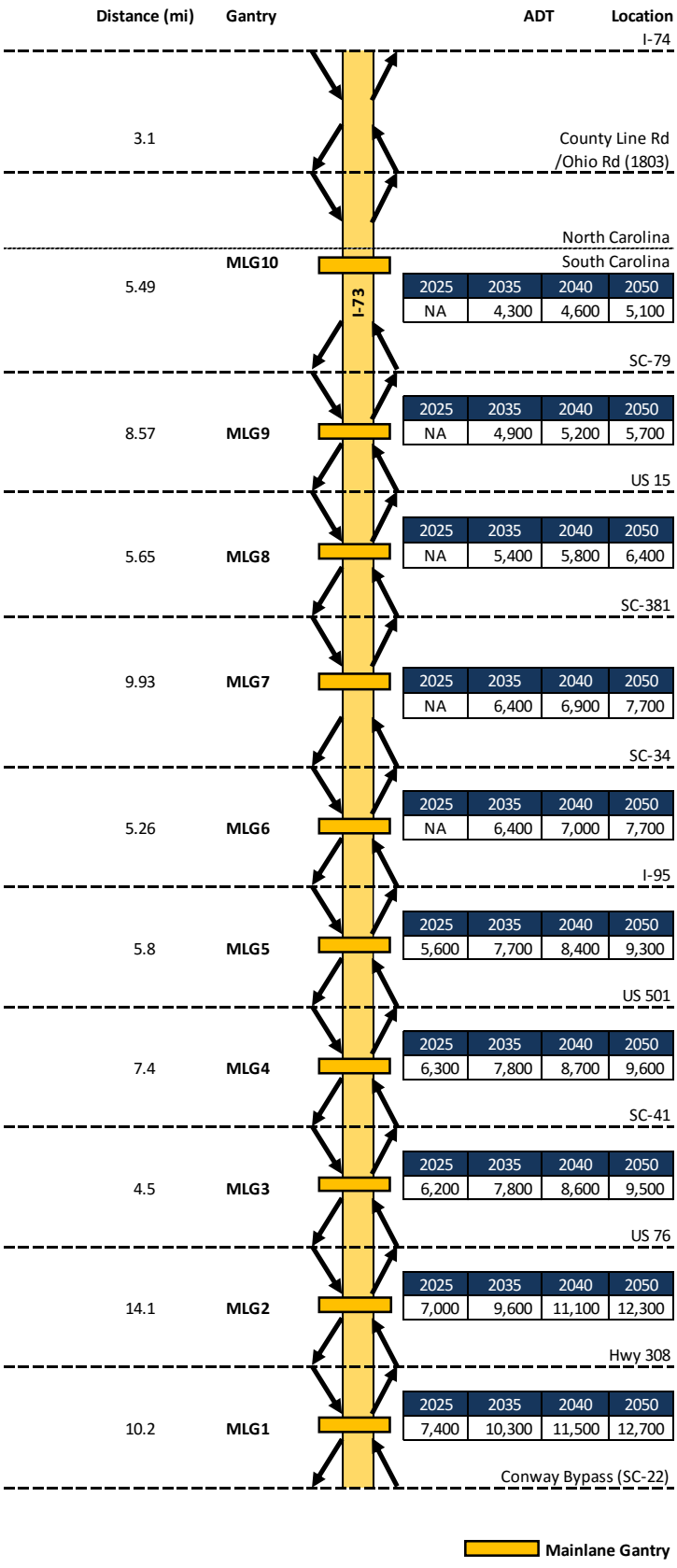


Figure 5-1. I-73 Toll Configuration

Table 5-2. SELL Toll Rates by Gantry (2015)

Gantry	Toll Distance (miles)	Cost	Cumulative Southbound Cost (SMLG1 to SMLG5)	Cumulative Northbound Cost (SMLG5 to SMLG1)
SMLG1	6.8	$1.02	$1.02	$4.20
SMLG2	5.4	$0.81	$1.83	$3.18
SMLG3	6.6	$0.99	$2.82	$2.37
SMLG4	7.2	$1.08	$3.90	$1.38
SMLG5	2.0	$0.30	$4.20	$0.30

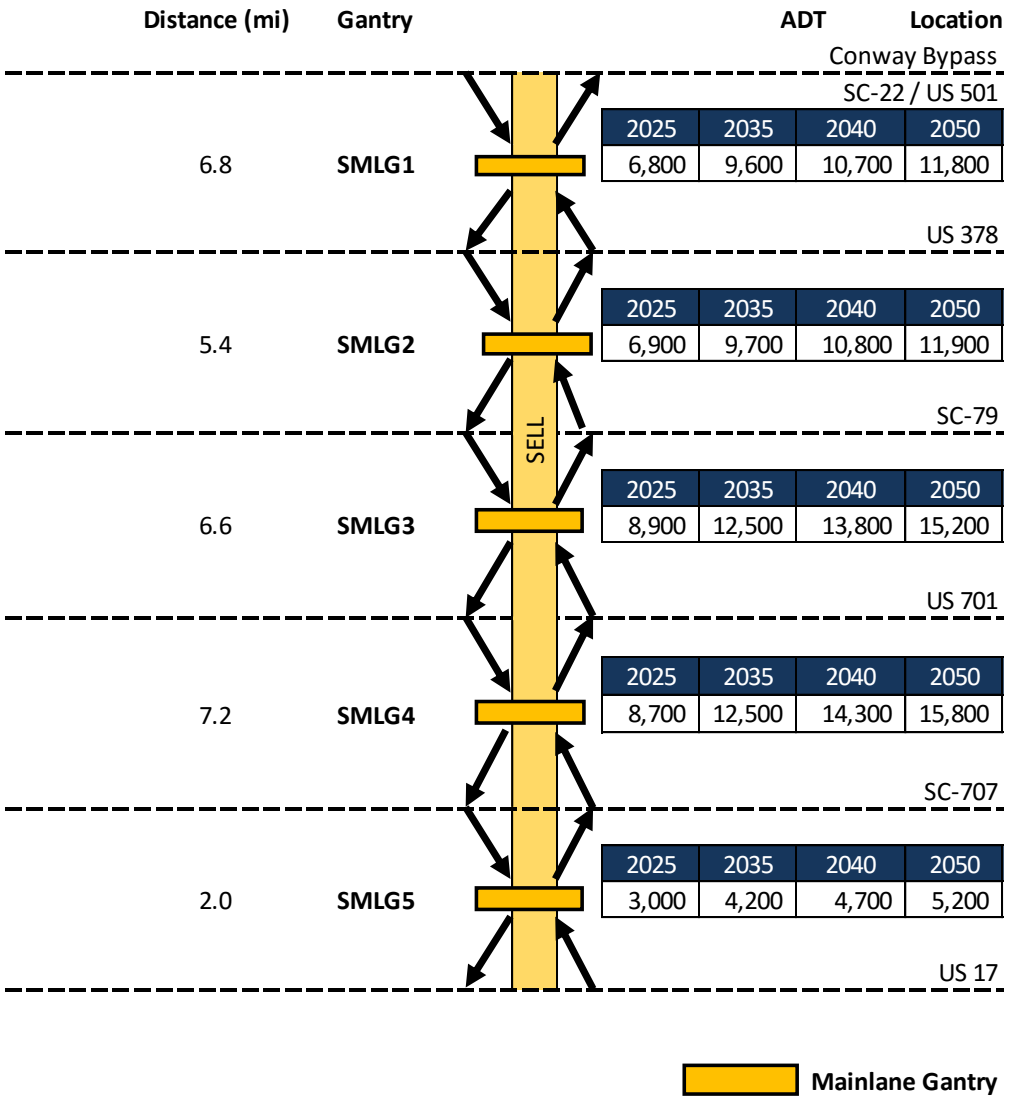


Figure 5-2. SELL Toll Configuration

Table 5-3. SC-22 Toll Rates by Gantry (2015)

Gantry	Toll Distance (miles)	Cost	Cumulative Southbound Cost (SC22MLG1 to SC22MLG7)	Cumulative Northbound Cost (SC22MLG7 to SC22MLG1)
SC22MLG1	4.30	$0.65	$0.65	$4.23
SC22MLG2	1.92	$0.29	$0.93	$3.59
SC22MLG3	1.44	$0.22	$1.15	$3.30
SC22MLG4	10.84	$1.63	$2.78	$3.08
SC22MLG5	4.10	$0.62	$3.39	$1.46
SC22MLG6	3.91	$0.59	$3.98	$0.84
SC22MLG7	1.70	$0.26	$4.23	$0.26

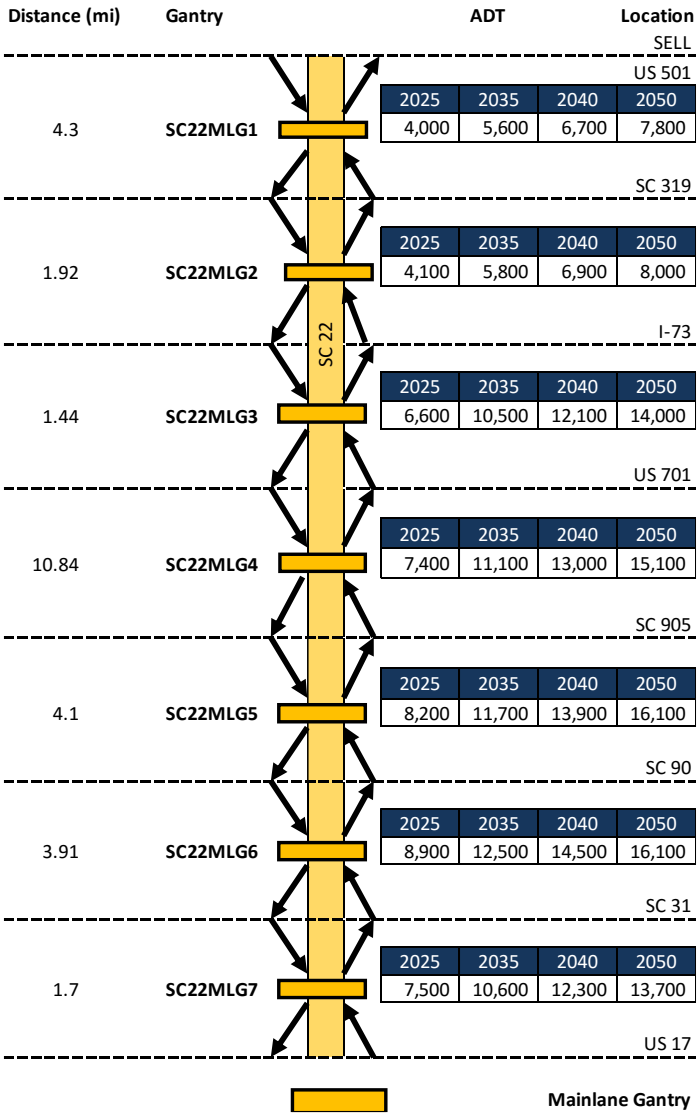
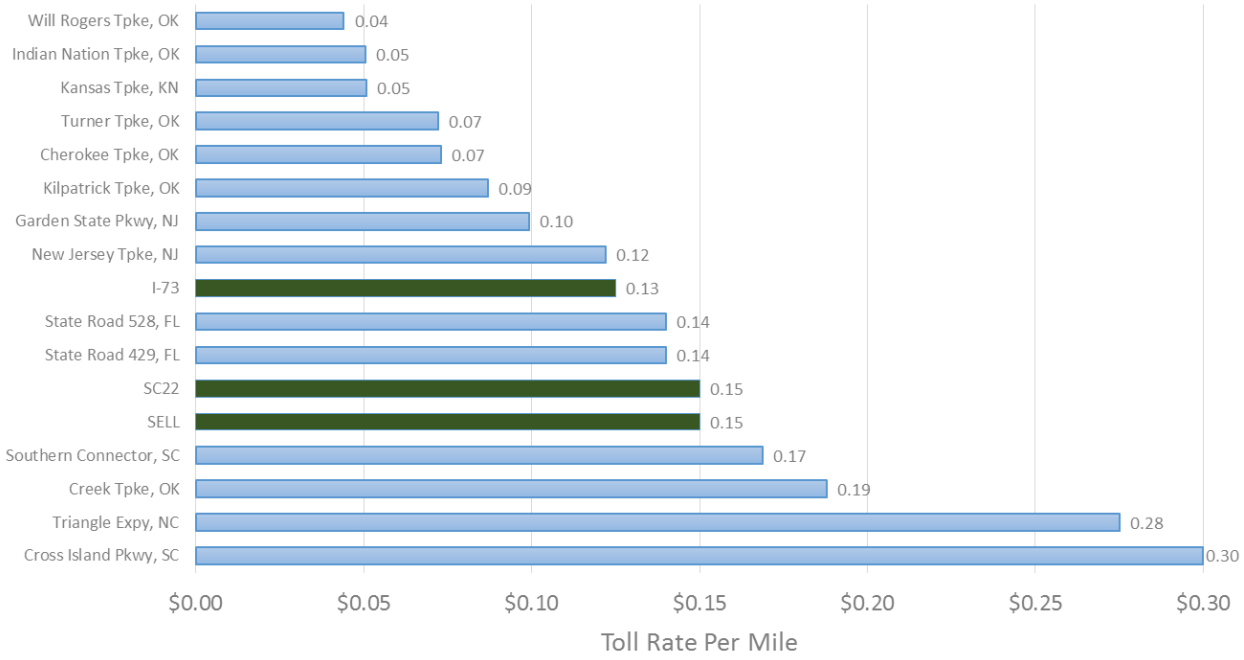


Figure 5-3. SC-22 Toll Configuration

Based on 2015 prices, Figure 5-4 compares the initial toll rate used in this analysis to the ETC toll rates of various other toll roads across the United States. While these findings indicate that the Project's proposed toll rate falls within the range of other toll roads, it is important to note that this comparison is intended only as a benchmark since it does not include all U.S. toll roads. It is also worth noting that the toll roads listed in Figure 5-4 differ significantly from one another based on their function (urban vs. inter-urban), length, land use, and the socioeconomics of their geographic regions.

Figure 5-4. Comparison of ETC Toll Rates among Various U.S. Toll Roads



5.2. Traffic and Revenue Assumptions

The T&R projections for the I-73 Project, the SELL, and SC-22 are based on the assumptions outlined below.

General

- Facility limits for T&R estimation:
  - I-73 South – from SC-22 (Conway Bypass; Veteran's Highway) in the Myrtle Beach/Conway area to the northwest between Mullins and Marion, intersecting I-95 just west of Dillon
  - I-73 North – from I-95 just west of Dillon to I-73/74 in the Rockingham/Hamlet, NC region
  - SELL – northwest from US 17 to US 501 at the SC-22 interchange
  - SC-22 –US 501 at the proposed SELL interchange to US 17 east of North Myrtle Beach

Facility Length

- I-73 South – 42 miles
- I-73 North – 38 miles
- SELL – 28 miles
- SC-22 – 28 miles

Opening Date of the Facility

- I-73 South – 2025
- I-73 North – 2035
- SELL – 2025
- SC-22 – 2025 (Converted to a Toll Road)

Demographics and Transportation Network Assumptions

- Demographics/trip tables: C&M reviewed demographic data for the study area as presented in Chapter 3.
- The background network is based on the December 2014 SCSWMv2 build 141126 TDM from SCDOT and its corresponding network settings.
- The posted speed limit will be 65 mph for I-73 (North and South) and the SELL,
- The posted speed limit on SC-22 will range from 60 to 65 mph, which is the existing speed limit range on this facility.
- The Peak Period model results were used as the input for the daily transactions within the T&R forecast.
- The transaction growth after 2040 was assumed to follow the previous growth trends at the gantry level.
- The transaction growth from 2050 to 2065 was assumed to be 1.0 percent per year.

Traffic Ramp-Up

Table **5**-**4** presents the ramp-up reduction rates, which represent reduced traffic due to drivers' lack of knowledge of the facility or its travel time savings. As presented in the Table **5**-**4**, the reduction factor is removed after 5 years.

ETC Penetration Rates

Table 5-5 presents the ETC penetration rates. This rate is an estimate of drivers' acceptance of using transponders to pay tolls. Since the ETC concept is well known in the northeast, C&M estimates that although the ETC penetration rate may be as low as 50 percent in 2025, it will reach 80 to 85 percent within 5 years.

Revenue Days

Table 5-6 presents the Revenue Days factors, which are used to annualize transaction and revenue figures. These factors translate the daily model output into annual figures. C&M modeled the Peak Period, which is why the overall annualization factor results in 335 revenue days for passenger cars. For trucks, the annualization factor is always lower than 290 days, reflecting that commercial traffic is reduced during the weekends.

Leakage

- The ETC Leakage is assumed to be 1 percent.
- Video toll leakage will decrease from 45 percent in 2025 to 25 percent by 2029 and remains the same from 2029 onward.

Toll Assumptions

- I-73 North and South: 12.5 cents per mile
- SELL: 15 cents per mile
- SC-22: 15 cents per mile
- The toll rate will increase based on CPI; C&M assumed a CPI growth rate of 2.5 percent.
- Video tollers will be charged 150 percent of the ETC rate.

Table 5-4. Ramp-Up Reduction Rates

I-73 South				I-73 North				SELL / SC-22			
Year	Auto	Light Trucks	Heavy Trucks	Year	Auto	Light Trucks	Heavy Trucks	Year	Auto	Light Trucks	Heavy Trucks
2025	50%	60%	60%	2035	60%	70%	70%	2025	60%	65%	65%
2026	60%	70%	70%	2036	70%	80%	80%	2026	70%	75%	75%
2027	70%	80%	80%	2037	80%	90%	90%	2027	80%	80%	80%
2028	80%	90%	90%	2038	90%	100%	100%	2028	90%	95%	95%
2029	90%	100%	100%	2039	100%	100%	100%	2029	100%	100%	100%
2030	100%	100%	100%	2040	100%	100%	100%	2030	100%	100%	100%

Table 5-5. ETC Penetration Rates

I-73 South				I-73 North				SELL / SC-22			
Year	Auto	Light Trucks	Heavy Trucks	Year	Auto	Light Trucks	Heavy Trucks	Year	Auto	Light Trucks	Heavy Trucks
2025	50%	65%	65%	2035	55%	70%	70%	2025	60%	65%	65%
2026	60%	70%	70%	2036	65%	73%	73%	2026	65%	70%	70%
2027	70%	75%	75%	2037	75%	75%	75%	2027	70%	75%	75%
2028	80%	80%	80%	2038	80%	80%	80%	2028	75%	80%	80%
2029	80%	85%	85%	2039	80%	85%	85%	2029	80%	85%	85%

Table 5-6. Revenue Days

Facility	Auto	Light Trucks	Heavy Trucks
I-73 South	335	280	270
I-73 North	335	280	270
SELL / SC-22	340	290	280

5.3. Scenario Traffic & Revenue Forecasts

Based on the traffic forecast at each Mainlane Gantry toll plaza location, C&M prepared an annual forecast for the Project from 2025 to 2065. This forecast includes the following Scenarios:

- Scenario 1: I-73 North and South, without the SELL and SC-22 No Toll
- Scenario 2: I-73 North and South, with the SELL and SC-22 No Toll
- Scenario 3: I-73 South, without the SELL and SC-22 No Toll
- Scenario 4: I-73 South, with the SELL and SC-22 No Toll
- Scenario 5: I-73 North and South, without the SELL and SC-22 Tolled
- Scenario 6: I-73 North and South, with the SELL and SC-22 Tolled
- Scenario 7: I-73 South, without the SELL and SC-22 Tolled
- Scenario 8: I-73 South, with the SELL and SC-22 Tolled

The "I-73 North and South" scenarios assume that both northern and southern sections are open at their corresponding opening years. The "I-73 South" scenarios assume that only the southern section of the Project will be built throughout the entire forecast period. The truncation "with/without the SELL" shows whether the SELL is considered in the scenario. Scenarios with "SC-22 Tolled" consider SC-22 as a tolled facility; "SC-22 No Toll" scenarios assume there is no toll on SC-22, which represents the existing condition of this facility.

Table 5-7 presents the Net Present Values (NPVs) for every scenario and individual facility. These NPVs are cumulative over the 40-year forecast period, in 2015 Dollars.

Table 5-7. Net Present Values by Scenario and Facility

Scenario	Description	Net Present Value, in Thousands Cumulative 2015 Dollars				
		I-73 North and South	I-73 South Only	SELL	SC 22	Total
1	I-73 North and South, without the SELL and SC-22 No Toll	$1,103,566	-	-	-	$1,103,566
2	I-73 North and South, with the SELL and SC-22 No Toll	$1,205,111	-	$811,765	-	$2,016,876
3	I-73 South, without the SELL and SC-22 No Toll	-	$790,031	-	-	$790,031
4	I-73 South, with the SELL and SC-22 No Toll	-	$861,823	$811,765	-	$1,673,588
5	I-73 North and South, without the SELL and SC-22 Tolled	$1,169,321	-	-	$946,533	$2,115,854
6	I-73 North and South, with the SELL and SC-22 Tolled	$1,269,655	-	$604,633	$807,502	$2,681,790
7	I-73 South, without the SELL and SC-22 Tolled	-	$832,788	-	$942,008	$1,774,796
8	I-73 South, with the SELL and SC-22 Tolled	-	$903,360	$599,870	$802,967	$2,306,197

The total transactions and revenue over the 40-year forecast period, by scenario, are presented in Table 5-8 through Table 5-15 and illustrated in Figure 5-5 and Figure 5-6. The detailed T&R figures by facility are presented in Appendix D.

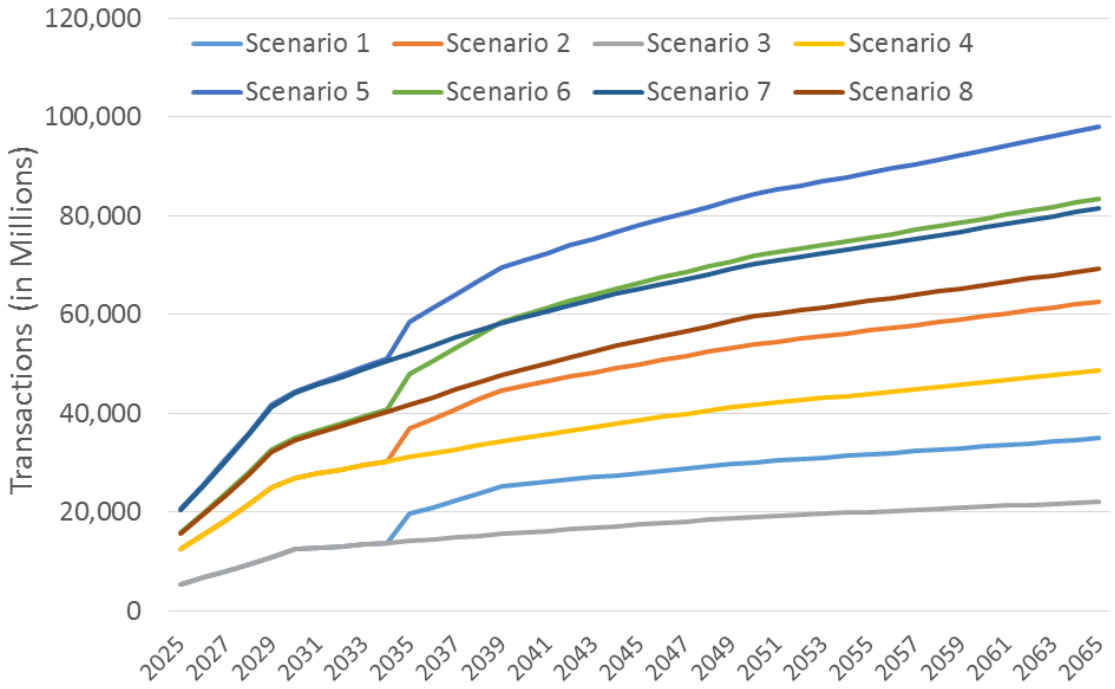


Figure 5-5. Total Transactions by Scenario

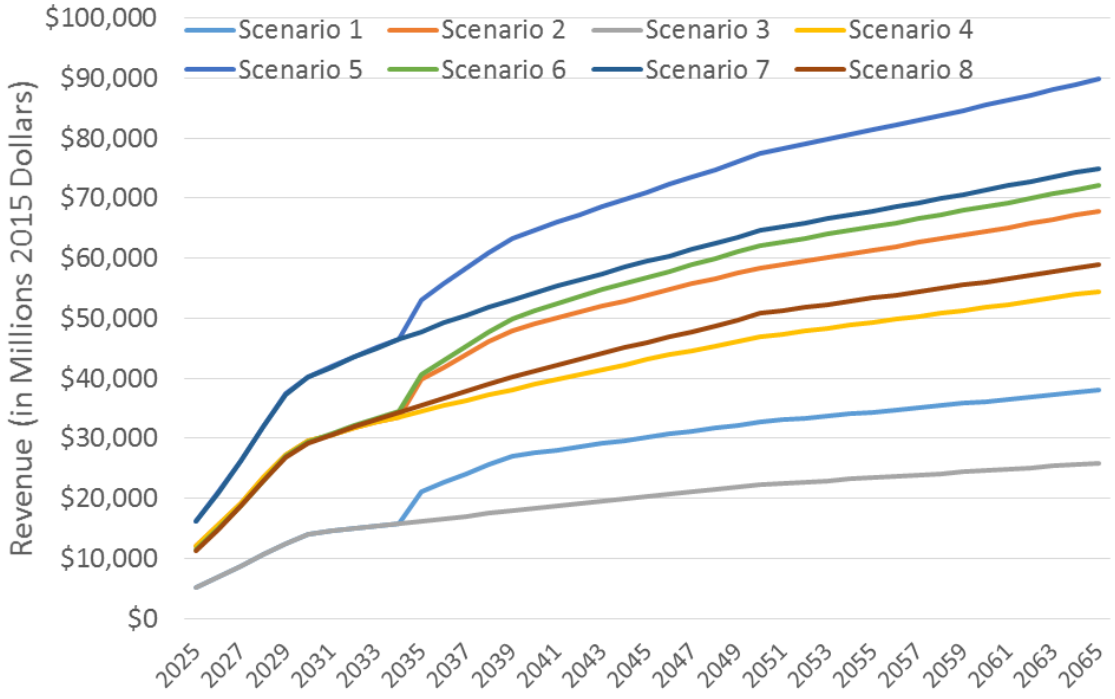


Figure 5-6. Total Revenue (2015 Dollars) by Scenario

Table 5-8. Forecasted Transactions and Revenue for Scenario 1: I-73 North and South, without the SELL and SC-22 No Toll

Year	Transactions (in Thousands)			Revenue (in Thousands 2015 Dollars)			Revenue (in Thousands Nominal Dollars)		
	Auto	Trucks	Total	Auto	Trucks	Total	Auto	Trucks	Total
2025	4,785	652	5,437	$4,024	$1,179	$5,203	$5,151	$1,509	$6,660
2026	5,945	780	6,725	$5,422	$1,477	$6,899	$7,115	$1,938	$9,053
2027	7,171	914	8,085	$6,915	$1,787	$8,702	$9,300	$2,403	$11,703
2028	8,463	1,053	9,516	$8,559	$2,117	$10,676	$11,798	$2,919	$14,717
2029	9,820	1,198	11,018	$9,993	$2,468	$12,461	$14,119	$3,488	$17,607
2030	11,240	1,226	12,466	$11,511	$2,540	$14,051	$16,671	$3,678	$20,349
2031	11,568	1,253	12,821	$11,921	$2,611	$14,532	$17,697	$3,876	$21,573
2032	11,892	1,281	13,173	$12,335	$2,683	$15,018	$18,770	$4,082	$22,852
2033	12,215	1,308	13,523	$12,686	$2,743	$15,429	$19,786	$4,278	$24,064
2034	12,535	1,336	13,871	$13,036	$2,803	$15,839	$20,841	$4,481	$25,322
2035	18,007	1,712	19,719	$17,686	$3,482	$21,168	$28,981	$5,705	$34,686
2036	19,276	1,797	21,073	$18,975	$3,646	$22,621	$31,870	$6,124	$37,994
2037	20,568	1,882	22,450	$20,331	$3,815	$24,146	$35,002	$6,568	$41,570
2038	21,884	1,970	23,854	$21,661	$3,993	$25,654	$38,223	$7,046	$45,269
2039	23,222	2,005	25,227	$22,929	$4,078	$27,007	$41,472	$7,375	$48,847
2040	23,657	2,040	25,697	$23,393	$4,148	$27,541	$43,369	$7,691	$51,060
2041	24,089	2,074	26,163	$23,855	$4,218	$28,073	$45,332	$8,015	$53,347
2042	24,517	2,108	26,625	$24,316	$4,286	$28,602	$47,362	$8,349	$55,711
2043	24,941	2,142	27,083	$24,775	$4,354	$29,129	$49,463	$8,692	$58,155
2044	25,362	2,175	27,537	$25,233	$4,420	$29,653	$51,637	$9,045	$60,682
2045	25,779	2,208	27,987	$25,689	$4,485	$30,174	$53,885	$9,407	$63,292
2046	26,192	2,240	28,432	$26,144	$4,549	$30,693	$56,210	$9,780	$65,990
2047	26,602	2,272	28,874	$26,598	$4,611	$31,209	$58,616	$10,162	$68,778
2048	27,008	2,303	29,311	$27,051	$4,673	$31,724	$61,103	$10,555	$71,658
2049	27,410	2,334	29,744	$27,502	$4,733	$32,235	$63,675	$10,959	$74,634
2050	27,808	2,365	30,173	$27,952	$4,793	$32,745	$66,335	$11,374	$77,709
2051	28,086	2,389	30,475	$28,231	$4,842	$33,073	$68,673	$11,778	$80,451
2052	28,367	2,413	30,780	$28,514	$4,890	$33,404	$71,095	$12,192	$83,287
2053	28,651	2,437	31,088	$28,799	$4,939	$33,738	$73,601	$12,623	$86,224
2054	28,938	2,461	31,399	$29,088	$4,988	$34,076	$76,198	$13,066	$89,264
2055	29,227	2,486	31,713	$29,378	$5,038	$34,416	$78,882	$13,527	$92,409
2056	29,519	2,511	32,030	$29,672	$5,089	$34,761	$81,663	$14,006	$95,669
2057	29,814	2,536	32,350	$29,968	$5,140	$35,108	$84,540	$14,500	$99,040
2058	30,113	2,561	32,674	$30,269	$5,190	$35,459	$87,523	$15,007	$102,530
2059	30,414	2,587	33,001	$30,571	$5,243	$35,814	$90,607	$15,539	$106,146
2060	30,718	2,613	33,331	$30,877	$5,296	$36,173	$93,801	$16,089	$109,890
2061	31,025	2,639	33,664	$31,186	$5,348	$36,534	$97,109	$16,653	$113,762
2062	31,336	2,665	34,001	$31,498	$5,401	$36,899	$100,532	$17,238	$117,770
2063	31,649	2,692	34,341	$31,813	$5,456	$37,269	$104,076	$17,849	$121,925
2064	31,965	2,719	34,684	$32,131	$5,510	$37,641	$107,744	$18,477	$126,221
2065	32,285	2,746	35,031	$32,452	$5,565	$38,017	$111,541	$19,128	$130,669

Table 5-9. Forecasted Transactions and Revenue for Scenario 2: I-73 North and South, with the SELL and SC-22 No Toll

Year	Transactions (in Thousands)			Revenue (in Thousands 2015 Dollars)			Revenue (in Thousands Nominal Dollars)		
	Auto	Trucks	Total	Auto	Trucks	Total	Auto	Trucks	Total
2025	10,534	2,125	12,659	$8,380	$3,602	$11,982	$10,726	$4,611	$15,337
2026	12,964	2,559	15,523	$11,013	$4,535	$15,548	$14,450	$5,950	$20,400
2027	15,542	2,898	18,440	$13,811	$5,300	$19,111	$18,573	$7,128	$25,701
2028	18,266	3,500	21,766	$16,875	$6,570	$23,445	$23,263	$9,056	$32,319
2029	21,134	3,876	25,010	$19,820	$7,458	$27,278	$28,005	$10,537	$38,542
2030	23,037	4,002	27,039	$21,827	$7,734	$29,561	$31,613	$11,201	$42,814
2031	23,767	4,125	27,892	$22,653	$8,008	$30,661	$33,628	$11,888	$45,516
2032	24,488	4,246	28,734	$23,480	$8,280	$31,760	$35,726	$12,599	$48,325
2033	25,200	4,365	29,565	$24,180	$8,516	$32,696	$37,712	$13,283	$50,995
2034	25,904	4,482	30,386	$24,874	$8,748	$33,622	$39,765	$13,985	$53,750
2035	32,143	4,973	37,116	$30,189	$9,643	$39,832	$49,469	$15,801	$65,270
2036	33,866	5,150	39,016	$31,893	$9,984	$41,877	$53,567	$16,770	$70,337
2037	35,608	5,326	40,934	$33,665	$10,325	$43,990	$57,957	$17,776	$75,733
2038	37,372	5,501	42,873	$35,405	$10,673	$46,078	$62,475	$18,833	$81,308
2039	39,154	5,618	44,772	$37,075	$10,914	$47,989	$67,058	$19,740	$86,798
2040	39,954	5,732	45,686	$37,870	$11,136	$49,006	$70,208	$20,645	$90,853
2041	40,743	5,843	46,586	$38,656	$11,352	$50,008	$73,457	$21,572	$95,029
2042	41,520	5,951	47,471	$39,434	$11,562	$50,996	$76,810	$22,520	$99,330
2043	42,286	6,056	48,342	$40,205	$11,765	$51,970	$80,268	$23,490	$103,758
2044	43,040	6,159	49,199	$40,968	$11,963	$52,931	$83,835	$24,482	$108,317
2045	43,782	6,258	50,040	$41,723	$12,155	$53,878	$87,515	$25,497	$113,012
2046	44,514	6,355	50,869	$42,469	$12,341	$54,810	$91,309	$26,534	$117,843
2047	45,233	6,448	51,681	$43,208	$12,521	$55,729	$95,221	$27,594	$122,815
2048	45,941	6,539	52,480	$43,940	$12,695	$56,635	$99,254	$28,676	$127,930
2049	46,637	6,627	53,264	$44,664	$12,863	$57,527	$103,411	$29,782	$133,193
2050	47,322	6,712	54,034	$45,380	$13,025	$58,405	$107,696	$30,910	$138,606
2051	47,795	6,779	54,574	$45,834	$13,155	$58,989	$111,492	$32,000	$143,492
2052	48,273	6,847	55,120	$46,292	$13,287	$59,579	$115,422	$33,129	$148,551
2053	48,756	6,916	55,672	$46,755	$13,421	$60,176	$119,490	$34,299	$153,789
2054	49,244	6,985	56,229	$47,223	$13,555	$60,778	$123,704	$35,509	$159,213
2055	49,736	7,055	56,791	$47,695	$13,691	$61,386	$128,064	$36,762	$164,826
2056	50,234	7,125	57,359	$48,173	$13,826	$61,999	$132,582	$38,052	$170,634
2057	50,735	7,197	57,932	$48,653	$13,966	$62,619	$137,250	$39,398	$176,648
2058	51,242	7,269	58,511	$49,139	$14,106	$63,245	$142,086	$40,788	$182,874
2059	51,755	7,341	59,096	$49,631	$14,246	$63,877	$147,097	$42,222	$189,319
2060	52,273	7,414	59,687	$50,128	$14,387	$64,515	$152,284	$43,707	$195,991
2061	52,795	7,489	60,284	$50,628	$14,533	$65,161	$157,648	$45,254	$202,902
2062	53,324	7,563	60,887	$51,136	$14,677	$65,813	$163,211	$46,845	$210,056
2063	53,857	7,639	61,496	$51,647	$14,824	$66,471	$168,962	$48,497	$217,459
2064	54,395	7,716	62,111	$52,163	$14,973	$67,136	$174,917	$50,209	$225,126
2065	54,940	7,793	62,733	$52,685	$15,122	$67,807	$181,084	$51,976	$233,060

Table 5-10. Forecasted Transactions and Revenue for Scenario 3: I-73 South, without the SELL and SC-22 No Toll

Year	Transactions (in Thousands)			Revenue (in Thousands 2015 Dollars)			Revenue (in Thousands Nominal Dollars)		
	Auto	Trucks	Total	Auto	Trucks	Total	Auto	Trucks	Total
2025	4,785	652	5,437	$4,024	$1,179	$5,203	$5,151	$1,509	$6,660
2026	5,945	780	6,725	$5,422	$1,477	$6,899	$7,115	$1,938	$9,053
2027	7,171	914	8,085	$6,915	$1,787	$8,702	$9,300	$2,403	$11,703
2028	8,463	1,053	9,516	$8,559	$2,117	$10,676	$11,798	$2,919	$14,717
2029	9,820	1,198	11,018	$9,993	$2,468	$12,461	$14,119	$3,488	$17,607
2030	11,240	1,226	12,466	$11,511	$2,540	$14,051	$16,671	$3,678	$20,349
2031	11,568	1,253	12,821	$11,921	$2,611	$14,532	$17,697	$3,876	$21,573
2032	11,892	1,281	13,173	$12,335	$2,683	$15,018	$18,770	$4,082	$22,852
2033	12,215	1,308	13,523	$12,686	$2,743	$15,429	$19,786	$4,278	$24,064
2034	12,535	1,336	13,871	$13,036	$2,803	$15,839	$20,841	$4,481	$25,322
2035	12,853	1,363	14,217	$13,387	$2,862	$16,248	$21,936	$4,689	$26,625
2036	13,168	1,391	14,559	$13,737	$2,919	$16,657	$23,073	$4,903	$27,976
2037	13,481	1,418	14,900	$14,088	$2,976	$17,064	$24,253	$5,124	$29,377
2038	13,792	1,445	15,238	$14,438	$3,033	$17,471	$25,477	$5,352	$30,829
2039	14,101	1,472	15,574	$14,788	$3,089	$17,876	$26,747	$5,586	$32,334
2040	14,408	1,499	15,907	$15,138	$3,144	$18,282	$28,065	$5,828	$33,893
2041	14,713	1,526	16,239	$15,488	$3,198	$18,686	$29,432	$6,078	$35,509
2042	15,016	1,552	16,568	$15,838	$3,252	$19,090	$30,849	$6,335	$37,184
2043	15,317	1,578	16,895	$16,188	$3,306	$19,494	$32,319	$6,600	$38,919
2044	15,616	1,604	17,220	$16,538	$3,359	$19,897	$33,843	$6,873	$40,716
2045	15,913	1,630	17,543	$16,888	$3,411	$20,299	$35,424	$7,155	$42,578
2046	16,208	1,655	17,864	$17,238	$3,463	$20,701	$37,062	$7,445	$44,507
2047	16,501	1,681	18,182	$17,589	$3,514	$21,103	$38,761	$7,744	$46,505
2048	16,792	1,706	18,498	$17,939	$3,565	$21,504	$40,522	$8,052	$48,574
2049	17,081	1,731	18,812	$18,290	$3,615	$21,905	$42,348	$8,369	$50,717
2050	17,368	1,755	19,123	$18,642	$3,664	$22,306	$44,240	$8,695	$52,936
2051	17,542	1,773	19,315	$18,828	$3,701	$22,529	$45,800	$9,003	$54,803
2052	17,717	1,791	19,508	$19,016	$3,738	$22,754	$47,414	$9,320	$56,734
2053	17,894	1,809	19,703	$19,206	$3,776	$22,982	$49,084	$9,650	$58,734
2054	18,073	1,827	19,900	$19,398	$3,813	$23,211	$50,815	$9,988	$60,803
2055	18,254	1,845	20,099	$19,593	$3,851	$23,444	$52,608	$10,340	$62,948
2056	18,437	1,863	20,300	$19,789	$3,889	$23,678	$54,463	$10,703	$65,166
2057	18,621	1,882	20,503	$19,987	$3,928	$23,915	$56,383	$11,081	$67,464
2058	18,807	1,901	20,708	$20,186	$3,968	$24,154	$58,368	$11,474	$69,842
2059	18,995	1,920	20,915	$20,388	$4,008	$24,396	$60,426	$11,879	$72,305
2060	19,185	1,939	21,124	$20,592	$4,047	$24,639	$62,557	$12,294	$74,851
2061	19,377	1,958	21,335	$20,798	$4,087	$24,885	$64,762	$12,726	$77,488
2062	19,570	1,978	21,548	$21,005	$4,129	$25,134	$67,042	$13,179	$80,221
2063	19,765	1,998	21,763	$21,214	$4,170	$25,384	$69,401	$13,642	$83,043
2064	19,963	2,018	21,981	$21,427	$4,212	$25,639	$71,851	$14,124	$85,975
2065	20,163	2,038	22,201	$21,642	$4,254	$25,896	$74,386	$14,621	$89,007

Table 5-11. Forecasted Transactions and Revenue for Scenario 4: I-73 South, with the SELL and SC-22 No Toll

Year	Transactions (in Thousands)			Revenue (in Thousands 2015 Dollars)			Revenue (in Thousands Nominal Dollars)		
	Auto	Trucks	Total	Auto	Trucks	Total	Auto	Trucks	Total
2025	10,534	2,125	12,659	$8,380	$3,602	$11,982	$10,726	$4,611	$15,337
2026	12,964	2,559	15,523	$11,013	$4,535	$15,548	$14,450	$5,950	$20,400
2027	15,542	2,898	18,440	$13,811	$5,300	$19,111	$18,573	$7,128	$25,701
2028	18,266	3,500	21,766	$16,875	$6,570	$23,445	$23,263	$9,056	$32,319
2029	21,134	3,876	25,010	$19,820	$7,458	$27,278	$28,005	$10,537	$38,542
2030	23,037	4,002	27,039	$21,827	$7,734	$29,561	$31,613	$11,201	$42,814
2031	23,767	4,125	27,892	$22,653	$8,008	$30,661	$33,628	$11,888	$45,516
2032	24,488	4,246	28,734	$23,480	$8,280	$31,760	$35,726	$12,599	$48,325
2033	25,200	4,365	29,565	$24,180	$8,516	$32,696	$37,712	$13,283	$50,995
2034	25,904	4,482	30,386	$24,874	$8,748	$33,622	$39,765	$13,985	$53,750
2035	26,597	4,598	31,195	$25,563	$8,976	$34,539	$41,889	$14,708	$56,596
2036	27,284	4,713	31,997	$26,248	$9,201	$35,449	$44,086	$15,454	$59,540
2037	27,960	4,825	32,785	$26,926	$9,420	$36,347	$46,357	$16,218	$62,575
2038	28,627	4,934	33,561	$27,598	$9,635	$37,233	$48,700	$17,001	$65,701
2039	29,282	5,042	34,324	$28,263	$9,843	$38,106	$51,120	$17,804	$68,924
2040	29,929	5,146	35,075	$28,922	$10,047	$38,968	$53,618	$18,626	$72,244
2041	30,565	5,247	35,812	$29,573	$10,245	$39,818	$56,196	$19,468	$75,664
2042	31,191	5,346	36,537	$30,217	$10,438	$40,655	$58,857	$20,330	$79,187
2043	31,807	5,442	37,250	$30,855	$10,624	$41,480	$61,602	$21,212	$82,814
2044	32,413	5,536	37,949	$31,487	$10,806	$42,293	$64,434	$22,115	$86,548
2045	33,009	5,627	38,636	$32,112	$10,983	$43,094	$67,356	$23,037	$90,393
2046	33,595	5,715	39,311	$32,730	$11,154	$43,884	$70,368	$23,981	$94,349
2047	34,171	5,801	39,972	$33,341	$11,319	$44,661	$73,476	$24,945	$98,421
2048	34,737	5,884	40,620	$33,947	$11,480	$45,427	$76,681	$25,930	$102,611
2049	35,292	5,964	41,256	$34,546	$11,634	$46,180	$79,985	$26,937	$106,921
2050	35,838	6,042	41,880	$35,139	$11,783	$46,922	$83,392	$27,963	$111,354
2051	36,196	6,102	42,298	$35,490	$11,900	$47,390	$86,330	$28,947	$115,277
2052	36,557	6,164	42,721	$35,844	$12,022	$47,866	$89,371	$29,975	$119,346
2053	36,924	6,225	43,149	$36,204	$12,141	$48,345	$92,525	$31,028	$123,553
2054	37,294	6,287	43,581	$36,567	$12,261	$48,828	$95,790	$32,119	$127,909
2055	37,667	6,350	44,017	$36,933	$12,384	$49,317	$99,167	$33,252	$132,419
2056	38,043	6,414	44,457	$37,301	$12,509	$49,810	$102,660	$34,428	$137,088
2057	38,423	6,478	44,901	$37,674	$12,634	$50,308	$106,279	$35,641	$141,920
2058	38,807	6,543	45,350	$38,050	$12,761	$50,811	$110,022	$36,898	$146,920
2059	39,196	6,608	45,804	$38,431	$12,887	$51,318	$113,902	$38,194	$152,096
2060	39,588	6,674	46,262	$38,816	$13,016	$51,832	$117,920	$39,542	$157,462
2061	39,983	6,741	46,724	$39,203	$13,147	$52,350	$122,073	$40,938	$163,011
2062	40,384	6,808	47,192	$39,597	$13,278	$52,875	$126,382	$42,380	$168,762
2063	40,787	6,877	47,664	$39,992	$13,412	$53,404	$130,833	$43,878	$174,711
2064	41,194	6,946	48,140	$40,391	$13,547	$53,938	$135,442	$45,427	$180,869
2065	41,607	7,015	48,622	$40,796	$13,681	$54,477	$140,220	$47,023	$187,243

Table 5-12. Forecasted Transactions and Revenue for Scenario 5: I-73 North and South, without the SELL and SC-22 Tolled

Year	Transactions (in Thousands)			Revenue (in Thousands 2015 Dollars)			Revenue (in Thousands Nominal Dollars)		
	Auto	Trucks	Total	Auto	Trucks	Total	Auto	Trucks	Total
2025	14,124	1,823	15,947	$8,276	$3,086	$11,362	$10,594	$3,950	$14,544
2026	17,478	2,243	19,721	$10,940	$3,967	$14,907	$14,354	$5,206	$19,560
2027	21,091	2,691	23,782	$13,812	$4,908	$18,720	$18,576	$6,601	$25,177
2028	24,967	3,166	28,133	$17,001	$5,927	$22,928	$23,436	$8,170	$31,606
2029	29,108	3,542	32,650	$20,178	$6,795	$26,973	$28,511	$9,601	$38,112
2030	31,402	3,689	35,091	$22,232	$7,107	$29,339	$32,199	$10,293	$42,492
2031	32,711	3,825	36,536	$23,289	$7,405	$30,694	$34,573	$10,993	$45,566
2032	34,024	3,955	37,979	$24,363	$7,690	$32,053	$37,071	$11,702	$48,773
2033	35,344	4,075	39,419	$25,318	$7,930	$33,248	$39,488	$12,368	$51,856
2034	36,668	4,189	40,857	$26,277	$8,154	$34,431	$42,008	$13,036	$55,044
2035	43,308	4,653	47,961	$31,671	$9,001	$40,672	$51,897	$14,749	$66,646
2036	45,821	4,814	50,635	$33,723	$9,312	$43,035	$56,641	$15,641	$72,282
2037	48,313	4,969	53,282	$35,831	$9,612	$45,443	$61,686	$16,548	$78,234
2038	50,788	5,116	55,904	$37,898	$9,909	$47,807	$66,875	$17,486	$84,361
2039	53,242	5,202	58,444	$39,890	$10,091	$49,981	$72,150	$18,252	$90,402
2040	54,683	5,277	59,960	$41,000	$10,241	$51,241	$76,011	$18,986	$94,997
2041	56,061	5,343	61,404	$42,082	$10,373	$52,455	$79,969	$19,711	$99,680
2042	57,375	5,402	62,777	$43,133	$10,487	$53,620	$84,014	$20,427	$104,441
2043	58,625	5,450	64,075	$44,155	$10,585	$54,740	$88,155	$21,133	$109,288
2044	59,813	5,488	65,301	$45,147	$10,664	$55,811	$92,390	$21,822	$114,212
2045	60,936	5,517	66,453	$46,110	$10,726	$56,836	$96,718	$22,498	$119,216
2046	61,996	5,538	67,534	$47,045	$10,770	$57,815	$101,147	$23,156	$124,303
2047	62,997	5,622	68,619	$47,941	$10,935	$58,876	$105,651	$24,098	$129,749
2048	64,007	5,706	69,713	$48,847	$11,098	$59,945	$110,338	$25,069	$135,407
2049	65,020	5,792	70,812	$49,759	$11,264	$61,023	$115,209	$26,080	$141,289
2050	66,042	5,877	71,919	$50,682	$11,429	$62,111	$120,278	$27,123	$147,401
2051	66,702	5,936	72,638	$51,188	$11,544	$62,732	$124,517	$28,081	$152,598
2052	67,370	5,995	73,365	$51,701	$11,658	$63,359	$128,909	$29,067	$157,976
2053	68,043	6,056	74,099	$52,217	$11,777	$63,994	$133,450	$30,099	$163,549
2054	68,725	6,115	74,840	$52,741	$11,891	$64,632	$138,159	$31,149	$169,308
2055	69,411	6,177	75,588	$53,267	$12,012	$65,279	$143,025	$32,253	$175,278
2056	70,104	6,239	76,343	$53,799	$12,133	$65,932	$148,066	$33,392	$181,458
2057	70,806	6,301	77,107	$54,337	$12,253	$66,590	$153,284	$34,566	$187,850
2058	71,514	6,364	77,878	$54,880	$12,376	$67,256	$158,687	$35,785	$194,472
2059	72,229	6,428	78,657	$55,429	$12,501	$67,930	$164,281	$37,050	$201,331
2060	72,952	6,492	79,444	$55,984	$12,625	$68,609	$170,074	$38,354	$208,428
2061	73,681	6,557	80,238	$56,544	$12,752	$69,296	$176,070	$39,708	$215,778
2062	74,418	6,622	81,040	$57,109	$12,877	$69,986	$182,274	$41,100	$223,374
2063	75,163	6,688	81,851	$57,681	$13,006	$70,687	$188,703	$42,549	$231,252
2064	75,914	6,756	82,670	$58,257	$13,139	$71,396	$195,352	$44,059	$239,411
2065	76,672	6,824	83,496	$58,839	$13,271	$72,110	$202,236	$45,614	$247,850

Table 5-13. Forecasted Transactions and Revenue for Scenario 6: I-73 North and South, with the SELL and SC-22 Tolled

Year	Transactions (in Thousands)			Revenue (in Thousands 2015 Dollars)			Revenue (in Thousands Nominal Dollars)		
	Auto	Trucks	Total	Auto	Trucks	Total	Auto	Trucks	Total
2025	17,835	2,879	20,714	$11,346	$4,827	$16,173	$14,524	$6,179	$20,703
2026	22,005	3,517	25,522	$14,889	$6,161	$21,050	$19,536	$8,084	$27,620
2027	26,474	4,193	30,667	$18,685	$7,572	$26,257	$25,129	$10,183	$35,312
2028	31,239	4,905	36,144	$22,869	$9,101	$31,970	$31,525	$12,546	$44,071
2029	36,298	5,440	41,738	$27,076	$10,337	$37,413	$38,258	$14,606	$52,864
2030	38,889	5,643	44,532	$29,481	$10,774	$40,255	$42,697	$15,604	$58,301
2031	40,378	5,835	46,213	$30,779	$11,189	$41,968	$45,692	$16,610	$62,302
2032	41,853	6,013	47,866	$32,083	$11,585	$43,668	$48,818	$17,628	$66,446
2033	43,319	6,180	49,499	$33,210	$11,914	$45,124	$51,797	$18,581	$70,378
2034	44,770	6,335	51,105	$34,330	$12,220	$46,550	$54,881	$19,536	$74,417
2035	51,642	6,848	58,490	$39,971	$13,156	$53,127	$65,497	$21,558	$87,055
2036	54,260	7,043	61,303	$42,182	$13,534	$55,716	$70,848	$22,731	$93,579
2037	56,847	7,229	64,076	$44,436	$13,897	$58,333	$76,500	$23,924	$100,424
2038	59,402	7,406	66,808	$46,633	$14,250	$60,883	$82,290	$25,145	$107,435
2039	61,925	7,516	69,441	$48,737	$14,483	$63,220	$88,151	$26,196	$114,347
2040	63,401	7,617	71,018	$49,930	$14,681	$64,611	$92,567	$27,218	$119,785
2041	64,829	7,711	72,540	$51,103	$14,865	$65,968	$97,110	$28,248	$125,358
2042	66,211	7,798	74,009	$52,256	$15,037	$67,293	$101,784	$29,289	$131,073
2043	67,543	7,878	75,421	$53,390	$15,195	$68,585	$106,593	$30,337	$136,930
2044	68,831	7,951	76,782	$54,506	$15,338	$69,844	$111,542	$31,388	$142,930
2045	70,067	8,016	78,083	$55,602	$15,469	$71,071	$116,629	$32,447	$149,076
2046	71,260	8,074	79,334	$56,680	$15,587	$72,267	$121,862	$33,512	$155,374
2047	72,402	8,188	80,590	$57,727	$15,807	$73,534	$127,216	$34,835	$162,051
2048	73,553	8,302	81,855	$58,787	$16,029	$74,816	$132,792	$36,207	$168,999
2049	74,712	8,417	83,129	$59,856	$16,252	$76,108	$138,586	$37,628	$176,214
2050	75,878	8,533	84,411	$60,936	$16,476	$77,412	$144,614	$39,101	$183,715
2051	76,638	8,618	85,256	$61,547	$16,641	$78,188	$149,716	$40,480	$190,196
2052	77,403	8,705	86,108	$62,160	$16,808	$78,968	$154,987	$41,908	$196,895
2053	78,178	8,792	86,970	$62,782	$16,976	$79,758	$160,451	$43,386	$203,837
2054	78,960	8,880	87,840	$63,411	$17,146	$80,557	$166,110	$44,915	$211,025
2055	79,749	8,969	88,718	$64,045	$17,318	$81,363	$171,965	$46,500	$218,465
2056	80,547	9,058	89,605	$64,686	$17,490	$82,176	$178,028	$48,135	$226,163
2057	81,352	9,149	90,501	$65,331	$17,665	$82,996	$184,299	$49,833	$234,132
2058	82,166	9,241	91,407	$65,985	$17,843	$83,828	$190,797	$51,593	$242,390
2059	82,988	9,333	92,321	$66,646	$18,020	$84,666	$197,526	$53,408	$250,934
2060	83,818	9,426	93,244	$67,312	$18,201	$85,513	$204,488	$55,293	$259,781
2061	84,656	9,520	94,176	$67,986	$18,382	$86,368	$211,698	$57,239	$268,937
2062	85,502	9,615	95,117	$68,665	$18,565	$87,230	$219,158	$59,254	$278,412
2063	86,356	9,712	96,068	$69,351	$18,753	$88,104	$226,881	$61,350	$288,231
2064	87,221	9,809	97,030	$70,045	$18,940	$88,985	$234,880	$63,511	$298,391
2065	88,094	9,906	98,000	$70,747	$19,127	$89,874	$243,165	$65,742	$308,907

Table 5-14. Forecasted Transactions and Revenue for Scenario 7: I-73 South, without the SELL and SC-22 Tolled

Year	Transactions (in Thousands)			Revenue (in Thousands 2015 Dollars)			Revenue (in Thousands Nominal Dollars)		
	Auto	Trucks	Total	Auto	Trucks	Total	Auto	Trucks	Total
2025	13,935	1,799	15,734	$8,276	$3,047	$11,323	$10,594	$3,900	$14,494
2026	17,246	2,214	19,460	$10,940	$3,916	$14,856	$14,354	$5,139	$19,493
2027	20,813	2,656	23,469	$13,812	$4,845	$18,657	$18,576	$6,516	$25,092
2028	24,639	3,124	27,763	$17,001	$5,851	$22,852	$23,436	$8,065	$31,501
2029	28,726	3,496	32,222	$20,178	$6,709	$26,887	$28,511	$9,479	$37,990
2030	31,003	3,640	34,643	$22,232	$7,017	$29,249	$32,199	$10,163	$42,362
2031	32,295	3,775	36,070	$23,289	$7,311	$30,600	$34,573	$10,853	$45,426
2032	33,591	3,903	37,494	$24,363	$7,592	$31,955	$37,071	$11,553	$48,624
2033	34,893	4,022	38,915	$25,318	$7,829	$33,147	$39,488	$12,211	$51,699
2034	36,200	4,134	40,334	$26,277	$8,050	$34,327	$42,008	$12,869	$54,877
2035	37,522	4,236	41,758	$27,232	$8,251	$35,483	$44,623	$13,521	$58,144
2036	38,994	4,333	43,327	$28,267	$8,442	$36,709	$47,477	$14,179	$61,656
2037	40,414	4,421	44,835	$29,277	$8,617	$37,894	$50,403	$14,835	$65,238
2038	41,779	4,501	46,280	$30,264	$8,777	$39,041	$53,404	$15,488	$68,892
2039	43,092	4,572	47,664	$31,228	$8,922	$40,150	$56,483	$16,137	$72,620
2040	44,352	4,637	48,989	$32,169	$9,052	$41,221	$59,639	$16,782	$76,421
2041	45,559	4,693	50,252	$33,088	$9,167	$42,255	$62,877	$17,420	$80,297
2042	46,713	4,742	51,455	$33,984	$9,267	$43,251	$66,194	$18,050	$84,244
2043	47,816	4,782	52,598	$34,858	$9,352	$44,210	$69,594	$18,671	$88,265
2044	48,866	4,814	53,680	$35,711	$9,421	$45,132	$73,080	$19,279	$92,359
2045	49,866	4,837	54,703	$36,544	$9,476	$46,020	$76,653	$19,876	$96,529
2046	50,814	4,854	55,668	$37,356	$9,518	$46,874	$80,315	$20,464	$100,779
2047	51,716	4,934	56,650	$38,139	$9,679	$47,818	$84,049	$21,330	$105,379
2048	52,636	5,015	57,651	$38,939	$9,843	$48,782	$87,957	$22,234	$110,191
2049	53,575	5,099	58,674	$39,758	$10,012	$49,770	$92,052	$23,181	$115,233
2050	54,533	5,184	59,717	$40,595	$10,183	$50,778	$96,340	$24,166	$120,506
2051	55,079	5,236	60,315	$41,002	$10,285	$51,287	$99,739	$25,019	$124,758
2052	55,630	5,288	60,918	$41,412	$10,388	$51,800	$103,255	$25,901	$129,156
2053	56,186	5,341	61,527	$41,826	$10,492	$52,318	$106,894	$26,814	$133,708
2054	56,748	5,394	62,142	$42,244	$10,596	$52,840	$110,662	$27,757	$138,419
2055	57,316	5,448	62,764	$42,667	$10,702	$53,369	$114,563	$28,736	$143,299
2056	57,889	5,503	63,392	$43,094	$10,810	$53,904	$118,603	$29,751	$148,354
2057	58,468	5,558	64,026	$43,525	$10,918	$54,443	$122,784	$30,799	$153,583
2058	59,052	5,614	64,666	$43,959	$11,028	$54,987	$127,108	$31,888	$158,996
2059	59,644	5,669	65,313	$44,400	$11,136	$55,536	$131,593	$33,005	$164,598
2060	60,240	5,726	65,966	$44,844	$11,248	$56,092	$136,232	$34,170	$170,402
2061	60,843	5,783	66,626	$45,292	$11,360	$56,652	$141,033	$35,373	$176,406
2062	61,451	5,841	67,292	$45,745	$11,473	$57,218	$146,004	$36,619	$182,623
2063	62,065	5,899	67,964	$46,202	$11,588	$57,790	$151,150	$37,910	$189,060
2064	62,686	5,958	68,644	$46,664	$11,704	$58,368	$156,477	$39,246	$195,723
2065	63,312	6,018	69,330	$47,130	$11,821	$58,951	$161,991	$40,630	$202,621

Table 5-15. Forecasted Transactions and Revenue for Scenario 8 - I-73 South, with the SELL and SC-22 Tolled

Year	Transactions (in Thousands)			Revenue (in Thousands 2015 Dollars)			Revenue (in Thousands Nominal Dollars)		
	Auto	Trucks	Total	Auto	Trucks	Total	Auto	Trucks	Total
2025	17,646	2,855	20,501	$11,346	$4,788	$16,134	$14,524	$6,129	$20,653
2026	21,773	3,487	25,260	$14,889	$6,110	$20,999	$19,536	$8,017	$27,553
2027	26,196	4,157	30,353	$18,685	$7,509	$26,194	$25,129	$10,098	$35,227
2028	30,911	4,863	35,774	$22,869	$9,024	$31,893	$31,525	$12,439	$43,964
2029	35,916	5,393	41,309	$27,076	$10,250	$37,326	$38,258	$14,483	$52,741
2030	38,490	5,595	44,085	$29,481	$10,683	$40,164	$42,697	$15,472	$58,169
2031	39,962	5,785	45,747	$30,779	$11,094	$41,873	$45,692	$16,469	$62,161
2032	41,420	5,960	47,380	$32,083	$11,487	$43,570	$48,818	$17,478	$66,296
2033	42,868	6,126	48,994	$33,210	$11,813	$45,023	$51,797	$18,424	$70,221
2034	44,302	6,280	50,582	$34,330	$12,116	$46,446	$54,881	$19,370	$74,251
2035	45,642	6,419	52,061	$35,420	$12,389	$47,809	$58,039	$20,301	$78,340
2036	47,212	6,545	53,757	$36,566	$12,639	$49,205	$61,415	$21,228	$82,643
2037	48,664	6,662	55,326	$37,686	$12,869	$50,555	$64,880	$22,154	$87,034
2038	50,041	6,768	56,809	$38,759	$13,078	$51,837	$68,395	$23,077	$91,472
2039	51,341	6,863	58,204	$39,786	$13,265	$53,051	$71,962	$23,993	$95,955
2040	52,566	6,947	59,513	$40,771	$13,433	$54,204	$75,587	$24,904	$100,491
2041	53,744	7,025	60,769	$41,734	$13,587	$55,321	$79,307	$25,820	$105,127
2042	54,875	7,096	61,971	$42,678	$13,729	$56,407	$83,128	$26,741	$109,869
2043	55,960	7,160	63,120	$43,602	$13,858	$57,460	$87,051	$27,667	$114,718
2044	56,998	7,217	64,215	$44,506	$13,973	$58,479	$91,078	$28,595	$119,673
2045	57,988	7,268	65,256	$45,391	$14,076	$59,467	$95,211	$29,525	$124,736
2046	58,933	7,311	66,244	$46,257	$14,167	$60,424	$99,453	$30,459	$129,912
2047	59,828	7,409	67,237	$47,092	$14,360	$61,452	$103,779	$31,646	$135,425
2048	60,732	7,507	68,239	$47,939	$14,552	$62,491	$108,287	$32,871	$141,158
2049	61,644	7,607	69,251	$48,794	$14,746	$63,540	$112,974	$34,142	$147,116
2050	62,561	7,708	70,269	$49,659	$14,942	$64,601	$117,851	$35,460	$153,311
2051	63,188	7,784	70,972	$50,156	$15,090	$65,246	$122,006	$36,707	$158,713
2052	63,820	7,862	71,682	$50,659	$15,241	$65,900	$126,310	$38,001	$164,311
2053	64,458	7,941	72,399	$51,165	$15,395	$66,560	$130,761	$39,345	$170,106
2054	65,102	8,020	73,122	$51,677	$15,546	$67,223	$135,372	$40,723	$176,095
2055	65,754	8,100	73,854	$52,194	$15,702	$67,896	$140,145	$42,161	$182,306
2056	66,410	8,182	74,592	$52,715	$15,861	$68,576	$145,081	$43,653	$188,734
2057	67,074	8,264	75,338	$53,241	$16,020	$69,261	$150,193	$45,193	$195,386
2058	67,746	8,346	76,092	$53,775	$16,179	$69,954	$155,491	$46,782	$202,273
2059	68,423	8,429	76,852	$54,313	$16,340	$70,653	$160,973	$48,428	$209,401
2060	69,107	8,514	77,621	$54,855	$16,505	$71,360	$166,645	$50,140	$216,785
2061	69,797	8,599	78,396	$55,404	$16,669	$72,073	$172,520	$51,905	$224,425
2062	70,495	8,685	79,180	$55,957	$16,837	$72,794	$178,598	$53,739	$232,337
2063	71,199	8,773	79,972	$56,515	$17,007	$73,522	$184,889	$55,637	$240,526
2064	71,911	8,860	80,771	$57,080	$17,175	$74,255	$191,405	$57,592	$248,997
2065	72,630	8,949	81,579	$57,652	$17,347	$74,999	$198,156	$59,623	$257,779

Figure 5-7 through Figure 5-10 show revenue for I-73 North and South, I-73 South Only, the SELL, and SC-22 within the context of the different scenarios.

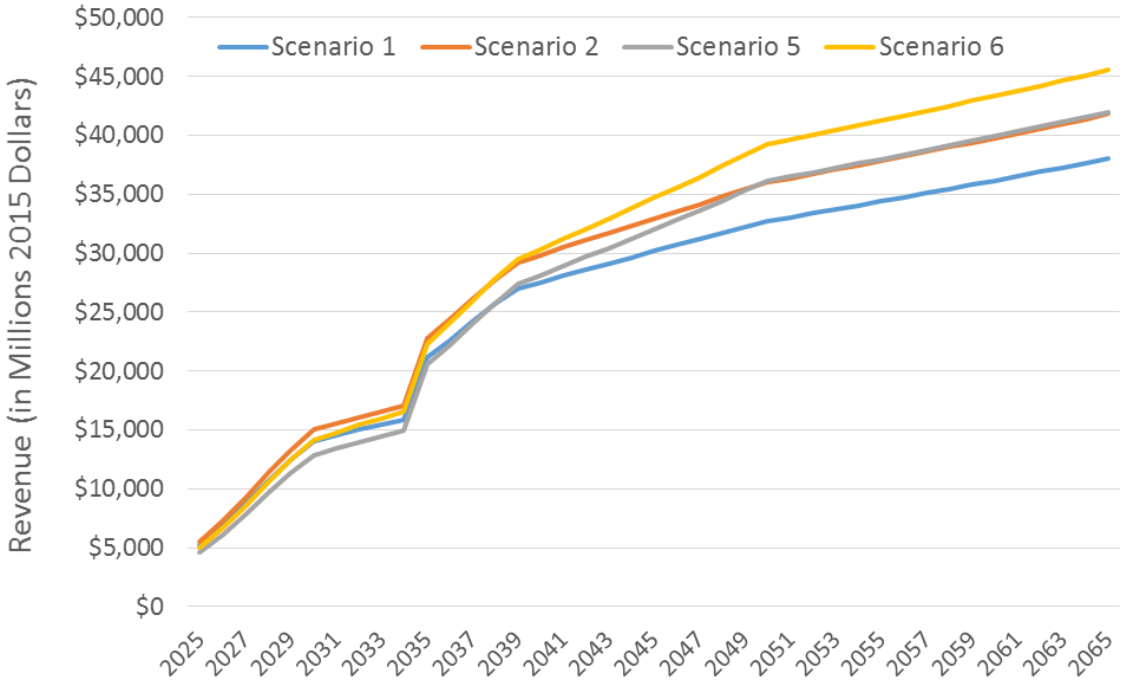


Figure 5-7. I-73 North and South Revenue (2015 Dollars)

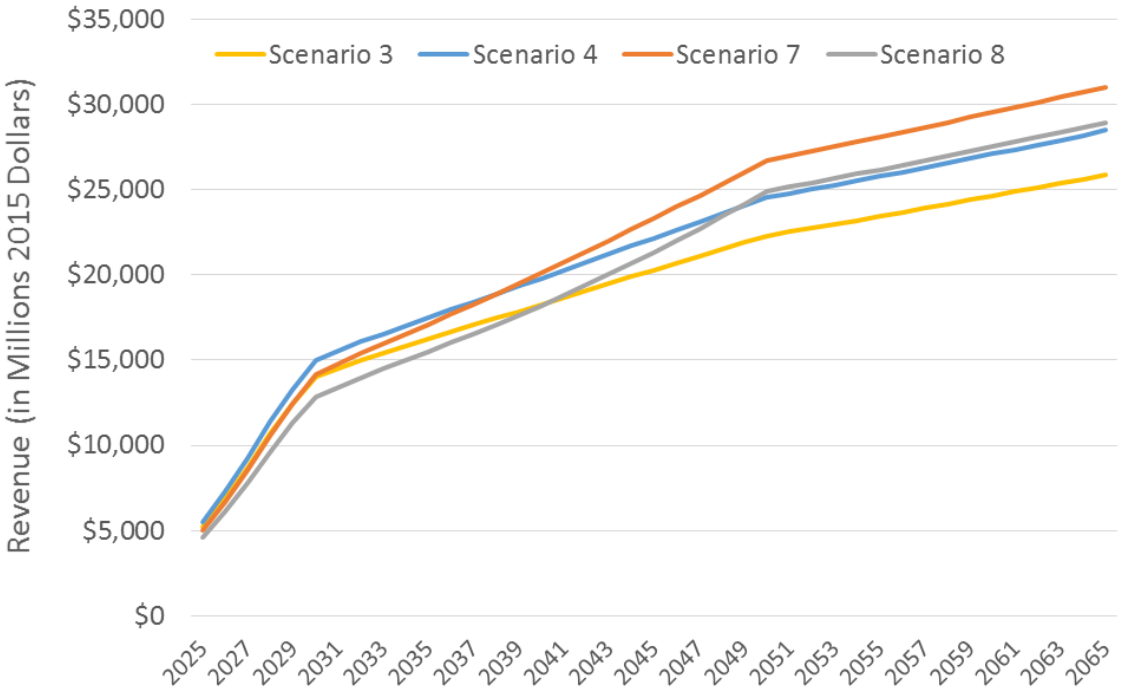


Figure 5-8. I-73 South Only Revenue (2015 Dollars)

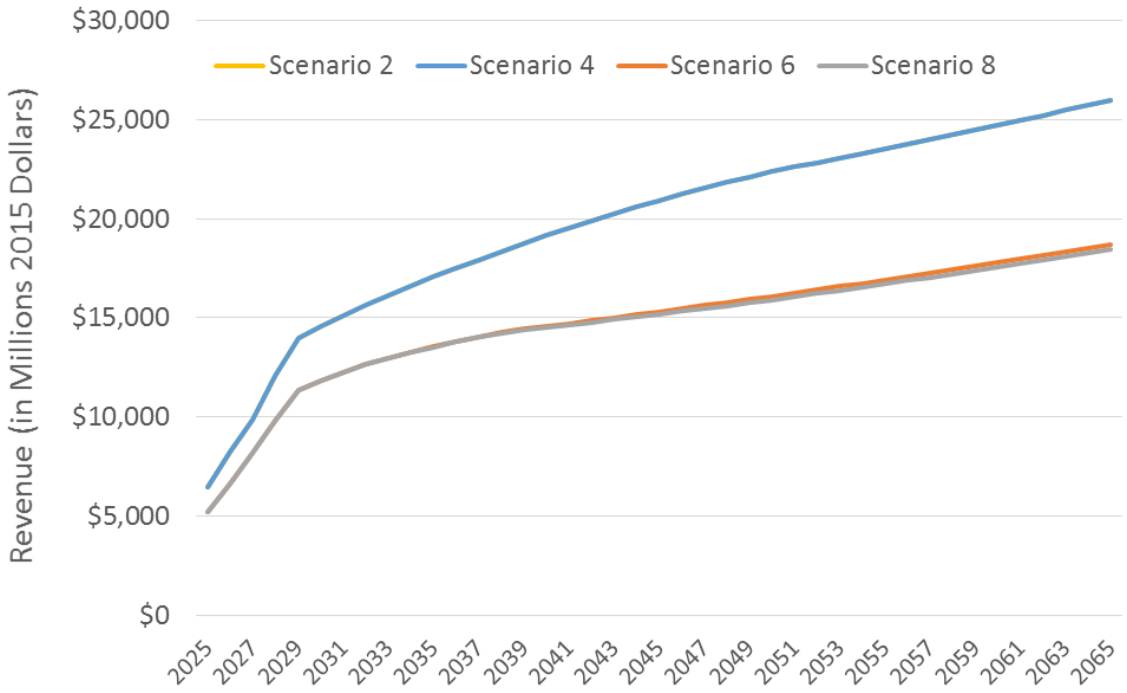


Figure 5-9. SELL Revenue (2015 Dollars)

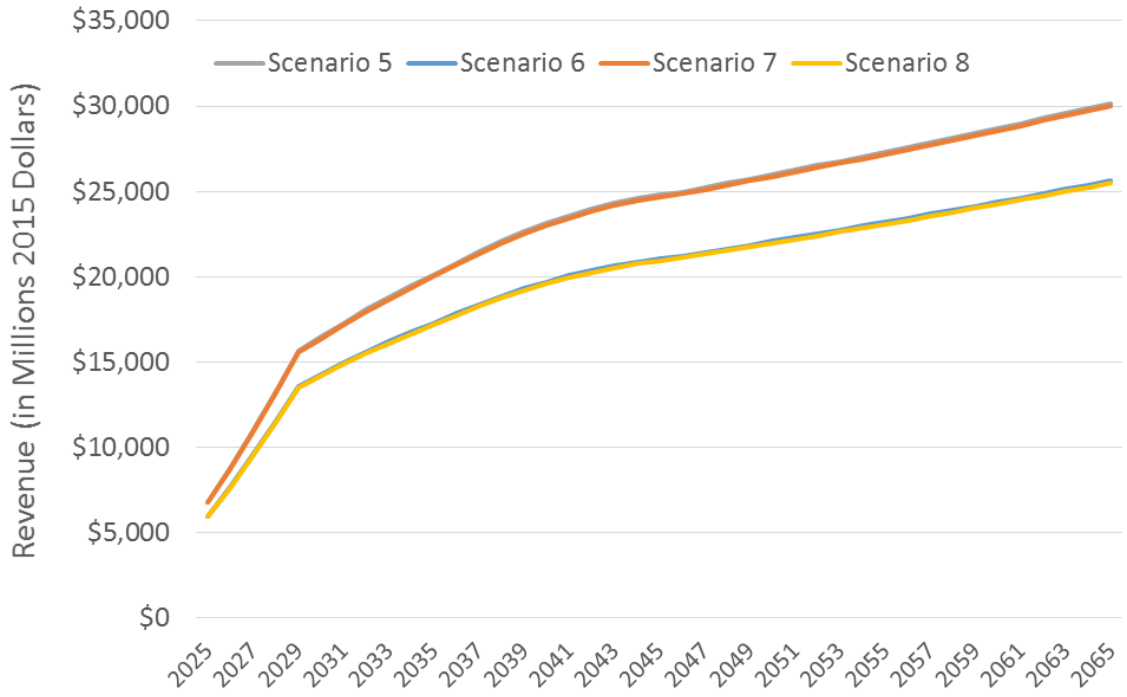


Figure 5-10. SC-22 Revenue (2015 Dollars)

It can be observed that the contributing routes (the SELL and SC-22 tolled) have a significant effect on I-73 North and South, increasing the Project's revenue over the

forecast period. Conversely, when I-73 North and South are built, revenue for the SELL and SC-22 changes by less than 1 percent.

5.4. Sensitivity Analysis

C&M performed a sensitivity analysis to determine the effects of specific T&R assumptions on the Project's final revenue. The following sections describe the sensitivity analysis results. All revenue values are presented in real dollars.

5.4.1. Toll Rate

C&M performed a standard toll sensitivity analysis to confirm the reasonableness of the toll rates on the facilities. A toll rate below the revenue maximization level is typically selected to provide flexibility. Such a strategy allows room for future toll rate increases if further T&R optimization is necessary.

The results of the toll sensitivity analysis can be summarized in a toll sensitivity curve. The curve shows the net effect on revenue as the toll rate is increased. The net effect of increasing toll rate on revenue is a result of decreased transactions (due to lower demand) and higher revenue per transaction (due to higher tolls). This net effect is shown as growth in total revenue until the revenue maximization point is reached, at which point the higher revenue per transaction from the toll rate increase is no longer enough to offset the loss in transactions.

C&M conducted a toll sensitivity analysis for the Project's opening year 2025 and for 2040. Toll rates ranging from $0.05 to $0.20 per mile were used for each year. Figure 5-11 and Figure 5-12 illustrate the sensitivity of toll revenue and transactions to toll rate in the years 2025 and 2040, respectively. The figures also illustrate that the selected toll rate of $0.125 per mile always falls below the maximization point within the sensitivity curves. This shows that there would be potential for a toll rate increase if desired. However, maximization occurs at a lower toll rate in 2040 because both sections of I-73 are open to traffic in 2040. I-73 North maximizes at a lower toll rate than I-73 South.

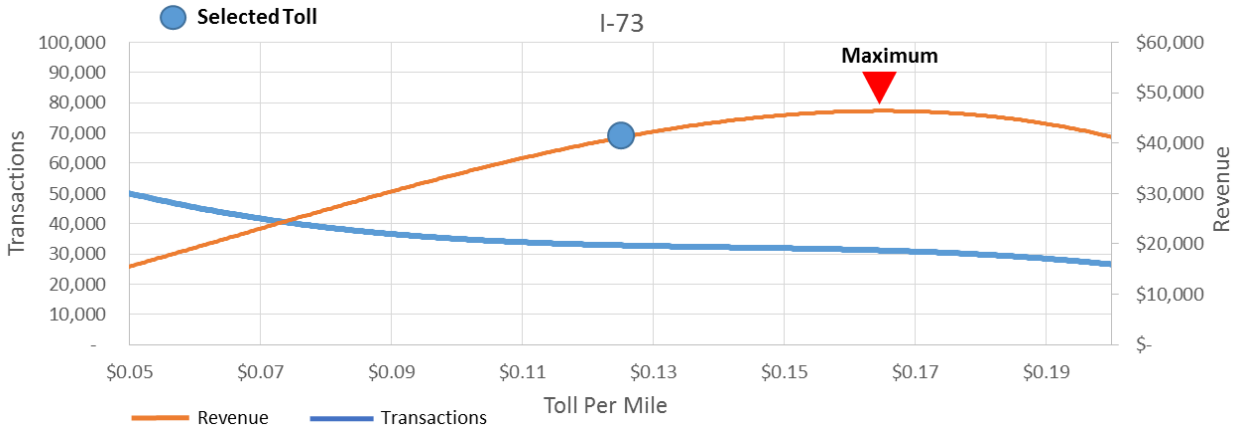


Figure 5-11. I-73 Toll Revenue/Transaction Sensitivity to Toll Rate – 2025

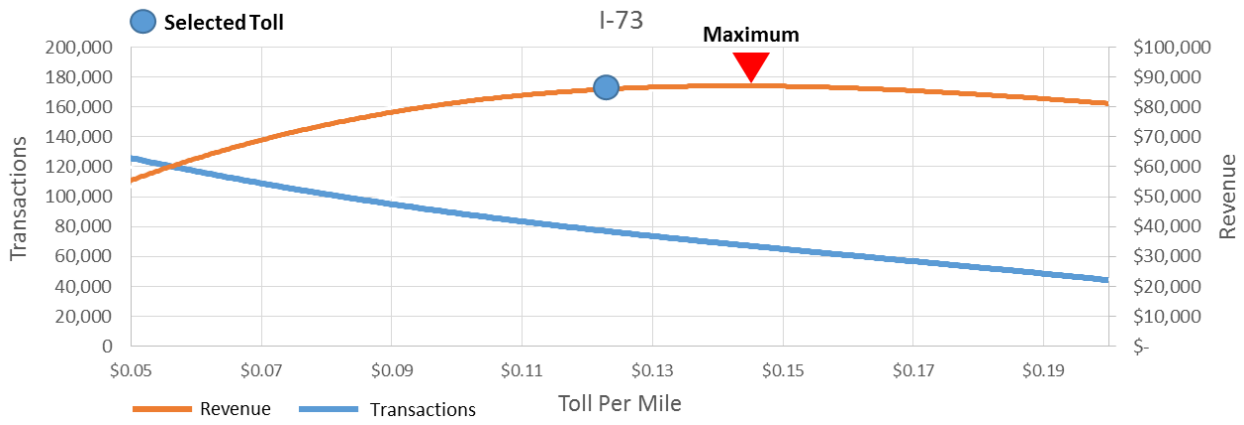


Figure 5-12. I-73 Toll Revenue/Transaction Sensitivity to Toll Rate – 2040

The toll sensitives for the SELL were analyzed for rates ranging from $0.05 to $0.30 per mile. Figure 5-13 and Figure 5-14 illustrate the results of the sensitivity analysis for 2025 and 2040, respectively. As can be seen, the selected toll rate of $0.15 always lies under the maximum toll. The SELL is an extension of SC-22; as a toll road, SC-22 shows the expected similar behavior compared to the SELL regarding revenue maximization. C&M considered the same toll per mile rate for SC-22 as for the SELL.

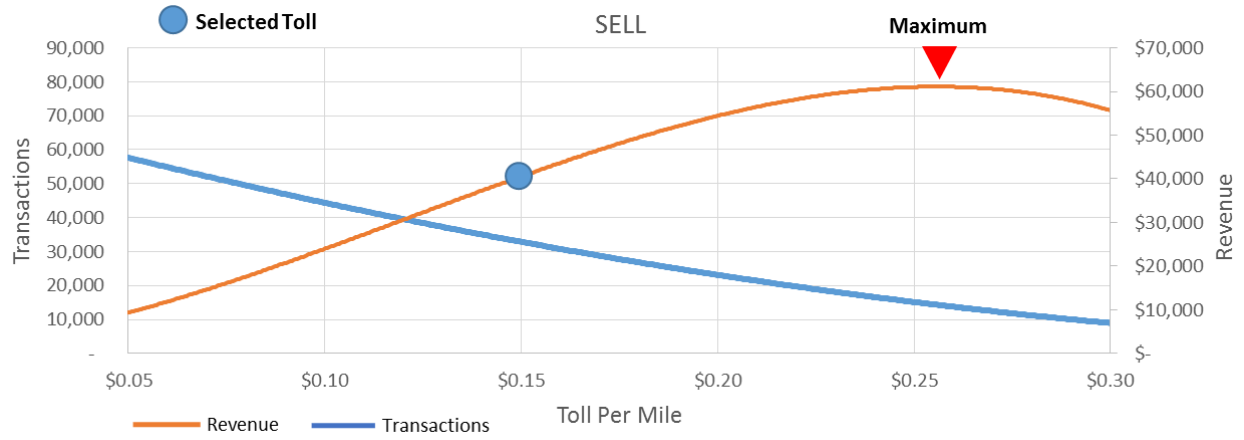


Figure 5-13. SELL Toll Revenue/Transaction Sensitivity to Toll Rate – 2025

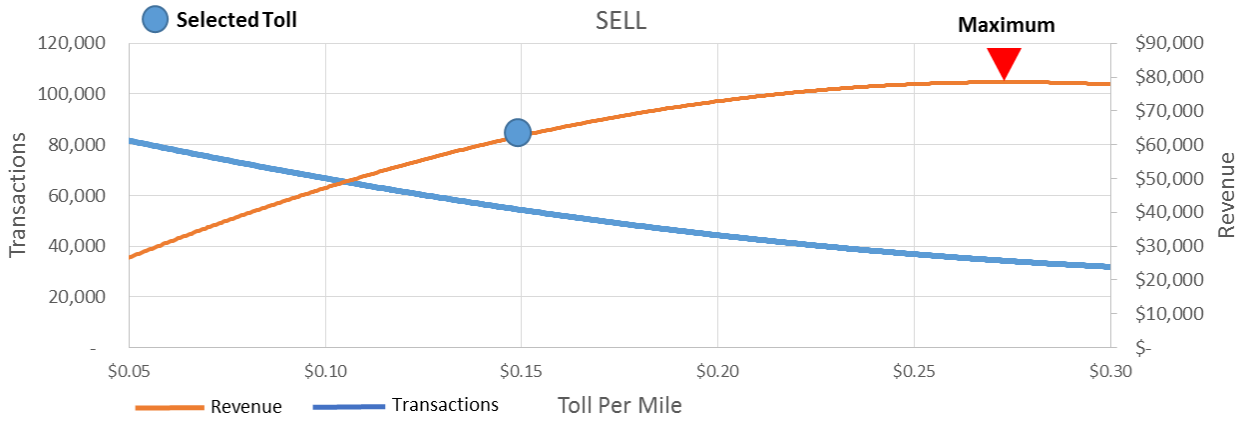


Figure 5-14. SELL Toll Revenue/Transaction Sensitivity to Toll Rate – 2040

5.4.2. Revenue Days

Revenue days are calculated as the equivalent number of weekdays during the year based on the ratio of weekend-to-weekday traffic. A lower weekend-to-weekday ratio translates into a smaller revenue days indicator and, consequently, lower annual revenue.

The assumed revenue days for the Project were decreased and increased by 5 percent. Results indicated that if the parameter is decreased by 5 percent, revenue also decreases by 5 percent, or $260,000 for the year 2025 and $1,377,000 for the year 2040, translating into an NPV of roughly $55,178,000. In short, revenue has a linear relationship with revenue days.

5.4.3. ETC Penetration

The ETC penetration rate is the percentage of travelers who use an ETC to pay tolls. Assumed revenue recovery rates are higher for ETC users than for non-ETC users, who are all billed through Video Toll. However, Video Toll users are billed a higher effective toll rate than ETC users.

ETC factors were decreased and increased by 5 percent for the sensitivity analysis. As a result, the Project's revenue decreases or increases, respectively, by 2.9 percent ($148,000) for the year 2025 and by 1.3 percent ($362,000) for the year 2040. NPV decreases or increases, respectively, by 1.4 percent, or about $15,450,000.

5.4.4. Effective Video Toll Factor

Vehicles that travel on the toll road without a transponder are identified by their license plate with cameras at the toll plazas, and vehicle owners receive a bill for their transactions via mail. The video toll factor is 150 percent of the ETC toll rate and accounts for the additional cost of billing video toll users.

The Project's effective video toll factor grows from 55 percent in 2025 to 75 percent in 2032. This parameter was decreased and increased by 5 percent in the sensitivity analysis. As a result, the Project's revenue increases or decreases, respectively, by 3.0

percent ($154,000) in 2025 and 1.0 percent ($279,000) in 2040. The NPV increased or decreased, respectively, by 1.1 percent, or about $12,139,000.

5.4.5. Ramp-Up

The ramp-up period is the period of time after opening a toll facility during which the demand increases at a high rate until it reaches its full annual potential. This increase in demand is mainly due to the increase in user awareness and their decision to change their travel behavior and use the new tolled facility.

It is assumed that the Project will have a ramp-up period of 5 years, by which point the facility will reach its full potential. The Project's ramp-up ranges from 50 to 70 percent, depending on the section and vehicle type. Ramp-up was decreased or increased by 10 percent in the sensitivity analysis. As a result, the total revenue increases and decreases, respectively, by 19.2 percent ($1,001,000) in 2025. The ramp-up assumptions have no effect on revenue in the year 2040. The NPV increased or decreased, respectively, by 1.0 percent, or about $11,432,000.

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Appendix A

Road Inventory Results

All Traffic Data Services, Inc.

April 2015

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Table A-1. Corridor 1 Road Inventory

Main Street	Cross Street	Lanes NB / EB	Lanes SB / WB	Speed Limit	Stop Sign	Signal	Laneage For Intersections	Mile Marker	Note Anything Odd
SR 38	Aaron Temple Church Road	1	1	55	x				
SR 38	Bonnie Lane	1	1		x				
SR 38	CR 166	1	1		x				
SR 38	Precatt Chapel Road	1	1		x				
SR 38	Steen Road	1	1		x				
SR 38	SR 35-165	1	1		x				
SR 38	Brigman Road	1	1		x				
SR 38	Lemon Lane	1	1		x				
SR 38	Pinestraw Road	1	1		x				
SR 38	Pine Bark Road	1	1		x				
SR 38	CR 572	1	1		x				
SR 38	Grant Mill Road	1	1		x				
SR 38	Vern's Lane	1	1		x				
SR 38	Jessie Lane	1	1		x				
SR 38	Lauren Lane	1	1		x				
SR 38	Steven Lane	1	1	45	x				
SR 38	CR 79	1	1		x				
SR 38	CR 63	1	1		x				
SR 38	Willow Lane	1	1		x				
SR 38	Wilder Road	1	1		x				
SR 38	CR 261	1	1		x				
SR 38	Industrial Lane	1	1		x				
SR 38	Beauty Spot Road	1	1		x				
SR 38	Rose Street	1	1		x				
SR 38	Forest Drive	1	1		x				
SR 38	CR 38 - Oakwood Street	1	1		x				
SR 38	Thomas Street	1	1		x				
SR 38	Northwood Drive	1	1		x				
SR 38	Townsend Ct	1	1		x				
SR 38	Wiltshire Drive	1	1		x				
SR 38	Century Drive	1	1		x				
SR 38	Winston Avenue	1	1		x				
SR 38	SC 9	1	1		x				
SR 38	1st Avenue	2	2	35	x				
SR 38	Mills Street	2	2		x				
SR 38	Ball Park Street	2	2	25	x				
SR 38	Market Street	2	2		x				
SR 38	CR 385	2	2			x			
SR 38	Liberty Street	2	2			x			
SR 38	Broad Street	2	2			x			
SR 38	McColl Street	2	2		x				
SR 38	Fayetteville Avenue	2	2			x			
SR 38	King Street	2	2		x				
SR 38	Crosland Street	2	2		x				
SR 38	Ellen Street	2	2		x				
SR 38	SR 35-41	2	2		x				
SR 38	SR 35-53	2	2		x				

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Table A-1. Corridor 1 Road Inventory (Cont'd.)

Main Street	Cross Street	Lanes NB / EB	Lanes SB / WB	Speed Limit	Stop Sign	Signal	Laneage For Intersections	Mile Marker	Note Anything Odd
SR 38	US 15 - US 401	2	2	45		x			
SR 38	Ardoss Street	2	2			x	Sucide Lane Begins		
SR 38	James Street	2	2		x				
SR 38	SR 35-178	2	2		x				
SR 38	Stubbs Avenue	2	2		x				
SR 38	Patricia Street	2	2	55	x				
SR 38	J L Brown Road	2	2		x				
SR 38	Deese Road	2	2		x				
SR 38	Miles Lane	2	2		x				
SR 38	Bounty Acres Road	2	2		x				
SR 38	Flamingo Acres Road	2	2		x				
SR 38	Englewood Road	2	2		x				
SR 38	Quick Acres Road	2	2		x				
SR 38	Coxe Road	2	2		x				
SR 38	CR 567	2	2		x				
SR 38	Odom Lane	2	2		x				
SR 38	SC 381	2	2	45	x				
SR 38	SR 35-218	2	2		x		School zone		
SR 38	SR 35-603	2	2		x				
SR 38	Adross Street	2	2	45	x		School Zone End		
SR 38	Wright Avenue	2	2		x				
SR 38	Forest Drive	2	2		x				
SR 38	Road Name	2	2	60	x		Divided Hwy Grass Med		
SR 38	Donaldson Road	2	2		x				
SR 38	Polston Farm Road	2	2		x				
SR 38	Alexander Lane	2	2		x				
SR 38	CR 299	2	2		x				
SR 38	Attadale Road	2	2		x				
SR 38	Gray Road	2	2		x				
SR 38	Arcadia Road	2	2	55	x				
SR 38	SR 34	2	2		x		Sucide Lane Begins		
SR 38	Cemetery Lane	2	2		x				
SR 38	Marlboro Church Lane	2	2		x				
SR 38	Fore Road	2	2		x				
SR 38	Hawk Lane	2	2		x				
SR 38	Meggs Island Road	2	2		x				
SR 38	Westover Road	2	2		x				
SR 38	McDowell Ct	2	2		x				
SR 38	Pocosin Road	2	2	45	x				
SR 38	Wild Turkey Drive	2	2		x				
SR 38	Bay Catfish Road	2	2		x				
SR 38	Gary Road	2	2		x				
SR 38	I-95 Ramps								
SR 38	Mill Branch Road - Cattle Fa	2	2	55		x			
SR 38	Dalcho Road	2	2		x				
SR 38	SR 917	2	2		x		Divided Hwy Grass Med		
SR 38	Elberry Road	2	2		x				
SR 38	Hatchell Road	2	2		x				

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Table A-1. Corridor 1 Road Inventory (Cont'd.)

Main Street	Cross Street	Lanes NB / EB	Lanes SB / WB	Speed Limit	Stop Sign	Signal	Laneage For Intersections	Mile Marker	Note Anything Odd
SR 38	Gum Swamp Road	2	2		x				
SR 38	Camp Road	2	2		x				
SR 38	Paradise Drive	2	2		x				
SR 38	Carter Road	2	2		x				
SR 38	Belle Ct	2	2		x				
SR 38	Bass Mill Road	2	2		x				
SR 38	US 501	2	2		x				
US 501	Ellerbe Road	2	2		x		Divided Hwy Grass Med Ends Sucide Lane Begins		
US 501	Old Ebenezer Road	2	2		x				
US 501	Pines Road	2	2		x				
US 501	Blossom Road	2	2		x				
US 501	Abram Loop	2	2		x		Sucide Lane Ends Divided Hwy Grass Med Starts		
US 501	Seller Road	2	2		x				
US 501	Darryl Road - SR 34-23	2	2		x				
US 501	Sat Wall Road	2	2		x				
US 501	SC 41 Ramps	2	2		x				
US 501	SR 34-681	2	2		x				
US 501	SR 34-331	2	2		x				
US 501	US 76	2	2		x		Overapass		
US 501	Lipscomb Road	2	2		x				
US 501	SR 34-19	2	2		x				
US 501	SR 34-39	2	2		x				
US 501	Shannon Road	2	2		x				
US 501	Grainger Ct	2	2		x		Grass Divided Hwy		
US 501	Harry Shelley Ct	2	2		x				
US 501	SR 34 - 389	2	2		x				
US 501	SR 34-204	2	2	50	x		Grass Divided Hwy Ends - Sucide Lane Begins		
US 501	Turkey Road	2	2		x				
US 501	Grady Road	2	2		x				
US 501	Jovis Road	2	2		x				
US 501	Spencer Ct	2	2		x				
US 501	Cemetery Road	2	2		x		Grass Dicided Hwy Begins		
US 501	SC 41	2	2		x		Divided Hwy Trees		
US 501	Deervie Circle	2	2		x				
US 501	River Pines Road	2	2		x				
US 501	Hwy 216	2	2	45	x		Divided Hwy		
US 501	Pee Dee Hwy	2	2	60	x				
US 501	Hwy 129	2	2		x				
US 501	Eagle Road Drive	2	2		x				
US 501	SR 26-461	2	2	55	x				
US 501	Nutmeg Road	2	2		x		Sucide Lane Begins		
US 501	St John Road - Elm Street	2	2		x				
US 501	Main Street	2	2			x			
US 501	Oak Street	2	2		x				
US 501	7th Avenue	2	2		x				

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Table A-1. Corridor 1 Road Inventory (Cont'd.)

Main Street	Cross Street	Lanes NB / EB	Lanes SB / WB	Speed Limit	Stop Sign	Signal	Laneage For Intersections	Mile Marker	Note Anything Odd
US 501	SR 26-24 - 8th Avenue	2	2			x			
US 501	9th Avenue	2	2		x				
US 501	11th Avenue	2	2		x				Suicide Lanes Starts South of 9th
US 501	Wisteria Drive	2	2		x				
US 501	Webster Road	2	2	60	x				Suicide Lane Ends South of Webster
US 501	Cook Road	2	2		x				
US 501	Bill Jones Road	2	2		x				
US 501	SR 26-1048	2	2		x				
US 501	SR 26-132	2	2		x				
US 501	Sherwood Drive	2	2		x				
US 501	Shanda Lane	2	2		x				
US 501	White Oak Lane	2	2		x				
US 501	Hucks Road	2	2		x				
US 501	Pine Oaks Farm Road	2	2		x				
US 501	Sparkman Road	2	2		x				
US 501	Rabon Road	2	2		x				
US 501	Horry Road - SR 26-97	2	2		x				
US 501	Lambert Road	2	2		x				
US 501	SR 847	2	2		x				
US 501	Roleigh Road - Brown Swam	2	2		x				
US 501	Murray Johnson Road	2	2		x				
US 501	Landmark Road	2	2		x				
US 501	Enoch Road	2	2		x				
US 501	Hallie Martin Road	2	2		x				
US 501	Hardwick Road	2	2		x				
US 501	D Street	2	2		x				
US 501	Eldon Road	2	2		x				
US 501	SR 26-1010	2	2		x				
US 501	Booth Circle	2	2		x				
US 501	4 Mile Road - SR 548	2	2	55		x			
US 501	Sioux Swamp Drive	2	2		x				
US 501	SR 26-165	2	2	45		x			Suicide Lane Begins
US 501	Rivertown Blvd	2	2		x				
US 501	Medlen Pkwy	2	2		x				
US 501	Village Street	2	2		x				
US 501	King Street	2	2	40	x				
US 501	Anderson Street	2	2		x				
US 501	Richardson Street	2	2	35	x				
US 501	Horry Avenue	2	2		x				
US 501	Mill Pond Road	2	2			x			
US 501	Cottage Lane	2	2		x				
US 501	16th Avenue	2	2			x			

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Table A-2. Corridor 2 Road Inventory

Main Street	Cross Street	Lanes NB / EB	Lanes SB / WB	Speed Limit	Stop Sign	Signal	Laneage For Intersections	Mile Marker	Note Anything Odd
SR 381	County Side Road 412	1	1	35	x				
SR 381	SR 35-139 - Old Mccoll Road	1	1		x				
SR 381	Jep Gibson Road	1	1		x				
SR 381	Norton Road	1	1		x				
SR 381	Wells Road	1	1		x				
SR 381	CR 411	1	1		x				
SR 381	King Road	1	1	45	x				
SR 381	Academy Road	1	1		x				
SR 381	CR 744	1	1		x				
SR 381	CR 744	1	1		x				
SR 381	Plainview Road	1	1		x				
SR 381	Bunch Road	1	1	35	x				
SR 381	Oscar Fletcher Road	1	1		x				
SR 381	School Street	1	1		x				
SR 381	Hampton Ave	1	1		x				
SR 381	Tatum Avenue	1	1			x			
SR 381	Morrison Avenue	1	1		x				
SR 381	Gibson Avenue	1	1			x			
SR 381	Community Avenue	1	1		x				
SR 381	McLaurin Avenue	1	1		x				
SR 381	Stanton Avenue	1	1		x				
SR 381	New Bridge Road	1	1	55					
SR 381	Briar Patch Road	1	1		x				
SR 381	Jimmy McColl Road	1	1		x				
SR 381	Ellis Lane	1	1		x				
Ellis Lane - Dirt Road	Old McCall - Clio Road			35	x				
Ellis Lane - Dirt Road	Old Willis School Road				x				
Old Willis School Road	SR 381								
SR 381	Laurin Willis Road	1	1						
SR 381	SR 83	1	1	45					
SR 381	Hemphill Circle	1	1		x				
SR 381	Carolina Church Road	1	1		x				
SR 381	Hayne	1	1	35	x				
SR 381	Ivey Street	1	1		x				
SR 381	SR 30-90	1	1		x				
SR 381	SC 9	1	1	25		x			
SC 9	Parsonage Street	1	1		x				
SC 9	Hawley Street	1	1		x				
SC 9	Zion Church Street	1	1		x				
SC 9	Juniper Road	1	1	45	x				
SC 9	Middle School	1	1		x				
SC 9	Middle School S	1	1	55					
SC 9	Dunbar Hwy	1	1		x				
SC 9	Terry Road	1	1		x				
SC 9	Norton Circle - 59	1	1		x				
SC 9	CR 199	1	1		x				

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Table A-2. Corridor 2 Road Inventory (Cont'd.)

Main Street	Cross Street	Lanes NB / EB	Lanes SB / WB	Speed Limit	Stop Sign	Signal	Laneage For Intersections	Mile Marker	Note Anything Odd
SC 9	Red Hill Road	1	1		x				
SC 9	Hebron Dunbar Road	1	1		x				
SC 9	McSwain Drive	1	1		x				
SC 9	Minturn Road	1	1		x				
SC 9	Gallavon Road	1	1		x				
SC 9	Higgins Road	1	1		x				
SC 9	Cashua Ferry Road	1	1		x				
SC 9	Admiral Drive	1	1		x				
SC 9	Eli Branch Road	1	1		x				
SC 9	Sinclair Road	1	1		x				
SC 9	Tence Drive	1	1		x				
SC 9	SR 57	1	1	25	x				
SR 57	Windmill Avenue	1	1		x				
SR 57	Little Rock Avenue	1	1		x				
SR 57	Harllees Bridge Road	1	1	35	x				
SR 57	Whittaker Avenue	1	1		x				
SR 57	Jake Drive	1	1		x				
SR 57	Nortons Landing	1	1	45	x				
SR 57	Germantown Place	1	1		x				
SR 57	Scottland Road	1	1		x				
SR 57	Old Race Track Road	1	1	35	x				
SR 57	Wix Road	1	1		x				
SR 57	Airport Road	1	1		x				
SR 57	Bass Lake Place	2	2		x				
SR 57	I-95 Ramps	2	2		x		Sucide Land Begins		
SR 57	Commerce Drive	2	2			x			
SR 57	Leco Road	2	2			x			
SC 57	MLK JR Blvd	2	2			x			
SC 57	Carmichael Blvd	2	2		x				
SC 57	SR 17-52	2	2		x				
SC 57	US 501	2	2	40		x	Sucide Lane		
US 501	Monroe Street	2	2		x				
US 501	E Madison Street	2	2		x				
US 501	Jackson Street	2	2	30		x			
US 501	Roosevelt Street	2	2		x		Sucide Lane Ends		
US 501	E Jefferson Street	2	2		x				
US 501	Washington Street	2	2		x				
US 501	Cleveland Street	2	2		x				
US 501	Harrison Street	2	2			x			
US 501	SC 57	2	2			x			
SC 57	4th Avenue	2	2		x				
SC 57	6th Avenue	1	1		x				
SC 57	8th Avenue	1	1		x				
SC 57	10th Avenue	1	1	35	x				
SC 57	12th Avenue	1	1		x				
SC 57	14th Avenue	1	1		x				

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Table A-2. Corridor 2 Road Inventory (Cont'd.)

Main Street	Cross Street	Lanes NB / EB	Lanes SB / WB	Speed Limit	Stop Sign	Signal	Laneage For Intersections	Mile Marker	Note Anything Odd
SC 57	16th Avenue	1	1		x				
SC 57	20th Avenue	1	1		x				
SC 57	Lockemy Hwy	1	1			x			
SC 57	Braddy Avenue	1	1		x				
SC 57	Hampton Street	1	1		x				
SC 57	Lauren Avenue	1	1		x				
SC 57	Riverwood Drive	1	1	45	x				
SC 57	Mt Calvary Road	1	1			x			
SC 57	Pleasant Hill Road	1	1		x				
SC 57	Smutherman Drive	1	1		x				
SC 57	Grove Street	1	1		x				
SC 57	Wilbert Street	1	1		x				
SC 57	Roberson Street	1	1		x				
SC 57	Pineland Road	1	1		x				
SC 57	Legion Drive	1	1		x				
SC 57	McKinley Drive	1	1		x				
SC 57	Regan Drive	1	1		x				
SC 57	Bermuda Road	1	1	55	x				
SC 57	Brookside Road	1	1		x				
SC 57	State Park Road & Arnette Road	1	1		x				
SC 57	Moody Lane	1	1		x				
SC 57	Piney Grove Road	1	1		x				
SC 57	Rabbit Island Road	1	1		x				
SC 57	Hayestown Road	1	1		x				
SC 57	High Hill Road	1	1		x				
SC 57	Kemper Church Road	1	1		x				
SC 57	Richard Temple Blvd	1	1	35	x				
SC 57	Walnut Street	1	1		x				
SC 57	Shopping Center 9	1	1			x			
Nichols Hwy	4th AVenue	1	1						
Nichols Hwy	5th Avenue	1	1		x				
Nichols Hwy	6th Avenue	1	1		x				
Nichols Hwy	7th Avenue	1	1		x				
Nichols Hwy	8th Avenue	1	1		x				
Nichols Hwy	SR 17-55	1	1	45	x				
Nichols Hwy	Fordtown Roadf	1	1	55	x				
Nichols Hwy	Bass Drive	1	1		x				
Nichols Hwy	Garris Road	1	1		x				
Nichols Hwy	S Bear Swamp Road	1	1		x				
Nichols Hwy	Race Track Road	1	1		x				
Nichols Hwy	Stroud Road	1	1		x				
Nichols Hwy	Canal Street	1	1	40					
Nichols Hwy	Nichols Street	2	2	35	x				
Nichols Hwy	Kemper Road	2	2		x				
Nichols Hwy	SR 34-30	2	2	25	x				
Nichols Hwy	Floyd Street	2	2		x				

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Table A-2. Corridor 2 Road Inventory (Cont'd.)

Main Street	Cross Street	Lanes NB / EB	Lanes SB / WB	Speed Limit	Stop Sign	Signal	Laneage For Intersections	Mile Marker	Note Anything Odd
Nichols Hwy	RR Street	2	2		x				
Nichols Hwy	US 76	2	2		x				
US 76	Nichols Street	2	2		x				
US 76	Ashpole Street	2	2		x				
US 76	Raft Street	2	2		x				
US 76	Pee Dee Street	2	2	40	x				
US 76	Waccamaw Street	2	2		x				
US 76	River Road	1	1	55	x				
US 76	SC 9	1	1		x				
SC 9	Pleasantdale road	1	1		x				
SC 9	Pinckney Road	1	1		x				
SC 9	Sun Cove Road	1	1		x				
SC 9	SR 19	1	1	45	x				
SC 9	Floyd Church Road	1	1		x				
SC 9	Stage Road	1	1	55	x				
SC 9	Carolina Road	1	1		x				
SC 9	Little Mill Road	1	1		x				
SC 9	Stackhouse Circle	1	1		x				
SC 9	Mt Olive Church Road	1	1		x				
SC 9	Bay View Drive	1	1		x				
SC 9	Admiral Way Road	1	1		x				
SC 9	Olive Drive	2	2		x		Divided Hwy - Grass Med		
SC 9	SR 410	2	2		x				
SR 410	SR 26-640	1	1		x				
SR 410	Quail Creek Road	1	1		x				
SR 410	Mt Zion Road	1	1		x				
SR 410	SR 917	1	1		x		4 way stop		
SR 410	Cobblestone Road	1	1		x				
SR 410	Winding Creek Drive	1	1		x				
SR 410	Fairlane Road	1	1		x				
SR 410	Ed's Drive	1	1		x				
SR 410	SR 476	1	1		x				
SR 410	Ellington Drive	1	1		x				
SR 410	Reynolda Road	1	1		x				
SR 410	Sumpter Road	1	1		x				
SR 410	Williamson Drive	1	1		x				
SR 410	SR 19	1	1		x				
SR 410	Whispering Hills Road	1	1		x				
SR 410	Mt Olive Road	1	1		x				
SR 410	Joyner Swamp Road	1	1		x				
SR 410	Valley Forge Road	1	1		x				
SR 410	Kert Road	1	1		x				
SR 410	Dupont Road	1	1		x				
SR 410	US 701	1	1		x				
US 701	Costie Allen Road	1	1	55	x				
US 701	Adrian Pkwy	1	1		x				

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Table A-2. Corridor 2 Road Inventory (Cont'd.)

Main Street	Cross Street	Lanes NB / EB	Lanes SB / WB	Speed Limit	Stop Sign	Signal	Laneage For Intersections	Mile Marker	Note Anything Odd
US 701	Bakers Chapel Road	1	1			x			
US 701	Conway Bypass	1	1				Ramp		
US 701	Conway Bypass	1	1				Ramp		
US 701	Kelly Road	1	1		x				
US 701	Poplar Church Road	1	1		x				
US 701	Long Ave Exd	1	1		x				
US 701	Paradise Estates Driv	1	1		x				
US 701	Allentown Dr - Golden Key Rd	1	1		x				
US 701	Morningside Drive	1	1		x				
US 701	Mt Pisgah Cemetery Road	1	1		x				
US 701	Homewood Road	1	1		x				
US 701	Hall Road	1	1		x				
US 701	Industrial Park Road	1	1		x				
US 701	Harris Short Cut Road	1	1	50	x				
US 701	Wise Road	1	1		x				
US 701	Wetlands Ind Park	1	1		x				
US 701	SR 319	1	1	35	x				
US 701	Buck Plant Road	2	2	50	x				
US 701	SR 65	2	2			x			
US 701	Long Road	2	2		x				
US 701	Columbia Drive	2	2		x		Sucide Lane Begins		
US 701	Country Club Drive	2	2			x			
US 701	Chicora Blvd	2	2		x				
US 701	Boundry Street	2	2		x				
US 701	Mill Pond Road	2	2	40		x			
US 701	Mcdermott Street	2	2		x				
US 701	Sessions Street	2	2		x		Sucide Lane End		
US 701	McKeithan Street	2	2		x				
US 701	Oak Street	1	1		x				
Park View Road	17th Avenue	1	1		x				
Park View Road	16th Avenue	1	1		x				

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Table A-3. Corridor 3 Road Inventory

Main Street	Cross Street	Lanes NB / EB	Lanes SB / WB	Speed Limit	Stop Sign	Signal	Laneage For Intersections	Mile Marker	Note Anything Odd
US 701	State Line	1	1	55					
US 701	SR 26-1282	1	1		x				
US 701	Hwy 141 - SR 26-141	1	1		x				
US 701	Cheryl Road	1	1		x				
US 701	SR 26-930	1	1		x				
US 701	Twin City Circle	1	1		x				
US 701	Airport Road	1	1		x		Divided Hwy		
US 701	Ramps	1	1		x				
US 701	SR 26-747	1	1	40	x		Divided Hwy ends		
US 701	Russ Road	1	1		x				
US 701	Carolina Drive	1	1		x				
US 701	Ralph Ellis Blvd	1	2		x				
US 701	SR 26-570	1	2		x				
SR 26-570	Allen Street	1	1		x				
SR 26-570	St James Drive	1	1		x				
SR 26-570	Tiger Paw Road	1	1		x				
SR 26-570	SC 66	1	1		x				
SC 66	SC 9	1	1	45	x		Sucide Lane Begins & End before & After		
SC 66	Loris Lions Road	1	1	55	x				
SC 66	Norris Lane	1	1	35	x		School Zone		
SC 66	Colts Neck Road	1	1	55	x		School Zone Ends		
SC 66	Hewitt Road	1	1		x				
SC 66	Lawndale Drive	1	1		x				
SC 66	Simpson Creek Drive	1	1		x				
SC 66	Sunshine Road	1	1		x				
SC 66	Holly Hill Road	1	1		x				
SC 66	SC 915	1	1		x				
SC 66	Red Bluff Road	1	1		x		4 way Stop		
Red Bluff Road	Daisy Road	1	1	35	x		Sucide Lane - School Zone		
Red Bluff Road	Alton Road	1	1	55	x		Sucide Lane End		
Red Bluff Road	Carter Road	1	1		x				
Red Bluff Road	Neil Branch Road	1	1		x				
Red Bluff Road	Sam Graham Road	1	1		x				
Red Bluff Road	SC 366	1	1		x				
Red Bluff Road	Emery Road	1	1		x				
Red Bluff Road	SR 26-777	1	1		x				
Red Bluff Road	Rigsbee Road	1	1		x				
Red Bluff Road	Sandpiper Road	1	1		x				
Red Bluff Road	Winding Path Driv	1	1		x				
Red Bluff Road	SC 905	1	1			x			
SC 905	Stalvey Antique Drive	1	1	45	x		Sucide Lane Begins		
SC 905	Mckinley Shortcut Road	1	1		x				
SC 905	SC 22	1	1		x				
SC 22	On Ramp	2	2	65					
SC 22	SC 90 Ramps	2	2						
SC 22	SC 31 Ramps	2	2						

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Table A-3. Corridor 3 Road Inventory (Cont'd.)

Main Street	Cross Street	Lanes NB / EB	Lanes SB / WB	Speed Limit	Stop Sign	Signal	Laneage For Intersections	Mile Marker	Note Anything Odd
SC 22	US 17 Ramps	3	3	45					
SC 22	Chestnut Road	3	3			x			
SC 22	Lake Arrowhead Road	3	3			x			
SC 22	Cove Drive	3	3		x				
SC 22	US 17 Bus Ramps	2	2	50					
US 17 Bus	Kings Road	2	2	45					
Kings Hwy	Grande Dunes Blvd	2	2		x				
Kings Hwy	82nd Pkwy	2	2			x			
Kings Hwy	79th Pkwy	2	2			x			
Kings Hwy	76th Pkwy	2	2			x			
Kings Hwy	75th Pkwy	2	2		x				
Kings Hwy	67th Pkwy	2	2			x			
Kings Hwy	62nd Ave	2	2			x			
Kings Hwy	61st Ave	3	3		x				
Kings Hwy	Poinsett Road	3	3		x				
Kings Hwy	Woodside Aven	3	3		x				
Kings Hwy	Pinewood Road	3	3			x			
Kings Hwy	52nd Ave	3	3		x				
Kings Hwy	48th Ave	3	3			x			
Kings Hwy	46th Ave	3	3		x				
Kings Hwy	44th Ave	3	3		x				
Kings Hwy	38th Ave	3	3			x			
Kings Hwy	29th Ave	3	3			x			
Kings Hwy	Myrtle Place	3	3	35	x				
Kings Hwy	21st Ave	3	3			x			
Kings Hwy	16th Ave	3	3			x			
Kings Hwy	Mr Joe White Ave	3	3			x			
Kings Hwy	9th Ave	3	3			x			
Kings Hwy	US 501	3	3	25		x			
Kings Hwy	7th Avenue	2	2	35	x				
Kings Hwy	6th Avenue	2	2		x				
Kings Hwy	5th Avenue	2	2		x				
Kings Hwy	4th Avenue	2	2		x				
Kings Hwy	3rd Avenue	2	2		x				
Kings Hwy	2nd Avenue	2	2		x				
Kings Hwy	1st Avenue	2	2		x				
Kings Hwy	2nd Avenue S	2	2		x				
Kings Hwy	3rd Avenue S	2	2			x			
Kings Hwy	6th Avenue S	2	2			x			
Kings Hwy	7th Avenue S	2	2		x				
Kings Hwy	8th Avenue S	2	2		x				

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Table A-4. Corridor 4 Road Inventory

Main Street	Cross Street	Lanes NB / EB	Lanes SB / WB	Speed Limit	Stop Sign	Signal	Laneage For Intersections	Mile Marker	Note Anything Odd
6th Avenue	N Main Street	1	1		x				
Main Street	6th Avenue	1	1	45					
US 501	Oak Street	2	2						
US 501	7th Avenue	2	2						
US 501	SR 26-24	2	2						
US 501	9th Avenue	2	2		x				
US 501	11th Avenue	2	2						Suicide Lanes Starts South of 9th
US 501	Wisteria Drive	2	2						
US 501	Webster Road	2	2	60					Suicide Lane Ends South of Webster
US 501	Cook Road	2	2						
US 501	Bill Jones Road	2	2		x				
US 501	SR 26-1048	2	2						
US 501	SR 26-132	2	2						
US 501	Sherwood Drive	2	2						
US 501	Shanda Lane	2	2						
US 501	White Oak Lane	2	2						
US 501	Hucks Road	2	2						
US 501	Pine Oaks Farm Road	2	2						
US 501	Sparkman Road	2	2						
US 501	Rabon Road	2	2		x				
US 501	Horry Road - SR 26-97	2	2						
US 501	Lambert Road	2	2						
US 501	SR 847	2	2						
US 501	Roleigh Road - Brown	2	2						
US 501	Murray Johnson Road	2	2						
US 501	Landmark Road	2	2		x				
US 501	Enoch Road	2	2						
US 501	Hallie Martin Road	2	2						
US 501	Hardwick Road	2	2						
US 501	D Street	2	2						
US 501	Eldon Road	2	2						
US 501	SR 26-1010	2	2						
US 501	Booth Circle	2	2						
US 501	4 Mile Road - SR 548	2	2	55		x			
US 501	Sioux Swamp Drive	2	2						
US 501	SR 26-165	2	2						Suicide Lane Begins
US 501	Rivertown Blvd	2	2						

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Table A-5. Corridor 5 Road Inventory

Main Street	Cross Street	Lanes NB / EB	Lanes SB / WB	Speed Limit	Stop Sign	Signal	Laneage For Intersections	Mile Marker	Note Anything Odd
SC 905	Kingston Street	2	2	25	x				
SC 905	US 501 Bus	2	2			x			
US 501 Bus	3rd Avenue	1	1	30		x			
US 501 Bus	2nd Avenue	1	1		x				
US 501 Bus	SC 26-14	1	1	55					
US 501 Bus	SC 90	1	1	55		x			
US 501 Bus	Claridy Road	1	1	40	x				
US 501 Bus	SC 26-14	1	2		x				
US 501 Bus	French Collins Road - SC 544	1	1			x			
SC 544	Washington Avenue	1	1	30	x				
SC 544	El Paso Drive	1	1		x				
SC 544	Savannah Bluff Road	1	1		x				
SC 544	US 501	1	1			x			
US 501	SC 544 Overpass	2	2						
US 501	Cox Ferry Road	2	2	50		x			
US 501	SC 26-1129	2	2		x				
US 501	SC 26-1127	2	2			x			
US 501	SC 26-1133	2	2			x			
US 501	University Blvd	2	2		x				
US 501	Victory Ln	2	2			x			
US 501	Singleton Ridge Road	2	2			x			
US 501	William Finlayson Road	2	2		x				
US 501	University Plaza Drive	2	2		x				
US 501	Burning Ridge Rd - Wild Wing Blvd	2	2			x			
US 501	Myrtle Ridge Dr - Gardner Lacy Road	2	2			x			
US 501	Conbraco Road	2	2		x				
US 501	Conbraco Road	2	2		x				
US 501	Sparks Toyota Driveway	2	2		x				
US 501	Perry Rd - Carolina Forest Blvd	2	2			x			
US 501	Legends Drive	2	2			x			
US 501	Las Palmas Drive	2	2			x			
US 501	SC 31 Interchange			55					No Access to cross streets
US 501	George Bishop Pkwy Overpass	2	2	55					
US 17	Pine Island Road	3	3	50					
US 17	Harrelson Blvd Overpass	3	3						
US 17	Shetland Lane	3	3						
US 17	Waterway Condo	2	2	45					Construction Zone
US 17	Farrow Pkwy	2	2			x			
US 17	Palmetto Pointe Blvd	2	2			x			
US 17	Azalea Lakes Blvd	2	2						
US 17	Esso Road	2	2						
US 17	Strand Drive	2	2			x			
us 17	Queens Harbour Blvd	2	2			x			
US 17	Sutter Drive	2	2			x			
US 17	Glenns Bay Road	2	2			x			
Glenns Bay Road	Andover Drive	1	1	30	x				
Glenns Bay Road	Spanish Oaks Drive	1	1		x				
Glenns Bay Road	Kessinger Drive	1	1		x				
Glenns Bay Road	Coachman Lane	1	1		x				
Glenns Bay Road	Indian Oak Lane	1	1		x				

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Table A-5. Corridor 5 Road Inventory (Cont'd.)

Main Street	Cross Street	Lanes NB / EB	Lanes SB / WB	Speed Limit	Stop Sign	Signal	Laneage For Intersections	Mile Marker	Note Anything Odd
Glenns Bay Road	Sandy Lane - Azalea Drive	1	1		x				
Glenns Bay Road	Kings Hwy	1	1			x			
Surfside Drive	Poplar Drive	1	1		x				Divided Road
Surfside Drive	Cedar Drive	1	1		x				
Surfside Drive	Hollywood Drive	1	1		x				
Surfside Drive	Willow Drive	1	1		x				
Surfside Drive									

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Appendix B

I-73 Stated Preference Survey Report

Resource Systems Group, Inc.

June 2015

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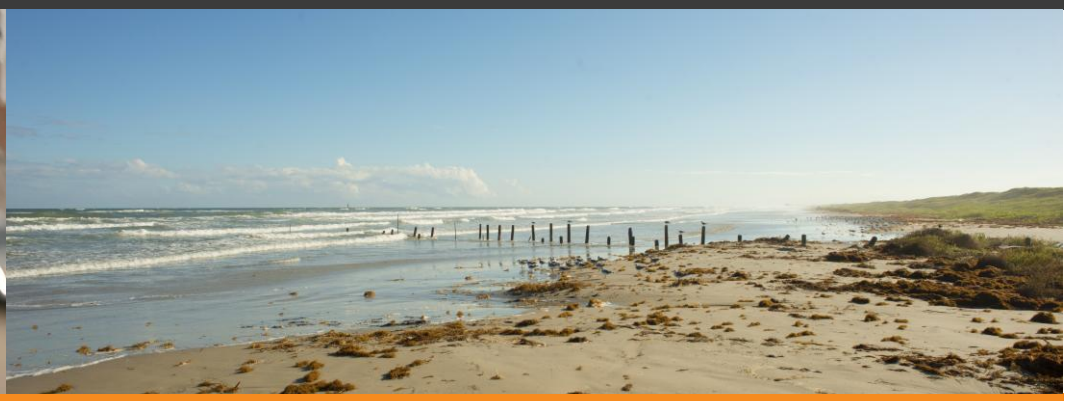
DRAFT REPORT

I-73 STATED PREFERENCE SURVEY

RSG
the science of insight

6.18.2015



PREPARED FOR:
SOUTH CAROLINA DEPARTMENT OF TRANSPORTATION

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IN COOPERATION WITH:
C&M ASSOCIATES

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1.0 EXECUTIVE SUMMARY

The South Carolina Department of Transportation, in collaboration with C&M Associates (C&M), is evaluating the traffic and revenue potential of an extension of I-73 in South Carolina. The new extension would be tolled and would ultimately connect South Carolina to states as far north as Michigan. In South Carolina, I-73 would run northwest from SC Highway 22 north of Myrtle Beach to the North Carolina state border. The proposed corridor would be approximately 100 miles and includes two phases: Phase 1 from SC Highway 22 to I-95 (shown in yellow in **Figure 1-1**), and Phase 2 from I-95 to I-74 in North Carolina (shown in green in **Figure 1-1**). The South Carolina Department of Transportation is also considering potential contributing routes to I-73 such as the Southern Evacuation Lifeline (SELL), a potential toll facility that would link SC Highway 22 to US 17 south of Myrtle Beach.

From April 17 to June 3, 2015, Resource Systems Group, Inc. (RSG) conducted two stated preference (SP) surveys—one of passenger vehicle travelers and one of commercial vehicle travelers—in the greater Myrtle Beach area. RSG collaborated with C&M to design and conduct the surveys to support C&M's travel demand forecast for Dillon, Horry, Marion, Georgetown, and Marlboro Counties in South Carolina.

FIGURE 1-1: I-73 CORRIDOR

The primary purpose of the stated preference survey was to estimate value of time (VOT) of passenger and commercial vehicle travelers who are candidates for using the proposed extensions of I-73 and potential contributing routes such as the SELL corridor. The surveys provide an important analytical tool in evaluating traffic and revenue potential and in enhancing the credibility of the study for presentation to the financial community.

The questionnaires collected data on respondents' current travel behaviors (also referred to as "revealed preferences"), presented respondents with information about the proposed I-73 and contributing routes, and used stated preference experiments to collect data that were used to estimate values of time in the corridor.

The survey approach employed a computer-assisted self-interview (CASI) technique developed by RSG. The stated preference survey instrument was customized for each respondent by presenting questions and modifying language based on respondents' previous answers. These dynamic survey features provide an accurate and efficient means of data collection and allow the presentation of realistic future conditions that correspond with the respondents' reported experiences. RSG's proprietary software was customized for online administration to targeted audiences in the study region.

Respondents were recruited to take the survey through the following methods:

- Passenger vehicle survey:
    - E-mail invitations sent to organizations and businesses in the Myrtle Beach area
    - E-mail invitations sent through the Myrtle Beach Chamber of Commerce database to recent visitors to the Myrtle Beach area
- Commercial vehicle survey:
    - E-mail invitations sent to South Carolina Trucking Association members

A total of 1,973 valid passenger vehicle and 18 valid commercial vehicle surveys were collected between April and June 2015. Stated preference data from the passenger vehicle survey was analyzed using accepted statistical techniques to estimate the coefficients of a set of multinomial logit (MNL) models across different traveler market segments. The coefficients of the MNL models were used to estimate travelers' value of time (VOT). The average VOT across different income groups for the various segments generally fell within a range of $5 per hour to $17 per hour.

Because of opposition to the project from the South Carolina Trucking Association, the project team was unable to collect the minimum number of commercial vehicle surveys needed to conduct the choice model estimation to estimate values of time. To estimate commercial travelers' VOT, the project team used results from a selection of other similar commercial vehicle surveys conducted by RSG in the southeastern US. The average aggregate value of time for commercial drivers across these studies was calculated as $26.56 per hour.

This report documents the development and administration of the survey questionnaires, presents survey results, and summarizes the discrete choice model estimation methodology and findings. The full text of the survey questionnaire, survey screen captures, response tabulations, and respondents' comments about the project appear as appendices to this report.

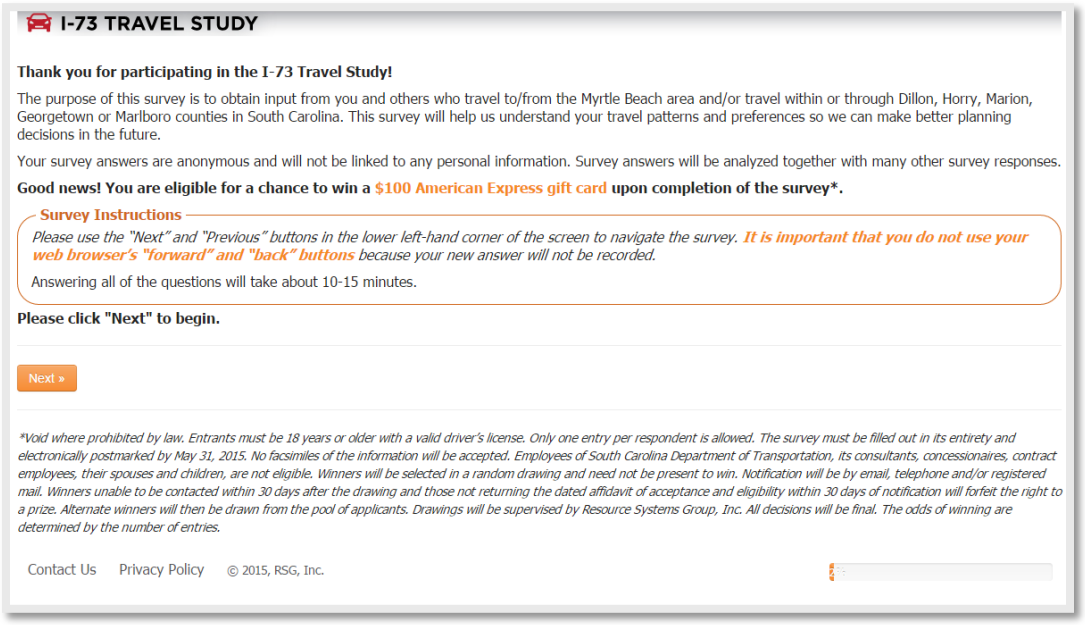
2.0 SURVEY QUESTIONNAIRES

RSG developed two stated preference questionnaires to meet the objectives of the study - one for passenger vehicle drivers and one for commercial vehicle drivers and dispatchers. The questionnaires were designed to collect the information necessary to estimate values of time for different traveler market segments. Both the passenger and commercial questionnaires followed the same general format, with questions customized by type of respondent.

Respondents were presented with an introduction screen at the beginning of the surveys with information about the study, the time required to complete the questionnaire, and instructions for how to navigate the online survey instrument. Further, passenger vehicle respondents were provided with information regarding a prize drawing offered by the Myrtle Beach Area Chamber of Commerce for respondents completing the survey.

Respondents were able to contact a member of the survey team with any technical questions about the survey via e-mail through the 'Contact Us' option included on all survey screens (**Figure 2-1**).

FIGURE 2-1: PASSENGER VEHICLE SAMPLE SURVEY SCREEN - INTRODUCTION AND INSTRUCTIONS



2.1 | PASSENGER VEHICLE SURVEY QUESTIONNAIRE

The passenger vehicle survey was designed to collect information about a recent trip that a respondent made in the study area and to find out how drivers might alter their travel behavior given the proposed tolled I-73 and contributing routes such as the Southern Evacuation Lifeline (SELL). The passenger vehicle survey questions were grouped into five main sections:

1. Qualification questions
2. Trip detail questions
3. Stated preference questions
4. Debrief and opinion questions
5. Demographic questions

The complete set of survey questions as they appeared to respondents on-screen is included in **Appendix A**.

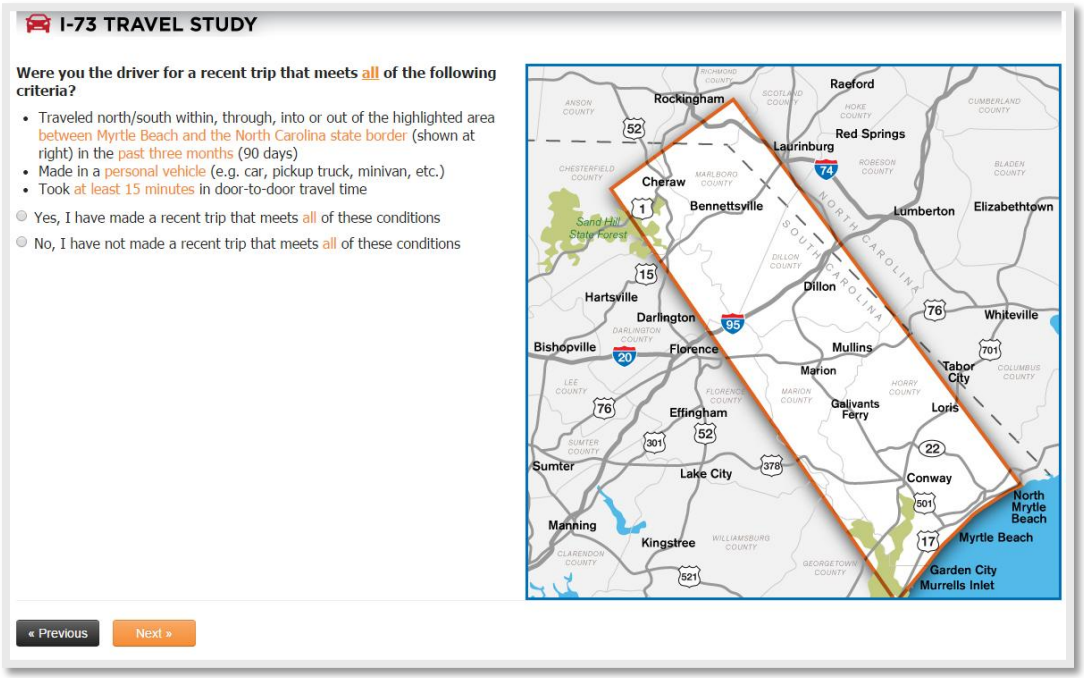
QUALIFICATION QUESTIONS

Following the survey introduction, respondents were asked about their residency status and ZIP code to determine whether they were a resident of the Myrtle Beach area or a visitor. Residents of Myrtle Beach (full-time and seasonal) and visitors were shown separate trip qualification questions to determine if they were eligible to participate in the survey. For a full-time or seasonal resident to be eligible, they must have made a recent trip that met the following conditions:

- **Traveled north/south within, through, into, or out of the study area.** This ensured that the sample included trips in the study corridor that could potentially use the proposed roadways.
- **The trip was made in the past three months (90 days).** This timeframe was selected to allow the sample to include respondents who make less frequent trips while ensuring that the trip was recent enough for the respondents to recall the specific trip details.
- **The trip was made in a personal vehicle (e.g., car, pickup, truck, or minivan).** This version of the survey was designed for passenger-vehicle travel.
- **The trip took at least 15 minutes in door-to-door travel time.** The 15-minute minimum travel time is reasonable for trips that could use at least part of the toll facility and allow enough travel time variation to be shown in the stated preference choice experiments for the corridor.

For reference, the screening question is shown below along with a map highlighting the study area (**Figure 2-2**).

FIGURE 2-2: PASSENGER VEHICLE SAMPLE SURVEY SCREEN - MAP OF STUDY AREA FOR RESIDENT TRIP QUALIFICATION

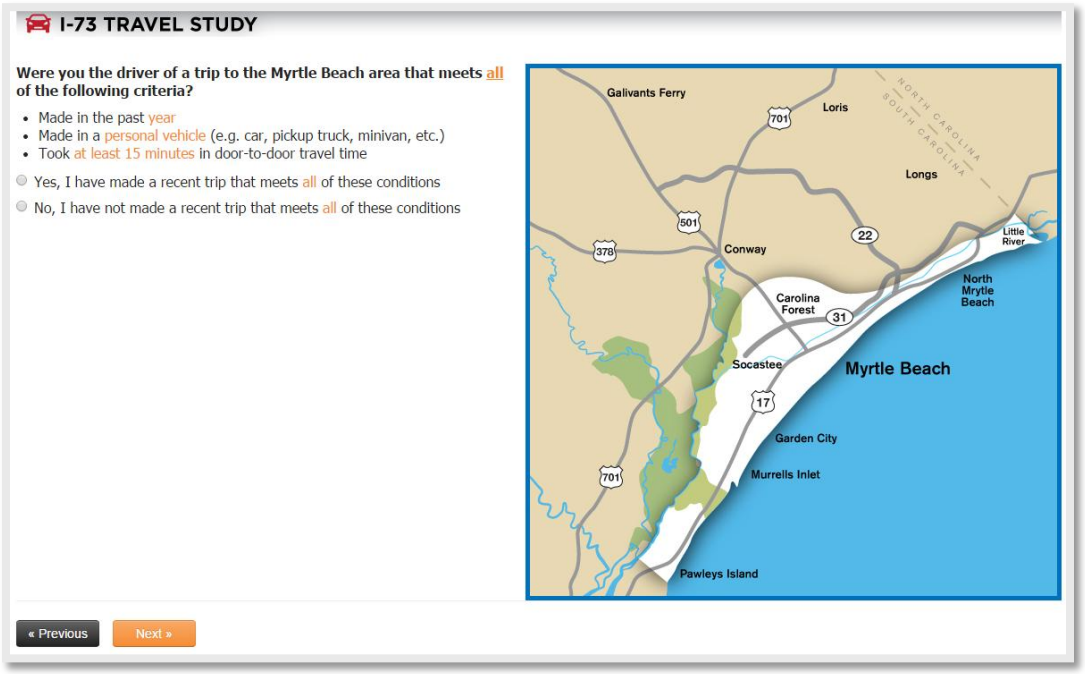


For visitors to be eligible, they must have made a trip to the Myrtle Beach area that met all of the following conditions:

- **The trip was made in the past year.** Because many vacation trips are made during holidays and summertime, this timeframe was selected to allow the sample to include respondents who have vacationed in Myrtle Beach sometime during the past year.
- **The trip was made in a personal vehicle (e.g., car, pickup, truck, or minivan).** This version of the survey was designed for passenger-vehicle travel.
- **The trip took at least 15 minutes in door-to-door travel time.** The 15-minute minimum travel time is reasonable for trips that could use at least part of the toll facility and allow enough travel time variation to be shown in the stated preference choice experiments for the corridor.

For reference, respondents were shown a map highlighting the Myrtle Beach area (**Figure 2-3**).

FIGURE 2-3: PASSENGER VEHICLE SAMPLE SURVEY SCREEN - MAP OF MYRTLE BEACH AREA FOR VISITOR TRIP QUALIFICATION



Residents and visitors who indicated that they had not made a trip that met all of the criteria were shown a series of demographic questions (described in an upcoming section) before exiting the survey.

TRIP DETAIL QUESTIONS

Qualifying respondents were asked to focus on their most recent trip that met all of the criteria as they continued through the survey. This most recent trip, referred to as the respondent's reference trip, formed the basis for the rest of the questions in this section of the survey. The survey specifically asked respondents to think about their most recent trip (and not a typical or average trip that they might make) to ensure that the sample included a diverse range of trip types and travel characteristics. This most recent trip also provided a frame of reference for respondents when completing the stated preference scenarios in the next section of the survey.

Respondents were instructed to think about the one-way portion of their trip, rather than the entire round trip, and were asked a series of questions regarding the specific details of their reference trip including:

- Day of week traveled;
- Trip purpose;
- Type of beginning and ending locations (e.g. home, work, or other);
- Road(s) used;
- Trip departure time;
- Door-to-door travel time;
- Travel time without delay;

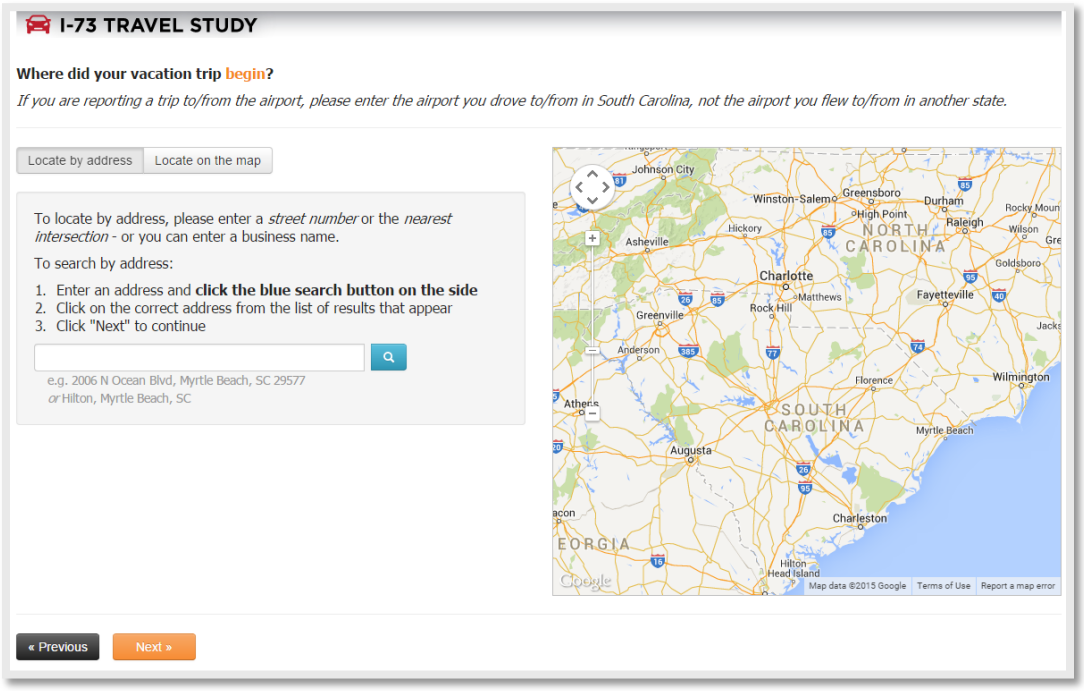
- Vehicle occupancy;
- Trip frequency and;
- ETC ownership.

These questions were asked before the stated-preference (SP) exercises in order to focus respondents on a specific, recent trip they made in the study area and to collect detailed information about that trip to use for constructing the SP exercises.

First, respondents were asked to select the day of the week that they made their most recent trip. They were then asked to indicate the primary purpose for the trip. Focusing on their trip in one direction only, respondents were asked to report whether their trip began or ended at home, work, or another place (such as hotel, beach, and airport) and then to identify the specific trip origin and destination using a Google Maps-based geocoder developed by RSG. Respondents identified the specific location of their origin and destination by entering a business name, a street intersection, or a full address, or by using an interactive map (**Figure 2-4**). The origin and destination locations were geocoded using a Google Maps application-programming interface to provide a latitude and longitude for both the trip origin and destination. The coordinates were used to verify that the trip began and ended in two different locations (i.e. was not a round-trip) and that the trip could have reasonably traveled through the study region. The geocoding application was also used to estimate the total trip distance and travel time that could be compared to respondents' reported travel times. If the location of the trip origin and destination suggested an invalid trip, respondents were reminded to describe a one-way portion of the trip and asked if they needed to change the beginning or ending location. Respondents who did not change their origin or destination were terminated from the survey.

The geocoding application was also used to segment trips into three categories, trips that could use I-73, trips that could use competing routes such as the SELL corridor, and trips that could use both corridors. These categories determined the project information respondents were shown in the stated preference section.

FIGURE 2-4: PASSENGER VEHICLE SAMPLE SURVEY SCREEN - ORIGIN ADDRESS AND MAP INTERFACE



Respondents were then provided with a list of major roads in the study area and asked to select which they used on their trip. The list of roads was customized depending on a respondent's reference trip. Respondents then entered their trip departure time and the amount of time they spent traveling (door-to-door) between their origin and destination. Additionally, respondents reported their estimated travel time without delay, if delay was encountered. Reported travel times were compared to travel times obtained from the Google Maps route-planning algorithm. Respondents who reported unrealistically long (2.5 times longer) or short trips (.75 shorter) compared to the Google Maps-estimated travel time were asked to confirm or correct their travel time.

After entering information about their trip, respondents were asked about the number of passengers in their vehicle. Those who indicated they were a resident or seasonal-resident were asked how frequently they make the same trip in the same direction. To conclude the trip details section, respondents were asked if they owned an electronic toll collection device (ETC) such as a Palmetto Pass or E-ZPass.

STATED PREFERENCE QUESTIONS

After completing the trip details section of the questionnaire, respondents completed a series of stated preference questions. Before the SP questions were administered, respondents were provided with details about the proposed I-73 and/or the SELL depending on their eligibility to use one or both of the corridors (**Figure 2-5** and **Figure 2-6**). Respondents were also shown information about the payment structure that would be utilized on the new roadways and brief instructions regarding the SP questions.

FIGURE 2-5: PASSENGER VEHICLE SAMPLE SURVEY SCREEN - I-73 PROJECT INFORMATION

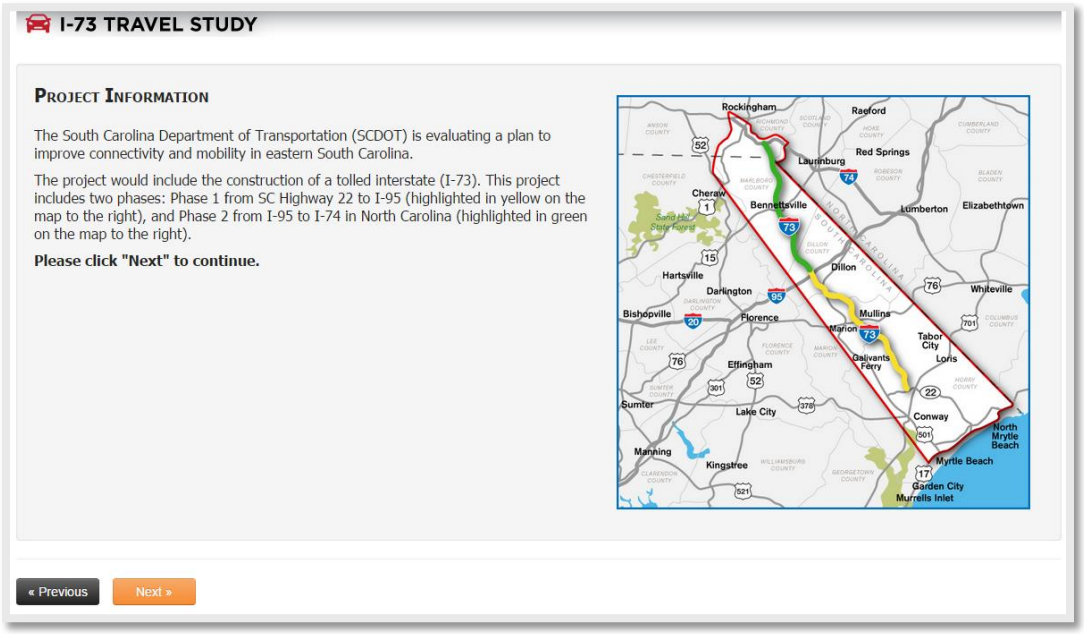
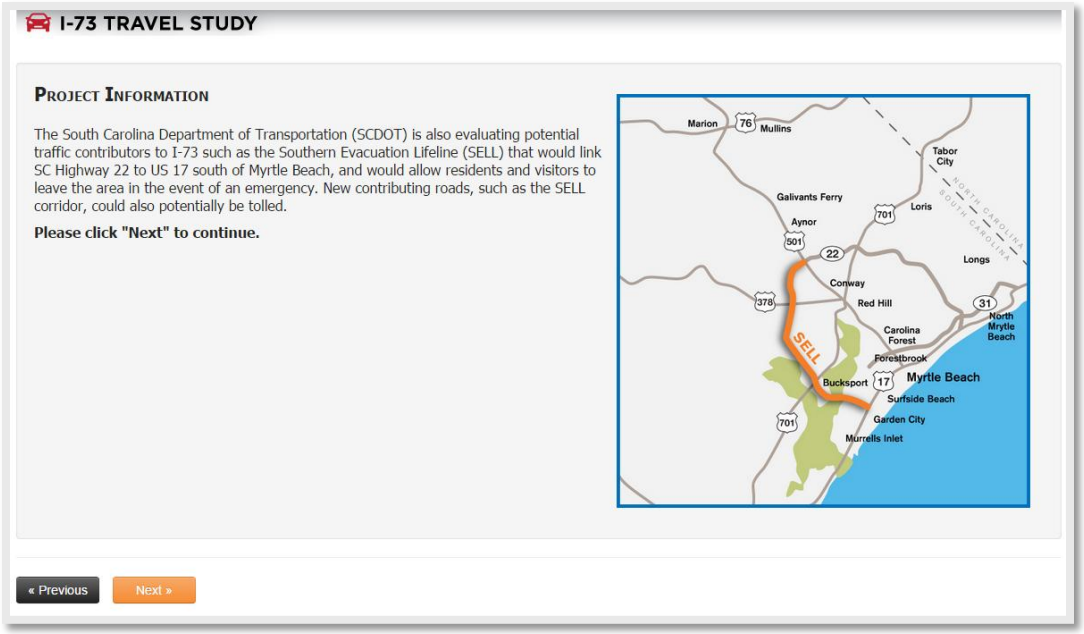


FIGURE 2-6: PASSENGER VEHICLE SAMPLE SURVEY SCREEN - SELL PROJECT INFORMATION

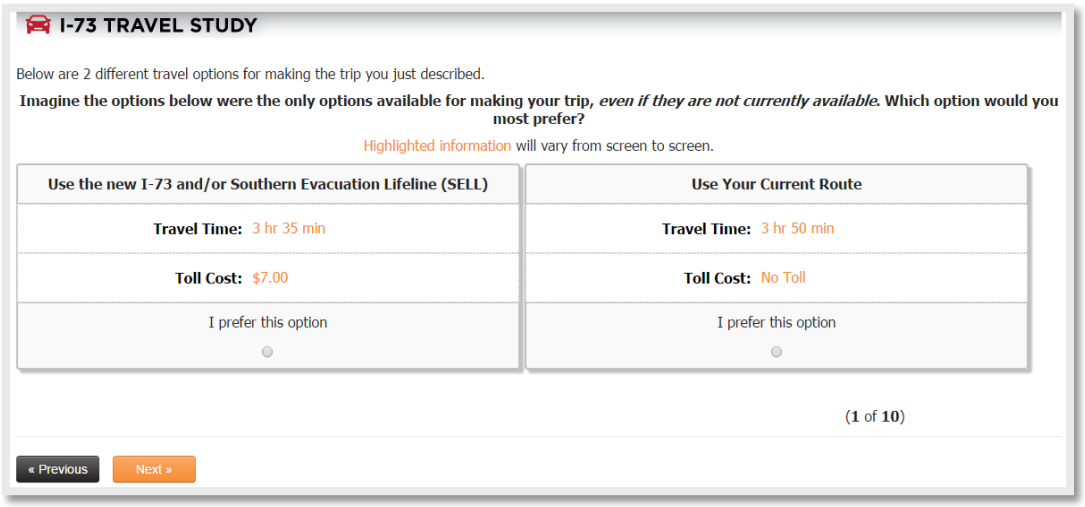


The goal of the stated preference questions is to collect quantitative data that can be used to estimate respondents' travel preferences and behavioral responses under hypothetical future conditions. The details of each respondent's reference trip were used to build a set of ten stated preference scenarios that included two travel alternatives for making their trip in the future. Travelers were presented with the following two alternatives:

1. Make your trip using your current route
2. Make your trip using the proposed I-73 *or* Southern Evacuation Lifeline (SELL) *or* I-73 and/or Southern Evacuation Lifeline (SELL)

Each alternative was described by two attributes: travel time and toll cost. The values of the attributes varied across the ten questions and respondents were asked to select the alternative they preferred the most under the conditions that were presented. **Figure 2-7** shows an example stated preference scenario with varying attribute values for each alternative. In order to avoid potential bias associated with the layout of the alternatives, the order of these alternatives was randomized for each respondent. Additional examples of the stated preference exercises are presented in **Appendix A**.

FIGURE 2-7: PASSENGER VEHICLE SAMPLE SURVEY SCREEN - EXAMPLE STATED PREFERENCE EXPERIMENT



The attribute values presented in each scenario varied around a set of base values. Trip characteristics of each respondent's reference trip were used as the base values for travel time and toll cost to ensure that the scenarios were realistic. These base values were then varied, according to an experimental design, to give a unique set of attribute values for each stated preference experiment. By varying the travel time and toll cost shown in each experiment, respondents were faced with different timesavings for different costs, allowing them to demonstrate their travel preferences across a range of values of time. **Table 2-1** presents the formulas used in the experimental design to calculate the attribute values.

The specific levels used in each stated preference experiment were determined by using an orthogonal experimental design. Orthogonal designs are commonly used for this type of research to ensure that the attribute values vary independently and to minimize correlation between attribute values. The experimental design used to generate the stated preference experiments in the survey included 100 total experiments divided into ten groups of ten. A respondent was randomly assigned to one of the ten blocks and then shown each of the ten experiments from that block in a random order. The multiplying 'factor' varied from one to five depending on the possible highway distance traveled on the proposed corridors.

Table 2-2 shows the factor vales for different highway distance categories.

TABLE 2-1: PASSENGER VEHICLE SURVEY - STATED PREFERENCE ATTRIBUTE LEVELS

Attribute	Level #	Alternative 1: Current Route		Alternative 2: I-73, SELL, I-73 and/or SELL	
		Description	Level	Description	Level
Travel Time (minutes)	1	Current travel time + (Factor * Level)	0	Current Travel Time - (Factor * Level)	2
	2		2		3
	3		3		4
	4		4		5
	5		5		6
Toll Cost (dollars)	1	Toll free		Factor * Level	0.20
	2				0.40
	3				0.60
	4				0.80
	5				1.00
	6				1.20
	7				1.40
	8				1.60
	9				1.80
	10				2.00

TABLE 2-2: PASSENGER VEHICLE SURVEY - FACTORS FOR ATTRIBUTE LEVELS

Possible Highway Distance on I-73 and/or SELL	Factor
Up to 15 miles	1
15-29 miles	2
30-44 miles	3
45-59 miles	4
60 miles or more	5

DEBRIEF AND OPINION QUESTIONS

After completing the ten stated preference scenarios, respondents answered a series of questions to assess underlying rationales for their choices and to identify any potential strategic bias in their responses.

Respondents who never selected a tolled route (I-73, SELL, or I-73 and/or SELL) alternative were asked to select the reason(s) for these choices. Based on the information presented in the survey, respondents were asked their opinion of the I-73 and/or SELL project. Those who indicated they were in favor of or opposed to the project were asked to explain their reasoning. Finally, all respondents were asked to indicate the level to which they agree or disagree with a set of attitude statements about tolls.

DEMOGRAPHIC QUESTIONS

The final section of the survey included a series of demographic questions. Respondents who identified themselves as visitors were asked about their stay in the Myrtle Beach area related to the following topics:

- Overnight stay;
- Length of stay (if stayed overnight) and;
- Frequency of visitation to the Myrtle Beach area.

All respondents were asked questions related to the following topics:

- Gender;
- Age;
- Employment status;
- Household size;
- Vehicle ownership and;
- 2014 household income, before taxes.

Responses to these questions were used to classify respondents, identify possible behavioral differences among demographic characteristics, and to confirm that the sample contained a diverse group of drivers that travel in the study region.

At the conclusion of the survey, respondents were asked if they were interested in being entered into a drawing for one of several prizes. They were also given the opportunity to leave comments about the project or the survey. These open-end comments are provided in **Appendix C**.

2.2 | COMMERCIAL VEHICLE SURVEY QUESTIONNAIRE

The commercial vehicle survey was designed to collect information about a recent commercial trip that a respondent dispatched or made in a commercial vehicle in the study area. The survey aimed to understand how dispatchers or drivers would change their behavior given the proposed I-73 and the contributing SELL corridor. Similar to the passenger vehicle survey, the survey questions were grouped into five main sections:

1. Qualification questions
2. Trip detail questions
3. Stated preference questions
4. Debrief and opinion questions
5. Company information questions

The complete set of survey questions as they appeared to respondents on-screen is included in **Appendix A**.

QUALIFICATION QUESTIONS

Following the introduction screen, respondents were asked to indicate their role: dispatcher or manager, owner-operator, contract owner-operator, fleet driver, or other. Respondents were asked to identify whether they or someone else makes vehicle routing decisions. Those who indicated that someone else makes vehicle routing decisions were asked whether they could describe the routing decisions made by others. Respondents who could not describe the routing decisions were disqualified from completing the survey.

Next, respondents were asked if they had made or dispatched a recent qualifying trip. To participate in the survey, respondents must have made or dispatched a trip that met the following conditions:

- **Traveled north/south within, through, into, or out of the study area.** This ensured that the sample included trips in the study corridor that could potentially use the proposed roadways.
- **The trip was made in the past month (30 days).** This timeframe was selected to allow the sample to include respondents who made less frequent trips while ensuring that the trip was recent enough for the respondents to recall the specific trip details.
- **The trip was made in a commercial vehicle.** This survey was designed to capture commercial-vehicle travel.
- **The trip took at least 15 minutes in door-to-door travel time**. The 15-minute minimum travel time is reasonable for trips that could use at least part of the toll facility and allow enough travel time variation to be shown in the stated preference choice experiments for the corridor.

Respondents who indicated that they had not made or dispatched a trip that met all of the criteria were also disqualified from completing the survey.

TRIP DETAIL QUESTIONS

Qualifying respondents were asked to focus on the most recent trip that met the trip qualification criteria as they continued with the survey. The commercial vehicle survey asked respondents to think about their most recent trip (and not a typical or average trip that they might make) to ensure that the sample included a diverse range of trip types and travel characteristics. This most recent trip also provided a frame of reference for respondents when completing the stated preference scenarios in the next section of the survey.

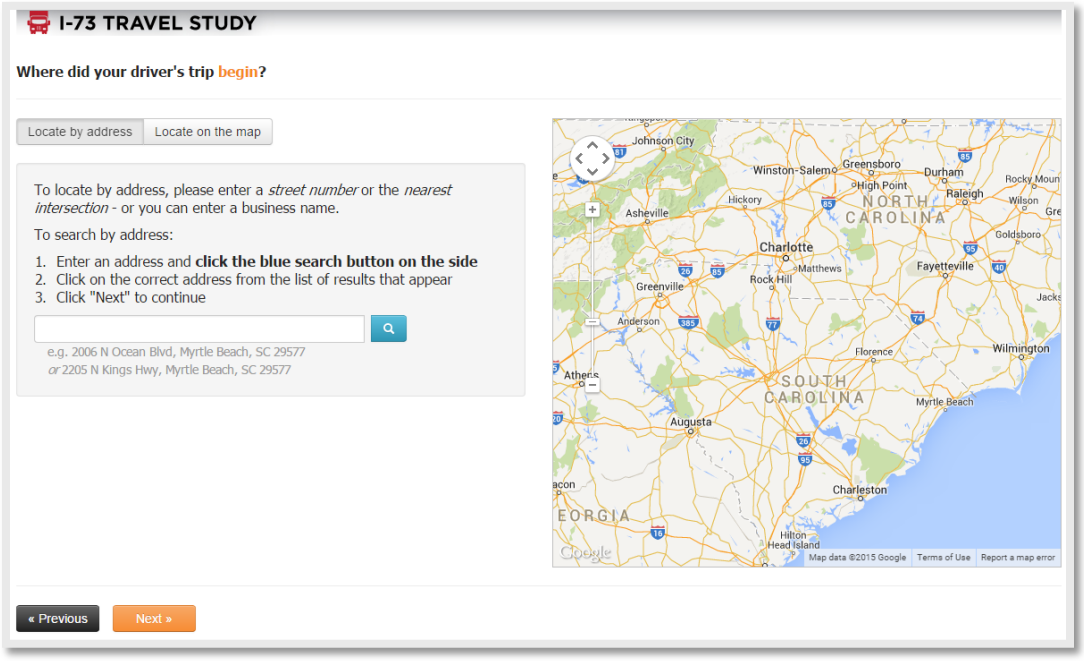
Respondents were instructed to think about the one-way portion of their trip from one commercial stop to another, and were asked a series of questions regarding the specific details of their reference trip, including:

- Length of trip in days;
- Trip origin and destination;
- Trip distance;
- Travel time;
- Travel time without delay;

- Number of vehicle axles;
- Trip frequency and;
- ETC ownership.

As in the passenger vehicle survey, trip origin and destination information collected as part of the trip detail questions was obtained using a custom Google Maps-based interface (**Figure 2-8**). The coordinates were used to verify that the trip began and ended in two different locations (i.e. was not a round-trip) and that the trip could have reasonably traveled through the study region. The geocoding application was also used to estimate the total trip distance and travel time that could be compared to a respondent's reported travel time. If the location of the trip origin and destination suggested an invalid trip, respondents were reminded to describe a one-way portion of the trip and asked if they needed to change the beginning or ending location. Respondents who did not change their origin or destination were terminated from the survey.

FIGURE 2-8: COMMERCIAL VEHICLE SAMPLE SURVEY SCREEN - ORIGIN ADDRESS AND MAP INTERFACE



Additionally, the origin and destination coordinates were used to estimate how many miles of the I-73 and/or SELL corridor a respondent could have used for their trip. This highway distance estimate was then used as one of the inputs of the stated preference attribute level design.

STATED PREFERENCE QUESTIONS

As in the passenger vehicle survey, respondents completed a series of stated preference questions. First, respondents were provided with details about the proposed I-73 and/or Southern Evacuation Lifeline (SELL) corridors and the payment information that would be

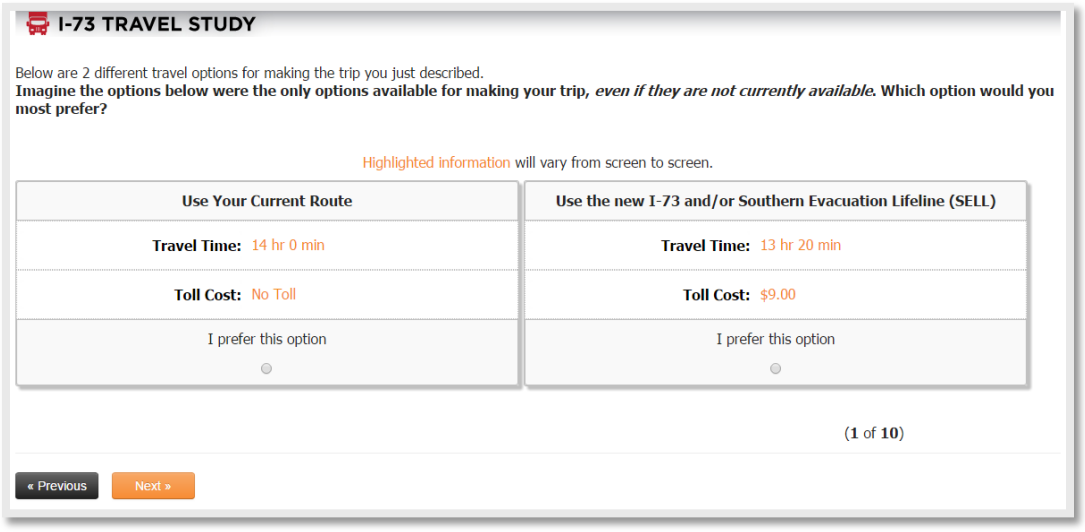
utilized on the new roadways. Respondents then received brief instructions regarding the SP questions.

The goal of the stated preference questions is to collect quantitative data that can be used to estimate respondents' travel preferences and behavioral responses under hypothetical future conditions. The details of each respondent's reference trip were used to build a set of ten stated preference scenarios that included two travel alternatives for making their trip in the future. Travelers were presented with the following two alternatives:

1. Make the trip using your/your driver's current route
2. Make the trip using the proposed I-73 *or* Southern Evacuation Lifeline (SELL) *or* I-73 and/or Southern Evacuation Lifeline (SELL)

Each alternative was described by two attributes: travel time and toll cost. The values of the attributes varied across the ten questions and respondents were asked to select the alternative they preferred the most under the conditions that were presented. **Figure 2-9** shows an example commercial vehicle stated preference scenario with varying attribute values. In order to avoid potential bias associated with the layout of the alternatives, the order of these alternatives was randomized for each respondent. Additional examples of the stated preference exercises are presented in **Appendix A**.

FIGURE 2-9: COMMERCIAL VEHICLE SAMPLE SURVEY SCREEN - EXAMPLE STATED PREFERENCE EXPERIMENT



Again, the attribute values presented in each scenario varied around a set of base values and number of axles. Trip characteristics of each respondent's reference trip were used as the base values for travel time and toll cost to ensure that the scenarios were realistic. These base values were then varied, according to an experimental design, to give a unique set of attribute values for each stated preference experiment. By varying the travel time and toll cost shown in each experiment, respondents were faced with different timesavings for different costs, allowing them to demonstrate their travel preferences across a range of values of time.

Table 2-3 details the formulas that were used in the experimental design to calculate the attribute values.

The specific levels used in each stated preference experiment were determined by using an orthogonal experimental design. The experimental design used to generate the stated preference experiments in the survey included 100 total experiments divided into ten groups of ten. A respondent was randomly assigned to one of the ten blocks and then shown each of the ten experiments from that block in a random order. The multiplying 'factor' varied from one to five depending on the possible highway distance traveled on the proposed corridors. **Table 2-2** shows the factor vales for different highway distance categories.

TABLE 2-3: COMMERCIAL VEHICLE SURVEY - STATED PREFERENCE ATTRIBUTE LEVELS

Attribute	Level #	Alternative 1: Current Route		Alternative 2: I-73, SELL, I-73 and/or SELL					
		Description	Level	Description	Level				
Travel Time (minutes)	1	Current travel time + (Factor * Level)	0	Current Travel Time - (Factor * Level)	6				
	2		2		5				
	3		3		4				
	4		4		3				
	5		5		2				
Number of Axles					2	3	4	5	6+
Toll Cost (dollars)	1	Toll Free		Factor * Level	0.20	0.40	0.60	0.80	1.00
	2				0.40	0.80	1.20	1.60	2.00
	3				0.60	1.20	1.80	2.40	3.00
	4				0.80	1.60	2.40	3.20	4.00
	5				1.00	2.00	3.00	4.00	5.00
	6				1.20	2.40	3.60	4.80	6.00
	7				1.40	2.80	4.20	5.60	7.00
	8				1.60	3.20	4.80	6.40	8.00
	9				1.80	3.60	5.40	7.20	9.00
	10				2.00	4.00	6.00	8.00	10.00

DEBRIEF AND OPINION QUESTIONS

After completing the ten stated preference scenarios, respondents answered a series of questions to assess underlying rationales for their choices and to identify any potential strategic bias in their responses.

Respondents who never selected a tolled route (I-73, SELL, or I-73 and/or SELL) alternative were asked to select the reason(s) for these choices. Based on the information presented in the survey, respondents were asked their opinion of the I-73, SELL, or I-73 and/or SELL. Those who indicated they were in favor of or opposed to the project were asked to explain their reasoning. Finally, all respondents were asked to indicate the level to which they agree or disagree with a set of statements about tolls.

COMPANY INFORMATION QUESTIONS

To ensure the survey collected information from a range of commercial trips, all respondents answered a series of background questions related to their company's operation. All respondents reported:

- Company location;
- Company size (number of vehicles);
- Typical trip length;
- Type of delivery schedule (flexible or fixed);
- Party responsible for paying tolls;
- If and how company charges customers for tolls and;
- How drivers are paid.

The survey concluded with an opportunity to leave comments about the project or survey. These open-end comments are provided in **Appendix C**.

3.0 SURVEY ADMINISTRATION

RSG worked closely with the project team to develop an efficient, timely, and cost-effective sampling plan to produce a generally representative sample of passenger and commercial vehicle travelers. The sampling plan included sufficient representation from different trip purposes, household incomes, and geographies to accurately reflect any behavioral differences in the resulting discrete choice models. It was therefore possible to identify the ways in which different characteristics affect route choice behavior. These differences are reflected in the structure and coefficients of the resulting choice model.

RSG designed a sampling plan to collect data from visitors who travel to the Myrtle Beach area as well as seasonal and full-time residents who travel in and around the proposed I-73 and competing routes such as the SELL corridor. RSG recruited travelers to participate in the stated preference survey using three methods:

1. E-mail invitations sent to recent visitors to the Myrtle Beach area (passenger vehicle survey only)
2. E-mail invitations sent to businesses and organizations located in the study area (passenger vehicle survey only)
3. E-mail invitations sent to members of the South Carolina Trucking Association (commercial vehicle survey only)

The survey instrument was administered entirely online through RSG's proprietary online survey platform, rSurvey. RSG began survey administration for the passenger vehicle survey on April 17, 2015 and concluded administration on May 13, 2015. The commercial survey administration began on April 29, 2015 and concluded on June 3, 2015. The administration methods and number of completed surveys are presented in **Table 3-1**.

TABLE 3-1: COMPLETED SURVEYS BY ADMINISTRATION METHOD

Data Source	Completed Surveys	
	Passenger	Commercial
E-mail invitation to Myrtle Beach area visitors	1,206	n/a
E-mail invitation to area businesses/organizations	767	n/a
E-mail invitation to South Carolina Trucking Association	n/a	18
Total	**1,973**	**18**

3.1 | E-MAIL INVITATION TO MYRTLE BEACH AREA VISITORS

RSG worked closely with the Myrtle Beach Area Chamber of Commerce to reach travelers who have made a recent trip to the Myrtle Beach area. The Chamber sent out the survey to a random sample of approximately 24,500 e-mail addresses from their database of over 600,000 visitor e-mails, inviting respondents to participate in the stated preference survey. The invitation included a brief description of the survey and a link to the survey website. After the initial invitation, e-mail reminders were sent to respondents who did not complete

the survey. The outreach to Myrtle Beach area visitors yielded 1,206 completed surveys, indicating a response rate of approximately 5%.

3.2 | E-MAIL INVITATION TO BUSINESSES IN THE STUDY AREA

RSG worked closely with the Myrtle Beach Area Chamber of Commerce to contact a number of local businesses and organizations with the purpose of distributing the survey link to their employees. In addition to these businesses and organizations, an e-mail invitation was sent to the Chamber's membership database. This administration method yielded 556 completed passenger vehicle survey responses.

In addition to the business outreach, a link to the survey was also posted on a local news station website. WMBF News broadcast a story about the survey project on April 30, 2015. The television news story directed area residents to the WMBF website, which included information about the study and the link to the survey (**Figure 3-1**). The broadcast resulted in 211 completed surveys. A list of the number of completed responses by businesses or organization is provided below in **Table 3-2**. This administration method yielded 767 completed passenger vehicle survey responses.

TABLE 3-2: COMPLETED SURVEYS FROM EMPLOYER OUTREACH

Business or Organization	Completed Surveys
Horry County Government	278
Survey link published on WMBF News website	211
Horry-Georgetown Technical College	105
Myrtle Beach Chamber of Commerce Members	75
Myrtle Beach Chamber of Commerce Staff	63
Santee Cooper	33
Coastal Organization of Human Resources (COHR)	1
Horry Telephone Cooperative (HTC)	1
Total	**767**

FIGURE 3-1: SCREENSHOT OF ARTICLE POSTED ON WMBF NEWS WEBSITE

Researchers want drivers to take I-73 survey for feedback on tolls

Posted: Apr 30, 2015 3:44 PM CDT
Updated: Apr 30, 2015 4:40 PM CDT

By Brooke Holden CONNECT

Researchers taking survey to gauge feelings on paying toll to fund I-73

00:44

(WMBF) - The South Carolina Department of Transportation (SCDOT) is conducting a travel survey of automobile drivers in the greater Myrtle Beach area.

The purpose of this survey is to obtain input from you and others who travel within or through Dillon, Horry, Marion, Georgetown or Marlboro Counties in South Carolina.

This survey will help analysts understand travel patterns and preferences to inform future transportation planning decisions.

If you would like to participate, please click on the link below to begin the 10-15 minute survey. Please only complete the survey one time.

https://rsgresearch.com/sci73a?anon=anon&business=99

These surveys could go a long way in determining the future of I-73. The interstate would be the gateway to a new path for millions wanting to get to and from the beach every year.

I-73 would connect Grand Strand and Pee Dee to an interstate system that runs all the way to Michigan. Those for the project say not only could I-73 offer a potentially easier and quicker route through our area but it could also help bring new businesses and jobs.

"For example a company that would need to have 100, 200, or so trucks on the road that's just not feasible for our area at this time because of the lack of accessibility," added Morgan Dendy with the MBREDC. "They have to get on interstates."

The firm conducting the surveys said there is not a timetable for competition of this study, adding that the final date depends on how many people take part.

3.3 | E-MAIL INVITATION TO SOUTH CAROLINA TRUCKING ASSOCIATION

C&M worked with the South Carolina Trucking Association (SCTA) to distribute the survey to its membership base. The SCTA is a non-profit trade organization, with approximately 600 members, that represents the trucking industry in South Carolina. The SCTA distributed an e-mail with the survey link to its members, which yielded only 18 completed surveys. The desired sample size for the commercial vehicle survey was between 150 and 300 complete responses, which would have required a response rate of 25% to 50%. However, the actual response rate was only about 3%, assuming that the e-mails went out to the entire membership base of 600 members. The trucking association indicated general opposition to the project as a toll facility, which severely impacted the number of members willing to cooperate with the research.

4.0 SURVEY RESULTS

Summary tabulations and statistics are presented in the following section for select survey questions. A complete set of survey tabulations for each question can be found in **Appendix B**. Before beginning model estimation work, the data was screened for outliers. The screening process is detailed below.

4.1 | IDENTIFICATION OF OUTLIERS

The survey data was screened to ensure that all observations included in the data analysis and model estimation represented realistic trips in the study corridor and reasonable tradeoffs in the SP exercises. Several variables were used for screening purposes, including an examination of trip origins and destinations and inconsistent or irrational choice behavior.

PASSENGER VEHICLE SURVEY OUTLIERS

One thousand nine hundred seventy-three (1,973) respondents completed the passenger-vehicle survey during the data collection phase of the project. After reviewing these variables and the effects extreme values had on the model results, it was determined that respondents who met the following conditions should be excluded from the final analysis. The categories listed below are not mutually exclusive:

- Respondents demonstrating inconsistent or irrational choice behavior in the SP exercises. For example, respondents who established a certain dollar amount for willingness to pay for timesavings and then rejected paying less money for equal or more timesavings (37 respondents).
- Respondents whose origin and destination coordinate implied their trip could not make reasonable use of I-73 or the Southern Evacuation Lifeline (SELL) corridors for their reference trip (28 respondents).
- Respondents whose implied speed (60 * Google-calculated trip distance / reported travel time) for their trip was greater than 100 mph or less than 3 mph (31 respondents).
- Respondents who completed the entire survey in less than six minutes (2 respondents).

Additionally, during the initial launch of the survey, respondents were able to report trips up to 12 hours 55 minutes in length. During survey administration, it became evident that many respondents were attempting to report trips longer than the time the survey instrument allowed. As respondents' reported travel times directly correspond with the toll-cost tradeoffs, the survey team chose to update the survey instrument to accept travel times up to 24 hours in length. Therefore, 48 respondents who reported trips with the maximum trip time allowed before the survey instrument was updated were removed from the sample.

Based on the analysis described above, 1,840 respondents (18,400 observations) were included in the final dataset and used to estimate the models presented in the report in **Section 5** below.

COMMERCIAL VEHICLE SURVEY OUTLIERS

Eighteen respondents completed the commercial vehicle stated preference survey. Data from all completed surveys was included in the final sample.

4.2 | PASSENGER VEHICLE SURVEY RESULTS

The descriptive analysis of the data presented in this section of the report is based on the 1,840 respondents who were included in the model estimation. The analysis is presented in four sections: trip detail, stated preference, debrief and opinion, and demographic questions.

For the purpose of data analysis, respondents were grouped into segments by trip purpose as defined below:

1. Vacation: Trips where the primary purpose was to go on vacation or go to the beach
2. Non-vacation: Trips where the primary purpose was something other than going on vacation or going to the beach (e.g., a work related trip or a social or recreational trip)

TRIP DETAIL QUESTIONS

At the beginning of the survey, respondents were asked if they were a resident of the Myrtle Beach area as defined by the highlighted area in the map in **Figure 4-1**. Approximately 27% of respondents qualified as a full-time resident, three percent as a seasonal or part-time resident, and 70% indicated they lived outside of the Myrtle Beach area.

FIGURE 4-1: MYRTLE BEACH AREA

After further analysis of the SP data, the project team concluded that trip purpose, rather than residency status, should be used to determine whether a respondent reported a vacation trip. Respondents who indicated the main purpose of their trip was vacation or going to the beach were included in the 'Vacation' segment, and those that reported other types of trips such as for business or a personal errands were included in the 'Non-Vacation' segment.

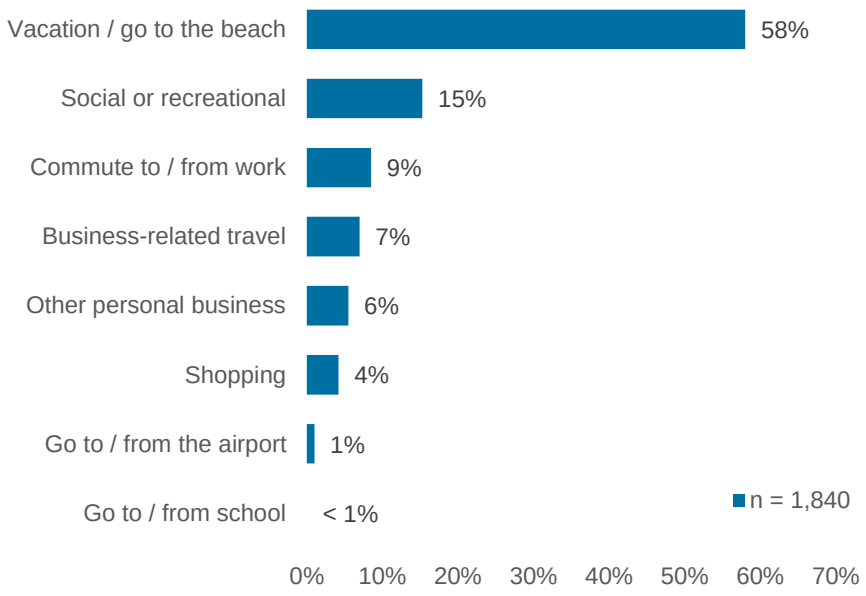
Of the 1,840 reported trips, 1,071 trips were Vacation trips and 769 trips were Non-Vacation trips. The number and percent of completed surveys by traveler type is shown in **Table 4-1**. Many of the tabulations presented in the remainder of this section and in **Appendix B** are segmented by these categories.

TABLE 4-1: PASSENGER VEHICLE RESULTS - NUMBER OF COMPLETED SURVEYS BY SEGMENT

Traveler Segment	Count	Percent
Vacation	1,071	58%
Non-Vacation	769	42%
Total	**1,840**	**100%**

As shown above, vacation and beach trips represented the majority (58%) of trips. Additionally, fifteen percent of respondents reported a social or recreational trip, nine percent reported a commute trip to or from work, and seven percent reported a business-related trip (**Figure 4-2**).

FIGURE 4-2: PASSENGER VEHICLE RESULTS - PRIMARY TRIP PURPOSE



Eighty-nine percent of reported trips began at home and 83% of reported trips ended at another place, such as hotel, beach, airport, etc. The most commonly reported trip started at home and ended at another place (76%).

The latitude and longitude coordinates for each trip's origin-destination pair were used to calculate the trip distance and expected trip travel times using a Google Maps route-planning algorithm. Mean and median trip distances, and respondent-reported travel times by segment, are displayed in **Table 4-2**. Overall, the median trip distance was 237 miles and the median travel time was 270 minutes, or 4 hours 30 minutes. While the sample represents many long distance trips, vacation trips are longer in both distance and duration than trips reported for other trip purposes.

TABLE 4-2: PASSENGER VEHICLE RESULTS - TRIP TRAVEL TIME AND DISTANCE BY SEGMENT

Segment	Reported Travel Time (minutes)		Travel Distance (miles)	
	Mean	Median	Mean	Median
Vacation	501	490	464	447
Non-Vacation	165	75	135	48

Trip origins and destinations, stratified by distance, are displayed in **Figure 4-3**, **Figure 4-4**, **Figure 4-5**, and **Figure 4-6**. As shown in **Figure 4-3**, reported trips originated both in and outside of South Carolina. Many long distance trips began in North Carolina, Virginia, Ohio, Pennsylvania and a handful of trips originated in Indiana, Michigan, Iowa, and Southeastern Canada. **Figure 4-4**, which illustrates trip origins in the study corridor shows many shorter distance trips less than 25 miles in length originated near Conway, South Carolina. In comparison to trip origins, fewer reported trips ended outside of the Myrtle Beach area

(**Figure 4-5**). The majority of trips greater than 100 miles had destinations along the Myrtle Beach area coast (**Figure 4-6**).

FIGURE 4-3: PASSENGER VEHICLE RESULTS - TRIP ORIGINS BY DISTANCE TRAVELED (ALL RESPONDENTS)

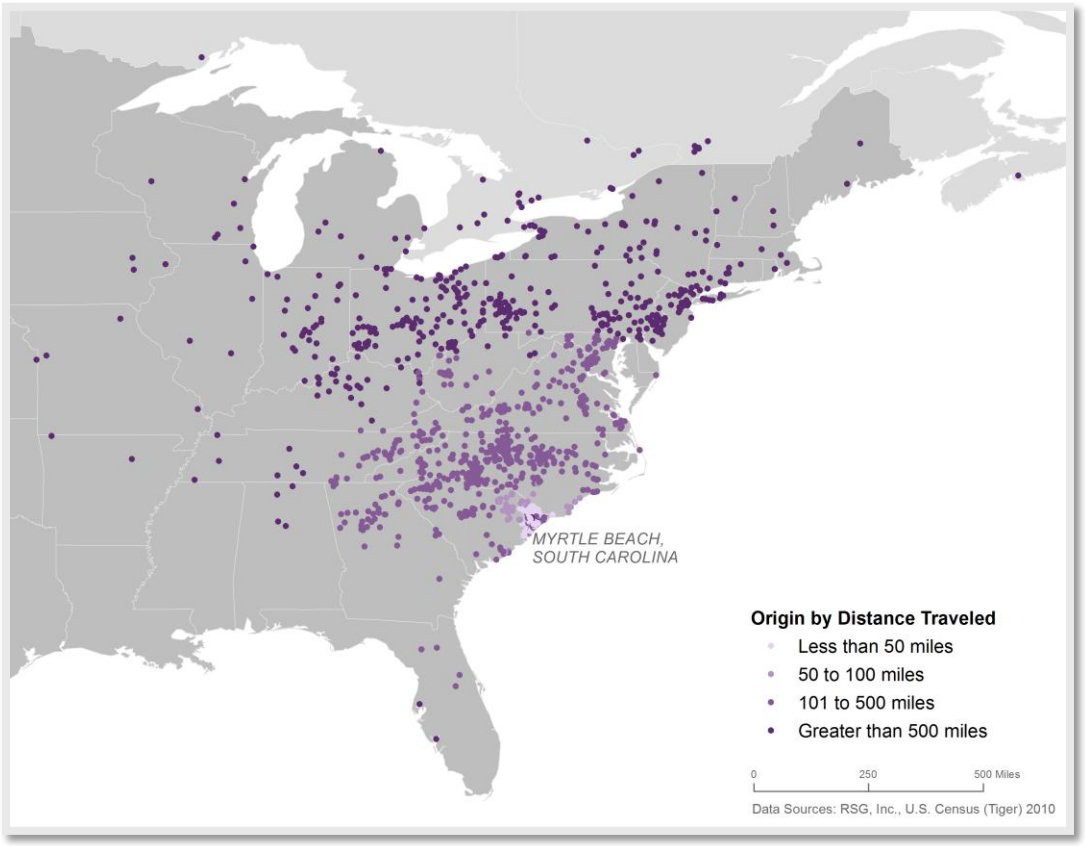


FIGURE 4-4: PASSENGER VEHICLE RESULTS - TRIP ORIGINS BY DISTANCE TRAVELED (STUDY AREA RESPONDENTS ONLY)

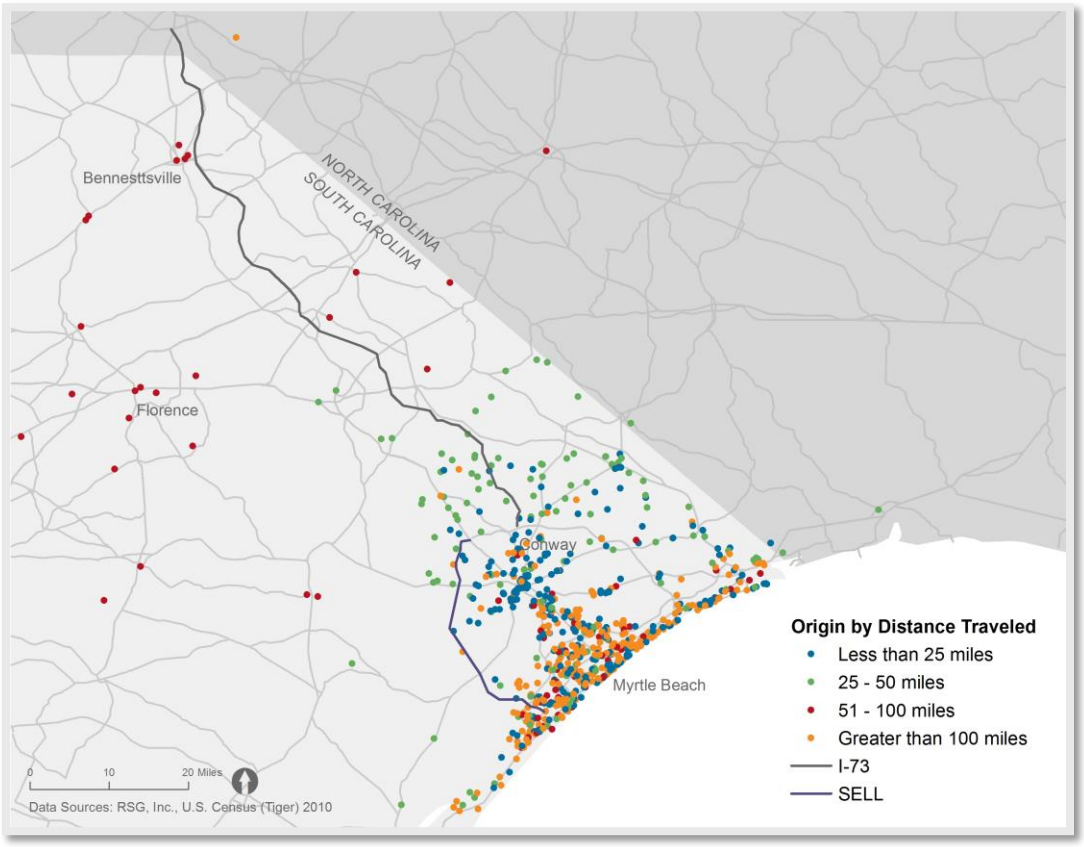


FIGURE 4-5: PASSENGER VEHICLE RESULTS - TRIP DESTINATIONS BY DISTANCE TRAVELED (ALL RESPONDENTS)

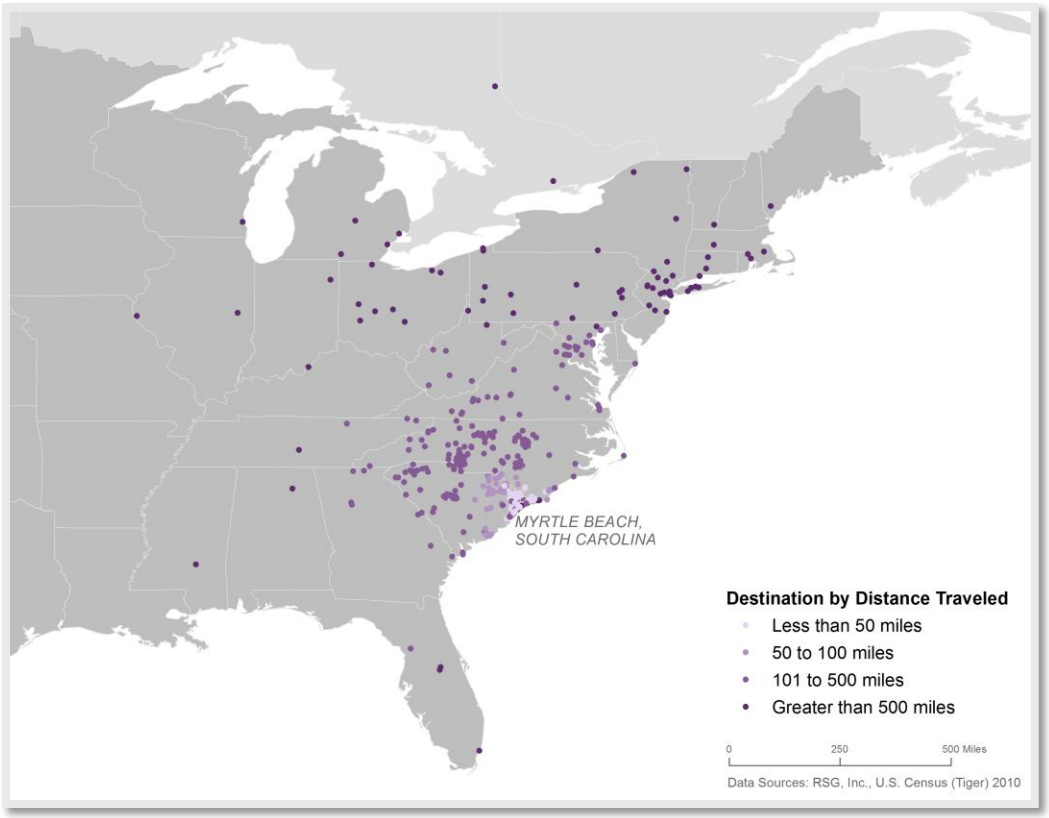
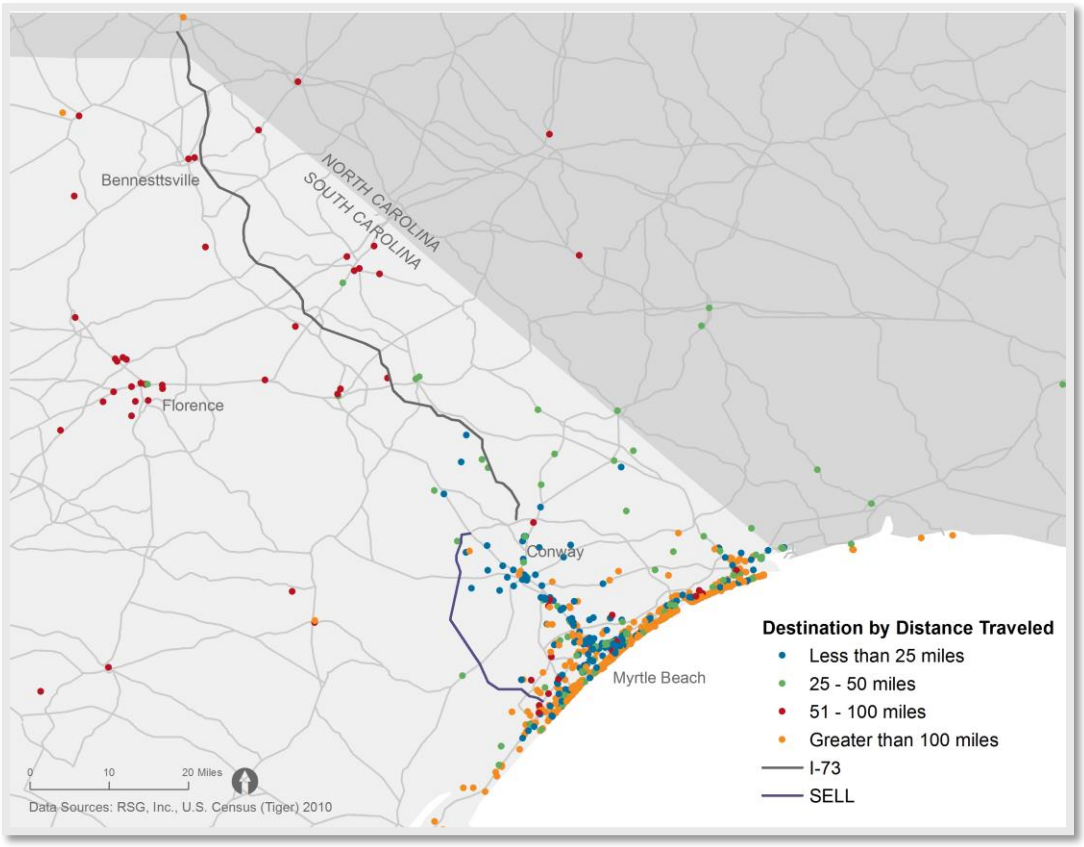


FIGURE 4-6: PASSENGER VEHICLE RESULTS - TRIP DESTINATIONS BY DISTANCE TRAVELED (STUDY AREA RESPONDENTS ONLY)



Respondents were asked to identify which road(s) they used during their trip. I-95 was used by over 50% of Vacation travelers. US 501 was used by 49% of Vacation travelers and 59% of Non-Vacation travelers. Additionally, 35% and 43% of Vacation and Non-Vacation travelers, respectively, reported using Route 17 on their trip. The percentage of respondents who reported using each of the major roads in the study area is shown in **Figure 4-3**. Respondents were shown some or all of the roadways depending on their reported trip.

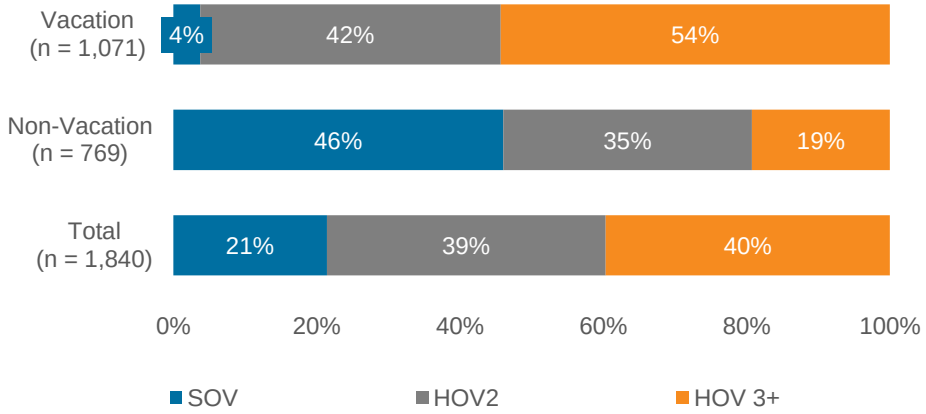
TABLE 4-3: PASSENGER VEHICLE RESULTS - ROAD(S) USED BY SEGMENT (SELECT ALL THAT APPLY)

Roads Used	Vacation		Non-Vacation	
	Count	Percent	Count	Percent
I-95	570	54%	176	31%
US Route 501	529	49%	451	59%
US Route 17	458	43%	266	35%
Other Roads	339	32%	249	32%
SC 22 (Conway Bypass / Veterans Highway)	304	28%	153	20%
SC 38	183	17%	92	16%
SC 31	137	13%	195	25%
US Route 701	100	9%	104	14%
US Route 76	95	9%	63	11%
SC 544	91	8%	199	26%
US Route 301	83	8%	30	5%
SC 410	57	5%	33	6%
Holmestown Road	40	4%	26	3%
Pee Dee Highway	38	4%	16	2%
US Route 378	26	2%	46	6%
SC 707	19	2%	60	8%
SC 57	6	1%	9	2%
SC 381	6	1%	5	1%
SC 917	4	< 1%	10	2%
Total Number of Respondents	**1,071**	**-**	**769**	**-**

Respondents were asked whether they experienced delay due to traffic congestion on their trip. Forty-eight percent of Vacation travelers and 63% of Non-Vacation travelers indicated they experienced traffic congestion. Of those that experienced delay, the median time spent in traffic congestion for all travelers was 30 minutes. Vacation travelers who experienced delay had a median delay time of 60 minutes, while Non-Vacation travelers had a median delay time of 20 minutes.

Reported vehicle occupancy by segment is shown in **Figure 4-7**. Only four percent of Vacation trips were made in a single occupancy vehicle (SOV), while the majority of trips (54%) were made in a high occupancy vehicle with three or more passengers (HOV 3+). On the other hand, 46% of Non-Vacation trips were made in an SOV and 35% were made in a high occupancy vehicle with two passengers (HOV2). For all reported trips, the mean occupancy was 2.61 passengers.

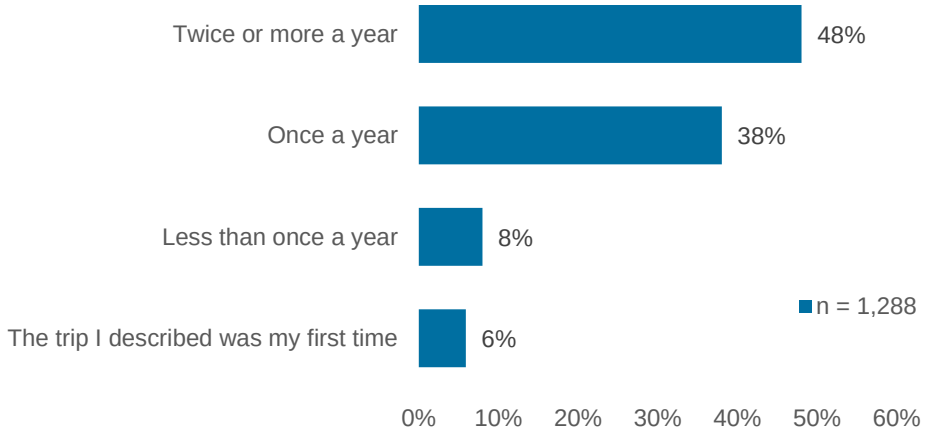
FIGURE 4-7: PASSENGER VEHICLE RESULTS - VEHICLE OCCUPANCY BY SEGMENT



Respondents who indicated they were a full-time or part-time resident of Myrtle Beach were asked to report how often they make the same trip as the one they described. Forty-two percent of residents reported that they make their reference trip infrequently (less than one time per month) while 24% indicated they make the same trip one time or more per week.

Visitors to the Myrtle Beach area were asked a series of questions about the frequency of their visits to Myrtle Beach. Eighty-one percent of visitors indicated they stayed overnight during the trip they described. For visitors who stayed overnight, the median length of their stay (number of nights) was five nights. Visitors were also asked to indicate how often they visit the Myrtle Beach area. Forty-eight percent of visitors travel to the Myrtle Beach area two or more times a year, and 38% visit once a year (**Figure 4-8**).

FIGURE 4-8: PASSENGER VEHICLE RESULTS - VISITOR FREQUENCY



Respondents were asked to indicate whether they owned a PAL PASS or other type of electronic toll collection device. The majority of Vacation respondents (76%) and Non-Vacation respondents (88%) indicated they did not own any type of transponder. Twenty-two percent of Vacation respondents and 10% of Non-Vacation respondents indicated they owned an E-ZPass transponder (**Table 4-4**).

TABLE 4-4: PASSENGER VEHICLE RESULTS - ETC OWNERSHIP BY SEGMENT (SELECT ALL THAT APPLY)

ETC Ownership	Vacation		Non-Vacation		Total	
	Count	Percent	Count	Percent	Count	Percent
No transponder	819	76%	676	88%	1495	81%
E-ZPass	232	22%	79	10%	311	17%
Other transponder	16	1%	10	1%	26	1%
Don't know	6	1%	8	1%	14	1%
PAL PASS	1	0%	4	1%	5	0%
Total Number of Respondents	**1,071**	**-**	**769**	**-**	**1,840**	**-**

STATED PREFERENCE QUESTIONS

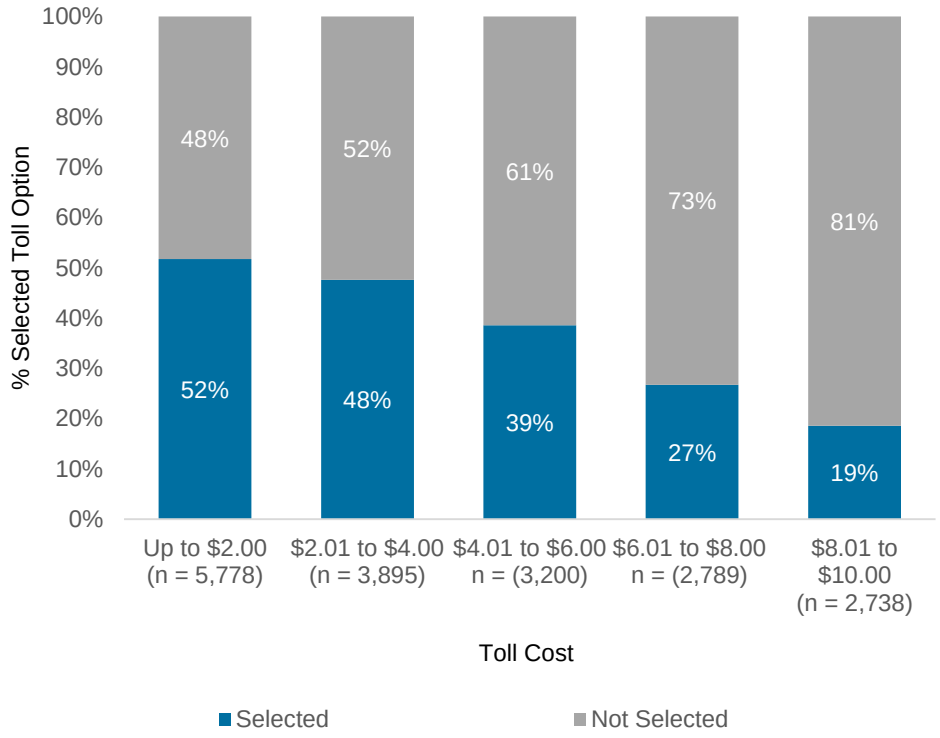
After completing the trip characteristic portion of the survey, respondents answered a series of ten SP tradeoff exercises tailored to their reference trip. Survey respondents chose the I-73, SELL, or I-73 and/or SELL option in 40% of experiments, and the toll-free route in 60% of experiments. Approximately 22% of respondents always chose the toll-free alternative and approximately nine percent always chose I-73, SELL, or I-73 and/or SELL. Sixty-nine percent of the sample chose both the current route and the toll option at least once during the ten exercises, revealing their marginal sensitivities to travel time and cost (**Table 4-5**).

TABLE 4-5: PASSENGER VEHICLE RESULTS - STATED PREFERENCE CHOICES BY ALTERNATIVE

Alternative	Number of Experiments Shown	Number of Experiments Selected	Percent Selected
Alternative 1: Toll-Free Route	18,400	11,070	60%
Alternative 2: I-73, SELL, or I-73 and/or SELL	18,400	7,330	40%

Figure 4-9 shows the percentage of time that the toll alternative was chosen in the SP experiments at different toll costs. When presented with toll costs of $2.00 or less, the tolled option was selected 52% of the time, compared to only 19% of the time when the toll cost was more than $8.00. In general, as the toll cost increased, respondents were less likely to choose the toll alternative.

FIGURE 4-9: PASSENGER VEHICLE RESULTS - TOLL ALTERNATIVE SELECTION BY TOLL COST



DEBRIEF AND OPINION QUESTIONS

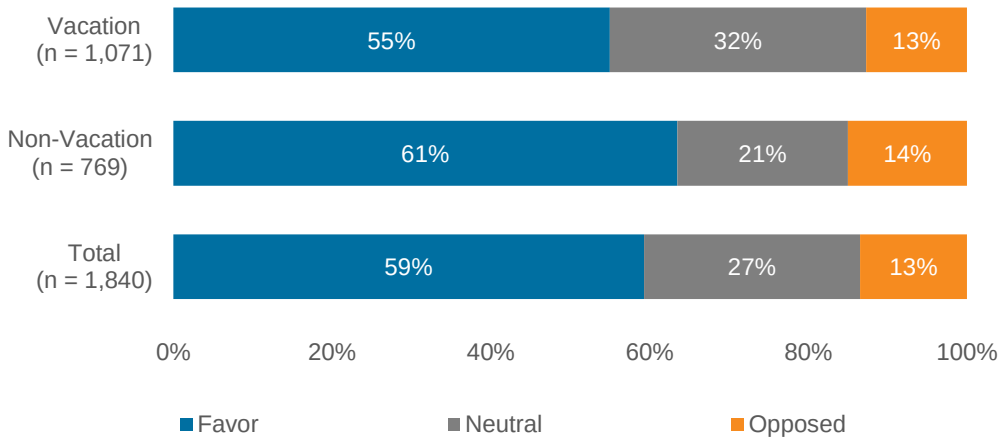
After completing the series of SP questions, respondents were asked to share their opinions about the proposed roadways to understand the underlying reasons for their choices. Respondents who never chose I-73, SELL, or I-73 and/or SELL to make their trip in the previous section were asked to select the reason(s) for their choice. Of the 1,840 respondents, 413 (22%) never chose the toll alternative. The most commonly selected reason, chosen by 62% of respondents was "time savings not worth the toll cost." Another frequently cited reason was "opposed to paying tolls," selected by 52% of respondents as shown in **Table 4-6**.

TABLE 4-6: PASSENGER VEHICLE RESULTS - REASON(S) FOR NEVER SELECTING I-73 AND/OR SELL (SELECT ALL THAT APPLY)

Reason	Count	Percent
Time savings not worth the toll cost	255	62%
Opposed to paying tolls	214	52%
Not enough time savings	127	31%
Current route is more convenient	119	29%
Do not want to pay tolls electronically	99	24%
Other	49	12%
Environmental concerns	29	7%
Opposed to building new roads	28	7%
Total Number of Respondents	**413**	**-**

Respondents were then asked about their overall opinion of the proposed I-73 and/or SELL project based on the information presented in the survey. About 59% of all respondents favored the project while only 13% were opposed to it. Sixty-one percent of Non-Vacation respondents favored the project, with 40% strongly favoring the project (**Figure 4-10**).

FIGURE 4-10: PASSENGER VEHICLE RESULTS - OPINION OF I-73 AND/OR SELL



Respondents who indicated they favor or oppose the project were asked to identify the reason(s) for their opinion, which are illustrated in **Table 4-7** and

Table 4-8, respectively. The most commonly selected reasons for favoring the project included "faster travel times," "less congestion," and "additional evacuation route from Myrtle Beach area." Reasons for opposing the project included "opposed to paying tolls," and "the toll rates shown were too high."

TABLE 4-7: PASSENGER VEHICLE RESULTS - REASON(S) FOR FAVORING I-73 AND/OR SELL (SELECT ALL THAT APPLY)

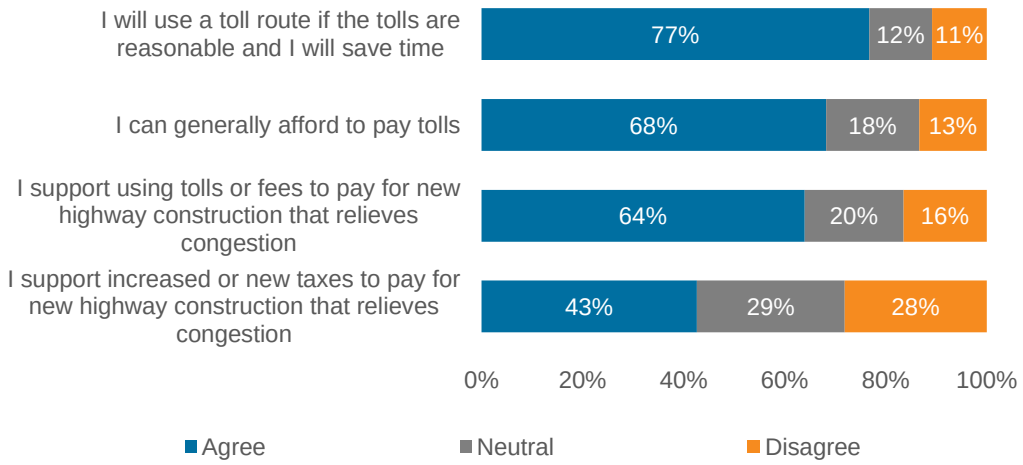
Reason	Count	Percent
Faster travel times	912	84%
Less congestion	818	75%
Additional evacuation route from Myrtle Beach area	667	61%
More reliable travel times	585	54%
Safe road conditions	504	46%
User fees are a fair way to pay for new construction	433	40%
Reduced emissions and improved air quality	184	17%
Other	65	6%
Total Number of Respondents	**1,088**	-

TABLE 4-8: PASSENGER VEHICLE RESULTS - REASON(S) FOR OPPOSING I-73 AND/OR SELL (SELECT ALL THAT APPLY)

Reason	Count	Percent
Opposed to paying tolls	175	71%
The toll rates shown were too high	126	51%
Do not want to pay tolls electronically	84	34%
Adverse environmental impact	48	19%
It will bring too much traffic / development	38	15%
Other	33	13%
Opposed to new roads in general	27	11%
Total Number of Respondents	**247**	-

Respondents were presented with a series of statements about tolls and were asked to indicate the level to which they agree or disagree with the statements. **Figure 4-11** illustrates the responses to these statements. Seventy-seven percent of respondents agreed with the statement "I will use a toll route if the tolls are reasonable and I will save time" while only 43% agreed with the statement "I support increased or new taxes to pay for new highway construction that relieves congestion."

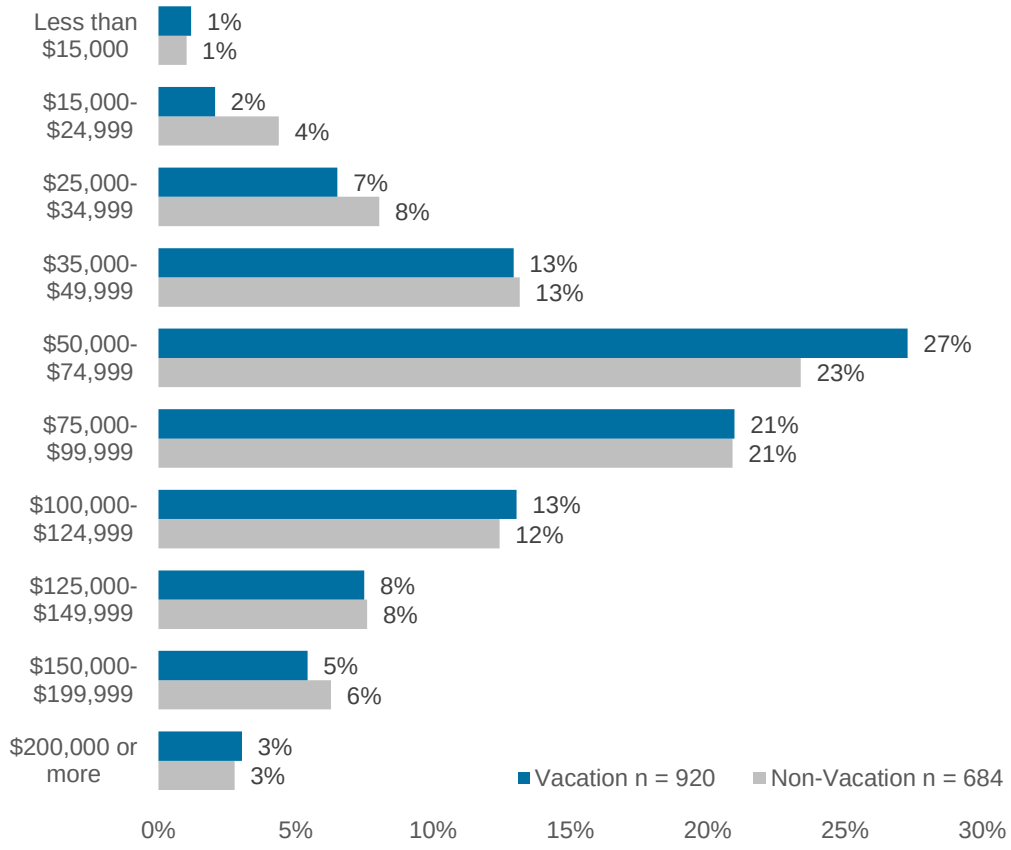
FIGURE 4-11: PASSENGER VEHICLE RESULTS - TOLL ATTITUDE STATEMENTS



DEMOGRAPHIC QUESTIONS

Respondents were asked a series of demographic questions at the survey's conclusion. Fifty-six percent (56%) of respondents identified as female and 44% identified as male. The median age of the sample fell in the 45-54 year-old category. Forty-one percent of respondents indicated they live in a two-person household and approximately 50% of respondents indicated they live in a household with two vehicles. A majority of respondents (71%) are employed full-time and 13% are retired. For respondents that chose to report their household income, the median household income fell between $50,000 and $74,999. The income distributions for the two traveler segments are shown below in **Figure 4-12**. Approximately 13% of respondents chose not to report their household income.

FIGURE 4-12: PASSENGER VEHICLE RESULTS - ANNUAL HOUSEHOLD INCOME BY SEGMENT



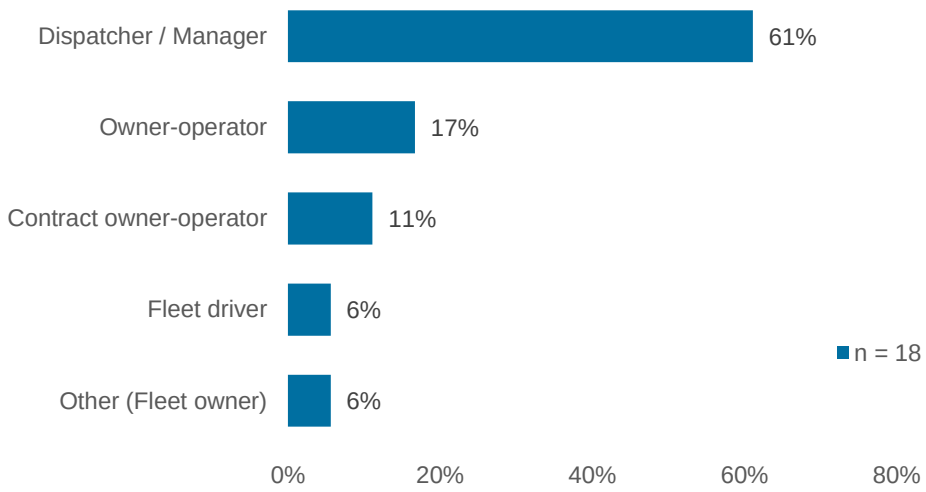
4.3 | COMMERCIAL VEHICLE SURVEY RESULTS

The descriptive analysis of the data presented in this section of the report is based on 18 completed commercial vehicle surveys. This size sample is only representative of the small subset of commercial drivers who chose to participate in the survey, and therefore should not be extrapolated to the entire population**.** The analysis is presented in four sections: trip detail, stated preference, debrief and opinion, and company information questions.

TRIP DETAIL QUESTIONS

Sixty-one percent (n=11) of all commercial vehicle respondents were dispatchers or managers and 17% were owner-operators (**Figure 4-13**). A little over one-third of respondents make their own routing decisions, while 28% percent of respondents make some, but not all routing decisions.

FIGURE 4-13: COMMERCIAL VEHICLE RESULTS - RESPONDENT TYPE



The trip details section of the questionnaire defined the respondent's trip as the one-way portion from one commercial stop to another. Respondents were asked to provide the beginning and end locations of their one-way trip. The most common trip originated in and ended in South Carolina (56%). Twenty-eight percent of trips began in South Carolina and ended in North Carolina, and 11% of trips began outside of South Carolina.

The median reported trip length was 145 miles and the median trip time was 193 minutes, or 3 hours 13 minutes. Twenty-eight percent of respondents indicated making or dispatching the same trip less than one time per month, and 22% indicated making or dispatching the same trip six or more times per week.

To conclude this section, respondents were asked if they or their driver was equipped with an ETC transponder such as a PAL PASS, E-ZPass, or other type of transponder. The majority (78%) of respondents indicated they or their driver did not have an ETC device.

STATED PREFERENCE QUESTIONS

After completing the trip detail portion of the survey, respondents answered ten stated preference tradeoff exercises, each tailored to their reported trip. One third of respondents always chose the toll-free alternative. Fifty-six percent of the sample chose both the current route and the toll option at least once during the ten exercises, revealing their marginal sensitivities to travel time and cost. **Table 4-9** shows the number of times each alternative was selected.

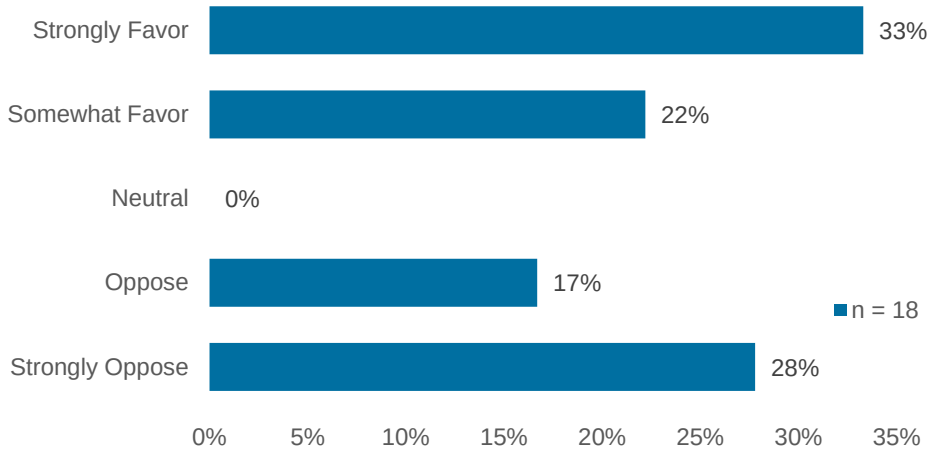
TABLE 4-9: COMMERCIAL VEHICLE RESULTS - SP STATED PREFERENCE CHOICES BY ALTERNATIVE

Alternative	Number of Experiments Shown	Number of Experiments Selected	Percent Selected
Alternative 1: Toll-Free Route	180	110	61%
Alternative 2: I-73, SELL, or I-73 and/or SELL	180	70	39%

DEBRIEF AND OPINION QUESTIONS

After completing the stated preference tradeoff exercises, respondents were asked to answer a set of debrief questions aimed at better understanding the reasoning behind their choices. Respondents were asked to provide their opinion of the proposed I-73, SELL, or I-73, and/or SELL roadway(s). Fifty-five percent of respondents favored the project and 45% were opposed, with zero respondents indicating a neutral opinion (**Figure 4-14**).

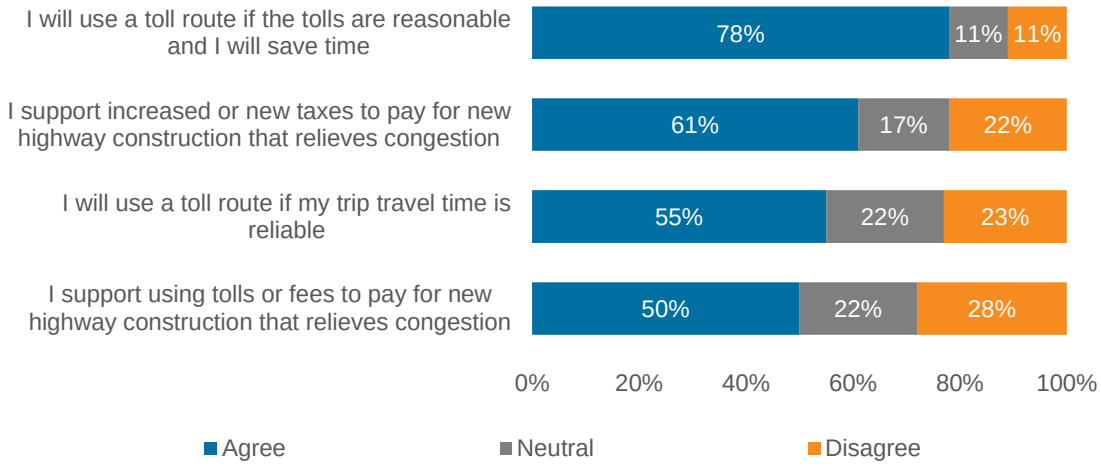
FIGURE 4-14: COMMERCIAL VEHICLE RESULTS - OPINION OF I-73 AND/OR SELL



The most common reasons for favoring the I-73, SELL, or I-73 and/or SELL was "Additional evacuation route from Myrtle Beach," "Faster travel times," and "Safe road conditions." Over half of respondents (54%) who opposed the project cited general opposition to paying tolls.

Finally, when presented with a series of questions regarding their attitudes concerning tolls, respondents were most likely to indicate, "I will use a toll route if the tolls are reasonable and I will save time." Conversely, respondents were most likely to disagree with the statement, "I support using tolls or fees to pay for new highway construction that relieves congestion" (**Figure 4-15**).

FIGURE 4-15: COMMERCIAL VEHICLE RESULTS - TOLL ATTITUDE STATEMENTS



COMPANY INFORMATION QUESTIONS

The last section of the commercial vehicle survey collected information from respondents about their company. Eighty-three percent of respondents indicated that their company's base of operations is located in South Carolina. Respondents who were not owner-operators indicated how many vehicles their company operates. The majority (53%) indicated their company operates between 20 and 99 vehicles. Respondents also indicated the typical length of a trip they make or dispatch. Half (50%) of respondents indicated they usually make or dispatch trips between 50 and 199 miles in length and 33% indicated they typically make or dispatch trips between 200 and 499 miles. Respondents reported how much flexibility they have with their delivery schedule and 61% indicated they typically have flexibility when making deliveries.

Finally, respondents reported how toll costs, if incurred, are paid. Thirty-nine percent of respondents reported their company pays tolls directly using a transponder device, and 44% reported they never use toll roads. To conclude, respondents were asked how they or their drivers are paid. Thirty-nine percent of respondents indicated that drivers are paid hourly, while 28% reported drivers are paid by the mile.

5.0 PASSENGER VEHICLE MODEL ESTIMATION

The primary objective of the SP survey was to estimate the value of time (VOT) for passenger and commercial vehicle travelers who make trips in the I-73 corridor. These VOT estimates will support estimates of future traffic and revenue for the facility. The choice observations for each passenger vehicle respondent were compiled into a dataset to support the estimation of VOT for the different tolling scenarios.

METHODOLOGY

Statistical analysis and discrete choice model estimation were conducted using the passenger vehicle SP survey data. The statistical estimation and specification testing were completed using a conventional maximum likelihood procedure that estimated coefficients for a set of MNL models. The MNL models were used to identify systematic differences in preference heterogeneity—for example, the difference in VOT by trip purpose or time-of-day. The model coefficients provide information about the respondents' sensitivities to the attributes that were tested in the tradeoff scenarios and can be used to calculate VOT for travelers in the corridor. The model specification and results are discussed in more detail below.

The multinomial logit model estimates a choice probability for each alternative presented in the stated preference tradeoff exercises. The alternatives are represented in the model by observed utility equations of the form:

$$U_1 = \beta_1 X_1 + \beta_2 X_2 + \ldots + \beta_n X_n$$

Where each X represents a variable specified by the researcher and each β is a coefficient estimated by the model that represents the sensitivity of the respondents in the sample to the corresponding variable.

Several utility equation structures were tested using the variables included in the stated preference scenarios, as well as trip characteristics, attitudinal indicators, and demographic variables. The models presented in this section are final model specifications, including only the variables that proved statistically significant.

MULTINOMIAL LOGIT (MNL) MODEL SPECIFICATION

In each SP experiment, passenger vehicle respondents who could have used the study corridor for their reference trip were presented with the following two alternatives:

1. Make your trip using your current route
2. Make your trip using the proposed I-73 *or* Southern Evacuation Lifeline (SELL) *or* I-73 and/or Southern Evacuation Lifeline (SELL)

The alternatives were described by attributes of travel time and travel cost. A complete description of the stated preference attributes and levels can be found above in **Section 2**.

Several utility equation structures were tested using different variables from the survey data. In addition to the travel times and toll costs presented in the SP experiments, tested variables

included trip characteristics, project opinion, and demographic variables. These variables were introduced, one at a time, to test potential interactions with the toll cost and travel time coefficients and to determine whether respondents' trip or personal characteristics significantly influenced their choices in the stated preference scenarios. Variables that were tested for interaction included:

- Beginning and ending locations
- Trip purpose
- ZIP code (urban versus rural)
- Opinion of project
- Income
- Trip distance

After reviewing the significance of each variable, the final model specification was chosen based on model fit, the intuitiveness and reasonableness of the model coefficients, and the expected application of the model results in the forecasting model. The final model specification includes variables for travel time and toll cost by six different market segments, described in **Table 5-1** below:

TABLE 5-1: PASSENGER VEHICLE RESULTS - MARKET SEGMENTS

Trip Type	Urban/Rural	Trip Location	Trip Purpose	Number of Observations
Vacation	All	Home-Based	All	10,730
	All	Non-Home-Based	All	350
Non-Vacation	Urban	Home-Based	Work	1,940
			Non-work	3,440
	Rural	Non-Home-Based	All	1,070
		All	All	870
Total				**18,400**

The toll cost coefficient was interacted with household income to identify the relationship between household income and sensitivity to toll prices. In addition to travel time and toll cost, binary (1,0) variables were included on the tolled alternative for respondents who are somewhat or strongly in favor of the proposed pricing, and respondents who are somewhat or strongly opposed to the proposed pricing. The binary variables capture the additional utility or disutility for the tolled alternative for respondents with these characteristics compared to other respondents. Finally, an alternative-specific constant was specified for the tolled alternative. The alternative-specific constant captures utility or disutility for that alternative that cannot be attributed to the other variables in the model.

MNL MODEL: COEFFICIENT ESTIMATES

The results of the final model specifications are presented below and include coefficients for different market segments. **Table 5-2** contains coefficient values, robust standard errors, robust t-statistics, and general model statistics.

The coefficient values are the values estimated by the choice model that represent the relative importance of each of the variables. It should be noted that these values are unit-specific and the units must be accounted for when comparing coefficients. The sign of the coefficient indicates a positive or negative relationship between utility and the associated variable. For example, a negative travel time coefficient implies that utility for a given travel alternative will decrease as the travel time associated with that alternative increases.

The standard error is a measure of error around the mean coefficient estimate. The t-statistic is the coefficient estimate divided by the standard error, which can be used to evaluate statistical significance. A t-statistic greater/less than ±1.96 indicates that the coefficient is statistically significantly different from 0 (unless otherwise reported) at the 95% level.

The model fit statistics presented below include the number of observations, the number of estimated parameters, the initial log-likelihood, the log-likelihood at convergence, rho-squared, and adjusted rho-squared. The log-likelihood is a model fit measure that indicates how well the model predicts the choices observed in the data. The null log-likelihood is the measure of the model fit with coefficient values of zero. The final log-likelihood is the measure of model fit with the final coefficient values at model convergence. A value closer to zero indicates better model fit. The log-likelihood cannot be evaluated independently, as it is a function of the number of observations, the number of alternatives, and the number of parameters in the choice model. The rho-square model fit measure accounts for this to some degree by evaluating the difference between the null log-likelihood and the final log-likelihood at convergence. The adjusted rho-square value takes into account the number of parameters estimated in the model.

TABLE 5-2: PASSENGER VEHICLE MULTINOMIAL MODEL: SEGMENTED COEFFICIENTS

Coefficient	Units	Toll Free Route	Toll Route	Value	Rob. Std. Error	Rob. T-stat
Travel Time - Non Vacation Trips						
Home-based Work - Urban	Minutes	X	X	-0.091	0.010	-9.760
Home-based Non-work - Urban	Minutes	X	X	-0.084	0.010	-16.100
Non-home-based - Urban	Minutes	X	X	-0.105	0.010	-8.520
Rural	Minutes	X	X	-0.107	0.020	-6.450
Travel Time - Vacation Trips						
Home-based	Minutes	X	X	-0.084	0.000	-29.780
Non-home-based	Minutes	X	X	-0.080	0.010	-7.720
Travel Cost - Non Vacation Trips						
Home-based Work - Urban*	$		X	-2.330	0.270	-8.750
Home-based Non-work - Urban*	$		X	-1.820	0.140	-12.740
Non-home-based - Urban*	$		X	-2.790	0.370	-7.530
Rural*	$		X	-3.400	0.470	-7.310
Travel Cost - Vacation Trips						
Home-based*	$		X	-1.830	0.060	-29.250
Non-home-based*	$		X	-1.450	0.280	-5.090
Dummy Variables						
Strongly Favor the Project	1,0		X	2.770	0.120	24.140
Somewhat Favor the Project	1,0		X	1.400	0.100	14.020
Strongly Oppose the Project**	1,0		X	-0.290	0.160	-1.800
Somewhat Oppose the Project	1,0		X	-2.010	0.330	-6.030
Alternative Specific Constant						
Toll alternative	1,0		X	-2.200	0.110	-19.370

**The toll cost variable enters the model in the form: Toll Cost * (LN(Income Midpoint/1000)).*

***Not significant at 95% level.*

Model Statistics	
Number of parameters	17
Number of observations	1840
Number of individuals	18400
Initial log-likelihood	-12753.91
Final log-likelihood	-8051.19
Rho-square	0.370
Adjusted rho-square	0.37

WILLINGNESS TO PAY FOR TRAVEL TIME SAVINGS (VALUE OF TIME)

One way to evaluate the sensitivities that are estimated in the MNL models is to calculate the marginal rates of substitution for different attributes of interest. In economic theory, the marginal rate of substitution is the amount of one good (e.g., money) that a person would

exchange for a second good (e.g., travel time), while maintaining the same level of utility, or satisfaction. In this analysis, the marginal rate of substitution of the travel time and toll cost coefficients provides the implied toll value that travelers would be willing to pay for a given amount of travel time savings offered by using the proposed toll lanes on I-73 compared to a toll-free alternative.

The willingness to pay for travel timesavings, or value of time, can be calculated by simply dividing the travel time coefficient by the toll cost coefficient after accounting for the income transformation that was applied in the model specification. The resulting value of time is in units of dollars per minute; multiplying by 60 will convert this into the more commonly cited units of dollars per hour:

$$VOT = 60 \times \frac{\beta Time}{\left[\frac{\beta Cost}{LN(income/1000)}\right]}$$

Where βTime is the value of the travel time coefficient (with units of 1/min), βCost is the value of the toll cost coefficient (with units of 1/$), and the log transformation controls for non-linear income effects.

Table 5-3 shows the values of time evaluated at each income category midpoint for the following segments:

1. Urban - Home-based Work (HBW)
2. Urban - Home-based Non-work (HBNW)
3. Urban - Non-home-based (NHB)
4. Rural
5. Vacation - Home-based (HB)
6. Vacation - Non-home-based (NHB)

TABLE 5-3: PASSENGER VEHICLE MULTINOMIAL MODEL - VALUES OF TIME BY SEGMENT AND INCOME

Income	Market Segments					
	Urban HBW	Urban HBNW	Urban NHB	Rural	Vacation HB	Vacation NHB
$15,000	$6.32	$7.51	$6.11	$5.11	$7.48	$8.93
$20,000	$6.99	$8.31	$6.76	$5.66	$8.28	$9.88
$30,000	$7.94	$9.43	$7.68	$6.42	$9.40	$11.22
$42,500	$8.75	$10.40	$8.47	$7.08	$10.36	$12.37
$62,500	$9.65	**$11.46***	$9.34	**$7.81***	**$11.43***	$13.64
$87,500	**$10.43***	$12.40	**$10.10***	$8.44	$12.36	**$14.75***
$112,500	$11.02	$13.09	$10.66	$8.92	$13.05	$15.58
$137,500	$11.49	$13.65	$11.12	$9.30	$13.61	$16.24
$175,500	$12.06	$14.33	$11.67	$9.76	$14.28	$17.04
$200,000	$12.36	$14.69	$11.96	$10.00	$14.64	$17.47

**Values of time at the median income level.*

6.0 COMMERCIAL VEHICLE VALUE OF TIME

The project team was unable to collect the minimum number of commercial vehicle stated preference surveys needed to conduct discreet choice model estimation and specification testing. Therefore, the project team decided to use results from a selection of other similar surveys RSG has done in the southeast US.

RSG has conducted three similar studies in the past five years that had both passenger and commercial stated preference surveys. **Table 6-1** summarizes the VOT findings from these studies. The average aggregate value of time for commercial drivers across three studies is calculated as $26.56 per hour. The average ratio between aggregate commercial value of time and passenger value of time is calculated as 2.532. In other words, the commercial value of time is about 2.532 times the aggregate passenger value of time, on an average. It should be noted that the values of time for commercial vehicles vary based on the number of axles, however, the results shown in the table below only indicates the aggregate value of time and aggregate ratio and should not be used for estimating disaggregated values of time for different commercial vehicle types.

TABLE 6-1: ESTIMATED AGGREGATE COMMERCIAL VEHCILE VALUE OF TIME

Vehicle Classification	Project Location			Average
	Florida	Georgia	North Carolina	
Aggregate Commercial VOT	$35.63	$27.27	$16.78	$26.56
Aggregate Passenger VOT	$13.66	$8.73	$9.01	$10.47
Ratio (Commercial/Passenger)	2.608	3.124	1.862	2.532

7.0 CONCLUSION

RSG developed and implemented two stated preference survey questionnaires that gathered information from 1,840 passenger vehicle and 18 commercial vehicle travelers who make trips in the proposed I-73 corridor in South Carolina. The questionnaires collected data on current travel behavior, presented respondents with information about the proposed corridor, and engaged the travelers in a series of stated preference scenarios.

Multinomial logit (MNL) choice models were developed using the survey data to produce estimates of value of time (VOT) of passenger vehicle travelers. Models were developed for six market segments for passenger vehicle travelers:

1. Urban - Home-based Work
2. Urban - Home-based Non-work
3. Urban - Non-home-based
4. Rural
5. Vacation - Home-based
6. Vacation - Non-home-based

The magnitude and signs of the sensitivity estimates are reasonable and intuitively correct, and the VOTs that were estimated are within the ranges found in other similar areas across the country. The average VOT across different income groups for the segments mentioned above generally fell within a range of $5 per hour to $17 per hour.

For commercial vehicle survey, the project team was unable to collect the minimum number of stated preference surveys needed to estimate values of time using discreet choice modeling. Therefore, results from three similar surveys that RSG has done in the southeast US were used to estimate values that can potentially be used for this project. Based on the analysis of these three previous studies, the average aggregate value of time for commercial drivers across three studies was calculated as $26.56 per hour. The average ratio between aggregate commercial value of time and passenger value of time was calculated as 2.532.

The survey and choice model results indicate that the toll amount and travel-time savings provided by the proposed I-73 corridor could have a significant impact on travel behavior. The incorporation of these results into the updated regional travel demand model will allow C&M Associates to evaluate a multitude of future tolling scenarios and travel conditions.

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Appendix C

Projecting Social and Economic Indicators of the I-73 Corridor in South Carolina

Chmura Economics & Analytics

April 2015

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DRAFT

CHMURA
Economics & Analytics

Projecting Social and Economic Indicators of the I-73 Corridor in South Carolina

Prepared for C&M Associates, Inc.
April 17, 2015

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Table of Contents

1. Executive Summary

South Carolina's Department of Transportation (SCDOT) has contracted C&M Associates, Inc. (C&M), an engineering firm in Dallas, Texas, to conduct a traffic forecast for the planned Interstate 73 (I-73) in the state of South Carolina. C&M will forecast travel demand using traffic simulation models. To estimate traffic on I-73, C&M needs a projection of social and economic indicators of the I-73 Corridor, as well as for other South Carolina counties.[1] Chmura Economics & Analytics (Chmura) was contracted to perform such projections. The list of social and economic indicators includes population, household and dwelling units, income distribution, and employment in major industry sectors.

Historic trends of social and economic indicators in the I-73 Corridor are summarized as follows:

- In 2010, 710,211 people lived in the I-73 Corridor. From 1990 to 2010, the corridor population grew by an average rate of 1.4% per year. [2]
- In the past two decades, the number of households in the I-73 Corridor has increased from 192,226 in 1990 to 282,468 in 2010.[3] The annual household growth rate was 1.9%—faster than the population growth rate—implying that average household size in the I-73 Corridor has been getting slightly smaller over the past two decades.
- In the past two decades, the number of dwelling units in the I-73 Corridor has increased from 240,592 in 1990 to 386,218 in 2010. The annual growth rate of dwelling units is 2.4% since then, faster than the household growth rate of 1.9%.
- For the analysis of income distribution, all households are classified into three income groups: low-income, with annual household income below $15,000; middle-income, with annual income between $15,000 and $50,000; and high-income, with annual income higher than $50,000. Since 2000, the percentage of households in both the low- and middle-income groups has steadily decreased, while the percentage of high-income groups has steadily increased.
- Total employment in the I-73 Corridor was 260,992 in 2010, based on wage and salary data from the Bureau of Labor Statistics, Quarterly Census of Employment and Wages (QCEW) program.[4] From 1990 to 2013, corridor employment increased at an average rate of 0.9% per year. In 2013, the largest sector in the corridor was leisure, accounting for 22.4% of total employment in the region, followed by trade and manufacturing.

Chmura projected two scenarios for the I-73 Corridor's social and economic indicators: (1) the no-build scenario, and (2) the build scenario.

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[1] For a complete list of localities included in the I-73 Corridor, please see Appendix 1.

[2] Source: U.S. Census.

[3] Ibid.

[4] This is the official wage and salaries employment from BLS. It is smaller than estimated employment number from Dun & Bradstreet as it does not include number of proprietors. Chmura uses this in historic analysis to demonstrate the historic trend.

- The no-build scenario assumes that I-73 will not be constructed. Consequently, future growth of the I-73 Corridor's social and economic indicators will be consistent with historic growth patterns.
- The build scenario assumes that development of I-73 will result in faster job and population growth in both the I-73 Corridor and South Carolina. Based on Chmura research and inputs from community leaders, the boost to the economy comes primarily from roadside services such as gas stations, motels, and restaurants that are typically located along the highway. Other sources include potential distribution centers and subsequent tourism in the region, as well as proposed Southern Evacuation Lifeline (SELL) project.
- Under the no-build scenario, Chmura projects that population in the I-73 Corridor will increase at a rate of 0.94% per year from 2010 to 2050, reaching 1.03 million in 2050. Among those, 1.02 million will be living in households, while 11,051 will be living in group quarters. Under the build scenario, it is projected that in 2050, total population in the I-73 Corridor will be 1.08 million.
- Under the no-build scenario, household growth will be slightly faster than population growth, averaging 1.04% per year. As a result, household size in the I-73 Corridor will decline slightly, reflecting the aging population trend. For the no-build scenario, it is projected that total households in the I-73 Corridor in 2050 will be 427,035, while total households under the build scenario will reach 446,537 in 2050.
- Under the no-build scenario, Chmura assumes that the number of dwelling units will grow 0.79% per year from 2010 to 2050. It is projected in 2050 that the average number of dwelling units in the I-73 Corridor will be 528,740 under the no-build scenario and 559,200 under the build scenario.
- The projection of household income under the no-build scenario assumes modest growth. As a result, the percentage of I-73 Corridor households earning less than $15,000 per year will gradually decline from 18.5% in 2010 to 16.3% in 2050. On the other hand, the percentage of households earning more than $50,000 per year will gradually increase from 38.6% in 2010 to 40.9% in 2050.
- Under the build scenario, new jobs will bring upward mobility in income distribution, mostly elevating income from low-income to middle-income groups, as most jobs attracted are retail and service jobs. Compared with the no-build scenario for 2050, the percentage of middle-income households would increase from 42.8% in the no-build scenario to 45.3% in the build scenario, while that of low-income households would decline from 16.3% to 15.1%.
- Employment in the I-73 Corridor is projected to increase at a rate of 1.22% per year under the no-build scenario, resulting in 490,743 total employment in 2050. The employment growth is projected to outpace population growth due to several demographic trends, such as people retiring later, as well as higher labor force participation rates as more job opportunities are available in South Carolina. Chmura also projects that in 2050, total employment in the I-73 Corridor will be 512,805 under the build scenario, with additional jobs concentrated in retail, service, and manufacturing industries.[5]

[5] A separate spreadsheet contains detailed projections of each indicator for South Carolina counties and selected traffic analysis zones.

2. Background & Approach

In 1991, the United States Congress identified the need for a north-south corridor from Northern Michigan to Myrtle Beach, South Carolina. This highway was designated as Interstate 73. I-73 would pass through South Carolina, North Carolina, Virginia, West Virginia, Ohio, and Michigan. In South Carolina, I-73 will progress near the northeast portion of the state. Its north terminus would be in the vicinity of Bennettsville, at the North Carolina state line. From there, I-73 will travel in a southeast direction. It will cross I-95 just south of Dillon, South Carolina. After I-95, it will continue southeast, joining with current State Route 22, and will utilize the existing South Carolina Route 22 (SC-22). Interstate 73 would end at Myrtle Beach, where it intersects U.S. Route 17.

An initial corridor feasibility study was conducted in 1994 by South Carolina's Department of Transportation after the I-73/I-74 Corridor was designated a high priority. For this study, the southern terminus of I-73 was in Charleston. In 2003, SCDOT completed a second feasibility study for I-73, in response to the change of the I-73 southern terminus from Charleston to Myrtle Beach, South Carolina. The study cited the need for I-73 as fulfilling congressional intent and providing an interstate link to the Myrtle Beach area. This would in effect provide benefits such as improved hurricane evacuation, improved capacity for vehicular and freight movement in the area, and support of population and economic growth.[6]

After the feasibility study, two environmental impact studies were conducted for I-73 in South Carolina: one for the northern segment (from I-95 to the North Carolina state line) and one for the southern segment (from I-95 to SC-22 near Conway). For the northern segment, SCDOT completed the report *Interstate 73 Final Environmental Impact Statement: I-95 to North Carolina*. In 2008, the Federal Highway Administration (FHA) issued a Record of Decision (ROD), so the design and eventual construction of the highway could proceed. For the southern segment, the SCDOT completed a Final Environmental Impact Statement (FEIS) for the portion of the I-73 Corridor from I-95 to the SC-22 in the Myrtle Beach area. The FHA approved this on November 29, 2007. A ROD was signed by the FHA for the southern segment of I-73 in South Carolina on February 8, 2008, and final design of the project and right-of-way acquisition began in the summer of 2008.

SCDOT has contracted C&M Associates, Inc., an engineering firm in Dallas, Texas, to conduct the traffic forecast for the project. C&M will forecast travel demand using traffic simulation models. To project future traffic on I-73, C&M needs a projection of social and economic indicators of counties both in the I-73 Corridor and throughout South Carolina (Figure 2.1), as inputs to the traffic simulation models. Those social and economic indicators include total population, household and group quarter population, total household and dwelling units, household income distribution, total employment, and employment in different sectors. C&M commissioned Chmura Economics &

[6] Source: Economic Impact of I-73 in South Carolina, prepared for Northeastern Strategic Alliance (NESA), by Chmura Economics & Analytics, May 2011. http://www.i73.com/docs/sc_economic_impact_study_chmura.pdf

Analytics (Chmura), headquartered in Richmond, Virginia, to perform the projections of such social and economic indicators.

Figure 2.1: I-73 in South Carolina

Source: National I-73/I-74/I-75 Organization. Website: http://www.i73.com/map.htm.

The geographic units of forecast were provided by C&M, based on their modeling needs. They are either at county-level, combined Traffic Analysis Zone (TAZ)-level, or individual TAZ-level. All counties in South Carolina are included in this study. For the nine counties located adjacent to I-73, projections were made on TAZ- or combined TAZ-level.[7] For all other South Carolina counties, projections were made at the county level. In total, Chmura provided projections for 321 geographic units and social and economic indicators for 2025, 2030, 2035, 2040, and 2050.

Chmura's projection of social and economic indicators was under two scenarios. The first—a no-build scenario—assumes I-73 will not be constructed. Under this scenario, economic indicators will grow consistently with the projection in the SCDOT 2040 Multi-Modal Plan as well as the historic trend.[8] The

[7] Those nine counties are Chesterfield, Darlington, Marlboro, Dillon, Marion, Florence, Williamsburg, Horry, and Georgetown. Those nine counties are collectively referred to as the I-73 Corridor. Appendix 1 provides a list of geographic units for projections.

[8] As part of the SCDOT's 2040 Multi-Modal Plan, demographic and employment data were developed for years 2010 and 2040. The development process included the use of 2010 Census, American Community Survey, South Carolina State Data Center, Dun and Bradstreet and Woods and Poole databases as well as estimates

second—a build scenario—assumes that the future I-73 will accelerate economic development. This growth will occur in the counties along the interstate, as well as throughout the state of South Carolina, as I-73 can increase the appeal of the region to relocating and expanding businesses. Interstate 73 is also expected to boost the tourism industry in the Myrtle Beach area. This scenario also incorporates economic boost from SELL corridor.

The remainder of this report is organized as follows:

- Section 3 summarizes historic trends of social and economic indicators of the I-73 Corridor, including population, household, and employment growth. Section 3 also provides a summary of discussions with business and community leaders in the I-73 Corridor, and incorporates their inputs into the projections.
- Section 4 provides projections of social and economic indicators in both the I-73 Corridor and South Carolina under the no-build and build scenarios.
- Section 5 offers both a summary and conclusion.

developed from South Carolina Metropolitan Planning Organizations (MPOs) and Council of Governments (COGs). Base year 2010 socio-economic data were developed using 2010 Census demographic data, Dun and Bradstreet employment data and data from local MPOs and COGs. Forecast year 2040 socio-economic data were developed using MPO and COG growth rates for the urban model areas and Woods and Poole data for the other areas. All 2040 forecasts were scaled to county control totals for population and employment based on South Carolina State Data Center and Woods and Poole forecasts, respectively, unless the MPOs and COGs provided specific projections.

3. Social and Economic Background

This section summarizes historic trends in population, employment, and other social and economic indicators. Trends are included for both the I-73 Corridor and the state of South Carolina as a whole, providing a background for the projection of these indicators. In addition, this section also summarizes economic development trends that could affect projections within both scenarios.

3.1. Historic Trends in Social and Economic Indicators

3.1.1. Population

Based on the 2010 Census, the I-73 Corridor had a population of 710,211. This was 15% of South Carolina's total population of 4.6 million (Table 3.1). From 1990 to 2010, corridor population grew by an average rate of 1.4% per year. However, population growth has slowed moderately in the most recent decade. For example, from 1990 to 2000, corridor population grew at an average rate of 1.5% per year, and that rate moderated to 1.4% per year from 2000 to 2010. The latest estimate from 2013 indicated that corridor population grew 0.8% per year from 2010 to 2013. Compared with South Carolina as a whole, corridor population growth has been lower than the state average since 2010.

Table 3.1: Total Population and Population Growth Rate

	1990	2000	2010	2013	Average Annual Growth Rate (1990-2000)	Average Annual Growth Rate (2000-2010)	Average Annual Growth Rate (2010-2013)
I-73 Corridor	534,316	620,572	710,211	726,919	1.51%	1.36%	0.78%
South Carolina	3,486,703	4,012,012	4,625,308	4,774,839	1.41%	1.43%	1.07%

Source: U.S. Census Bureau

Of the counties situated in the I-73 Corridor, three have experienced population decline since 1990. They are Marion, Marlboro, and Williamsburg Counties. All other counties in the corridor have exhibited population growth since 1990. Only Horry County, where Myrtle Beach is located, registered a population growth higher than the state average, at 3.1% per year. In fact, Horry County has been the fastest-growing county in the state since 1990. Georgetown County, another coastal county near Horry County, registered an annual population growth of 1.2%. The growth pattern in the I-73 Corridor suggests faster expansion in coastal counties due to tourism and an influx of retirees, and stagnant or declining population in interior and mostly rural counties.

The total population of the I-73 Corridor was further broken down by two major segments—those living in households and those living in group quarters such as college dormitories and prisons. In 2010, the vast majority of the population in the I-73 Corridor—98.0%—lived in households, compared with the statewide average of 97.0% (Table 3.2).

Since 1990, the percentage of individuals living in group quarters, as opposed to those living in households, remained fairly consistent in the corridor. There were slightly fewer people, as a

percentage of the total population, living in households in 2010, than in either 1990 or 2010. However, the changes are not significant for consideration in this study.

Table 3.2: Percentage of Population in Households and Group Quarters

	1990		2000		2010	
	Households	Group Quarters	Households	Group Quarters	Households	Group Quarters
I-73 Corridor	98.3%	1.7%	98.1%	1.9%	98.0%	2.0%
South Carolina	97.0%	3.0%	96.6%	3.4%	97.0%	3.0%

Source: U.S. Census Bureau

3.1.2. Household and Dwelling Units

In the past two decades, the number of households in the I-73 Corridor has increased from 192,226 in 1990 to 282,468 in 2010. The annual growth rate of households was 1.9% from 1990 to 2010, faster than the population growth rate of 1.4%. That means average household size in the I-73 Corridor is getting smaller, reflecting demographic trends such as later marriages, fewer children, and aging populations. However, the change in average household size is modest. Average household size in the I-73 Corridor was 2.51 in 2010, while in South Carolina it was 2.57 in 2010.

Table 3.3: Total Households and Household Growth Rate

	1990	2000	2010	Average Annual Growth Rate (1990-2000)	Average Annual Growth Rate (2000-2010)
I-73 Corridor	192,226	241,648	282,468	2.31%	1.57%
South Carolina	1,258,044	1,533,854	1,801,141	2.00%	1.62%

Source: U.S. Census Bureau

Total dwelling units is a measure of total housing units in a region. The difference between dwelling units and households is that dwelling units also include vacant homes or apartments. In the past two decades, the number of dwelling units in the I-73 Corridor has increased from 240,592 in 1990 to 386,218 in 2010. The average annual growth rate of dwelling units was 2.4% from 1990 to 2010, faster than the household growth rate of 1.9%. That means average vacancy rate in the I-73 Corridor is getting higher, from 20.1% in 1990 to 26.9% in 2010. South Carolina follows the similar trend that dwelling units grew faster than total households.

Table 3.4: Total Dwelling Units and Growth Rate

	1990	2000	2010	Average Annual Growth Rate (1990-2000)	Average Annual Growth Rate (2000-2010)
I-73 Corridor	240,592	305,231	386,218	2.41%	2.38%
South Carolina	1,424,155	1,753,670	2,137,662	2.10%	2.00%

Source: U.S. Census Bureau

3.1.3. Household Income Distribution

Household income distribution in the I-73 Corridor could affect travel demand. In this analysis, all households are classified into three income groups: low-income, with annual household income below $15,000 (or $15K), middle-income, with annual income between $15,000 and $50,000 ($50K), and high income, with annual income higher than $50K. In 2000, low-income households accounted for 21.9% of the total, while the middle- and high-income households accounted for 48.1% and 29.9%, respectively, of all households. Compared with the state average, the corridor had a lower percentage of high-income households (Table 3.5).

Since 2000, the percentage of households in low- and middle-income groups has steadily decreased while the percentage of households in high-income groups has steadily increased. The latest data for 2011 show that the percentage of low-income households in the I-73 Corridor declined to 18.7% while that of high-income households increased to 38.8%. That is not surprising, as economic growth should result in increased income and improved standards of living. Another reason for the increase in high-income households is inflation. If income increases at the same rate as inflation, the percentage of households in the high-income group will expand, as real income stays the same.

Table 3.5: Household Income Distribution

	2000			2008			2011		
	Low	**Middle**	**High**	**Low**	**Middle**	**High**	**Low**	**Middle**	**High**
I-73 Corridor	21.9%	48.1%	29.9%	18.4%	43.1%	38.6%	18.7%	42.5%	38.8%
South Carolina	18.8%	45.8%	35.4%	15.8%	39.9%	44.3%	15.7%	39.0%	45.3%

Source: U.S. Census Bureau

3.1.4. Employment

There are different measures of regional employment. For historic trend analysis, Chmura chose to use the wage and salaried data from the Bureau of Labor Statistics, Quarterly Census of Employment and Wages (QCEW) program.[9] In 2013, total wage and salaried employment in the I-73 Corridor was 256,785—14% of the state total employment of 1.8 million (Table 3.6). Over the last 23 years from 1990 to 2013, corridor employment increased at an average rate of 0.9% per year. Employment growth in South Carolina was slightly higher, averaging 1.0% per year from 1990 to 2013. Due to the fact that the regional economy is still recovering from the most recent recession that lasted from 2007 to 2009, employment growth from 2010 to 2013 was slower for the corridor, averaging 0.9% per year, while state employment enjoyed a healthy growth of 1.6% per year since 2010.

[9] This data source is used for analysis of historic trends only. The projection is based on Dun and Bradstreet (DNB) data provided by C&M. Those two sources do not always have the same employment figures. Chmura does not have access to historic DNB data in South Carolina.

Table 3.6: Total Employment and Employment Growth Rate

	1990	2000	2010	2013	Average Annual Growth Rate (1990-2000)	Average Annual Growth Rate (2000-2010)	Average Annual Growth Rate (2010-2013)
I-73 Corridor	211,067	260,992	249,985	256,785	2.1%	-0.4%	0.9%
South Carolina	1,460,542	1,749,190	1,758,205	1,846,622	1.8%	0.1%	1.6%

Source: Bureau of Labor Statistics, QCEW

There is a large disparity in employment growth among the counties within the I-73 Corridor. Similar to the population growth pattern, only Horry and Georgetown County achieved employment growth faster than the state average, averaging 2.5% and 1.1% per year from 1990 to 2013. In contrast, all other counties experienced varying degrees of employment contraction.

Total employment in the I-73 Corridor was further broken down into 12 industry sectors, according to the North American Industry Classification System (NAICS). In 2013, the largest sector in the I-73 Corridor was leisure, which accounted for 22.4% of total employment in the region (Table 3.7). This is not surprising considering that Myrtle Beach is a major tourism destination. After leisure, the trade sector supported 21.4% of total corridor employment, while 13.2% of employment was in education and health. As a comparison, the top sectors in South Carolina were trade, professional & business service, and education & health.

Table 3.7: Employment Mix by Major Sectors

	1990		2013	
	I-73 Corridor	South Carolina	I-73 Corridor	South Carolina
Construction	6.1%	6.9%	4.3%	4.4%
Education & Health	6.5%	6.7%	13.2%	14.2%
Finance, Insurance, Real Estate	5.9%	5.3%	6.1%	5.8%
Information	1.3%	1.7%	1.4%	1.7%
Leisure	15.2%	10.4%	22.4%	13.7%
Manufacturing	31.6%	27.9%	12.5%	13.9%
Natural Resource	0.4%	0.5%	0.8%	0.6%
Other Service	2.8%	3.0%	3.0%	3.0%
Professional & Business Service	4.1%	8.9%	9.1%	14.9%
Public Administration	3.9%	6.0%	3.7%	5.6%
Trade	20.1%	19.7%	21.4%	18.4%
Transportation, Warehousing, Utility	2.0%	3.0%	2.1%	3.7%
Grand Total	100.0%	100.0%	100.0%	100.0%

Source: Bureau of Labor Statistics

Since 1990, the industry mix in the I-73 Corridor has changed considerably. The most significant change occurred in manufacturing, whose employment share declined from 31.6% in 1990 to only

12.5% in 2013. Leisure and education & health sectors increased their employment share by 7.2 and 6.7 percentage points, respectively. For South Carolina, its employment also experienced an increase in education & health and a decline in manufacturing, but the state also saw a significant increase in professional and business service.

3.2. The Effect of I-73 on Jobs and Population Growth

This section summarizes current and future research on development in the I-73 Corridor which could affect traffic demand for I-73 after it is constructed.

3.2.1. I-73 Economic Impact Analysis

I-73 will generate jobs in counties located around the interstate. Community leaders in the northeast part of South Carolina have commissioned a study on the economic impact of I-73 in the corridor and the state of South Carolina. This study was completed in 2011, and results are available at the National I-73/74 Association website.[10] Chmura used the results of this study to assist in the projection of social and economic factors under the build scenario.

The 2011 Chmura study implied that the presence of an interstate highway can increase the appeal of the region to expanding and relocating firms, thus resulting in faster employment growth. The existence of I-73 will inject billions of dollars into the I-73 Corridor and South Carolina economies, which will provide tens of thousands of jobs in tourism, retail, service, and warehouse industries. After completion, it is estimated that I-73 can sustain 22,347 permanent jobs in South Carolina in 2030 and beyond.

Among those jobs, the most immediate new businesses associated with I-73 will be service businesses clustered around interchanges. These service businesses will serve both motorists on I-73 and local residents. They can support 3,205 jobs per year in South Carolina in 2030, most of them located in the I-73 Corridor. It is likely that I-73 can support a distribution center in the western rural portion of the I-73 Corridor, bringing 286 jobs to the area in 2030. The Myrtle Beach portion of I-73, the route taken by most visitors, could boost tourism in the region by 7.1%, and support 18,856 jobs in the region's tourism sector.

3.2.2. Inputs from the Local Chamber of Commerce

The estimates in the Chmura study are conservative. They only include quantifiable businesses clustering around interstate highways, and do not include direct potential job attractions in other sectors such as manufacturing. Transportation is critical for manufacturing plants which tend to locate close to major highways for ease of moving supplies and finished products. But the Chmura 2011 Study included the economic ripple impacts resulting from new retail and service businesses in the I-73 Corridor, which can benefit the manufacturing sector to a certain degree. [11]

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[10] Source: Economic Impact of I-73 in South Carolina, prepared for Northeastern Strategic Alliance (NESA), by Chmura Economics & Analytics, May 2011. http://www.i73.com/docs/sc_economic_impact_study_chmura.pdf

[11] It is possible that I-73 can attract manufacturing businesses. A review of documents provided by Myrtle Beach Chamber of Commerce does not yield any estimates for manufacturing expansion after I-73.

On March 23, Chmura participated in a conference call with Myrtle Beach Chamber of Commerce. The focus of the conference call was to understand the impact of I-73 on the region, especially regional economic development prospects. The community leaders believed that I-73 will help grow tourism and enhance their regional competitive position in attracting non-tourism jobs. Manufacturing, distribution, warehousing, agribusiness, and possible aeronautical industries are likely targets for development. The jobs in those industries will likely generate above-average wages, considering that regional average wages are strongly influenced by the tourism industry.[12]

[12] By the time of this draft, no quantitative data were provided to be included in the build-scenario. As a result, Chmura's build scenario projection should be considered as being conservative.

4. Projection of Social and Economic Indicators

4.1. Two Scenarios

This section provides projections of social and economic indicators of both South Carolina and the I-73 Corridor under the no-build and build scenarios. The no-build scenario assumes that I-73 will not be constructed, and population and employment growth of the I-73 Corridor will grow consistently with its past historic trend as well as with the 2040 projection by SCDOT. The build scenario refers to the situation that I-73 will be constructed, with its first segment operational in 2025. That could potentially generate additional economic benefits for the region, such as more residents and employment.

Under the no-build scenario, Chmura assumes that future growth of various social and economic indicators are consistent with the historic growth trajectory—without construction of the interstate. In addition, C&M Associates provided Chmura with the projection in SCDOT 2040 Multi-Modal Plan of social and economic indicators for each geographic unit. Chmura first computed the implied annual growth rate of the projection in the SCDOT 2040 Multi-Modal Plan from 2010 to 2040. Chmura then applied a varied growth rate for each time period based on academic research. For example, since the historic data implies a slow-down in population growth, Chmura assumed that population growth from 2010 to 2020 would be higher than from 2020 to 2030, and from 2030 to 2040. Chmura adjusted for different population growth rates in each period, while maintaining overall growth consistent with the projection the in SCDOT 2040 Multi-Modal Plan.

The build scenario assumes that I-73 will be constructed. After completion, I-73 will attract roadside service businesses such as restaurants, motels, and gas stations along the way. Those businesses cluster around interchanges and are reliably associated with limited-access highways.[13] I-73 can also attract distribution centers and boost the tourism sector in the corridor. In 2011, a study conducted by Chmura Economics & Analytics[14] estimated that after it is fully completed, the construction of I-73 can sustain 22,347 permanent jobs per year in South Carolina. This will serve as the input in generating the build scenario projections. In addition, the likely scenario also incorporates the proposed Southern Evacuation Lifeline (SELL) project in Horry County. This road could attract additional business and residents to areas around SELL corridor. Using I-73 economic impact study as a benchmark, it is estimated that the SELL corridor can benefit from over four thousand new employment opportunities, all of them located in 49 TAZs in Horry County. While most jobs will be located in the counties where I-73 passes through, all South Carolina counties will benefit from I-73. For example, if a new gasoline station/convenience store on I-73 expands its operation, it will also increase its purchase of supplies for the store, which can benefit other South Carolina counties that manufacture and ship those

[13] Source: Hartgen, David, Janet O'Callaghan, Wayne Walcott, and Jane Opgenorth, 1992. Growth at Rural Interchanges: What, Where, Why. Transportation Research Records 1359: 141-150.
[14] Source: Economic Impact of I-73 in South Carolina, prepared for Northeastern Strategic Alliance (NESA), by Chmura Economics & Analytics, May 2011. http://www.i73.com/docs/sc_economic_impact_study_chmura.pdf.

products. Chmura uses the IMPLAN model[15] to estimate ripple economic impacts elsewhere in South Carolina and distributes them in individual counties based on their industry structure.

4.2. Population Projection

4.2.1. No-Build Scenario

Under the no-build scenario, it is projected that the future population in the I-73 Corridor will increase at a rate of 0.94% per year from 2010 to 2050. This projected population growth is slightly lower than the growth rate of the corridor in the past two decades, reflecting overall demographic trends in the United States that people tend to get married later and have fewer children. It is projected that total population in the I-73 Corridor in 2025, 2035, and 2050 will be 822,698, 903,610, and 1.0 million, respectively (Table 4.1). From 2010 to 2050, state population growth is expected to grow at 0.88% per year.[16]

Table 4.1: I-73 Corridor Population Projection--No-build Scenario

		2010	2020	2025	2030	2035	2040	2050
I-73 Corridor	Household	695,837	770,586	809,094	849,138	890,888	935,143	1,019,918
	Group Quarter	14,374	13,928	13,604	13,174	12,722	12,155	11,051
	Total Population	**710,211**	**784,515**	**822,698**	**862,312**	**903,610**	**947,298**	**1,030,969**
South Carolina	Household	4,486,158	4,970,764	5,206,716	5,451,188	5,687,589	5,924,959	6,427,670
	Group Quarter	139,150	138,454	137,916	136,936	136,324	135,139	135,066
	Total Population	**4,625,308**	**5,109,218**	**5,344,632**	**5,588,124**	**5,823,913**	**6,060,098**	**6,562,737**

Source: Chmura Economics & Analytics

Previous data indicated that of the total population, the percentages for individuals living in households were consistent, with a slight increase in the future. The Chmura model assumes the percentage of household populations will increase from 98% in 2010 to 99% in 2050 in the I-73 Corridor. It is projected that in 2050, of the 1,030,969 total individuals in the I-73 Corridor, 1,019,994 people will be living in households while 10,975 will be living in group quarters.

4.2.2. Build Scenario

The build scenario assumes that construction of I-73 will proceed. Based on the 2011 Chmura study on the economic impact of I-73,[17] it is estimated that I-73 can sustain 22,347 permanent jobs per year in South Carolina when it is fully completed. It is further assumed that 80% of those jobs will be located in the I-73 Corridor while the rest will be in other South Carolina counties.

New jobs will also attract new residents. As people move in to take newly-generated jobs, their families (including children) will follow. Based on 2010 data, South Carolina had a population/employment ratio of 2.24. As a result, I-73 could boost the state population by 50,246,

[15] IMPLAN model is one of the most widely used economic simulation model to estimate economic impact and its allocation in different regions.

[16] The detailed projection for individual geographic units is delivered in a companion spreadsheet.

[17] Source: Economic Impact of I-73 in South Carolina, prepared for Northeastern Strategic Alliance (NESA), by Chmura Economics & Analytics, May 2011. http://www.i73.com/docs/sc_economic_impact_study_chmura.pdf.

with additional population resulting in SELL corridor. Since the first segment of I-73 will not be completed until 2025, it is assumed that those benefits will accrue from 2025 to 2050.

Using the current population mix to distribute incremental residents into different counties and TAZ-levels, Table 4.2 presents the population projection of the build scenario. From 2010 to 2020, the population projection is the same as the no-build scenario, but growth picks up from 2025 onward. The population growth rate is projected to be 1.05% per year from 2010 to 2050, higher than the 0.94% rate in the no-build scenario. I-73 can boost South Carolina's population growth rate from 0.88% to 0.90% per year from 2010 to 2050.

Table 4.2: I-73 Corridor Population Projection--Build Scenario

		2010	2020	2025	2030	2035	2040	2050
I-73 Corridor	Household	695,837	787,756	810,982	860,474	911,686	965,415	1,069,186
	Group Quarter	14,374	14,112	13,624	13,285	12,910	12,409	11,388
	Total Population	**710,211**	**801,868**	**824,606**	**873,759**	**924,596**	**977,824**	**1,080,573**
South Carolina	Household	4,486,158	4,987,934	5,208,969	5,464,717	5,712,413	5,961,093	6,486,481
	Group Quarter	139,150	138,637	137,947	137,110	136,622	135,546	135,635
	Total Population	**4,625,308**	**5,126,571**	**5,346,916**	**5,601,827**	**5,849,035**	**6,096,639**	**6,622,116**

Source: Chmura Economics & Analytics

For the I-73 Corridor under the build scenario, it is projected that in 2050, 1.1 million individuals will be living in households while 11,311 will be living in group quarters. The percentage of the population living in households is similar to the no-build scenario.

4.3. Household Units

Under the no-build scenario, Chmura assumes that the average household size will decline slightly—consistent with historic demographic changes. Demographic trends suggest that people are living longer, getting married later, having children later, and having less children than before. Those factors imply that there are more single households or households without children, driving down average household size. As a result, projected household growth would be slightly faster than population growth, averaging 1.04% per year. For the no-build scenario, it is projected that total households in the I-73 Corridor in 2025, 2035, and 2050 will be 331,933, 368,492, and 427,035, respectively.

Table 4.3: I-73 Corridor Household Projection

		2010	2020	2025	2030	2035	2040	2050
No-Build	I-73 Corridor	282,468	314,928	331,933	349,735	368,492	388,553	427,035
	South Carolina	1,801,141	1,994,214	2,088,696	2,186,627	2,281,934	2,377,833	2,580,150
Build Scenario	I-73 Corridor	282,468	321,751	332,683	354,235	376,743	400,554	446,537
	South Carolina	1,801,141	2,001,037	2,089,594	2,192,014	2,291,811	2,392,200	2,603,495

Source: Chmura Economics & Analytics

Under the build scenario, Chmura projects that household size in the I-73 Corridor will be marginally higher than under the no-build scenario. The reason is that under the build scenario, there will be a large influx of jobs in the I-73 Corridor. This will likely increase household size, as people taking jobs are working-age adults that tend to have families. Another source of population growth will be immigrants. If immigrants come with their families, which tend to have more children than American families due to cultural or religious reasons, this situation may increase the average household size in the corridor. It is projected that the number of households in the I-73 Corridor in 2025, 2035, and 2050 will be 332,683, 376,743, and 446,537, respectively. For the state of South Carolina, this population influx will not be large enough to cause any significant change in household size.

4.4. Dwelling Units

Under the no-build scenario, Chmura assumes that the number of dwelling units will grow slightly slower than the household growth rate, averaging 0.78% per year from 2010 to 2050. This will result in lower property vacancy rates in the future. For the no-build scenario, it is projected that the average number of dwelling units in the I-73 Corridor in 2025, 2035, and 2050 will be 440,641, 475,313 and 528,740, respectively.

Table 4.4: I-73 Corridor Dwelling Units Projection

		2010	2020	2025	2030	2035	2040	2050
No-Build	I-73 Corridor	386,218	422,822	440,641	458,169	475,313	492,300	528,740
	South Carolina	2,137,662	2,339,011	2,434,594	2,531,993	2,624,077	2,714,351	2,920,496
Build Scenario	I-73 Corridor	386,218	431,923	441,952	465,821	489,026	511,925	559,200
	South Carolina	2,137,662	2,348,112	2,436,072	2,540,643	2,639,611	2,736,612	2,955,216

Source: Chmura Economics & Analytics

Under the build scenario, dwelling unit growth in the I-73 Corridor will be higher than under the no-build scenario. Housing development may also accelerate around the corridor. Without further information, Chmura assumes that high demand and high supply growth will offset each other, resulting in stable vacancy rates for the future. It is projected that the number of dwelling units in the I-73 Corridor in 2025, 2035, and 2050 will be 441,952, 489,026, and 559,200, respectively.

4.5. Household Income Distribution

4.5.1. No-Build Scenario

The projection of household income under the no-build scenario assumes modest income growth. As a result, the percentage of I-73 Corridor households earning less than $15,000 ($15K) per year will gradually decline from 18.5% in 2010 to 16.3% in 2050. On the other hand, the percentage of corridor households earning more than $50K per year will gradually increase from 38.6% in 2010 to 40.8% in

2050. The income dynamic for the state is similar. The resulting number of households in each income bracket is presented in Table 4.5.[18]

Table 4.5: I-73 Corridor Household Income Projection--No-build Scenario

		2010	2020	2025	2030	2035	2040	2050
I-73 Corridor	Less than 15K	52,194	56,372	58,418	60,521	62,686	64,958	69,616
	15K-50K	121,293	135,078	142,258	149,806	157,749	166,200	182,832
	More than 50K	108,946	123,478	131,256	139,407	148,057	157,395	174,587
	Total Households	**282,433**	**314,928**	**331,933**	**349,735**	**368,492**	**388,553**	**427,035**
South Carolina	Less than 15K	283,017	309,211	321,681	334,502	346,749	358,902	384,977
	15K-50K	713,438	788,163	824,570	862,278	898,896	935,649	1,013,379
	More than 50K	804,641	896,840	942,445	989,847	1,036,289	1,083,282	1,181,794
	Total Households	**1,801,097**	**1,994,214**	**2,088,696**	**2,186,627**	**2,281,934**	**2,377,833**	**2,580,150**

Source: Chmura Economics & Analytics

4.5.2. Build Scenario

Under the build scenario, household income distribution in both the I-73 Corridor and South Carolina will experience changes. I-73 could generate over 20,000 jobs in the state, with the majority of them in the corridor. In addition, the SELL corridor could add additional more than 4,000 jobs in select TAZs in Horry County. While some of those jobs will be taken by people moving into the area, some of the unemployed or underemployed residents in the region can also benefit from those new job opportunities and increase their household income. The general projection is that I-73 could result in upward mobility in household income distribution.

To what degree households in each income group will benefit from I-73 will depend on the jobs attracted by the project. Based on the I-73 economic impact study in 2011,[19] most new jobs will be in retail and foodservice, such as roadside service and tourism jobs, and only a small number are warehouse and distribution center jobs. The latest data indicate that those jobs will be concentrated in the income brackets of $15K-$50K. For example, the average wage for foodservice occupations in the corridor was $19,500 in 2014. It was $30,300 for transportation and material moving occupations, and $31,400 for sales and related occupations.[20] Those data imply that the vast majority of new jobs will be in the middle-income group, and only a small percentage (those in management positions) will have wages over $50K. That implies that the share increase will be largest in the middle income households.

Allocating those jobs into different income brackets, Table 4.6 lists the projected number of households in each income group for the I-73 Corridor and South Carolina under the build scenario. In the corridor, I-73 can potentially reduce the number of low-income households and increase

[18] The sum of households for the three income brackets in 2010 is slightly different from actual 2010 household numbers presented in Section 4.4, due to rounding.

[19] Source: Economic Impact of I-73 in South Carolina, prepared for Northeastern Strategic Alliance (NESA), by Chmura Economics & Analytics, May 2011. http://www.i73.com/docs/sc_economic_impact_study_chmura.pdf

[20] Source: JobsEQ, Occupation Wages in South Carolina 2013.

middle- income households. The most significant increase will be in the middle-income group due to the nature of jobs attracted. Compared with the no-build scenario, the percentage of middle-income households could increase from 42.8% in the no-build scenario to 45.3% in the build scenario. The share of high-income households could decrease from 40.8% in the no-build scenario to 39.6% in the build scenario, while the low-income group would decline from 16.3% to 15.1%.

Table 4.6: I-73 Corridor Population Projection--Build Scenario

		2010	2020	2025	2030	2035	2040	2050
I-73 Corridor	Less than 15K	52,194	56,372	58,337	60,035	61,795	63,662	67,510
	15K-50K	121,293	135,078	143,006	154,289	165,967	178,153	202,256
	More than 50K	108,946	130,301	131,340	139,911	148,982	158,739	176,771
	Total Households	**282,433**	**321,751**	**332,683**	**354,235**	**376,743**	**400,554**	**446,537**
South Carolina	Less than 15K	283,017	309,211	321,584	333,920	345,683	357,350	382,456
	15K-50K	713,438	788,163	825,464	867,644	908,733	949,958	1,036,630
	More than 50K	804,641	903,663	942,546	990,450	1,037,395	1,084,891	1,184,409
	Total Households	**1,801,097**	**2,001,037**	**2,089,594**	**2,192,014**	**2,291,811**	**2,392,200**	**2,603,495**

Source: Chmura Economics & Analytics

4.6. Employment Projection

4.6.1. No-Build Scenario

Under the no-build scenario, it is projected that future employment will likely increase at a rate of 1.2% per year. This estimated growth rate was based on the 2040 projection conducted by SCDOT. Under this scenario, total corridor employment in 2025, 2035, and 2050 will be 364,129, 410,462, and 490,743, respectively.

Table 4.7: Employment Projection in I-73 Corridor (No-Build Scenario)

	2010	**2020**	**2025**	**2030**	**2035**	**2040**	**2050**
Agriculture, Forestry, Fishing	5,223	5,257	5,224	5,155	5,032	4,866	5,019
Mining	292	347	388	443	512	603	741
Construction	20,435	22,313	23,280	24,266	25,198	26,114	29,854
Manufacturing	30,915	31,943	32,115	32,052	31,666	31,036	31,519
Transportation & Communication	13,032	15,242	16,625	18,279	19,737	22,608	26,582
Wholesale	9,872	11,052	11,676	12,334	12,999	13,712	15,158
Retail	66,295	81,713	104,574	121,664	141,487	165,143	198,493
Finance, Insurance, Real Estate	20,796	21,689	21,901	21,932	21,699	21,231	22,643
Service	122,255	129,798	132,091	133,169	132,452	130,006	135,859
Public Administration	12,680	14,898	16,255	17,845	19,679	21,870	24,876
Total Employment	**301,795**	**334,252**	**364,129**	**387,138**	**410,462**	**437,189**	**490,743**

Note: Total employment may not be the same as figures provided by C&M due to rounding

Source: Chmura Economics & Analytics

For major industry sectors, Chmura's model assumes that corridor employment in mining, transportation and communication, retail, and public administration will grow faster than the corridor average of 1.2% per year from 2010 to 2050. Other sectors will grow modestly—except the agriculture, forestry, and fishing industry—which will decline from 2010 to 2050.

Employment growth for the state of South Carolina follows a similar pattern, but general growth will average 1.0% per year from 2010 to 2050. Under this scenario, total employment in 2025, 2035, and 2050 will be 2.4 million, 2.6 million and 3.1 million, respectively.

Table 4.8: Employment Projection in South Carolina (No-Build Scenario)

	2010	2020	2025	2030	2035	2040	2050
Agriculture, Forestry, Fishing	34,257	37,833	39,640	41,497	43,335	45,298	49,271
Mining	1,646	2,003	2,207	2,436	2,688	2,977	3,363
Construction	129,424	145,611	154,094	163,009	172,082	181,881	201,013
Manufacturing	249,996	274,590	286,959	299,694	312,313	325,896	354,077
Transportation & Communication	104,759	117,748	124,753	132,322	139,300	149,305	165,553
Wholesale	80,363	89,779	94,676	99,815	105,040	110,719	121,335
Retail	375,648	424,769	465,904	501,610	540,367	584,697	658,543
Finance, Insurance, Real Estate	118,903	132,890	139,943	147,160	154,273	161,782	176,223
Service	831,169	904,240	940,085	976,278	1,011,003	1,047,454	1,138,622
Public Administration	130,511	142,912	149,395	156,298	163,420	171,381	186,371
Total Employment	**2,056,676**	**2,272,375**	**2,397,655**	**2,520,118**	**2,643,822**	**2,781,390**	**3,054,370**

Note: Total employment may not be the same as figures provided by C&M due to rounding

Source: Chmura Economics & Analytics

4.6.2. Build Scenario

For employment under the build scenario, it is assumed that the annual employment growth rate will average 1.33%, higher than under the no-build scenario. This is due to additional jobs supported by I-73, as well as SELL, which total over 26,000. It is projected that total employment in 2025, 2035, and 2050 will be 364,978, 419,796, and 512,805, respectively.

Table 4.9: Employment Projection in I-73 Corridor--Build Scenario

	2010	2020	2025	2030	2035	2040	2050
Agriculture, Forestry, Fishing	5,223	5,307	5,225	5,165	5,052	4,895	5,066
Mining	292	349	389	443	514	605	744
Construction	20,435	27,187	23,287	24,310	25,278	26,231	30,043
Manufacturing	30,915	32,312	32,128	32,130	31,809	31,245	31,858
Transportation & Communication	13,032	15,396	16,670	18,546	20,227	23,321	27,741
Wholesale	9,872	11,171	11,681	12,360	13,048	13,783	15,273
Retail	66,295	82,267	104,805	123,050	144,027	168,837	204,496
Finance, Insurance, Real Estate	20,796	21,864	21,907	21,970	21,771	21,335	22,812
Service	122,255	131,025	132,624	136,367	138,315	138,534	149,717
Public Administration	12,680	15,091	16,262	17,886	19,754	21,980	25,054
Total Employment	**301,795**	**341,970**	**364,978**	**392,229**	**419,796**	**450,766**	**512,805**

Note: The total employment may not be the same as those provided by C&M due to rounding

Source: Chmura Economics & Analytics

Chmura used the following methodology to distribute jobs into different sectors. Based on the 2011 economic impact study of I-73, Chmura allocated 17,999 direct jobs in the I-73 Corridor into retail, service, and transportation sectors. For additional jobs resulting from ripple economic impact, Chmura allocated them into all sectors across the corridor and the state based on the industry mix of each geographic unit, with the majority of them in the corridor counties. Chmura uses the same methodology to allocate SELL Corridor jobs but only to Horry County. While overall projected employment in the I-73 Corridor is 4.5% higher than under the no-build scenario in 2050, projected service employment will be 10.2% higher under the build scenario.

Table 4.10 lists the statewide employment projection. Under the build scenario, total employment in 2025, 2035, and 2050 will be 2.4 million, 2.7 million and 3.1 million, respectively.

Table 4.10: Employment Projection in South Carolina--Build Scenario

	2010	2020	2025	2030	2035	2040	2050
Agriculture, Forestry, Fishing	34,257	37,884	39,644	41,524	43,385	45,371	49,389
Mining	1,646	2,005	2,208	2,438	2,691	2,982	3,371
Construction	129,424	150,485	154,112	163,119	172,283	182,173	201,487
Manufacturing	249,996	274,959	286,991	299,890	312,672	326,418	354,926
Transportation & Communication	104,759	117,903	124,806	132,643	139,889	150,162	166,945
Wholesale	80,363	89,897	94,687	99,881	105,162	110,896	121,623
Retail	375,648	425,323	466,170	503,206	543,294	588,954	665,461
Finance, Insurance, Real Estate	118,903	133,065	139,959	147,257	154,452	162,042	176,644
Service	831,169	905,467	940,681	979,853	1,017,558	1,056,989	1,154,117
Public Administration	130,511	143,104	149,412	156,401	163,609	171,655	186,818
Total Employment	**2,056,676**	**2,280,093**	**2,398,670**	**2,526,212**	**2,654,995**	**2,797,642**	**3,080,780**

Note: The total employment may not be the same as those provided by C&M due to rounding

Source: Chmura Economics & Analytics

4.7. Comparison with Third-Party Projections

Chmura obtained two sets of third-party projections from C&M Associates and compared them with the no-build scenario projections by Chmura. The first set of projections were prepared by Moody's Analytics, which provided projections of retail sales, as well as employment in hotels, restaurants, and healthcare industries for Horry County only. Another set of projections were prepared by Woods and Poole (W&P), which provided county-level estimates on a wide range of demographic, social, and economic variables.

Direct comparisons with third-party projections are not practical. First, the variables are different—Moody's projections involve retail sales and sector employment in Horry County. Retail sales are not part of Chmura's projections in this report. Second, even for the same variables, the definition could

be different. For example, W&P sector projections used the NAICS-based system, while Chmura's projections used the Standard Industrial Classification (SIC) system to be consistent with projections in the SCDOT Multi-Modal Plan. In addition, forecasting horizons are different as well. The third-party projections end at 2040, while Chmura's projections extend to 2050. More importantly, both Moody's and W&P's projections are not available at the traffic analysis zone-level; the smallest unit of projection is at the county level. However, Chmura attempted to compare the overall long-term projections. To achieve that, Chmura computed the implied annual growth rates of high-level variables (total population, households, and employment) from those projections, and compared them with the annual growth rate embedded in the Chmura no-build scenario projections to evaluate the third-party projections.

Moody's projection for Horry County shows a healthy expansion of lodging, food service, and health care sectors. From 2010 to 2040, employments in those three sectors are projected to grow 1.2%, 2.6%, and 1.9%, respectively, per year for the county, where Myrtle Beach is located. Chmura's projection did not break down sector employment in the same manner as Moody's, but is in agreement that overall county employment would grow 1.7% per year. From that perspective, Moody's projections are reasonable.

For W&P, Chmura was able to evaluate those projections for total population, total households, and total employment, as presented in Table 4.11.[21] W&P's population and employment projections are more optimistic than Chmura's projections. For example, W&P forecasts an annual population growth of 1.1% per year for the state from 2010 to 2040, which is higher than Chmura's 0.9% annual long-term growth projection. For employment, W&P forecasts an annual growth of 1.4% per year for the state from 2010 to 2040, which is higher than Chmura's 1.0% annual long-term growth projection. While Chmura's no-build scenario may be conservative, this projection is constrained by the projections in the SCDOT Multi-Modal Plan for 2040.[22]

Table 4.11: Third-Party Projection Comparison

		W&P Projection			Chmura Projection		
Variable	**Location**	**2010**	**2040**	**Annual Average Growth Rate**	**2010**	**2040**	**Annual Average Growth Rate**
Total Population	I-73 Corridor	711,515	1,041,272	1.28%	710,211	947,298	0.96%
	State	4,637,106	6,364,889	1.06%	4,625,308	6,060,098	0.90%
Total Households	I-73 Corridor	283,033	417,607	1.31%	282,468	388,553	1.07%
	State	1,805,891	2,474,754	1.06%	1,801,141	2,377,833	0.93%
Total Employment	I-73 Corridor	358,534	562,286	1.51%	301,795	437,189	1.24%
	State	2,451,222	3,742,910	1.42%	2,056,676	2,781,390	1.01%

Source: C&M and Chmura

[21] While W&P provided employment by industry, it is based on NAICS, not SIC. W&P's projection includes income distribution, but with different income brackets.

[22] Chmura's scope of work requires that the projection is consistent with SCDOT's projection.

There are some issues with W&P's projection. First, Chmura's population base for 2010 is directly from the 2010 Census, so these population numbers match precisely. But W&P's population base is different from the 2010 Census. For example, the 2010 Census lists total state population at 4.63 million, while the W&P projection indicated 4.64 million. While this does not appear to be a significant difference, this added value will increase exponentially over the next four decades. Similarly, W&P's base year employment projection is larger as well, at 2.45 million. BLS data implied total statewide employment of 1.92 million,[23] which is closer to Chmura's baseline of 2.06 million.

Another concern is with W&P's household projection. As Table 4.11 shows, W&P's projection indicates that total households in South Carolina will grow at the same rate as population, which implies household size in the state will remain constant over the next 30 years. However, most demographic literature projects that household size in America will continue to shrink. This reflects trends such as later marriages, fewer children, and aging populations. W&P's projection suggests that the state of South Carolina will follow the opposite trend.

[23] Source: Bureau of Labor Statistics. http://data.bls.gov/timeseries/LASST450000000000005?data_tool=XGtable.

5. Summary

Under the no-build scenario, it is projected that population in the I-73 Corridor will increase at a rate of 0.94% per year from 2010 to 2050. Employment in the corridor will expand at a higher rate of 1.22% per year, from 2010 to 2050. For other economic and social indicators, it is projected that the number of households will grow faster than the population, reflecting an aging population in both the corridor and state. For employment growth, the percentage of households in middle- and high-income groups (more than $50K per year) will expand steadily.

Under the build scenario, all social and economic indicators in the I-73 Corridor will expand at higher annual rates than under the no-build scenario. This will be boosted by new jobs and an increase in population attracted by I-73. For South Carolina, all social and economic indicators will grow at similar rates for the state as a whole.

Appendix 1: List of Geographic Units in Study Corridor

Geographic Units of Distribution

Aggregate (AGG) ID	TAZ Number	I-73 Corridor	County
10011601		0	Abbeville SC
30010101		0	Aiken SC
50010506		0	Allendale SC
70010206		0	Anderson SC
90010503		0	Bamberg SC
110010504		0	Barnwell SC
130010904		0	Beaufort SC
150010301		0	Berkeley SC
170011502		0	Calhoun SC
190011401		0	Charleston S
210010205		0	Cherokee SC
230010402		0	Chester SC
250210501		1	Chesterfield
250410502		1	Chesterfield
250610503		1	Chesterfield
250810504		1	Chesterfield
251010505		1	Chesterfield
251210506		1	Chesterfield
251410507		1	Chesterfield
251610508		1	Chesterfield
251810509		1	Chesterfield
270011101		0	Clarendon
290010901		0	Colleton
314010501		1	Darlington
314211301		1	Darlington
314410502		1	Darlington
314610503		1	Darlington
314810504		1	Darlington
315010505		1	Darlington
315210506		1	Darlington
315411302		1	Darlington
315611303		1	Darlington
315810507		1	Darlington
316010508		1	Darlington
330000001	33050298	1	Dillon SC
330000002	33050607	1	Dillon SC

330000003	33050621	1	Dillon SC
330000004	33050603	1	Dillon SC
330000005	33050558	1	Dillon SC
330000006	33050678	1	Dillon SC
330000007	33050566	1	Dillon SC
330000008	33050653	1	Dillon SC
330000009	33050567	1	Dillon SC
330000010	33050659	1	Dillon SC
330000011	33050606	1	Dillon SC
330000012	33050617	1	Dillon SC
330000013	33050660	1	Dillon SC
330000014	33050662	1	Dillon SC
330000015	33050661	1	Dillon SC
330000016	33050677	1	Dillon SC
330000017	33050605	1	Dillon SC
330000018	33050657	1	Dillon SC
330000019	33050658	1	Dillon SC
330000020	33050669	1	Dillon SC
330000021	33050671	1	Dillon SC
330000022	33050672	1	Dillon SC
330000023	33050608	1	Dillon SC
330000024	33050601	1	Dillon SC
330000025	33050604	1	Dillon SC
330000026	33050670	1	Dillon SC
330000027	33050676	1	Dillon SC
330000028	33050616	1	Dillon SC
330000029	33050615	1	Dillon SC
330000030	33050673	1	Dillon SC
330000031	33050665	1	Dillon SC
330000032	33050664	1	Dillon SC
330000033	33050656	1	Dillon SC
330000034	33050674	1	Dillon SC
330000035	33050602	1	Dillon SC
330000036	33050609	1	Dillon SC
330000037	33050663	1	Dillon SC
330000038	33050666	1	Dillon SC
330000039	33050668	1	Dillon SC
330000040	33050667	1	Dillon SC
330000041	33050675	1	Dillon SC
350010301		0	Dorchester
370011604		0	Edgefield SC

390010502	0	Fairfield SC
410110710	1	Florence SC
410310711	1	Florence SC
410510712	1	Florence SC
410710713	1	Florence SC
410910714	1	Florence SC
411110715	1	Florence SC
411310716	1	Florence SC
416210501	1	Florence SC
416410502	1	Florence SC
416610503	1	Florence SC
416810504	1	Florence SC
417010505	1	Florence SC
417210506	1	Florence SC
417411304	1	Florence SC
417611305	1	Florence SC
417811306	1	Florence SC
418011307	1	Florence SC
418210507	1	Florence SC
418410508	1	Florence SC
418610701	1	Florence SC
418810702	1	Florence SC
419010703	1	Florence SC
419210704	1	Florence SC
419410705	1	Florence SC
419610708	1	Florence SC
419810706	1	Florence SC
431710801	1	Georgetown
431910802	1	Georgetown
432110803	1	Georgetown
432310804	1	Georgetown
432510805	1	Georgetown
432710806	1	Georgetown
432910807	1	Georgetown
433110808	1	Georgetown
433310809	1	Georgetown
433510810	1	Georgetown
433710811	1	Georgetown
450010203	0	Greenville
470011602	0	Greenwood SC
490010903	0	Hampton SC

511050001	51080450	1	Horry SC
511050002	51080444	1	Horry SC
511050003	51080452	1	Horry SC
511050004	51080441	1	Horry SC
511050005	51080442	1	Horry SC
511050006	51080445	1	Horry SC
511050007	51080481	1	Horry SC
511050008	51080477	1	Horry SC
511050009	51080443	1	Horry SC
511050010	51080448	1	Horry SC
511050011	51080451	1	Horry SC
511050012	51080447	1	Horry SC
511050013	51080446	1	Horry SC
511050014	51080449	1	Horry SC
511050015	51080440	1	Horry SC
511050016	51080329	1	Horry SC
511050017	51080328	1	Horry SC
511050018	51080327	1	Horry SC
511050019	51080330	1	Horry SC
511050020	51080326	1	Horry SC
511050021	51080457	1	Horry SC
511050022	51080331	1	Horry SC
511050023	51080455	1	Horry SC
511050024	51080456	1	Horry SC
511050025	51080458	1	Horry SC
511050026	51080478	1	Horry SC
511050027	51080511	1	Horry SC
511050028	51080508	1	Horry SC
511050029	51080510	1	Horry SC
511050030	51080512	1	Horry SC
511050031	51080488	1	Horry SC
511050032	51080487	1	Horry SC
511050033	51080486	1	Horry SC
511050034	51080514	1	Horry SC
511050035	51080509	1	Horry SC
511050036	51080513	1	Horry SC
511050037	51080501	1	Horry SC
511050038	51080507	1	Horry SC
511050039	51080506	1	Horry SC
511050040	51080504	1	Horry SC
511050041	51080503	1	Horry SC

511050042	51080518	1	Horry SC
511050043	51080500	1	Horry SC
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511050046	51080497	1	Horry SC
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511050049	51080502	1	Horry SC
511050050	51080523	1	Horry SC
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511050057	51080517	1	Horry SC
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511050066	51080524	1	Horry SC
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511050078	51080545	1	Horry SC
511050079	51080550	1	Horry SC
511050080	51080544	1	Horry SC
511050081	51080539	1	Horry SC
511050082	51080546	1	Horry SC

511050083	51080499	1	Horry SC
511050084	51080542	1	Horry SC
511050085	51080543	1	Horry SC
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517910814		1	Horry SC
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518910819		1	Horry SC
519110820		1	Horry SC
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519710823		1	Horry SC
519910824		1	Horry SC
530010902		0	Jasper SC
550011101		0	Kershaw SC
570010403		0	Lancaster SC
590010207		0	Laurens SC
610011101		0	Lee SC

630011501		0	Lexington SC
650011603		0	McCormick SC
670000001	67050570	1	Marion SC
670000002	67050568	1	Marion SC
670000003	67050611	1	Marion SC
670000004	67050569	1	Marion SC
670000005	67050600	1	Marion SC
670000006	67050597	1	Marion SC
670000007	67050639	1	Marion SC
670000008	67050626	1	Marion SC
670000009	67050572	1	Marion SC
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670000013	67050638	1	Marion SC
670000014	67050637	1	Marion SC
670000015	67050648	1	Marion SC
670000016	67050574	1	Marion SC
670000017	67050583	1	Marion SC
670000018	67050598	1	Marion SC
670000019	67050599	1	Marion SC
670000020	67050650	1	Marion SC
670000021	67050633	1	Marion SC
670000022	67050576	1	Marion SC
670000023	67050578	1	Marion SC
670000024	67050679	1	Marion SC
670000025	67050654	1	Marion SC
670000026	67050577	1	Marion SC
670000027	67050652	1	Marion SC
670000028	67050635	1	Marion SC
670000029	67050634	1	Marion SC
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670000031	67050628	1	Marion SC
670000032	67050629	1	Marion SC
670000033	67050649	1	Marion SC
670000034	67050651	1	Marion SC
670000035	67050630	1	Marion SC
670000036	67050632	1	Marion SC
670000037	67050642	1	Marion SC
670000038	67050643	1	Marion SC
670000039	67050627	1	Marion SC

670000040	67050646	1	Marion SC
670000041	67050641	1	Marion SC
670000042	67050612	1	Marion SC
670000043	67050647	1	Marion SC
670000044	67050655	1	Marion SC
670000045	67050636	1	Marion SC
670000046	67050613	1	Marion SC
670000047	67050614	1	Marion SC
670000048	67050610	1	Marion SC
670000049	67050631	1	Marion SC
670000050	67050640	1	Marion SC
670000051	67050645	1	Marion SC
690000001	69050484	1	Marlboro SC
690000002	69050243	1	Marlboro SC
690000003	69050236	1	Marlboro SC
690000004	69050625	1	Marlboro SC
690000005	69050623	1	Marlboro SC
690000006	69050543	1	Marlboro SC
690000007	69050223	1	Marlboro SC
690000008	69050501	1	Marlboro SC
690000009	69050225	1	Marlboro SC
690000010	69050559	1	Marlboro SC
690000011	69050624	1	Marlboro SC
690000012	69050622	1	Marlboro SC
690000013	69050540	1	Marlboro SC
690000014	69050546	1	Marlboro SC
690000015	69050542	1	Marlboro SC
690000016	69050229	1	Marlboro SC
690000017	69050224	1	Marlboro SC
690000018	69050560	1	Marlboro SC
690000019	69050561	1	Marlboro SC
690000020	69050562	1	Marlboro SC
690000021	69050563	1	Marlboro SC
690000022	69050228	1	Marlboro SC
690000023	69050685	1	Marlboro SC
690000024	69050222	1	Marlboro SC
690000025	69050680	1	Marlboro SC
690000026	69050682	1	Marlboro SC
690000027	69050688	1	Marlboro SC
690000028	69050564	1	Marlboro SC
690000029	69050541	1	Marlboro SC

Geographic Units of Distribution

690000030	69050235	1	Marlboro SC
690000031	69050220	1	Marlboro SC
690000032	69050226	1	Marlboro SC
690000033	69050221	1	Marlboro SC
690000034	69050684	1	Marlboro SC
690000035	69050557	1	Marlboro SC
690000036	69050227	1	Marlboro SC
690000037	69050681	1	Marlboro SC
690000038	69050686	1	Marlboro SC
690000039	69050687	1	Marlboro SC
690000040	69050555	1	Marlboro SC
690000041	69050556	1	Marlboro SC
690000042	69050683	1	Marlboro SC
710010501		0	Newberry SC
730010201		0	Oconee SC
750010505		0	Orangeburg SC
770010202		0	Pickens SC
790011503		0	Richland SC
810011604		0	Saluda SC
830010204		0	Spartanburg
850011101		0	Sumter SC
870010401		0	Union SC
892010501		1	Williamsburg
892210502		1	Williamsburg
892410503		1	Williamsburg
892610504		1	Williamsburg
892810505		1	Williamsburg
893010506		1	Williamsburg
893210507		1	Williamsburg
893410508		1	Williamsburg
893610509		1	Williamsburg
894010510		1	Williamsburg
910011001		0	York SC
4110610717		1	Florence SC
5110110832		1	Horry SC
5110210833		1	Horry SC
5110310834		1	Horry SC
5110410835		1	Horry SC

Source: C&M Associates

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Appendix D

Detailed Traffic and Revenue Figures

C&M Associates, Inc.

February 2016

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The following Appendix presents the detailed T&R figures for all T&R scenarios. The T&R Scenarios are as follows:

- Scenario 1: I-73 North and South, without the SELL and SC-22 No Toll
- Scenario 2: I-73 North and South, with the SELL and SC-22 No Toll
- Scenario 3: I-73 South, without the SELL and SC-22 No Toll
- Scenario 4: I-73 South, with the SELL and SC-22 No Toll
- Scenario 5: I-73 North and South, without the SELL and SC-22 Tolled
- Scenario 6: I-73 North and South, with the SELL and SC-22 Tolled
- Scenario 7: I-73 South, without the SELL and SC-22 Tolled
- Scenario 8: I-73 South, with the SELL and SC-22 Tolled

The “I-73 North and South” scenarios assume that both northern and southern sections are open at their corresponding opening years. The “I-73 South” scenarios assume that only the southern section of the Project will be built throughout the entire forecast period. The truncation “with/without the SELL” shows whether the SELL is considered in the scenario. Scenarios with “SC-22 Tolled” consider SC-22 as a tolled facility; “SC-22 No Toll” scenarios assume there is no toll on SC-22, which represents the existing condition of this facility.

Depending on the configuration of every scenario (i.e., which facilities are included), the T&R figures are presented accordingly.

D.1. Scenario 1: I-73 North and South, without the SELL and SC-22 No Toll

Table D-1. Forecasted Transactions and Revenue for I-73 North and South – Scenario 1

Year	Transactions (in Thousands)			Revenue (in Thousands 2015 Dollars)			Revenue (in Thousands Nominal Dollars)		
	Auto	Trucks	Total	Auto	Trucks	Total	Auto	Trucks	Total
2025	4,785	652	5,437	$4,024	$1,179	$5,203	$5,151	$1,509	$6,660
2026	5,945	780	6,725	$5,422	$1,477	$6,899	$7,115	$1,938	$9,053
2027	7,171	914	8,085	$6,915	$1,787	$8,702	$9,300	$2,403	$11,703
2028	8,463	1,053	9,516	$8,559	$2,117	$10,676	$11,798	$2,919	$14,717
2029	9,820	1,198	11,018	$9,993	$2,468	$12,461	$14,119	$3,488	$17,607
2030	11,240	1,226	12,466	$11,511	$2,540	$14,051	$16,671	$3,678	$20,349
2031	11,568	1,253	12,821	$11,921	$2,611	$14,532	$17,697	$3,876	$21,573
2032	11,892	1,281	13,173	$12,335	$2,683	$15,018	$18,770	$4,082	$22,852
2033	12,215	1,308	13,523	$12,686	$2,743	$15,429	$19,786	$4,278	$24,064
2034	12,535	1,336	13,871	$13,036	$2,803	$15,839	$20,841	$4,481	$25,322
2035	18,007	1,712	19,719	$17,686	$3,482	$21,168	$28,981	$5,705	$34,686
2036	19,276	1,797	21,073	$18,975	$3,646	$22,621	$31,870	$6,124	$37,994
2037	20,568	1,882	22,450	$20,331	$3,815	$24,146	$35,002	$6,568	$41,570
2038	21,884	1,970	23,854	$21,661	$3,993	$25,654	$38,223	$7,046	$45,269
2039	23,222	2,005	25,227	$22,929	$4,078	$27,007	$41,472	$7,375	$48,847
2040	23,657	2,040	25,697	$23,393	$4,148	$27,541	$43,369	$7,691	$51,060
2041	24,089	2,074	26,163	$23,855	$4,218	$28,073	$45,332	$8,015	$53,347
2042	24,517	2,108	26,625	$24,316	$4,286	$28,602	$47,362	$8,349	$55,711
2043	24,941	2,142	27,083	$24,775	$4,354	$29,129	$49,463	$8,692	$58,155
2044	25,362	2,175	27,537	$25,233	$4,420	$29,653	$51,637	$9,045	$60,682
2045	25,779	2,208	27,987	$25,689	$4,485	$30,174	$53,885	$9,407	$63,292
2046	26,192	2,240	28,432	$26,144	$4,549	$30,693	$56,210	$9,780	$65,990
2047	26,602	2,272	28,874	$26,598	$4,611	$31,209	$58,616	$10,162	$68,778
2048	27,008	2,303	29,311	$27,051	$4,673	$31,724	$61,103	$10,555	$71,658
2049	27,410	2,334	29,744	$27,502	$4,733	$32,235	$63,675	$10,959	$74,634
2050	27,808	2,365	30,173	$27,952	$4,793	$32,745	$66,335	$11,374	$77,709
2051	28,086	2,389	30,475	$28,231	$4,842	$33,073	$68,673	$11,778	$80,451
2052	28,367	2,413	30,780	$28,514	$4,890	$33,404	$71,095	$12,192	$83,287
2053	28,651	2,437	31,088	$28,799	$4,939	$33,738	$73,601	$12,623	$86,224
2054	28,938	2,461	31,399	$29,088	$4,988	$34,076	$76,198	$13,066	$89,264
2055	29,227	2,486	31,713	$29,378	$5,038	$34,416	$78,882	$13,527	$92,409
2056	29,519	2,511	32,030	$29,672	$5,089	$34,761	$81,663	$14,006	$95,669
2057	29,814	2,536	32,350	$29,968	$5,140	$35,108	$84,540	$14,500	$99,040
2058	30,113	2,561	32,674	$30,269	$5,190	$35,459	$87,523	$15,007	$102,530
2059	30,414	2,587	33,001	$30,571	$5,243	$35,814	$90,607	$15,539	$106,146
2060	30,718	2,613	33,331	$30,877	$5,296	$36,173	$93,801	$16,089	$109,890
2061	31,025	2,639	33,664	$31,186	$5,348	$36,534	$97,109	$16,653	$113,762
2062	31,336	2,665	34,001	$31,498	$5,401	$36,899	$100,532	$17,238	$117,770
2063	31,649	2,692	34,341	$31,813	$5,456	$37,269	$104,076	$17,849	$121,925
2064	31,965	2,719	34,684	$32,131	$5,510	$37,641	$107,744	$18,477	$126,221
2065	32,285	2,746	35,031	$32,452	$5,565	$38,017	$111,541	$19,128	$130,669

D.2. Scenario 2: I-73 North and South, with the SELL and SC-22 No Toll

Table D-2. Forecasted Transactions and Revenue for I-73 North and South – Scenario 2

Year	Transactions (in Thousands)			Revenue (in Thousands 2015 Dollars)			Revenue (in Thousands Nominal Dollars)		
	Auto	Trucks	Total	Auto	Trucks	Total	Auto	Trucks	Total
2025	5,072	691	5,763	$4,266	$1,250	$5,516	$5,460	$1,600	$7,060
2026	6,311	828	7,139	$5,756	$1,568	$7,324	$7,553	$2,058	$9,611
2027	7,624	972	8,596	$7,353	$1,899	$9,252	$9,888	$2,554	$12,442
2028	9,011	1,121	10,132	$9,113	$2,255	$11,368	$12,563	$3,108	$15,671
2029	10,472	1,277	11,749	$10,656	$2,632	$13,288	$15,057	$3,719	$18,776
2030	12,005	1,309	13,314	$12,293	$2,713	$15,006	$17,804	$3,929	$21,733
2031	12,373	1,341	13,714	$12,751	$2,793	$15,544	$18,929	$4,146	$23,075
2032	12,739	1,372	14,111	$13,214	$2,874	$16,088	$20,106	$4,373	$24,479
2033	13,104	1,404	14,508	$13,610	$2,943	$16,553	$21,226	$4,590	$25,816
2034	13,468	1,435	14,903	$14,006	$3,011	$17,017	$22,391	$4,814	$27,205
2035	19,376	1,842	21,218	$19,030	$3,746	$22,776	$31,183	$6,139	$37,322
2036	20,772	1,936	22,708	$20,448	$3,929	$24,377	$34,344	$6,600	$40,944
2037	22,197	2,032	24,229	$21,942	$4,117	$26,059	$37,774	$7,088	$44,862
2038	23,652	2,129	25,781	$23,411	$4,316	$27,727	$41,311	$7,616	$48,927
2039	25,135	2,170	27,305	$24,818	$4,414	$29,232	$44,889	$7,983	$52,872
2040	25,644	2,211	27,855	$25,358	$4,497	$29,855	$47,012	$8,337	$55,349
2041	26,151	2,252	28,403	$25,897	$4,579	$30,476	$49,212	$8,702	$57,914
2042	26,655	2,292	28,947	$26,436	$4,660	$31,096	$51,492	$9,077	$60,569
2043	27,156	2,332	29,488	$26,975	$4,740	$31,715	$53,855	$9,464	$63,319
2044	27,655	2,372	30,027	$27,514	$4,819	$32,333	$56,304	$9,862	$66,166
2045	28,150	2,411	30,561	$28,053	$4,897	$32,950	$58,842	$10,273	$69,115
2046	28,644	2,450	31,094	$28,591	$4,974	$33,565	$61,472	$10,695	$72,167
2047	29,134	2,488	31,622	$29,130	$5,050	$34,180	$64,196	$11,130	$75,326
2048	29,622	2,526	32,148	$29,669	$5,125	$34,794	$67,018	$11,577	$78,595
2049	30,107	2,564	32,671	$30,208	$5,199	$35,407	$69,941	$12,038	$81,979
2050	30,589	2,601	33,190	$30,747	$5,272	$36,019	$72,969	$12,512	$85,481
2051	30,895	2,627	33,522	$31,055	$5,325	$36,380	$75,542	$12,953	$88,495
2052	31,204	2,653	33,857	$31,365	$5,377	$36,742	$78,204	$13,407	$91,611
2053	31,516	2,680	34,196	$31,679	$5,432	$37,111	$80,961	$13,882	$94,843
2054	31,831	2,707	34,538	$31,995	$5,487	$37,482	$83,813	$14,374	$98,187
2055	32,149	2,734	34,883	$32,315	$5,542	$37,857	$86,768	$14,881	$101,649
2056	32,471	2,761	35,232	$32,639	$5,596	$38,235	$89,829	$15,401	$105,230
2057	32,795	2,789	35,584	$32,964	$5,653	$38,617	$92,991	$15,947	$108,938
2058	33,123	2,817	35,940	$33,294	$5,710	$39,004	$96,270	$16,511	$112,781
2059	33,454	2,845	36,299	$33,627	$5,767	$39,394	$99,664	$17,092	$116,756
2060	33,789	2,873	36,662	$33,964	$5,823	$39,787	$103,179	$17,690	$120,869
2061	34,127	2,902	37,029	$34,303	$5,882	$40,185	$106,814	$18,316	$125,130
2062	34,468	2,931	37,399	$34,646	$5,941	$40,587	$110,580	$18,962	$129,542
2063	34,813	2,960	37,773	$34,993	$6,000	$40,993	$114,479	$19,629	$134,108
2064	35,161	2,990	38,151	$35,343	$6,060	$41,403	$118,515	$20,321	$138,836
2065	35,513	3,020	38,533	$35,696	$6,121	$41,817	$122,691	$21,039	$143,730

Table D-3. Forecasted Transactions and Revenue for SELL – Scenario 2

Year	Transactions (in Thousands)			Revenue (in Thousands 2015 Dollars)			Revenue (in Thousands Nominal Dollars)		
	Auto	Trucks	Total	Auto	Trucks	Total	Auto	Trucks	Total
2025	5,462	1,434	6,896	$4,114	$2,352	$6,466	$5,266	$3,011	$8,277
2026	6,653	1,731	8,384	$5,257	$2,967	$8,224	$6,897	$3,892	$10,789
2027	7,918	1,926	9,844	$6,458	$3,401	$9,859	$8,685	$4,574	$13,259
2028	9,255	2,379	11,634	$7,762	$4,315	$12,077	$10,700	$5,948	$16,648
2029	10,662	2,599	13,261	$9,164	$4,826	$13,990	$12,948	$6,818	$19,766
2030	11,032	2,693	13,725	$9,534	$5,021	$14,555	$13,809	$7,272	$21,081
2031	11,394	2,784	14,178	$9,902	$5,215	$15,117	$14,699	$7,742	$22,441
2032	11,749	2,874	14,623	$10,266	$5,406	$15,672	$15,620	$8,226	$23,846
2033	12,096	2,961	15,057	$10,570	$5,573	$16,143	$16,486	$8,693	$25,179
2034	12,436	3,047	15,483	$10,868	$5,737	$16,605	$17,374	$9,171	$26,545
2035	12,767	3,131	15,898	$11,159	$5,897	$17,056	$18,286	$9,662	$27,948
2036	13,094	3,214	16,308	$11,445	$6,055	$17,500	$19,223	$10,170	$29,393
2037	13,411	3,294	16,705	$11,723	$6,208	$17,931	$20,183	$10,688	$30,871
2038	13,720	3,372	17,092	$11,994	$6,357	$18,351	$21,164	$11,217	$32,381
2039	14,019	3,448	17,467	$12,257	$6,500	$18,757	$22,169	$11,757	$33,926
2040	14,310	3,521	17,831	$12,512	$6,639	$19,151	$23,196	$12,308	$35,504
2041	14,592	3,591	18,183	$12,759	$6,773	$19,532	$24,245	$12,870	$37,115
2042	14,865	3,659	18,524	$12,998	$6,902	$19,900	$25,318	$13,443	$38,761
2043	15,130	3,724	18,854	$13,230	$7,025	$20,255	$26,413	$14,026	$40,439
2044	15,385	3,787	19,172	$13,454	$7,144	$20,598	$27,531	$14,620	$42,151
2045	15,632	3,847	19,479	$13,670	$7,258	$20,928	$28,673	$15,224	$43,897
2046	15,870	3,905	19,775	$13,878	$7,367	$21,245	$29,837	$15,839	$45,676
2047	16,099	3,960	20,059	$14,078	$7,471	$21,549	$31,025	$16,464	$47,489
2048	16,319	4,013	20,332	$14,271	$7,570	$21,841	$32,236	$17,099	$49,335
2049	16,530	4,063	20,593	$14,456	$7,664	$22,120	$33,470	$17,744	$51,214
2050	16,733	4,111	20,844	$14,633	$7,753	$22,386	$34,727	$18,398	$53,125
2051	16,900	4,152	21,052	$14,779	$7,830	$22,609	$35,950	$19,047	$54,997
2052	17,069	4,194	21,263	$14,927	$7,910	$22,837	$37,218	$19,722	$56,940
2053	17,240	4,236	21,476	$15,076	$7,989	$23,065	$38,529	$20,417	$58,946
2054	17,413	4,278	21,691	$15,228	$8,068	$23,296	$39,891	$21,135	$61,026
2055	17,587	4,321	21,908	$15,380	$8,149	$23,529	$41,296	$21,881	$63,177
2056	17,763	4,364	22,127	$15,534	$8,230	$23,764	$42,753	$22,651	$65,404
2057	17,940	4,408	22,348	$15,689	$8,313	$24,002	$44,259	$23,451	$67,710
2058	18,119	4,452	22,571	$15,845	$8,396	$24,241	$45,816	$24,277	$70,093
2059	18,301	4,496	22,797	$16,004	$8,479	$24,483	$47,433	$25,130	$72,563
2060	18,484	4,541	23,025	$16,164	$8,564	$24,728	$49,105	$26,017	$75,122
2061	18,668	4,587	23,255	$16,325	$8,651	$24,976	$50,834	$26,938	$77,772
2062	18,856	4,632	23,488	$16,490	$8,736	$25,226	$52,631	$27,883	$80,514
2063	19,044	4,679	23,723	$16,654	$8,824	$25,478	$54,483	$28,868	$83,351
2064	19,234	4,726	23,960	$16,820	$8,913	$25,733	$56,402	$29,888	$86,290
2065	19,427	4,773	24,200	$16,989	$9,001	$25,990	$58,393	$30,937	$89,330

Table D-4. Total Forecasted Transactions and Revenue – Scenario 2

Year	Transactions (in Thousands)			Revenue (in Thousands 2015 Dollars)			Revenue (in Thousands Nominal Dollars)		
	Auto	Trucks	Total	Auto	Trucks	Total	Auto	Trucks	Total
2025	10,534	2,125	12,659	$8,380	$3,602	$11,982	$10,726	$4,611	$15,337
2026	12,964	2,559	15,523	$11,013	$4,535	$15,548	$14,450	$5,950	$20,400
2027	15,542	2,898	18,440	$13,811	$5,300	$19,111	$18,573	$7,128	$25,701
2028	18,266	3,500	21,766	$16,875	$6,570	$23,445	$23,263	$9,056	$32,319
2029	21,134	3,876	25,010	$19,820	$7,458	$27,278	$28,005	$10,537	$38,542
2030	23,037	4,002	27,039	$21,827	$7,734	$29,561	$31,613	$11,201	$42,814
2031	23,767	4,125	27,892	$22,653	$8,008	$30,661	$33,628	$11,888	$45,516
2032	24,488	4,246	28,734	$23,480	$8,280	$31,760	$35,726	$12,599	$48,325
2033	25,200	4,365	29,565	$24,180	$8,516	$32,696	$37,712	$13,283	$50,995
2034	25,904	4,482	30,386	$24,874	$8,748	$33,622	$39,765	$13,985	$53,750
2035	32,143	4,973	37,116	$30,189	$9,643	$39,832	$49,469	$15,801	$65,270
2036	33,866	5,150	39,016	$31,893	$9,984	$41,877	$53,567	$16,770	$70,337
2037	35,608	5,326	40,934	$33,665	$10,325	$43,990	$57,957	$17,776	$75,733
2038	37,372	5,501	42,873	$35,405	$10,673	$46,078	$62,475	$18,833	$81,308
2039	39,154	5,618	44,772	$37,075	$10,914	$47,989	$67,058	$19,740	$86,798
2040	39,954	5,732	45,686	$37,870	$11,136	$49,006	$70,208	$20,645	$90,853
2041	40,743	5,843	46,586	$38,656	$11,352	$50,008	$73,457	$21,572	$95,029
2042	41,520	5,951	47,471	$39,434	$11,562	$50,996	$76,810	$22,520	$99,330
2043	42,286	6,056	48,342	$40,205	$11,765	$51,970	$80,268	$23,490	$103,758
2044	43,040	6,159	49,199	$40,968	$11,963	$52,931	$83,835	$24,482	$108,317
2045	43,782	6,258	50,040	$41,723	$12,155	$53,878	$87,515	$25,497	$113,012
2046	44,514	6,355	50,869	$42,469	$12,341	$54,810	$91,309	$26,534	$117,843
2047	45,233	6,448	51,681	$43,208	$12,521	$55,729	$95,221	$27,594	$122,815
2048	45,941	6,539	52,480	$43,940	$12,695	$56,635	$99,254	$28,676	$127,930
2049	46,637	6,627	53,264	$44,664	$12,863	$57,527	$103,411	$29,782	$133,193
2050	47,322	6,712	54,034	$45,380	$13,025	$58,405	$107,696	$30,910	$138,606
2051	47,795	6,779	54,574	$45,834	$13,155	$58,989	$111,492	$32,000	$143,492
2052	48,273	6,847	55,120	$46,292	$13,287	$59,579	$115,422	$33,129	$148,551
2053	48,756	6,916	55,672	$46,755	$13,421	$60,176	$119,490	$34,299	$153,789
2054	49,244	6,985	56,229	$47,223	$13,555	$60,778	$123,704	$35,509	$159,213
2055	49,736	7,055	56,791	$47,695	$13,691	$61,386	$128,064	$36,762	$164,826
2056	50,234	7,125	57,359	$48,173	$13,826	$61,999	$132,582	$38,052	$170,634
2057	50,735	7,197	57,932	$48,653	$13,966	$62,619	$137,250	$39,398	$176,648
2058	51,242	7,269	58,511	$49,139	$14,106	$63,245	$142,086	$40,788	$182,874
2059	51,755	7,341	59,096	$49,631	$14,246	$63,877	$147,097	$42,222	$189,319
2060	52,273	7,414	59,687	$50,128	$14,387	$64,515	$152,284	$43,707	$195,991
2061	52,795	7,489	60,284	$50,628	$14,533	$65,161	$157,648	$45,254	$202,902
2062	53,324	7,563	60,887	$51,136	$14,677	$65,813	$163,211	$46,845	$210,056
2063	53,857	7,639	61,496	$51,647	$14,824	$66,471	$168,962	$48,497	$217,459
2064	54,395	7,716	62,111	$52,163	$14,973	$67,136	$174,917	$50,209	$225,126
2065	54,940	7,793	62,733	$52,685	$15,122	$67,807	$181,084	$51,976	$233,060

D.3. Scenario 3: I-73 South, without the SELL and SC-22 No Toll

Table D-5. Forecasted Transactions and Revenue for I-73 South Only – Scenario 3

Year	Transactions (in Thousands)			Revenue (in Thousands 2015 Dollars)			Revenue (in Thousands Nominal Dollars)		
	Auto	Trucks	Total	Auto	Trucks	Total	Auto	Trucks	Total
2025	4,785	652	5,437	$4,024	$1,179	$5,203	$5,151	$1,509	$6,660
2026	5,945	780	6,725	$5,422	$1,477	$6,899	$7,115	$1,938	$9,053
2027	7,171	914	8,085	$6,915	$1,787	$8,702	$9,300	$2,403	$11,703
2028	8,463	1,053	9,516	$8,559	$2,117	$10,676	$11,798	$2,919	$14,717
2029	9,820	1,198	11,018	$9,993	$2,468	$12,461	$14,119	$3,488	$17,607
2030	11,240	1,226	12,466	$11,511	$2,540	$14,051	$16,671	$3,678	$20,349
2031	11,568	1,253	12,821	$11,921	$2,611	$14,532	$17,697	$3,876	$21,573
2032	11,892	1,281	13,173	$12,335	$2,683	$15,018	$18,770	$4,082	$22,852
2033	12,215	1,308	13,523	$12,686	$2,743	$15,429	$19,786	$4,278	$24,064
2034	12,535	1,336	13,871	$13,036	$2,803	$15,839	$20,841	$4,481	$25,322
2035	12,853	1,363	14,217	$13,387	$2,862	$16,248	$21,936	$4,689	$26,625
2036	13,168	1,391	14,559	$13,737	$2,919	$16,657	$23,073	$4,903	$27,976
2037	13,481	1,418	14,900	$14,088	$2,976	$17,064	$24,253	$5,124	$29,377
2038	13,792	1,445	15,238	$14,438	$3,033	$17,471	$25,477	$5,352	$30,829
2039	14,101	1,472	15,574	$14,788	$3,089	$17,876	$26,747	$5,586	$32,334
2040	14,408	1,499	15,907	$15,138	$3,144	$18,282	$28,065	$5,828	$33,893
2041	14,713	1,526	16,239	$15,488	$3,198	$18,686	$29,432	$6,078	$35,509
2042	15,016	1,552	16,568	$15,838	$3,252	$19,090	$30,849	$6,335	$37,184
2043	15,317	1,578	16,895	$16,188	$3,306	$19,494	$32,319	$6,600	$38,919
2044	15,616	1,604	17,220	$16,538	$3,359	$19,897	$33,843	$6,873	$40,716
2045	15,913	1,630	17,543	$16,888	$3,411	$20,299	$35,424	$7,155	$42,578
2046	16,208	1,655	17,864	$17,238	$3,463	$20,701	$37,062	$7,445	$44,507
2047	16,501	1,681	18,182	$17,589	$3,514	$21,103	$38,761	$7,744	$46,505
2048	16,792	1,706	18,498	$17,939	$3,565	$21,504	$40,522	$8,052	$48,574
2049	17,081	1,731	18,812	$18,290	$3,615	$21,905	$42,348	$8,369	$50,717
2050	17,368	1,755	19,123	$18,642	$3,664	$22,306	$44,240	$8,695	$52,936
2051	17,542	1,773	19,315	$18,828	$3,701	$22,529	$45,800	$9,003	$54,803
2052	17,717	1,791	19,508	$19,016	$3,738	$22,754	$47,414	$9,320	$56,734
2053	17,894	1,809	19,703	$19,206	$3,776	$22,982	$49,084	$9,650	$58,734
2054	18,073	1,827	19,900	$19,398	$3,813	$23,211	$50,815	$9,988	$60,803
2055	18,254	1,845	20,099	$19,593	$3,851	$23,444	$52,608	$10,340	$62,948
2056	18,437	1,863	20,300	$19,789	$3,889	$23,678	$54,463	$10,703	$65,166
2057	18,621	1,882	20,503	$19,987	$3,928	$23,915	$56,383	$11,081	$67,464
2058	18,807	1,901	20,708	$20,186	$3,968	$24,154	$58,368	$11,474	$69,842
2059	18,995	1,920	20,915	$20,388	$4,008	$24,396	$60,426	$11,879	$72,305
2060	19,185	1,939	21,124	$20,592	$4,047	$24,639	$62,557	$12,294	$74,851
2061	19,377	1,958	21,335	$20,798	$4,087	$24,885	$64,762	$12,726	$77,488
2062	19,570	1,978	21,548	$21,005	$4,129	$25,134	$67,042	$13,179	$80,221
2063	19,765	1,998	21,763	$21,214	$4,170	$25,384	$69,401	$13,642	$83,043
2064	19,963	2,018	21,981	$21,427	$4,212	$25,639	$71,851	$14,124	$85,975
2065	20,163	2,038	22,201	$21,642	$4,254	$25,896	$74,386	$14,621	$89,007

D.4. Scenario 4: I-73 South, with the SELL and SC-22 No Toll

Table D-6. Forecasted Transactions and Revenue for I-73 South Only – Scenario 4

Year	Transactions (in Thousands)			Revenue (in Thousands 2015 Dollars)			Revenue (in Thousands Nominal Dollars)		
	Auto	Trucks	Total	Auto	Trucks	Total	Auto	Trucks	Total
2025	5,072	691	5,763	$4,266	$1,250	$5,516	$5,460	$1,600	$7,060
2026	6,311	828	7,139	$5,756	$1,568	$7,324	$7,553	$2,058	$9,611
2027	7,624	972	8,596	$7,353	$1,899	$9,252	$9,888	$2,554	$12,442
2028	9,011	1,121	10,132	$9,113	$2,255	$11,368	$12,563	$3,108	$15,671
2029	10,472	1,277	11,749	$10,656	$2,632	$13,288	$15,057	$3,719	$18,776
2030	12,005	1,309	13,314	$12,293	$2,713	$15,006	$17,804	$3,929	$21,733
2031	12,373	1,341	13,714	$12,751	$2,793	$15,544	$18,929	$4,146	$23,075
2032	12,739	1,372	14,111	$13,214	$2,874	$16,088	$20,106	$4,373	$24,479
2033	13,104	1,404	14,508	$13,610	$2,943	$16,553	$21,226	$4,590	$25,816
2034	13,468	1,435	14,903	$14,006	$3,011	$17,017	$22,391	$4,814	$27,205
2035	13,830	1,467	15,297	$14,404	$3,079	$17,483	$23,603	$5,046	$28,648
2036	14,190	1,499	15,689	$14,803	$3,146	$17,949	$24,863	$5,284	$30,147
2037	14,549	1,531	16,080	$15,203	$3,212	$18,416	$26,174	$5,530	$31,704
2038	14,907	1,562	16,469	$15,604	$3,278	$18,882	$27,536	$5,784	$33,320
2039	15,263	1,594	16,857	$16,006	$3,343	$19,349	$28,951	$6,047	$34,998
2040	15,619	1,625	17,244	$16,410	$3,408	$19,817	$30,422	$6,318	$36,740
2041	15,973	1,656	17,629	$16,814	$3,472	$20,286	$31,951	$6,598	$38,549
2042	16,326	1,687	18,013	$17,219	$3,536	$20,755	$33,539	$6,887	$40,426
2043	16,677	1,718	18,396	$17,625	$3,599	$21,225	$35,189	$7,186	$42,375
2044	17,028	1,749	18,777	$18,033	$3,662	$21,695	$36,903	$7,495	$44,397
2045	17,377	1,780	19,157	$18,442	$3,725	$22,166	$38,683	$7,813	$46,496
2046	17,725	1,810	19,536	$18,852	$3,787	$22,639	$40,531	$8,142	$48,673
2047	18,072	1,841	19,913	$19,263	$3,848	$23,112	$42,451	$8,481	$50,932
2048	18,418	1,871	20,288	$19,676	$3,910	$23,586	$44,445	$8,831	$53,276
2049	18,762	1,901	20,663	$20,090	$3,970	$24,060	$46,515	$9,193	$55,707
2050	19,105	1,931	21,036	$20,506	$4,030	$24,536	$48,665	$9,565	$58,229
2051	19,296	1,950	21,246	$20,711	$4,070	$24,781	$50,380	$9,900	$60,280
2052	19,488	1,970	21,458	$20,917	$4,112	$25,029	$52,153	$10,253	$62,406
2053	19,684	1,989	21,673	$21,128	$4,152	$25,280	$53,996	$10,611	$64,607
2054	19,881	2,009	21,890	$21,339	$4,193	$25,532	$55,899	$10,984	$66,883
2055	20,080	2,029	22,109	$21,553	$4,235	$25,788	$57,871	$11,371	$69,242
2056	20,280	2,050	22,330	$21,767	$4,279	$26,046	$59,907	$11,777	$71,684
2057	20,483	2,070	22,553	$21,985	$4,321	$26,306	$62,020	$12,190	$74,210
2058	20,688	2,091	22,779	$22,205	$4,365	$26,570	$64,206	$12,621	$76,827
2059	20,895	2,112	23,007	$22,427	$4,408	$26,835	$66,469	$13,064	$79,533
2060	21,104	2,133	23,237	$22,652	$4,452	$27,104	$68,815	$13,525	$82,340
2061	21,315	2,154	23,469	$22,878	$4,496	$27,374	$71,239	$14,000	$85,239
2062	21,528	2,176	23,704	$23,107	$4,542	$27,649	$73,751	$14,497	$88,248
2063	21,743	2,198	23,941	$23,338	$4,588	$27,926	$76,350	$15,010	$91,360
2064	21,960	2,220	24,180	$23,571	$4,634	$28,205	$79,040	$15,539	$94,579
2065	22,180	2,242	24,422	$23,807	$4,680	$28,487	$81,827	$16,086	$97,913

Table D-7. Forecasted Transactions and Revenue for SELL – Scenario 4

Year	Transactions (in Thousands)			Revenue (in Thousands 2015 Dollars)			Revenue (in Thousands Nominal Dollars)		
	Auto	Trucks	Total	Auto	Trucks	Total	Auto	Trucks	Total
2025	5,462	1,434	6,896	$4,114	$2,352	$6,466	$5,266	$3,011	$8,277
2026	6,653	1,731	8,384	$5,257	$2,967	$8,224	$6,897	$3,892	$10,789
2027	7,918	1,926	9,844	$6,458	$3,401	$9,859	$8,685	$4,574	$13,259
2028	9,255	2,379	11,634	$7,762	$4,315	$12,077	$10,700	$5,948	$16,648
2029	10,662	2,599	13,261	$9,164	$4,826	$13,990	$12,948	$6,818	$19,766
2030	11,032	2,693	13,725	$9,534	$5,021	$14,555	$13,809	$7,272	$21,081
2031	11,394	2,784	14,178	$9,902	$5,215	$15,117	$14,699	$7,742	$22,441
2032	11,749	2,874	14,623	$10,266	$5,406	$15,672	$15,620	$8,226	$23,846
2033	12,096	2,961	15,057	$10,570	$5,573	$16,143	$16,486	$8,693	$25,179
2034	12,436	3,047	15,483	$10,868	$5,737	$16,605	$17,374	$9,171	$26,545
2035	12,767	3,131	15,898	$11,159	$5,897	$17,056	$18,286	$9,662	$27,948
2036	13,094	3,214	16,308	$11,445	$6,055	$17,500	$19,223	$10,170	$29,393
2037	13,411	3,294	16,705	$11,723	$6,208	$17,931	$20,183	$10,688	$30,871
2038	13,720	3,372	17,092	$11,994	$6,357	$18,351	$21,164	$11,217	$32,381
2039	14,019	3,448	17,467	$12,257	$6,500	$18,757	$22,169	$11,757	$33,926
2040	14,310	3,521	17,831	$12,512	$6,639	$19,151	$23,196	$12,308	$35,504
2041	14,592	3,591	18,183	$12,759	$6,773	$19,532	$24,245	$12,870	$37,115
2042	14,865	3,659	18,524	$12,998	$6,902	$19,900	$25,318	$13,443	$38,761
2043	15,130	3,724	18,854	$13,230	$7,025	$20,255	$26,413	$14,026	$40,439
2044	15,385	3,787	19,172	$13,454	$7,144	$20,598	$27,531	$14,620	$42,151
2045	15,632	3,847	19,479	$13,670	$7,258	$20,928	$28,673	$15,224	$43,897
2046	15,870	3,905	19,775	$13,878	$7,367	$21,245	$29,837	$15,839	$45,676
2047	16,099	3,960	20,059	$14,078	$7,471	$21,549	$31,025	$16,464	$47,489
2048	16,319	4,013	20,332	$14,271	$7,570	$21,841	$32,236	$17,099	$49,335
2049	16,530	4,063	20,593	$14,456	$7,664	$22,120	$33,470	$17,744	$51,214
2050	16,733	4,111	20,844	$14,633	$7,753	$22,386	$34,727	$18,398	$53,125
2051	16,900	4,152	21,052	$14,779	$7,830	$22,609	$35,950	$19,047	$54,997
2052	17,069	4,194	21,263	$14,927	$7,910	$22,837	$37,218	$19,722	$56,940
2053	17,240	4,236	21,476	$15,076	$7,989	$23,065	$38,529	$20,417	$58,946
2054	17,413	4,278	21,691	$15,228	$8,068	$23,296	$39,891	$21,135	$61,026
2055	17,587	4,321	21,908	$15,380	$8,149	$23,529	$41,296	$21,881	$63,177
2056	17,763	4,364	22,127	$15,534	$8,230	$23,764	$42,753	$22,651	$65,404
2057	17,940	4,408	22,348	$15,689	$8,313	$24,002	$44,259	$23,451	$67,710
2058	18,119	4,452	22,571	$15,845	$8,396	$24,241	$45,816	$24,277	$70,093
2059	18,301	4,496	22,797	$16,004	$8,479	$24,483	$47,433	$25,130	$72,563
2060	18,484	4,541	23,025	$16,164	$8,564	$24,728	$49,105	$26,017	$75,122
2061	18,668	4,587	23,255	$16,325	$8,651	$24,976	$50,834	$26,938	$77,772
2062	18,856	4,632	23,488	$16,490	$8,736	$25,226	$52,631	$27,883	$80,514
2063	19,044	4,679	23,723	$16,654	$8,824	$25,478	$54,483	$28,868	$83,351
2064	19,234	4,726	23,960	$16,820	$8,913	$25,733	$56,402	$29,888	$86,290
2065	19,427	4,773	24,200	$16,989	$9,001	$25,990	$58,393	$30,937	$89,330

Table D-8. Total Forecasted Transactions and Revenue – Scenario 4

Year	Transactions (in Thousands)			Revenue (in Thousands 2015 Dollars)			Revenue (in Thousands Nominal Dollars)		
	Auto	Trucks	Total	Auto	Trucks	Total	Auto	Trucks	Total
2025	10,534	2,125	12,659	$8,380	$3,602	$11,982	$10,726	$4,611	$15,337
2026	12,964	2,559	15,523	$11,013	$4,535	$15,548	$14,450	$5,950	$20,400
2027	15,542	2,898	18,440	$13,811	$5,300	$19,111	$18,573	$7,128	$25,701
2028	18,266	3,500	21,766	$16,875	$6,570	$23,445	$23,263	$9,056	$32,319
2029	21,134	3,876	25,010	$19,820	$7,458	$27,278	$28,005	$10,537	$38,542
2030	23,037	4,002	27,039	$21,827	$7,734	$29,561	$31,613	$11,201	$42,814
2031	23,767	4,125	27,892	$22,653	$8,008	$30,661	$33,628	$11,888	$45,516
2032	24,488	4,246	28,734	$23,480	$8,280	$31,760	$35,726	$12,599	$48,325
2033	25,200	4,365	29,565	$24,180	$8,516	$32,696	$37,712	$13,283	$50,995
2034	25,904	4,482	30,386	$24,874	$8,748	$33,622	$39,765	$13,985	$53,750
2035	26,597	4,598	31,195	$25,563	$8,976	$34,539	$41,889	$14,708	$56,596
2036	27,284	4,713	31,997	$26,248	$9,201	$35,449	$44,086	$15,454	$59,540
2037	27,960	4,825	32,785	$26,926	$9,420	$36,347	$46,357	$16,218	$62,575
2038	28,627	4,934	33,561	$27,598	$9,635	$37,233	$48,700	$17,001	$65,701
2039	29,282	5,042	34,324	$28,263	$9,843	$38,106	$51,120	$17,804	$68,924
2040	29,929	5,146	35,075	$28,922	$10,047	$38,968	$53,618	$18,626	$72,244
2041	30,565	5,247	35,812	$29,573	$10,245	$39,818	$56,196	$19,468	$75,664
2042	31,191	5,346	36,537	$30,217	$10,438	$40,655	$58,857	$20,330	$79,187
2043	31,807	5,442	37,250	$30,855	$10,624	$41,480	$61,602	$21,212	$82,814
2044	32,413	5,536	37,949	$31,487	$10,806	$42,293	$64,434	$22,115	$86,548
2045	33,009	5,627	38,636	$32,112	$10,983	$43,094	$67,356	$23,037	$90,393
2046	33,595	5,715	39,311	$32,730	$11,154	$43,884	$70,368	$23,981	$94,349
2047	34,171	5,801	39,972	$33,341	$11,319	$44,661	$73,476	$24,945	$98,421
2048	34,737	5,884	40,620	$33,947	$11,480	$45,427	$76,681	$25,930	$102,611
2049	35,292	5,964	41,256	$34,546	$11,634	$46,180	$79,985	$26,937	$106,921
2050	35,838	6,042	41,880	$35,139	$11,783	$46,922	$83,392	$27,963	$111,354
2051	36,196	6,102	42,298	$35,490	$11,900	$47,390	$86,330	$28,947	$115,277
2052	36,557	6,164	42,721	$35,844	$12,022	$47,866	$89,371	$29,975	$119,346
2053	36,924	6,225	43,149	$36,204	$12,141	$48,345	$92,525	$31,028	$123,553
2054	37,294	6,287	43,581	$36,567	$12,261	$48,828	$95,790	$32,119	$127,909
2055	37,667	6,350	44,017	$36,933	$12,384	$49,317	$99,167	$33,252	$132,419
2056	38,043	6,414	44,457	$37,301	$12,509	$49,810	$102,660	$34,428	$137,088
2057	38,423	6,478	44,901	$37,674	$12,634	$50,308	$106,279	$35,641	$141,920
2058	38,807	6,543	45,350	$38,050	$12,761	$50,811	$110,022	$36,898	$146,920
2059	39,196	6,608	45,804	$38,431	$12,887	$51,318	$113,902	$38,194	$152,096
2060	39,588	6,674	46,262	$38,816	$13,016	$51,832	$117,920	$39,542	$157,462
2061	39,983	6,741	46,724	$39,203	$13,147	$52,350	$122,073	$40,938	$163,011
2062	40,384	6,808	47,192	$39,597	$13,278	$52,875	$126,382	$42,380	$168,762
2063	40,787	6,877	47,664	$39,992	$13,412	$53,404	$130,833	$43,878	$174,711
2064	41,194	6,946	48,140	$40,391	$13,547	$53,938	$135,442	$45,427	$180,869
2065	41,607	7,015	48,622	$40,796	$13,681	$54,477	$140,220	$47,023	$187,243

D.5. Scenario 5: I-73 North and South, without the SELL and SC-22 Tolled

Table D-9. Forecasted Transactions and Revenue for I-73 North and South – Scenario 5

Year	Transactions (in Thousands)			Revenue (in Thousands 2015 Dollars)			Revenue (in Thousands Nominal Dollars)		
	Auto	Trucks	Total	Auto	Trucks	Total	Auto	Trucks	Total
2025	4,207	573	4,780	$3,538	$1,037	$4,575	$4,529	$1,327	$5,856
2026	5,271	692	5,963	$4,807	$1,309	$6,116	$6,307	$1,718	$8,025
2027	6,411	817	7,228	$6,182	$1,598	$7,780	$8,314	$2,149	$10,463
2028	7,629	949	8,578	$7,716	$1,908	$9,624	$10,637	$2,630	$13,267
2029	8,926	1,089	10,015	$9,083	$2,243	$11,326	$12,834	$3,169	$16,003
2030	10,301	1,124	11,425	$10,550	$2,328	$12,878	$15,280	$3,372	$18,652
2031	10,689	1,158	11,847	$11,015	$2,413	$13,428	$16,352	$3,582	$19,934
2032	11,078	1,193	12,271	$11,491	$2,499	$13,990	$17,485	$3,803	$21,288
2033	11,472	1,228	12,700	$11,914	$2,576	$14,490	$18,582	$4,018	$22,600
2034	11,868	1,265	13,133	$12,342	$2,654	$14,996	$19,731	$4,243	$23,974
2035	17,577	1,660	19,237	$17,206	$3,370	$20,576	$28,194	$5,522	$33,716
2036	19,018	1,760	20,778	$18,661	$3,565	$22,226	$31,343	$5,988	$37,331
2037	20,506	1,863	22,369	$20,210	$3,765	$23,975	$34,793	$6,482	$41,275
2038	22,043	1,967	24,010	$21,754	$3,981	$25,735	$38,387	$7,025	$45,412
2039	23,627	2,019	25,646	$23,259	$4,099	$27,358	$42,069	$7,414	$49,483
2040	24,265	2,070	26,335	$23,919	$4,203	$28,122	$44,344	$7,792	$52,136
2041	24,907	2,122	27,029	$24,586	$4,308	$28,894	$46,721	$8,186	$54,907
2042	25,552	2,175	27,727	$25,259	$4,412	$29,671	$49,199	$8,594	$57,793
2043	26,200	2,227	28,427	$25,939	$4,517	$30,456	$51,787	$9,018	$60,805
2044	26,853	2,279	29,132	$26,625	$4,621	$31,246	$54,486	$9,456	$63,942
2045	27,508	2,331	29,839	$27,318	$4,726	$32,044	$57,301	$9,913	$67,214
2046	28,168	2,384	30,552	$28,018	$4,831	$32,849	$60,239	$10,387	$70,626
2047	28,831	2,436	31,267	$28,724	$4,936	$33,660	$63,301	$10,878	$74,179
2048	29,498	2,489	31,987	$29,437	$5,040	$34,477	$66,494	$11,385	$77,879
2049	30,167	2,542	32,709	$30,155	$5,144	$35,299	$69,819	$11,910	$81,729
2050	30,840	2,595	33,435	$30,882	$5,249	$36,131	$73,289	$12,457	$85,746
2051	31,148	2,621	33,769	$31,190	$5,302	$36,492	$75,871	$12,897	$88,768
2052	31,460	2,647	34,107	$31,503	$5,354	$36,857	$78,548	$13,349	$91,897
2053	31,774	2,674	34,448	$31,817	$5,409	$37,226	$81,314	$13,824	$95,138
2054	32,092	2,700	34,792	$32,136	$5,461	$37,597	$84,183	$14,305	$98,488
2055	32,413	2,727	35,140	$32,457	$5,516	$37,973	$87,149	$14,811	$101,960
2056	32,736	2,755	35,491	$32,781	$5,573	$38,354	$90,220	$15,338	$105,558
2057	33,064	2,782	35,846	$33,109	$5,627	$38,736	$93,400	$15,874	$109,274
2058	33,394	2,810	36,204	$33,439	$5,684	$39,123	$96,690	$16,435	$113,125
2059	33,728	2,838	36,566	$33,774	$5,741	$39,515	$100,100	$17,015	$117,115
2060	34,066	2,866	36,932	$34,112	$5,797	$39,909	$103,629	$17,611	$121,240
2061	34,406	2,895	37,301	$34,453	$5,856	$40,309	$107,282	$18,235	$125,517
2062	34,750	2,924	37,674	$34,797	$5,914	$40,711	$111,061	$18,876	$129,937
2063	35,098	2,953	38,051	$35,146	$5,973	$41,119	$114,980	$19,541	$134,521
2064	35,449	2,983	38,432	$35,497	$6,034	$41,531	$119,031	$20,234	$139,265
2065	35,803	3,013	38,816	$35,852	$6,095	$41,947	$123,227	$20,949	$144,176

Table D-10. Forecasted Transactions and Revenue for SC-22 – Scenario 5

Year	Transactions in Thousands			Revenue (in Thousands 2015 Dollars)			Revenue (in Thousands Nominal Dollars)		
	Auto	Trucks	Total	Auto	Trucks	Total	Auto	Trucks	Total
2025	9,917	1,250	11,167	$4,738	$2,049	$6,787	$6,065	$2,623	$8,688
2026	12,207	1,551	13,758	$6,133	$2,658	$8,791	$8,047	$3,488	$11,535
2027	14,680	1,874	16,554	$7,630	$3,310	$10,940	$10,262	$4,452	$14,714
2028	17,338	2,217	19,555	$9,285	$4,019	$13,304	$12,799	$5,540	$18,339
2029	20,182	2,453	22,635	$11,095	$4,552	$15,647	$15,677	$6,432	$22,109
2030	21,101	2,565	23,666	$11,682	$4,779	$16,461	$16,919	$6,921	$23,840
2031	22,022	2,667	24,689	$12,274	$4,992	$17,266	$18,221	$7,411	$25,632
2032	22,946	2,762	25,708	$12,872	$5,191	$18,063	$19,586	$7,899	$27,485
2033	23,872	2,847	26,719	$13,404	$5,354	$18,758	$20,906	$8,350	$29,256
2034	24,800	2,924	27,724	$13,935	$5,500	$19,435	$22,277	$8,793	$31,070
2035	25,731	2,993	28,724	$14,465	$5,631	$20,096	$23,703	$9,227	$32,930
2036	26,803	3,054	29,857	$15,062	$5,747	$20,809	$25,298	$9,653	$34,951
2037	27,807	3,106	30,913	$15,621	$5,847	$21,468	$26,893	$10,066	$36,959
2038	28,745	3,149	31,894	$16,144	$5,928	$22,072	$28,488	$10,461	$38,949
2039	29,615	3,183	32,798	$16,631	$5,992	$22,623	$30,081	$10,838	$40,919
2040	30,418	3,207	33,625	$17,081	$6,038	$23,119	$31,667	$11,194	$42,861
2041	31,154	3,221	34,375	$17,496	$6,065	$23,561	$33,248	$11,525	$44,773
2042	31,823	3,227	35,050	$17,874	$6,075	$23,949	$34,815	$11,833	$46,648
2043	32,425	3,223	35,648	$18,216	$6,068	$24,284	$36,368	$12,115	$48,483
2044	32,960	3,209	36,169	$18,522	$6,043	$24,565	$37,904	$12,366	$50,270
2045	33,428	3,186	36,614	$18,792	$6,000	$24,792	$39,417	$12,585	$52,002
2046	33,828	3,154	36,982	$19,027	$5,939	$24,966	$40,908	$12,769	$53,677
2047	34,166	3,186	37,352	$19,217	$5,999	$25,216	$42,350	$13,220	$55,570
2048	34,509	3,217	37,726	$19,410	$6,058	$25,468	$43,844	$13,684	$57,528
2049	34,853	3,250	38,103	$19,604	$6,120	$25,724	$45,390	$14,170	$59,560
2050	35,202	3,282	38,484	$19,800	$6,180	$25,980	$46,989	$14,666	$61,655
2051	35,554	3,315	38,869	$19,998	$6,242	$26,240	$48,646	$15,184	$63,830
2052	35,910	3,348	39,258	$20,198	$6,304	$26,502	$50,361	$15,718	$66,079
2053	36,269	3,382	39,651	$20,400	$6,368	$26,768	$52,136	$16,275	$68,411
2054	36,633	3,415	40,048	$20,605	$6,430	$27,035	$53,976	$16,844	$70,820
2055	36,998	3,450	40,448	$20,810	$6,496	$27,306	$55,876	$17,442	$73,318
2056	37,368	3,484	40,852	$21,018	$6,560	$27,578	$57,846	$18,054	$75,900
2057	37,742	3,519	41,261	$21,228	$6,626	$27,854	$59,884	$18,692	$78,576
2058	38,120	3,554	41,674	$21,441	$6,692	$28,133	$61,997	$19,350	$81,347
2059	38,501	3,590	42,091	$21,655	$6,760	$28,415	$64,181	$20,035	$84,216
2060	38,886	3,626	42,512	$21,872	$6,828	$28,700	$66,445	$20,743	$87,188
2061	39,275	3,662	42,937	$22,091	$6,896	$28,987	$68,788	$21,473	$90,261
2062	39,668	3,698	43,366	$22,312	$6,963	$29,275	$71,213	$22,224	$93,437
2063	40,065	3,735	43,800	$22,535	$7,033	$29,568	$73,723	$23,008	$96,731
2064	40,465	3,773	44,238	$22,760	$7,105	$29,865	$76,321	$23,825	$100,146
2065	40,869	3,811	44,680	$22,987	$7,176	$30,163	$79,009	$24,665	$103,674

Table D-11. Total Forecasted Transactions and Revenue – Scenario 5

Year	Transactions (in Thousands)			Revenue (in Thousands 2015 Dollars)			Revenue (in Thousands Nominal Dollars)		
	Auto	Trucks	Total	Auto	Trucks	Total	Auto	Trucks	Total
2025	14,124	1,823	15,947	$8,276	$3,086	$11,362	$10,594	$3,950	$14,544
2026	17,478	2,243	19,721	$10,940	$3,967	$14,907	$14,354	$5,206	$19,560
2027	21,091	2,691	23,782	$13,812	$4,908	$18,720	$18,576	$6,601	$25,177
2028	24,967	3,166	28,133	$17,001	$5,927	$22,928	$23,436	$8,170	$31,606
2029	29,108	3,542	32,650	$20,178	$6,795	$26,973	$28,511	$9,601	$38,112
2030	31,402	3,689	35,091	$22,232	$7,107	$29,339	$32,199	$10,293	$42,492
2031	32,711	3,825	36,536	$23,289	$7,405	$30,694	$34,573	$10,993	$45,566
2032	34,024	3,955	37,979	$24,363	$7,690	$32,053	$37,071	$11,702	$48,773
2033	35,344	4,075	39,419	$25,318	$7,930	$33,248	$39,488	$12,368	$51,856
2034	36,668	4,189	40,857	$26,277	$8,154	$34,431	$42,008	$13,036	$55,044
2035	43,308	4,653	47,961	$31,671	$9,001	$40,672	$51,897	$14,749	$66,646
2036	45,821	4,814	50,635	$33,723	$9,312	$43,035	$56,641	$15,641	$72,282
2037	48,313	4,969	53,282	$35,831	$9,612	$45,443	$61,686	$16,548	$78,234
2038	50,788	5,116	55,904	$37,898	$9,909	$47,807	$66,875	$17,486	$84,361
2039	53,242	5,202	58,444	$39,890	$10,091	$49,981	$72,150	$18,252	$90,402
2040	54,683	5,277	59,960	$41,000	$10,241	$51,241	$76,011	$18,986	$94,997
2041	56,061	5,343	61,404	$42,082	$10,373	$52,455	$79,969	$19,711	$99,680
2042	57,375	5,402	62,777	$43,133	$10,487	$53,620	$84,014	$20,427	$104,441
2043	58,625	5,450	64,075	$44,155	$10,585	$54,740	$88,155	$21,133	$109,288
2044	59,813	5,488	65,301	$45,147	$10,664	$55,811	$92,390	$21,822	$114,212
2045	60,936	5,517	66,453	$46,110	$10,726	$56,836	$96,718	$22,498	$119,216
2046	61,996	5,538	67,534	$47,045	$10,770	$57,815	$101,147	$23,156	$124,303
2047	62,997	5,622	68,619	$47,941	$10,935	$58,876	$105,651	$24,098	$129,749
2048	64,007	5,706	69,713	$48,847	$11,098	$59,945	$110,338	$25,069	$135,407
2049	65,020	5,792	70,812	$49,759	$11,264	$61,023	$115,209	$26,080	$141,289
2050	66,042	5,877	71,919	$50,682	$11,429	$62,111	$120,278	$27,123	$147,401
2051	66,702	5,936	72,638	$51,188	$11,544	$62,732	$124,517	$28,081	$152,598
2052	67,370	5,995	73,365	$51,701	$11,658	$63,359	$128,909	$29,067	$157,976
2053	68,043	6,056	74,099	$52,217	$11,777	$63,994	$133,450	$30,099	$163,549
2054	68,725	6,115	74,840	$52,741	$11,891	$64,632	$138,159	$31,149	$169,308
2055	69,411	6,177	75,588	$53,267	$12,012	$65,279	$143,025	$32,253	$175,278
2056	70,104	6,239	76,343	$53,799	$12,133	$65,932	$148,066	$33,392	$181,458
2057	70,806	6,301	77,107	$54,337	$12,253	$66,590	$153,284	$34,566	$187,850
2058	71,514	6,364	77,878	$54,880	$12,376	$67,256	$158,687	$35,785	$194,472
2059	72,229	6,428	78,657	$55,429	$12,501	$67,930	$164,281	$37,050	$201,331
2060	72,952	6,492	79,444	$55,984	$12,625	$68,609	$170,074	$38,354	$208,428
2061	73,681	6,557	80,238	$56,544	$12,752	$69,296	$176,070	$39,708	$215,778
2062	74,418	6,622	81,040	$57,109	$12,877	$69,986	$182,274	$41,100	$223,374
2063	75,163	6,688	81,851	$57,681	$13,006	$70,687	$188,703	$42,549	$231,252
2064	75,914	6,756	82,670	$58,257	$13,139	$71,396	$195,352	$44,059	$239,411
2065	76,672	6,824	83,496	$58,839	$13,271	$72,110	$202,236	$45,614	$247,850

D.6. Scenario 6: I-73 North and South, with the SELL and SC-22 Tolled

Table D-12. Forecasted Transactions and Revenue for I-73 North and South – Scenario 6

Year	Transactions (in Thousands)			Revenue (in Thousands 2015 Dollars)			Revenue (in Thousands Nominal Dollars)		
	Auto	Trucks	Total	Auto	Trucks	Total	Auto	Trucks	Total
2025	4,597	626	5,223	$3,867	$1,133	$5,000	$4,950	$1,450	$6,400
2026	5,767	757	6,524	$5,259	$1,432	$6,691	$6,900	$1,879	$8,779
2027	7,022	895	7,917	$6,772	$1,749	$8,521	$9,108	$2,352	$11,460
2028	8,365	1,040	9,405	$8,460	$2,093	$10,553	$11,662	$2,885	$14,547
2029	9,798	1,195	10,993	$9,970	$2,462	$12,432	$14,087	$3,479	$17,566
2030	11,321	1,235	12,556	$11,593	$2,559	$14,152	$16,790	$3,706	$20,496
2031	11,758	1,275	13,033	$12,117	$2,655	$14,772	$17,988	$3,941	$21,929
2032	12,199	1,314	13,513	$12,655	$2,752	$15,407	$19,256	$4,187	$23,443
2033	12,645	1,354	13,999	$13,133	$2,840	$15,973	$20,483	$4,429	$24,912
2034	13,095	1,395	14,490	$13,618	$2,928	$16,546	$21,770	$4,681	$26,451
2035	18,981	1,805	20,786	$18,642	$3,670	$22,312	$30,547	$6,014	$36,561
2036	20,501	1,911	22,412	$20,181	$3,878	$24,059	$33,896	$6,513	$40,409
2037	22,070	2,020	24,090	$21,816	$4,093	$25,909	$37,558	$7,046	$44,604
2038	23,690	2,132	25,822	$23,448	$4,323	$27,771	$41,377	$7,628	$49,005
2039	25,359	2,189	27,548	$25,040	$4,453	$29,493	$45,290	$8,054	$53,344
2040	26,061	2,247	28,308	$25,770	$4,570	$30,340	$47,776	$8,473	$56,249
2041	26,768	2,305	29,073	$26,508	$4,687	$31,195	$50,373	$8,907	$59,280
2042	27,479	2,363	29,842	$27,253	$4,804	$32,057	$53,083	$9,357	$62,440
2043	28,194	2,421	30,615	$28,006	$4,922	$32,928	$55,914	$9,827	$65,741
2044	28,915	2,480	31,395	$28,767	$5,038	$33,805	$58,869	$10,310	$69,179
2045	29,638	2,538	32,176	$29,536	$5,156	$34,692	$61,954	$10,815	$72,769
2046	30,368	2,597	32,965	$30,313	$5,274	$35,587	$65,173	$11,339	$76,512
2047	31,101	2,656	33,757	$31,097	$5,391	$36,488	$68,530	$11,880	$80,410
2048	31,839	2,715	34,554	$31,890	$5,509	$37,399	$72,035	$12,444	$84,479
2049	32,581	2,774	35,355	$32,690	$5,627	$38,317	$75,688	$13,028	$88,716
2050	33,326	2,834	36,160	$33,499	$5,744	$39,243	$79,500	$13,632	$93,132
2051	33,660	2,862	36,522	$33,835	$5,801	$39,636	$82,305	$14,111	$96,416
2052	33,996	2,891	36,887	$34,172	$5,860	$40,032	$85,203	$14,611	$99,814
2053	34,336	2,920	37,256	$34,514	$5,918	$40,432	$88,207	$15,125	$103,332
2054	34,680	2,949	37,629	$34,860	$5,977	$40,837	$91,318	$15,657	$106,975
2055	35,026	2,979	38,005	$35,208	$6,038	$41,246	$94,536	$16,212	$110,748
2056	35,377	3,008	38,385	$35,561	$6,097	$41,658	$97,871	$16,780	$114,651
2057	35,731	3,038	38,769	$35,916	$6,157	$42,073	$101,319	$17,369	$118,688
2058	36,088	3,069	39,157	$36,275	$6,220	$42,495	$104,890	$17,985	$122,875
2059	36,449	3,100	39,549	$36,638	$6,283	$42,921	$108,588	$18,622	$127,210
2060	36,813	3,131	39,944	$37,004	$6,346	$43,350	$112,415	$19,279	$131,694
2061	37,181	3,162	40,343	$37,374	$6,409	$43,783	$116,377	$19,957	$136,334
2062	37,553	3,193	40,746	$37,748	$6,472	$44,220	$120,480	$20,657	$141,137
2063	37,928	3,225	41,153	$38,125	$6,536	$44,661	$124,726	$21,382	$146,108
2064	38,307	3,258	41,565	$38,506	$6,603	$45,109	$129,121	$22,142	$151,263
2065	38,691	3,290	41,981	$38,892	$6,668	$45,560	$133,676	$22,919	$156,595

Table D-13. Forecasted Transactions and Revenue for Sell – Scenario 6

Year	Transactions (in Thousands)			Revenue (in Thousands 2015 Dollars)			Revenue (in Thousands Nominal Dollars)		
	Auto	Trucks	Total	Auto	Trucks	Total	Auto	Trucks	Total
2025	4,444	1,145	5,589	$3,344	$1,877	$5,221	$4,281	$2,403	$6,684
2026	5,437	1,388	6,825	$4,290	$2,378	$6,668	$5,629	$3,120	$8,749
2027	6,490	1,644	8,134	$5,284	$2,903	$8,187	$7,106	$3,904	$11,010
2028	7,596	1,913	9,509	$6,359	$3,469	$9,828	$8,766	$4,782	$13,548
2029	8,752	2,089	10,841	$7,506	$3,875	$11,381	$10,606	$5,475	$16,081
2030	9,048	2,159	11,207	$7,800	$4,023	$11,823	$11,297	$5,827	$17,124
2031	9,328	2,225	11,553	$8,083	$4,163	$12,246	$11,999	$6,180	$18,179
2032	9,591	2,285	11,876	$8,354	$4,296	$12,650	$12,712	$6,537	$19,249
2033	9,839	2,342	12,181	$8,567	$4,403	$12,970	$13,362	$6,867	$20,229
2034	10,070	2,393	12,463	$8,767	$4,501	$13,268	$14,015	$7,196	$21,211
2035	10,285	2,440	12,725	$8,952	$4,590	$13,542	$14,669	$7,521	$22,190
2036	10,508	2,482	12,990	$9,144	$4,670	$13,814	$15,358	$7,844	$23,202
2037	10,703	2,519	13,222	$9,312	$4,741	$14,053	$16,031	$8,162	$24,193
2038	10,869	2,552	13,421	$9,454	$4,803	$14,257	$16,683	$8,475	$25,158
2039	11,007	2,580	13,587	$9,571	$4,858	$14,429	$17,311	$8,787	$26,098
2040	11,117	2,606	13,723	$9,667	$4,906	$14,573	$17,922	$9,095	$27,017
2041	11,228	2,632	13,860	$9,764	$4,955	$14,719	$18,554	$9,416	$27,970
2042	11,341	2,658	13,999	$9,861	$5,005	$14,866	$19,207	$9,749	$28,956
2043	11,454	2,685	14,139	$9,960	$5,055	$15,015	$19,885	$10,092	$29,977
2044	11,569	2,712	14,281	$10,060	$5,105	$15,165	$20,587	$10,447	$31,034
2045	11,684	2,739	14,423	$10,160	$5,156	$15,316	$21,311	$10,815	$32,126
2046	11,801	2,766	14,567	$10,262	$5,208	$15,470	$22,063	$11,197	$33,260
2047	11,919	2,794	14,713	$10,364	$5,260	$15,624	$22,840	$11,592	$34,432
2048	12,038	2,822	14,860	$10,468	$5,313	$15,781	$23,646	$12,001	$35,647
2049	12,159	2,850	15,009	$10,573	$5,366	$15,939	$24,480	$12,424	$36,904
2050	12,280	2,878	15,158	$10,678	$5,420	$16,098	$25,341	$12,863	$38,204
2051	12,403	2,907	15,310	$10,785	$5,475	$16,260	$26,235	$13,318	$39,553
2052	12,527	2,936	15,463	$10,893	$5,529	$16,422	$27,160	$13,786	$40,946
2053	12,653	2,965	15,618	$11,002	$5,584	$16,586	$28,118	$14,271	$42,389
2054	12,779	2,995	15,774	$11,112	$5,640	$16,752	$29,109	$14,774	$43,883
2055	12,907	3,025	15,932	$11,223	$5,697	$16,920	$30,134	$15,297	$45,431
2056	13,036	3,055	16,091	$11,335	$5,753	$17,088	$31,196	$15,833	$47,029
2057	13,166	3,086	16,252	$11,448	$5,812	$17,260	$32,295	$16,396	$48,691
2058	13,298	3,117	16,415	$11,563	$5,870	$17,433	$33,435	$16,973	$50,408
2059	13,431	3,148	16,579	$11,679	$5,928	$17,607	$34,614	$17,569	$52,183
2060	13,566	3,179	16,745	$11,796	$5,987	$17,783	$35,835	$18,188	$54,023
2061	13,701	3,211	16,912	$11,914	$6,047	$17,961	$37,098	$18,829	$55,927
2062	13,838	3,243	17,081	$12,033	$6,107	$18,140	$38,406	$19,492	$57,898
2063	13,976	3,276	17,252	$12,153	$6,170	$18,323	$39,758	$20,185	$59,943
2064	14,117	3,308	17,425	$12,275	$6,230	$18,505	$41,161	$20,891	$62,052
2065	14,258	3,341	17,599	$12,398	$6,292	$18,690	$42,613	$21,626	$64,239

Table D-14. Forecasted Transactions and Revenue for SC-22 – Scenario 6

Year	Transactions in Thousands			Revenue (in Thousands 2015 Dollars)			Revenue (in Thousands Nominal Dollars)		
	Auto	Trucks	Total	Auto	Trucks	Total	Auto	Trucks	Total
2025	8,794	1,108	9,902	$4,135	$1,817	$5,952	$5,293	$2,326	$7,619
2026	10,801	1,372	12,173	$5,340	$2,351	$7,691	$7,007	$3,085	$10,092
2027	12,962	1,654	14,616	$6,629	$2,920	$9,549	$8,915	$3,927	$12,842
2028	15,278	1,952	17,230	$8,050	$3,539	$11,589	$11,097	$4,879	$15,976
2029	17,748	2,156	19,904	$9,600	$4,000	$13,600	$13,565	$5,652	$19,217
2030	18,520	2,249	20,769	$10,088	$4,192	$14,280	$14,610	$6,071	$20,681
2031	19,292	2,335	21,627	$10,579	$4,371	$14,950	$15,705	$6,489	$22,194
2032	20,063	2,414	22,477	$11,074	$4,537	$15,611	$16,850	$6,904	$23,754
2033	20,835	2,484	23,319	$11,510	$4,671	$16,181	$17,952	$7,285	$25,237
2034	21,605	2,547	24,152	$11,945	$4,791	$16,736	$19,096	$7,659	$26,755
2035	22,376	2,603	24,979	$12,377	$4,896	$17,273	$20,281	$8,023	$28,304
2036	23,251	2,650	25,901	$12,857	$4,986	$17,843	$21,594	$8,374	$29,968
2037	24,074	2,690	26,764	$13,308	$5,063	$18,371	$22,911	$8,716	$31,627
2038	24,843	2,722	27,565	$13,731	$5,124	$18,855	$24,230	$9,042	$33,272
2039	25,559	2,747	28,306	$14,126	$5,172	$19,298	$25,550	$9,355	$34,905
2040	26,223	2,764	28,987	$14,493	$5,205	$19,698	$26,869	$9,650	$36,519
2041	26,833	2,774	29,607	$14,831	$5,223	$20,054	$28,183	$9,925	$38,108
2042	27,391	2,777	30,168	$15,142	$5,228	$20,370	$29,494	$10,183	$39,677
2043	27,895	2,772	30,667	$15,424	$5,218	$20,642	$30,794	$10,418	$41,212
2044	28,347	2,759	31,106	$15,679	$5,195	$20,874	$32,086	$10,631	$42,717
2045	28,745	2,739	31,484	$15,906	$5,157	$21,063	$33,364	$10,817	$44,181
2046	29,091	2,711	31,802	$16,105	$5,105	$21,210	$34,626	$10,976	$45,602
2047	29,382	2,738	32,120	$16,266	$5,156	$21,422	$35,846	$11,363	$47,209
2048	29,676	2,765	32,441	$16,429	$5,207	$21,636	$37,111	$11,762	$48,873
2049	29,972	2,793	32,765	$16,593	$5,259	$21,852	$38,418	$12,176	$50,594
2050	30,272	2,821	33,093	$16,759	$5,312	$22,071	$39,773	$12,606	$52,379
2051	30,575	2,849	33,424	$16,927	$5,365	$22,292	$41,176	$13,051	$54,227
2052	30,880	2,878	33,758	$17,095	$5,419	$22,514	$42,624	$13,511	$56,135
2053	31,189	2,907	34,096	$17,266	$5,474	$22,740	$44,126	$13,990	$58,116
2054	31,501	2,936	34,437	$17,439	$5,529	$22,968	$45,683	$14,484	$60,167
2055	31,816	2,965	34,781	$17,614	$5,583	$23,197	$47,295	$14,991	$62,286
2056	32,134	2,995	35,129	$17,790	$5,640	$23,430	$48,961	$15,522	$64,483
2057	32,455	3,025	35,480	$17,967	$5,696	$23,663	$50,685	$16,068	$66,753
2058	32,780	3,055	35,835	$18,147	$5,753	$23,900	$52,472	$16,635	$69,107
2059	33,108	3,085	36,193	$18,329	$5,809	$24,138	$54,324	$17,217	$71,541
2060	33,439	3,116	36,555	$18,512	$5,868	$24,380	$56,238	$17,826	$74,064
2061	33,774	3,147	36,921	$18,698	$5,926	$24,624	$58,223	$18,453	$76,676
2062	34,111	3,179	37,290	$18,884	$5,986	$24,870	$60,272	$19,105	$79,377
2063	34,452	3,211	37,663	$19,073	$6,047	$25,120	$62,397	$19,783	$82,180
2064	34,797	3,243	38,040	$19,264	$6,107	$25,371	$64,598	$20,478	$85,076
2065	35,145	3,275	38,420	$19,457	$6,167	$25,624	$66,876	$21,197	$88,073

Table D-15. Total Forecasted Transactions and Revenue – Scenario 6

Year	Transactions (in Thousands)			Revenue (in Thousands 2015 Dollars)			Revenue (in Thousands Nominal Dollars)		
	Auto	Trucks	Total	Auto	Trucks	Total	Auto	Trucks	Total
2025	17,835	2,879	20,714	$11,346	$4,827	$16,173	$14,524	$6,179	$20,703
2026	22,005	3,517	25,522	$14,889	$6,161	$21,050	$19,536	$8,084	$27,620
2027	26,474	4,193	30,667	$18,685	$7,572	$26,257	$25,129	$10,183	$35,312
2028	31,239	4,905	36,144	$22,869	$9,101	$31,970	$31,525	$12,546	$44,071
2029	36,298	5,440	41,738	$27,076	$10,337	$37,413	$38,258	$14,606	$52,864
2030	38,889	5,643	44,532	$29,481	$10,774	$40,255	$42,697	$15,604	$58,301
2031	40,378	5,835	46,213	$30,779	$11,189	$41,968	$45,692	$16,610	$62,302
2032	41,853	6,013	47,866	$32,083	$11,585	$43,668	$48,818	$17,628	$66,446
2033	43,319	6,180	49,499	$33,210	$11,914	$45,124	$51,797	$18,581	$70,378
2034	44,770	6,335	51,105	$34,330	$12,220	$46,550	$54,881	$19,536	$74,417
2035	51,642	6,848	58,490	$39,971	$13,156	$53,127	$65,497	$21,558	$87,055
2036	54,260	7,043	61,303	$42,182	$13,534	$55,716	$70,848	$22,731	$93,579
2037	56,847	7,229	64,076	$44,436	$13,897	$58,333	$76,500	$23,924	$100,424
2038	59,402	7,406	66,808	$46,633	$14,250	$60,883	$82,290	$25,145	$107,435
2039	61,925	7,516	69,441	$48,737	$14,483	$63,220	$88,151	$26,196	$114,347
2040	63,401	7,617	71,018	$49,930	$14,681	$64,611	$92,567	$27,218	$119,785
2041	64,829	7,711	72,540	$51,103	$14,865	$65,968	$97,110	$28,248	$125,358
2042	66,211	7,798	74,009	$52,256	$15,037	$67,293	$101,784	$29,289	$131,073
2043	67,543	7,878	75,421	$53,390	$15,195	$68,585	$106,593	$30,337	$136,930
2044	68,831	7,951	76,782	$54,506	$15,338	$69,844	$111,542	$31,388	$142,930
2045	70,067	8,016	78,083	$55,602	$15,469	$71,071	$116,629	$32,447	$149,076
2046	71,260	8,074	79,334	$56,680	$15,587	$72,267	$121,862	$33,512	$155,374
2047	72,402	8,188	80,590	$57,727	$15,807	$73,534	$127,216	$34,835	$162,051
2048	73,553	8,302	81,855	$58,787	$16,029	$74,816	$132,792	$36,207	$168,999
2049	74,712	8,417	83,129	$59,856	$16,252	$76,108	$138,586	$37,628	$176,214
2050	75,878	8,533	84,411	$60,936	$16,476	$77,412	$144,614	$39,101	$183,715
2051	76,638	8,618	85,256	$61,547	$16,641	$78,188	$149,716	$40,480	$190,196
2052	77,403	8,705	86,108	$62,160	$16,808	$78,968	$154,987	$41,908	$196,895
2053	78,178	8,792	86,970	$62,782	$16,976	$79,758	$160,451	$43,386	$203,837
2054	78,960	8,880	87,840	$63,411	$17,146	$80,557	$166,110	$44,915	$211,025
2055	79,749	8,969	88,718	$64,045	$17,318	$81,363	$171,965	$46,500	$218,465
2056	80,547	9,058	89,605	$64,686	$17,490	$82,176	$178,028	$48,135	$226,163
2057	81,352	9,149	90,501	$65,331	$17,665	$82,996	$184,299	$49,833	$234,132
2058	82,166	9,241	91,407	$65,985	$17,843	$83,828	$190,797	$51,593	$242,390
2059	82,988	9,333	92,321	$66,646	$18,020	$84,666	$197,526	$53,408	$250,934
2060	83,818	9,426	93,244	$67,312	$18,201	$85,513	$204,488	$55,293	$259,781
2061	84,656	9,520	94,176	$67,986	$18,382	$86,368	$211,698	$57,239	$268,937
2062	85,502	9,615	95,117	$68,665	$18,565	$87,230	$219,158	$59,254	$278,412
2063	86,356	9,712	96,068	$69,351	$18,753	$88,104	$226,881	$61,350	$288,231
2064	87,221	9,809	97,030	$70,045	$18,940	$88,985	$234,880	$63,511	$298,391
2065	88,094	9,906	98,000	$70,747	$19,127	$89,874	$243,165	$65,742	$308,907

D.7. Scenario 7: I-73 South, without the SELL and SC-22 Tolled

Table D-16. Forecasted Transactions and Revenue for I-73 South Only – Scenario 7

Year	Transactions (in Thousands)			Revenue (in Thousands 2015 Dollars)			Revenue (in Thousands Nominal Dollars)		
	Auto	Trucks	Total	Auto	Trucks	Total	Auto	Trucks	Total
2025	4,207	573	4,780	$3,538	$1,037	$4,575	$4,529	$1,327	$5,856
2026	5,271	692	5,963	$4,807	$1,309	$6,116	$6,307	$1,718	$8,025
2027	6,411	817	7,228	$6,182	$1,598	$7,780	$8,314	$2,149	$10,463
2028	7,629	949	8,578	$7,716	$1,908	$9,624	$10,637	$2,630	$13,267
2029	8,926	1,089	10,015	$9,083	$2,243	$11,326	$12,834	$3,169	$16,003
2030	10,301	1,124	11,425	$10,550	$2,328	$12,878	$15,280	$3,372	$18,652
2031	10,689	1,158	11,847	$11,015	$2,413	$13,428	$16,352	$3,582	$19,934
2032	11,078	1,193	12,271	$11,491	$2,499	$13,990	$17,485	$3,803	$21,288
2033	11,472	1,228	12,700	$11,914	$2,576	$14,490	$18,582	$4,018	$22,600
2034	11,868	1,265	13,133	$12,342	$2,654	$14,996	$19,731	$4,243	$23,974
2035	12,277	1,300	13,577	$12,767	$2,727	$15,494	$20,920	$4,469	$25,389
2036	12,698	1,336	14,034	$13,205	$2,803	$16,008	$22,179	$4,708	$26,887
2037	13,132	1,373	14,505	$13,656	$2,881	$16,537	$23,510	$4,960	$28,470
2038	13,578	1,411	14,989	$14,120	$2,961	$17,081	$24,916	$5,225	$30,141
2039	14,037	1,450	15,487	$14,597	$3,043	$17,640	$26,402	$5,504	$31,906
2040	14,509	1,491	16,000	$15,088	$3,129	$18,217	$27,972	$5,801	$33,773
2041	14,994	1,533	16,527	$15,592	$3,217	$18,809	$29,629	$6,113	$35,742
2042	15,492	1,576	17,068	$16,110	$3,307	$19,417	$31,379	$6,441	$37,820
2043	16,004	1,620	17,624	$16,642	$3,399	$20,041	$33,226	$6,786	$40,012
2044	16,530	1,665	18,195	$17,189	$3,493	$20,682	$35,176	$7,148	$42,324
2045	17,071	1,711	18,782	$17,752	$3,590	$21,342	$37,236	$7,530	$44,766
2046	17,626	1,759	19,385	$18,329	$3,691	$22,020	$39,407	$7,936	$47,343
2047	18,196	1,808	20,004	$18,922	$3,794	$22,716	$41,699	$8,361	$50,060
2048	18,781	1,858	20,639	$19,530	$3,899	$23,429	$44,115	$8,807	$52,922
2049	19,382	1,910	21,292	$20,155	$4,008	$24,163	$46,665	$9,280	$55,945
2050	19,998	1,963	21,961	$20,796	$4,119	$24,915	$49,353	$9,775	$59,128
2051	20,198	1,983	22,181	$21,004	$4,161	$25,165	$51,093	$10,122	$61,215
2052	20,400	2,003	22,403	$21,214	$4,203	$25,417	$52,894	$10,480	$63,374
2053	20,604	2,023	22,627	$21,426	$4,245	$25,671	$54,758	$10,849	$65,607
2054	20,810	2,043	22,853	$21,640	$4,287	$25,927	$56,688	$11,230	$67,918
2055	21,019	2,063	23,082	$21,858	$4,329	$26,187	$58,690	$11,624	$70,314
2056	21,229	2,084	23,313	$22,076	$4,373	$26,449	$60,757	$12,035	$72,792
2057	21,441	2,105	23,546	$22,297	$4,417	$26,714	$62,900	$12,460	$75,360
2058	21,655	2,126	23,781	$22,519	$4,461	$26,980	$65,114	$12,899	$78,013
2059	21,872	2,147	24,019	$22,745	$4,505	$27,250	$67,412	$13,352	$80,764
2060	22,091	2,168	24,259	$22,973	$4,549	$27,522	$69,790	$13,819	$83,609
2061	22,312	2,190	24,502	$23,202	$4,595	$27,797	$72,248	$14,308	$86,556
2062	22,535	2,212	24,747	$23,434	$4,641	$28,075	$74,794	$14,813	$89,607
2063	22,760	2,234	24,994	$23,668	$4,688	$28,356	$77,430	$15,337	$92,767
2064	22,988	2,256	25,244	$23,905	$4,734	$28,639	$80,160	$15,874	$96,034
2065	23,217	2,279	25,496	$24,143	$4,782	$28,925	$82,982	$16,436	$99,418

Table D-17. Forecasted Transactions and Revenue for SC-22 – Scenario 7

Year	Transactions in Thousands			Revenue (in Thousands 2015 Dollars)			Revenue (in Thousands Nominal Dollars)		
	Auto	Trucks	Total	Auto	Trucks	Total	Auto	Trucks	Total
2025	9,728	1,226	10,954	$4,738	$2,010	$6,748	$6,065	$2,573	$8,638
2026	11,975	1,522	13,497	$6,133	$2,607	$8,740	$8,047	$3,421	$11,468
2027	14,402	1,839	16,241	$7,630	$3,247	$10,877	$10,262	$4,367	$14,629
2028	17,010	2,175	19,185	$9,285	$3,943	$13,228	$12,799	$5,435	$18,234
2029	19,800	2,407	22,207	$11,095	$4,466	$15,561	$15,677	$6,310	$21,987
2030	20,702	2,516	23,218	$11,682	$4,689	$16,371	$16,919	$6,791	$23,710
2031	21,606	2,617	24,223	$12,274	$4,898	$17,172	$18,221	$7,271	$25,492
2032	22,513	2,710	25,223	$12,872	$5,093	$17,965	$19,586	$7,750	$27,336
2033	23,421	2,794	26,215	$13,404	$5,253	$18,657	$20,906	$8,193	$29,099
2034	24,332	2,869	27,201	$13,935	$5,396	$19,331	$22,277	$8,626	$30,903
2035	25,245	2,936	28,181	$14,465	$5,524	$19,989	$23,703	$9,052	$32,755
2036	26,296	2,997	29,293	$15,062	$5,639	$20,701	$25,298	$9,471	$34,769
2037	27,282	3,048	30,330	$15,621	$5,736	$21,357	$26,893	$9,875	$36,768
2038	28,201	3,090	31,291	$16,144	$5,816	$21,960	$28,488	$10,263	$38,751
2039	29,055	3,122	32,177	$16,631	$5,879	$22,510	$30,081	$10,633	$40,714
2040	29,843	3,146	32,989	$17,081	$5,923	$23,004	$31,667	$10,981	$42,648
2041	30,565	3,160	33,725	$17,496	$5,950	$23,446	$33,248	$11,307	$44,555
2042	31,221	3,166	34,387	$17,874	$5,960	$23,834	$34,815	$11,609	$46,424
2043	31,812	3,162	34,974	$18,216	$5,953	$24,169	$36,368	$11,885	$48,253
2044	32,336	3,149	35,485	$18,522	$5,928	$24,450	$37,904	$12,131	$50,035
2045	32,795	3,126	35,921	$18,792	$5,886	$24,678	$39,417	$12,346	$51,763
2046	33,188	3,095	36,283	$19,027	$5,827	$24,854	$40,908	$12,528	$53,436
2047	33,520	3,126	36,646	$19,217	$5,885	$25,102	$42,350	$12,969	$55,319
2048	33,855	3,157	37,012	$19,409	$5,944	$25,353	$43,842	$13,427	$57,269
2049	34,193	3,189	37,382	$19,603	$6,004	$25,607	$45,387	$13,901	$59,288
2050	34,535	3,221	37,756	$19,799	$6,064	$25,863	$46,987	$14,391	$61,378
2051	34,881	3,253	38,134	$19,998	$6,124	$26,122	$48,646	$14,897	$63,543
2052	35,230	3,285	38,515	$20,198	$6,185	$26,383	$50,361	$15,421	$65,782
2053	35,582	3,318	38,900	$20,400	$6,247	$26,647	$52,136	$15,965	$68,101
2054	35,938	3,351	39,289	$20,604	$6,309	$26,913	$53,974	$16,527	$70,501
2055	36,297	3,385	39,682	$20,809	$6,373	$27,182	$55,873	$17,112	$72,985
2056	36,660	3,419	40,079	$21,018	$6,437	$27,455	$57,846	$17,716	$75,562
2057	37,027	3,453	40,480	$21,228	$6,501	$27,729	$59,884	$18,339	$78,223
2058	37,397	3,488	40,885	$21,440	$6,567	$28,007	$61,994	$18,989	$80,983
2059	37,772	3,522	41,294	$21,655	$6,631	$28,286	$64,181	$19,653	$83,834
2060	38,149	3,558	41,707	$21,871	$6,699	$28,570	$66,442	$20,351	$86,793
2061	38,531	3,593	42,124	$22,090	$6,765	$28,855	$68,785	$21,065	$89,850
2062	38,916	3,629	42,545	$22,311	$6,832	$29,143	$71,210	$21,806	$93,016
2063	39,305	3,665	42,970	$22,534	$6,900	$29,434	$73,720	$22,573	$96,293
2064	39,698	3,702	43,400	$22,759	$6,970	$29,729	$76,317	$23,372	$99,689
2065	40,095	3,739	43,834	$22,987	$7,039	$30,026	$79,009	$24,194	$103,203

Table D-18. Total Forecasted Transactions and Revenue – Scenario 7

Year	Transactions (in Thousands)			Revenue (in Thousands 2015 Dollars)			Revenue (in Thousands Nominal Dollars)		
	Auto	Trucks	Total	Auto	Trucks	Total	Auto	Trucks	Total
2025	13,935	1,799	15,734	$8,276	$3,047	$11,323	$10,594	$3,900	$14,494
2026	17,246	2,214	19,460	$10,940	$3,916	$14,856	$14,354	$5,139	$19,493
2027	20,813	2,656	23,469	$13,812	$4,845	$18,657	$18,576	$6,516	$25,092
2028	24,639	3,124	27,763	$17,001	$5,851	$22,852	$23,436	$8,065	$31,501
2029	28,726	3,496	32,222	$20,178	$6,709	$26,887	$28,511	$9,479	$37,990
2030	31,003	3,640	34,643	$22,232	$7,017	$29,249	$32,199	$10,163	$42,362
2031	32,295	3,775	36,070	$23,289	$7,311	$30,600	$34,573	$10,853	$45,426
2032	33,591	3,903	37,494	$24,363	$7,592	$31,955	$37,071	$11,553	$48,624
2033	34,893	4,022	38,915	$25,318	$7,829	$33,147	$39,488	$12,211	$51,699
2034	36,200	4,134	40,334	$26,277	$8,050	$34,327	$42,008	$12,869	$54,877
2035	37,522	4,236	41,758	$27,232	$8,251	$35,483	$44,623	$13,521	$58,144
2036	38,994	4,333	43,327	$28,267	$8,442	$36,709	$47,477	$14,179	$61,656
2037	40,414	4,421	44,835	$29,277	$8,617	$37,894	$50,403	$14,835	$65,238
2038	41,779	4,501	46,280	$30,264	$8,777	$39,041	$53,404	$15,488	$68,892
2039	43,092	4,572	47,664	$31,228	$8,922	$40,150	$56,483	$16,137	$72,620
2040	44,352	4,637	48,989	$32,169	$9,052	$41,221	$59,639	$16,782	$76,421
2041	45,559	4,693	50,252	$33,088	$9,167	$42,255	$62,877	$17,420	$80,297
2042	46,713	4,742	51,455	$33,984	$9,267	$43,251	$66,194	$18,050	$84,244
2043	47,816	4,782	52,598	$34,858	$9,352	$44,210	$69,594	$18,671	$88,265
2044	48,866	4,814	53,680	$35,711	$9,421	$45,132	$73,080	$19,279	$92,359
2045	49,866	4,837	54,703	$36,544	$9,476	$46,020	$76,653	$19,876	$96,529
2046	50,814	4,854	55,668	$37,356	$9,518	$46,874	$80,315	$20,464	$100,779
2047	51,716	4,934	56,650	$38,139	$9,679	$47,818	$84,049	$21,330	$105,379
2048	52,636	5,015	57,651	$38,939	$9,843	$48,782	$87,957	$22,234	$110,191
2049	53,575	5,099	58,674	$39,758	$10,012	$49,770	$92,052	$23,181	$115,233
2050	54,533	5,184	59,717	$40,595	$10,183	$50,778	$96,340	$24,166	$120,506
2051	55,079	5,236	60,315	$41,002	$10,285	$51,287	$99,739	$25,019	$124,758
2052	55,630	5,288	60,918	$41,412	$10,388	$51,800	$103,255	$25,901	$129,156
2053	56,186	5,341	61,527	$41,826	$10,492	$52,318	$106,894	$26,814	$133,708
2054	56,748	5,394	62,142	$42,244	$10,596	$52,840	$110,662	$27,757	$138,419
2055	57,316	5,448	62,764	$42,667	$10,702	$53,369	$114,563	$28,736	$143,299
2056	57,889	5,503	63,392	$43,094	$10,810	$53,904	$118,603	$29,751	$148,354
2057	58,468	5,558	64,026	$43,525	$10,918	$54,443	$122,784	$30,799	$153,583
2058	59,052	5,614	64,666	$43,959	$11,028	$54,987	$127,108	$31,888	$158,996
2059	59,644	5,669	65,313	$44,400	$11,136	$55,536	$131,593	$33,005	$164,598
2060	60,240	5,726	65,966	$44,844	$11,248	$56,092	$136,232	$34,170	$170,402
2061	60,843	5,783	66,626	$45,292	$11,360	$56,652	$141,033	$35,373	$176,406
2062	61,451	5,841	67,292	$45,745	$11,473	$57,218	$146,004	$36,619	$182,623
2063	62,065	5,899	67,964	$46,202	$11,588	$57,790	$151,150	$37,910	$189,060
2064	62,686	5,958	68,644	$46,664	$11,704	$58,368	$156,477	$39,246	$195,723
2065	63,312	6,018	69,330	$47,130	$11,821	$58,951	$161,991	$40,630	$202,621

D.8. Scenario 8: I-73 South, with the SELL and SC-22 Tolled

Table D-19. Forecasted Transactions and Revenue for I-73 South Only – Scenario 8

Year	Transactions (in Thousands)			Revenue (in Thousands 2015 Dollars)			Revenue (in Thousands Nominal Dollars)		
	Auto	Trucks	Total	Auto	Trucks	Total	Auto	Trucks	Total
2025	4,597	626	5,223	$3,867	$1,133	$5,000	$4,950	$1,450	$6,400
2026	5,767	757	6,524	$5,259	$1,432	$6,691	$6,900	$1,879	$8,779
2027	7,022	895	7,917	$6,772	$1,749	$8,521	$9,108	$2,352	$11,460
2028	8,365	1,040	9,405	$8,460	$2,093	$10,553	$11,662	$2,885	$14,547
2029	9,798	1,195	10,993	$9,970	$2,462	$12,432	$14,087	$3,479	$17,566
2030	11,321	1,235	12,556	$11,593	$2,559	$14,152	$16,790	$3,706	$20,496
2031	11,758	1,275	13,033	$12,117	$2,655	$14,772	$17,988	$3,941	$21,929
2032	12,199	1,314	13,513	$12,655	$2,752	$15,407	$19,256	$4,187	$23,443
2033	12,645	1,354	13,999	$13,133	$2,840	$15,973	$20,483	$4,429	$24,912
2034	13,095	1,395	14,490	$13,618	$2,928	$16,546	$21,770	$4,681	$26,451
2035	13,478	1,436	14,914	$14,100	$3,013	$17,113	$23,104	$4,937	$28,041
2036	13,977	1,476	15,453	$14,581	$3,099	$17,680	$24,490	$5,205	$29,695
2037	14,440	1,519	15,959	$15,089	$3,188	$18,277	$25,977	$5,488	$31,465
2038	14,907	1,562	16,469	$15,604	$3,278	$18,882	$27,535	$5,784	$33,319
2039	15,378	1,606	16,984	$16,126	$3,368	$19,494	$29,168	$6,092	$35,260
2040	15,853	1,649	17,502	$16,656	$3,459	$20,115	$30,879	$6,413	$37,292
2041	16,332	1,694	18,026	$17,192	$3,550	$20,742	$32,670	$6,746	$39,416
2042	16,815	1,738	18,553	$17,735	$3,642	$21,377	$34,544	$7,094	$41,638
2043	17,303	1,783	19,086	$18,286	$3,734	$22,020	$36,508	$7,455	$43,963
2044	17,794	1,828	19,622	$18,844	$3,827	$22,671	$38,563	$7,832	$46,395
2045	18,289	1,873	20,162	$19,410	$3,920	$23,330	$40,714	$8,222	$48,936
2046	18,789	1,919	20,708	$19,983	$4,014	$23,997	$42,964	$8,630	$51,594
2047	19,292	1,965	21,257	$20,563	$4,108	$24,671	$45,316	$9,053	$54,369
2048	19,799	2,011	21,810	$21,152	$4,203	$25,355	$47,779	$9,494	$57,273
2049	20,310	2,058	22,368	$21,748	$4,298	$26,046	$50,354	$9,951	$60,305
2050	20,824	2,105	22,929	$22,351	$4,393	$26,744	$53,044	$10,425	$63,469
2051	21,032	2,126	23,158	$22,574	$4,437	$27,011	$54,912	$10,793	$65,705
2052	21,243	2,147	23,390	$22,801	$4,481	$27,282	$56,851	$11,173	$68,024
2053	21,455	2,169	23,624	$23,028	$4,527	$27,555	$58,852	$11,570	$70,422
2054	21,670	2,190	23,860	$23,259	$4,570	$27,829	$60,929	$11,971	$72,900
2055	21,887	2,212	24,099	$23,492	$4,616	$28,108	$63,078	$12,394	$75,472
2056	22,105	2,235	24,340	$23,726	$4,664	$28,390	$65,298	$12,836	$78,134
2057	22,326	2,257	24,583	$23,963	$4,710	$28,673	$67,600	$13,287	$80,887
2058	22,550	2,279	24,829	$24,204	$4,756	$28,960	$69,986	$13,752	$83,738
2059	22,775	2,302	25,077	$24,445	$4,804	$29,249	$72,450	$14,238	$86,688
2060	23,003	2,325	25,328	$24,690	$4,852	$29,542	$75,006	$14,740	$89,746
2061	23,233	2,348	25,581	$24,937	$4,900	$29,837	$77,650	$15,258	$92,908
2062	23,465	2,372	25,837	$25,186	$4,950	$30,136	$80,386	$15,799	$96,185
2063	23,699	2,396	26,095	$25,437	$5,000	$30,437	$83,217	$16,357	$99,574
2064	23,936	2,420	26,356	$25,691	$5,050	$30,741	$86,149	$16,934	$103,083
2065	24,176	2,444	26,620	$25,949	$5,100	$31,049	$89,190	$17,529	$106,719

Table D-20. Forecasted Transactions and Revenue for SELL – Scenario 8

Year	Transactions (in Thousands)			Revenue (in Thousands 2015 Dollars)			Revenue (in Thousands Nominal Dollars)		
	Auto	Trucks	Total	Auto	Trucks	Total	Auto	Trucks	Total
2025	4,444	1,145	5,589	$3,344	$1,877	$5,221	$4,281	$2,403	$6,684
2026	5,437	1,388	6,825	$4,290	$2,378	$6,668	$5,629	$3,120	$8,749
2027	6,490	1,644	8,134	$5,284	$2,903	$8,187	$7,106	$3,904	$11,010
2028	7,596	1,913	9,509	$6,359	$3,469	$9,828	$8,766	$4,782	$13,548
2029	8,752	2,089	10,841	$7,506	$3,875	$11,381	$10,606	$5,475	$16,081
2030	9,048	2,159	11,207	$7,800	$4,023	$11,823	$11,297	$5,827	$17,124
2031	9,328	2,225	11,553	$8,083	$4,163	$12,246	$11,999	$6,180	$18,179
2032	9,591	2,285	11,876	$8,354	$4,296	$12,650	$12,712	$6,537	$19,249
2033	9,839	2,342	12,181	$8,567	$4,403	$12,970	$13,362	$6,867	$20,229
2034	10,070	2,393	12,463	$8,767	$4,501	$13,268	$14,015	$7,196	$21,211
2035	10,274	2,437	12,711	$8,943	$4,586	$13,529	$14,654	$7,515	$22,169
2036	10,490	2,477	12,967	$9,128	$4,662	$13,790	$15,331	$7,830	$23,161
2037	10,676	2,512	13,188	$9,289	$4,729	$14,018	$15,992	$8,141	$24,133
2038	10,834	2,543	13,377	$9,424	$4,788	$14,212	$16,630	$8,449	$25,079
2039	10,964	2,570	13,534	$9,534	$4,838	$14,372	$17,244	$8,751	$25,995
2040	11,065	2,594	13,659	$9,622	$4,883	$14,505	$17,839	$9,053	$26,892
2041	11,168	2,618	13,786	$9,711	$4,928	$14,639	$18,454	$9,365	$27,819
2042	11,271	2,642	13,913	$9,801	$4,974	$14,775	$19,090	$9,688	$28,778
2043	11,375	2,666	14,041	$9,892	$5,020	$14,912	$19,749	$10,022	$29,771
2044	11,481	2,691	14,172	$9,983	$5,066	$15,049	$20,429	$10,367	$30,796
2045	11,587	2,716	14,303	$10,075	$5,113	$15,188	$21,133	$10,725	$31,858
2046	11,694	2,741	14,435	$10,169	$5,161	$15,330	$21,863	$11,096	$32,959
2047	11,802	2,766	14,568	$10,263	$5,209	$15,472	$22,617	$11,479	$34,096
2048	11,911	2,792	14,703	$10,358	$5,257	$15,615	$23,397	$11,875	$35,272
2049	12,022	2,818	14,840	$10,453	$5,305	$15,758	$24,202	$12,283	$36,485
2050	12,133	2,844	14,977	$10,550	$5,354	$15,904	$25,037	$12,706	$37,743
2051	12,255	2,872	15,127	$10,656	$5,407	$16,063	$25,921	$13,153	$39,074
2052	12,377	2,901	15,278	$10,762	$5,461	$16,223	$26,833	$13,616	$40,449
2053	12,501	2,930	15,431	$10,870	$5,516	$16,386	$27,780	$14,097	$41,877
2054	12,626	2,959	15,585	$10,979	$5,570	$16,549	$28,760	$14,591	$43,351
2055	12,752	2,989	15,741	$11,088	$5,627	$16,715	$29,772	$15,109	$44,881
2056	12,879	3,019	15,898	$11,199	$5,683	$16,882	$30,822	$15,641	$46,463
2057	13,008	3,049	16,057	$11,311	$5,740	$17,051	$31,908	$16,193	$48,101
2058	13,138	3,080	16,218	$11,424	$5,798	$17,222	$33,033	$16,765	$49,798
2059	13,270	3,110	16,380	$11,539	$5,855	$17,394	$34,199	$17,353	$51,552
2060	13,402	3,142	16,544	$11,653	$5,915	$17,568	$35,401	$17,969	$53,370
2061	13,536	3,173	16,709	$11,770	$5,973	$17,743	$36,650	$18,599	$55,249
2062	13,671	3,205	16,876	$11,887	$6,034	$17,921	$37,940	$19,259	$57,199
2063	13,808	3,237	17,045	$12,006	$6,094	$18,100	$39,278	$19,936	$59,214
2064	13,946	3,269	17,215	$12,126	$6,154	$18,280	$40,662	$20,636	$61,298
2065	14,085	3,302	17,387	$12,247	$6,216	$18,463	$42,094	$21,365	$63,459

Table D-21. Forecasted Transactions and Revenue for SC-22 – Scenario 8

Year	Transactions in Thousands			Revenue (in Thousands 2015 Dollars)			Revenue (in Thousands Nominal Dollars)		
	Auto	Trucks	Total	Auto	Trucks	Total	Auto	Trucks	Total
2025	8,605	1,084	9,689	$4,135	$1,778	$5,913	$5,293	$2,276	$7,569
2026	10,569	1,342	11,911	$5,340	$2,300	$7,640	$7,007	$3,018	$10,025
2027	12,684	1,618	14,302	$6,629	$2,857	$9,486	$8,915	$3,842	$12,757
2028	14,950	1,910	16,860	$8,050	$3,462	$11,512	$11,097	$4,772	$15,869
2029	17,366	2,109	19,475	$9,600	$3,913	$13,513	$13,565	$5,529	$19,094
2030	18,121	2,201	20,322	$10,088	$4,101	$14,189	$14,610	$5,939	$20,549
2031	18,876	2,285	21,161	$10,579	$4,276	$14,855	$15,705	$6,348	$22,053
2032	19,630	2,361	21,991	$11,074	$4,439	$15,513	$16,850	$6,754	$23,604
2033	20,384	2,430	22,814	$11,510	$4,570	$16,080	$17,952	$7,128	$25,080
2034	21,137	2,492	23,629	$11,945	$4,687	$16,632	$19,096	$7,493	$26,589
2035	21,890	2,546	24,436	$12,377	$4,790	$17,167	$20,281	$7,849	$28,130
2036	22,745	2,592	25,337	$12,857	$4,878	$17,735	$21,594	$8,193	$29,787
2037	23,548	2,631	26,179	$13,308	$4,952	$18,260	$22,911	$8,525	$31,436
2038	24,300	2,663	26,963	$13,731	$5,012	$18,743	$24,230	$8,844	$33,074
2039	24,999	2,687	27,686	$14,126	$5,059	$19,185	$25,550	$9,150	$34,700
2040	25,648	2,704	28,352	$14,493	$5,091	$19,584	$26,869	$9,438	$36,307
2041	26,244	2,713	28,957	$14,831	$5,109	$19,940	$28,183	$9,709	$37,892
2042	26,789	2,716	29,505	$15,142	$5,113	$20,255	$29,494	$9,959	$39,453
2043	27,282	2,711	29,993	$15,424	$5,104	$20,528	$30,794	$10,190	$40,984
2044	27,723	2,698	30,421	$15,679	$5,080	$20,759	$32,086	$10,396	$42,482
2045	28,112	2,679	30,791	$15,906	$5,043	$20,949	$33,364	$10,578	$43,942
2046	28,450	2,651	31,101	$16,105	$4,992	$21,097	$34,626	$10,733	$45,359
2047	28,734	2,678	31,412	$16,266	$5,043	$21,309	$35,846	$11,114	$46,960
2048	29,022	2,704	31,726	$16,429	$5,092	$21,521	$37,111	$11,502	$48,613
2049	29,312	2,731	32,043	$16,593	$5,143	$21,736	$38,418	$11,908	$50,326
2050	29,604	2,759	32,363	$16,758	$5,195	$21,953	$39,770	$12,329	$52,099
2051	29,901	2,786	32,687	$16,926	$5,246	$22,172	$41,173	$12,761	$53,934
2052	30,200	2,814	33,014	$17,096	$5,299	$22,395	$42,626	$13,212	$55,838
2053	30,502	2,842	33,344	$17,267	$5,352	$22,619	$44,129	$13,678	$57,807
2054	30,806	2,871	33,677	$17,439	$5,406	$22,845	$45,683	$14,161	$59,844
2055	31,115	2,899	34,014	$17,614	$5,459	$23,073	$47,295	$14,658	$61,953
2056	31,426	2,928	34,354	$17,790	$5,514	$23,304	$48,961	$15,176	$64,137
2057	31,740	2,958	34,698	$17,967	$5,570	$23,537	$50,685	$15,713	$66,398
2058	32,058	2,987	35,045	$18,147	$5,625	$23,772	$52,472	$16,265	$68,737
2059	32,378	3,017	35,395	$18,329	$5,681	$24,010	$54,324	$16,837	$71,161
2060	32,702	3,047	35,749	$18,512	$5,738	$24,250	$56,238	$17,431	$73,669
2061	33,028	3,078	36,106	$18,697	$5,796	$24,493	$58,220	$18,048	$76,268
2062	33,359	3,108	36,467	$18,884	$5,853	$24,737	$60,272	$18,681	$78,953
2063	33,692	3,140	36,832	$19,072	$5,913	$24,985	$62,394	$19,344	$81,738
2064	34,029	3,171	37,200	$19,263	$5,971	$25,234	$64,594	$20,022	$84,616
2065	34,369	3,203	37,572	$19,456	$6,031	$25,487	$66,872	$20,729	$87,601

Table D-22. Total Forecasted Transactions and Revenue – Scenario 8

Year	Transactions (in Thousands)			Revenue (in Thousands 2015 Dollars)			Revenue (in Thousands Nominal Dollars)		
	Auto	Trucks	Total	Auto	Trucks	Total	Auto	Trucks	Total
2025	17,646	2,855	20,501	$11,346	$4,788	$16,134	$14,524	$6,129	$20,653
2026	21,773	3,487	25,260	$14,889	$6,110	$20,999	$19,536	$8,017	$27,553
2027	26,196	4,157	30,353	$18,685	$7,509	$26,194	$25,129	$10,098	$35,227
2028	30,911	4,863	35,774	$22,869	$9,024	$31,893	$31,525	$12,439	$43,964
2029	35,916	5,393	41,309	$27,076	$10,250	$37,326	$38,258	$14,483	$52,741
2030	38,490	5,595	44,085	$29,481	$10,683	$40,164	$42,697	$15,472	$58,169
2031	39,962	5,785	45,747	$30,779	$11,094	$41,873	$45,692	$16,469	$62,161
2032	41,420	5,960	47,380	$32,083	$11,487	$43,570	$48,818	$17,478	$66,296
2033	42,868	6,126	48,994	$33,210	$11,813	$45,023	$51,797	$18,424	$70,221
2034	44,302	6,280	50,582	$34,330	$12,116	$46,446	$54,881	$19,370	$74,251
2035	45,642	6,419	52,061	$35,420	$12,389	$47,809	$58,039	$20,301	$78,340
2036	47,212	6,545	53,757	$36,566	$12,639	$49,205	$61,415	$21,228	$82,643
2037	48,664	6,662	55,326	$37,686	$12,869	$50,555	$64,880	$22,154	$87,034
2038	50,041	6,768	56,809	$38,759	$13,078	$51,837	$68,395	$23,077	$91,472
2039	51,341	6,863	58,204	$39,786	$13,265	$53,051	$71,962	$23,993	$95,955
2040	52,566	6,947	59,513	$40,771	$13,433	$54,204	$75,587	$24,904	$100,491
2041	53,744	7,025	60,769	$41,734	$13,587	$55,321	$79,307	$25,820	$105,127
2042	54,875	7,096	61,971	$42,678	$13,729	$56,407	$83,128	$26,741	$109,869
2043	55,960	7,160	63,120	$43,602	$13,858	$57,460	$87,051	$27,667	$114,718
2044	56,998	7,217	64,215	$44,506	$13,973	$58,479	$91,078	$28,595	$119,673
2045	57,988	7,268	65,256	$45,391	$14,076	$59,467	$95,211	$29,525	$124,736
2046	58,933	7,311	66,244	$46,257	$14,167	$60,424	$99,453	$30,459	$129,912
2047	59,828	7,409	67,237	$47,092	$14,360	$61,452	$103,779	$31,646	$135,425
2048	60,732	7,507	68,239	$47,939	$14,552	$62,491	$108,287	$32,871	$141,158
2049	61,644	7,607	69,251	$48,794	$14,746	$63,540	$112,974	$34,142	$147,116
2050	62,561	7,708	70,269	$49,659	$14,942	$64,601	$117,851	$35,460	$153,311
2051	63,188	7,784	70,972	$50,156	$15,090	$65,246	$122,006	$36,707	$158,713
2052	63,820	7,862	71,682	$50,659	$15,241	$65,900	$126,310	$38,001	$164,311
2053	64,458	7,941	72,399	$51,165	$15,395	$66,560	$130,761	$39,345	$170,106
2054	65,102	8,020	73,122	$51,677	$15,546	$67,223	$135,372	$40,723	$176,095
2055	65,754	8,100	73,854	$52,194	$15,702	$67,896	$140,145	$42,161	$182,306
2056	66,410	8,182	74,592	$52,715	$15,861	$68,576	$145,081	$43,653	$188,734
2057	67,074	8,264	75,338	$53,241	$16,020	$69,261	$150,193	$45,193	$195,386
2058	67,746	8,346	76,092	$53,775	$16,179	$69,954	$155,491	$46,782	$202,273
2059	68,423	8,429	76,852	$54,313	$16,340	$70,653	$160,973	$48,428	$209,401
2060	69,107	8,514	77,621	$54,855	$16,505	$71,360	$166,645	$50,140	$216,785
2061	69,797	8,599	78,396	$55,404	$16,669	$72,073	$172,520	$51,905	$224,425
2062	70,495	8,685	79,180	$55,957	$16,837	$72,794	$178,598	$53,739	$232,337
2063	71,199	8,773	79,972	$56,515	$17,007	$73,522	$184,889	$55,637	$240,526
2064	71,911	8,860	80,771	$57,080	$17,175	$74,255	$191,405	$57,592	$248,997
2065	72,630	8,949	81,579	$57,652	$17,347	$74,999	$198,156	$59,623	$257,779