5.12.2011

Economic Impact of I-73 in South Carolina

The existence of I-73 will inject billions of dollars into the I-73 Corridor and South Carolina, and provide tens of thousands of jobs in tourism, retail, service, and warehouse industries. After road completion, annual economic impacts estimated at $2.0 billion will sustain 22,347 jobs in South Carolina in 2030 and beyond.

Prepared for Northeastern Strategic Alliance (NESA)

Richmond, Virginia

1309 East Cary Street
Richmond, Virginia 23219
804.649.1107 (phone)
804.644.2828 (fax)

Cleveland, Ohio

1025 East Huron Road
Cleveland, Ohio 44115
216.357.4730 (phone)
216.357.4730 (fax)

CHMURAECONOMICS&ANALYTICS

www.chmuraecon.com

Table of Contents

1. Conclusion

The proposed interstate system will inject billions of dollars into South Carolina and create jobs in the retail, service, warehouse, and tourism industries.

After the completion of I-73, both existing businesses and potential new businesses can benefit from the interstate. For existing businesses in the I-73 Corridor, the interstate can improve travel efficiency and produce cost savings of $120.8 million in 2030[1] (Table 1.1).

The most immediate new businesses associated with the construction of I-73 are the service businesses clustering around interchanges. These service businesses will serve both motorists on I-73 and local residents. They can generate an economic impact of $401.9 million and support 3,205 jobs per year in South Carolina in 2030, most of them being 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 with an economic impact of $31.1 million and 286 jobs in 2030.

The Myrtle Beach portion of I-73 to I-95, the route taken by most visitors, could boost tourism in the region by 7.1%, with an annual economic impact of $1.4 billion in South Carolina and the creation 18,856 jobs, most in the beach area.

State and local governments of the region are expected to reap considerable fiscal benefits from this project. When the project is complete, it is estimated that in 2030, the South Carolina state government will receive $86.1 million in sales tax, gasoline, corporate, and individual income tax. The local governments in the I-73 Corridor will receive annual tax benefits totaling $43.2 million in 2030 in the form of local-option sales tax, hospitality, accommodation, and admission taxes.

Table 1.1 summarizes the economic impact of I-73 on South Carolina.

Table 1.1: Annual Economic Impact Summary of I-73 on South Carolina in 2030

	Total Economic Impact ($MM)	Total Employment Compensation ($MM)	Total Job Creation	State Tax Revenues ($MM)	Local Tax Revenues ($MM)
Cost Saving (Productivity)	$120.8				
Roadside Services	$401.9	$138.5	3,205	$23.1	$11.4
One Distribution Center	$31.1	$14.5	286	$1.7	$0.0
Tourism	$1,428.6	$384.1	18,856	$61.3	$31.8
Total 2030	**$1,982.4**	**$537.2**	**22,347**	**$86.1**	**$43.2**

Source: Chmura Economics & Analytics

[1] The year 2030 is used in this report because it coincides with the year the traffic study forecast was performed.

2. Executive Summary

The United States Congress designated Interstate 73/74 (I-73/74) as a corridor of national significance, connecting the Great Lakes region with the Carolinas' coast. In South Carolina, I-73 traverses the northeastern part of the state through Dillon, Marion, Marlboro, and Horry counties. Those four counties constitute the I-73 Corridor in South Carolina. This study, produced by Chmura Economics & Analytics,[2] evaluates the economic impact of the proposed I-73 in South Carolina, with the understanding that the majority of the economic impact will stay in the I-73 Corridor.

The I-73 Corridor of South Carolina is made up of four counties.

In this study, the I-73 Corridor region of South Carolina is defined as the following counties: Dillon, Marion, Marlboro, and Horry. The economy of the I-73 Corridor in South Carolina is impacted by two separate regions. Dillon, Marion, Marlboro, and the western part of Horry County are largely rural. In the eastern part of Horry County is Myrtle Beach, a major tourism destination in South Carolina.

Economic literature indicates that highway networks are beneficial to regional economies.

Economic literature on the relationship between highway and economic development generally concludes that the following economic benefits are associated with a highway network:

***Travel efficiency*.** The construction of a highway can reduce travel time for business and residential areas. Trade, tourism, manufacturing, and construction sectors will benefit more from a new highway than other sectors such as health care or education.

***Attraction of service businesses*.** Businesses such as hotels, gas stations, retail stores, and restaurants often cluster around interstate interchanges.

***Strategic economic development*.** I-73 can potentially attract businesses such as distribution centers in rural parts of the I-73 Corridor. In addition, the proposed I-73 would likely accelerate the development of the proposed South Atlantic International Logistic Center (SAILC) in Western Marion County. The 3,000-acre site will be located eleven miles from I-95, and less than seven miles from the proposed I-73. When fully built, the SAILC will contain 15.0 million square feet of industrial, commercial, and manufacturing space; and will directly create 15,000 jobs in northeast South Carolina.[3]

***Boost to tourism business*.** Several case studies have found that improved access to tourist attractions (in this case, Myrtle Beach) can provide significant increases in visitor volume and associated spending in the area.

---

[2] Chmura Economics & Analytics, headquartered in Richmond, Virginia, is an economic consulting firm specializing in applied economics. Since 1999, the firm's economic impact studies have centered on many different topics including highways, airports, tourism, and mixed-use developments. Further details are available at www.chmuraecon.com.

[3] Source: Summary of the Master Plan for the South Atlantic International Logistic Center (SAILC). Prepared for Marion County Economic Development Commission, by CH2MHILL, August, 2009.

In the past four decades, the economy in the I-73 Corridor performed better than the state average in population and employment, largely due to rapid growth in Horry County. The other three counties lagged behind the state average.

From 1970 to 2009, the population in the I-73 Corridor region increased 2.1% per year, compared with statewide growth of 1.5%. The population in Horry County grew at 3.5% per year, while Dillon, Marion, and Marlboro counties experienced stagnant population growth.

From 1970 to 2008, the I-73 Corridor experienced 2.7% annual average employment growth, compared to 2.0% for the state. Employment in Horry County expanded 4.1% per year, while employment in the other three I-73 Corridor counties experienced limited growth or even decline.

In 2008, per capita income in all localities of the I-73 Corridor region was lower than the statewide average. However, per capita income growth in the past four decades has been keeping pace with the state average.

I-73 can provide $120.8 million in annual cost savings for current businesses as a result of improved travel efficiency.

A new highway can reduce travel time for regional businesses, thus producing cost savings and improved productivity. On average, I-73 can provide a 28% time-savings for businesses and motorists using the road. The total cost savings for the region is estimated to reach $120.8 million in 2030.

In 2030,[4] I-73 can support 126 service businesses in the I-73 Corridor. Those service businesses can subsequently maintain 3,205 jobs in South Carolina with a total annual economic impact of $401.9 million per year starting in 2030.

In 2030, it is estimated that I-73 can support approximately 126 businesses. This includes 42 motels/hotels, 36 gas stations, 28 fast food restaurants, and 20 full-service restaurants around the interchanges along I-73. The direct output of these businesses is estimated to be $259.1 million in 2030 and each year thereafter with ripple effects of $142.8 million. In terms of job creation, service businesses will directly employ 2,231 workers in the I-73 Corridor, with a ripple effect of an additional 974 jobs per year in South Carolina. Many of those ripple economic impacts will also occur in the I-73 Corridor.

The newly built I-73 may attract retail distribution centers, each adding 286 jobs and averaging $31 million in economic impact in 2030.

I-73 may attract retail distribution centers. An average distribution center employs about 200 workers and would directly generate about $19 million in direct economic output in 2030. Adding ripple effects, the total economic impact of a distribution center can reach $31 million in output and 286 jobs in 2030.

[4] The year 2030 is used in this report because it coincides with the year the traffic study forecast was performed.

I-73 will greatly improve the access to the Myrtle Beach area, which can boost tourism by 7.1%. That translates into an additional $909.9 million direct tourism spending in the Myrtle Beach area.

The $909.9 million incremental tourism spending can generate ripple effects of $518.7 million in South Carolina, reaching total impacts of $1.4 billion per year in 2030. In addition, incremental tourism spending can support 18,856 jobs in South Carolina, with the majority of them located in the Myrtle Beach area.

After I-73 is completed, it is estimated that the state of South Carolina can receive $86.1 million in annual tax revenue while fiscal benefits for local governments generate $43.2 million per year.

The state is expected to collect sales, gasoline, corporate, and personal income taxes from service businesses, potential distribution centers, and incremental tourism spending. State tax revenues are estimated to be $86.1 million per year in 2030. For local governments, I-73 is projected to contribute $43.2 million in revenue per year in 2030, in the form of local-option sales tax, hospitality, accommodation, and admission taxes.

Other benefits of I-73 are better market access, increased appeal for business relocations, faster population growth, safer travel, and an improved quality of life for residents. Rural areas also benefit from thousands of jobs created each year during the construction phase

I-73 will benefit manufacturers in the I-73 Corridor region by providing easier access to markets. The presence of an interstate highway can increase the appeal of the region to expanding and relocating firms, especially those in the mining, manufacturing, and distribution sectors. I-73 will also have a positive effect on population growth in the region. Other benefits include fewer accidents and improved safety on the roads.

As the site of most of the construction activities, the rural areas of the I-73 Corridor (Marion, Dillon, Marlboro, and western Horry) will also benefit from the construction impact. The construction activities can add 7,720 new jobs per year in the region, for five years.[5]

There are both upside and downside risks for economic projections made in this study.

The analysis of the economic impact of I-73 attempts to project the regional economy more than twenty years from now based on a certain set of assumptions. The projection is subject to forecasting risks, as actual events may change those assumptions. Unpredictable events create the potential for either larger (upside) or smaller (downside) effects than indicated here. For example, an oil crisis and subsequent rise in gas prices could reduce the traffic on the proposed I-73 and reduce the economic impact. Imposing tolls on I-73 could also reduce the use of the road and the resulting economic benefits. However, the expansion of a large manufacturing firm to the area that benefits from the new interstate would cause the projections in this report to err on the low side.

[5] Schunk, Donald. 2009. *The Economic Impacts of I-73 Construction: A Focus on Job Creation*. BB&T Center for Economic and Community Development, Coastal Carolina University

The economic impact of I-73 is summarized in Table 2.1.

Table 2.1: Annual Economic Impact Summary of I-73 on South Carolina in 2030

	Total Economic Impact ($MM)	Total Employment Compensation ($MM)	Total Job Creation	State Tax Revenues ($MM)	Local Tax Revenues ($MM)
Cost Saving (Productivity)	$120.8				
Roadside Services	$401.9	$138.5	3,205	$23.1	$11.4
One Distribution Center	$31.1	$14.5	286	$1.7	$0.0
Tourism	$1,428.6	$384.1	18,856	$61.3	$31.8
Total 2030	**$1,982.4**	**$537.2**	**22,347**	**$86.1**	**$43.2**

Source: Chmura Economics & Analytics

3. Introduction

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 Interstate 73 (I-73). I-73 passes 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 is in the vicinity of Bennettsville, at the North Carolina state line.[6] 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 ends at Myrtle Beach, where it intersects U.S. Route 17.

Figure 3.1: I-73 in South Carolina

Source: National I-73/I-74/I-75 Organization. Website http://www.i73.com/map.htm.

A corridor feasibility study was conducted in 1994 after the I-73/I-74 Corridor was designated as a high priority. This study evaluated several route options. For example, one option called for upgrading existing roads starting at the North Carolina state line at U.S. Route 1 in Marlboro County. This continued through Dillon, Marion, Horry, and Georgetown, or possibly Williamsburg and Berkeley Counties, and ending on the U.S. Route 17 corridor near the city of Charleston in Charleston County, South Carolina.[7]

South Carolina Department of Transportation (SCDOT) completed a second feasibility study for I-73 within South Carolina in June 2003. The study was completed in response to the change of the I-73 terminus from Charleston,

[6] Eventually, I-73 will join I-74 in Richmond County, North Carolina. Source: FEIS for I-73 North in South Carolina.
[7] Source: FEIS for I-73 North in South Carolina.

South Carolina, to the Myrtle Beach, South Carolina area. The study cited the need for I-73 as fulfilling congressional intent and providing an interstate link to the Myrtle Beach area along with the benefits of improved hurricane evacuation, improved capacity for vehicular and freight movement in the area, and supporting population and economic growth.[8]

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).[9] For the northern segment, SCDOT completed the report *Interstate 73 Final Environmental Impact Statement: I-95 to North Carolina*.[10] This study evaluated different alternatives and the environmental impact and recommended a preferred route. 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 South Carolina Department of Transportation 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.

An economic impact study focusing on construction was completed in 2009 by economists from Coastal Carolina University.[11] That study estimated the temporary job creation during road construction, but did not analyze the permanent economic impacts after the road completion. Chmura Economics & Analytics (Chmura) was retained to provide a detailed economic impact analysis of I-73 on the state of South Carolina that would occur after road completion. The remainder of this report is organized into the following sections.

- Section 4 provides a review of the economic literature on the role of highways in economic development
- Section 5 is an analysis of the current economic background of the I-73 Corridor region
- Section 6 summarizes the location, access points, and traffic data on I-73 in South Carolina
- Section 7 provides a detailed analysis of the ongoing economic impact of I-73, including the impact due to cost savings, new service businesses, and the impact on tourism in the Myrtle Beach region
- Section 8 estimates the fiscal benefits for the state and local governments
- Section 9 details the assessment of risk

[8] Source: FEIS for I-73 North in South Carolina.
[9] The final segment of I-73 (from SC-22 to Myrtle Beach) will utilize the exiting SC- 22. Thus, it was not included in the feasibility study, but is included in the economic impact study
[10] This can be found at: http://www.i73insc.com/draft_envir_statement_northern.shtml.
[11] Schunk, Donald. 2009. *The Economic Impacts of I-73 Construction: A Focus on Job Creation*. BB&T Center for Economic and Community Development, Coastal Carolina University.

4. Literature Review

Over the years, there have been a significant number of studies investigating the roles of highway systems in economic development. These studies have covered a wide range of geographical areas and have used a variety of economic analysis tools. In terms of geographical region, some studies integrated a broad scope, such as the entire national interstate highway system, while others have been as specific as a single road or interchange. In terms of methodology, previous studies have used either econometric regression for national studies or a case study approach for regional studies. The economic impact literature generally supports the conclusion that "the development of the interstate highway system has had a significant positive effect on the nation's economic performance since 1956" (NCHRP, 2006).[12]

Due to the sheer size of the literature, it is not possible to include all studies in this review. For that reason, the following literature review summarizes the results of key studies that are relevant to the economic impact of I-73 in South Carolina. Representative studies are categorized in the following four sections: Aggregate National Studies, Regional Studies, Studies Discussing Social Benefits, and Previous Economic Impact Studies on I-73.

4.1. Aggregate National Studies

National studies usually analyze the interstate highway system as a whole. They normally use econometric methods to quantify the effect of highway investment on business cost, output, and productivity.

The best known and most cited example of an aggregate national study was conducted by Nadiri and Mamuneas (1996)[13] who found that interstate highway investments lowered production costs and distribution costs in virtually every industry sector. In terms of economic impact, U.S. industries have realized production and distribution cost savings averaging 24 cents annually for each dollar invested in the non-local road system.

The study also concluded that interstate highway investments have made significant contributions to U.S. productivity growth, which refers to the average output for unit input factors. During the 1950s, highway network investments contributed to 31% of U.S. productivity growth. The contribution of the highway network to productivity growth was 25% in the 1960s but then fell to 7% in the 1980s. The relatively smaller effect from 1980 to 1990 reflects the diminishing marginal product of highway investment. In other words, as the interstate highway system was built up to its capacity, the incremental effect of investments diminished.

Nadiri and Mamuneas also found that the benefit of highways varies by industry. Not surprisingly, industries that rely on transportation generally reap the most benefits. Wilbur Smith Associates (2006) identified the following vehicle-intensive industries that experience the most productivity gains from interstates: trade, finance, insurance, real estate, construction, and transportation equipment manufacturing.[14]

A study by Rephann and Isserman (1994) investigated the economic effects of new highways on nonmetropolitan cities, the urban fringe, and more spatially isolated rural areas and counties adjacent to the counties with highways

---

[12] Source: *The Economic Impact of the Interstate Highway System*, Technical Memorandum Task 2, National Cooperative Highway Research Program (NCHRP), Project 20-24 (52), FY 2006. Retrieved June 27, 2007 from http://www.interstate50th.org/index.shtml.
[13] Source: *Contribution of Highway Capital to Output and Productivity Growth*.
[14] Source: *Delta Development Highway System Plan*, prepared by Wilbur Smith Associates for the Delta Regional Authority.

during both construction and post-construction periods. Results of the study showed that income growth during the highway construction period was positive and statistically significant for the construction industry and for total earnings in the region.

Chandra and Thompson (2000)[15] examined the economic effects, as measured by wage growth, of new highway construction on rural areas. Their study, which included all rural counties in the nation, showed that the wages of industries with more regionally traded goods (retail sales, government, and farming) improved in the direct counties where highways are located, but declined in the adjacent counties. A spatial competition model was constructed to show that direct counties drew economic activity away from the adjacent counties. This study also showed that the wages of industries with more nationally traded goods (manufacturing) increased in both direct counties and adjacent counties.

4.2. Regional Studies

Regional studies usually focus on a particular segment of highway and its economic impact on a region. Instead of taking an econometric approach, these studies commonly use a case study approach to estimate the impact of a highway. They often focus on indicators such as job creation, firm relocation, and tourism.

Regional studies generally fall into two categories. The first is the analysis of economic impact after the completion of a highway. These studies are based on actual data collected through surveys or interviews. Some compare economic indicators before and after the highway construction. Other studies choose a similar region without highway construction as a control and analyze the difference between the regions. The second type of regional analysis utilizes forecasting. With this form of research, simulation models are used to estimate the potential impact of a highway based on assumptions and projections. The economic impact of I-73 in South Carolina provided in this report relies on a forecasting and simulation model. Nevertheless, the studies based on post-construction data are important, as they provide significant assumptions.

4.2.1. Evaluating Post-construction Impact

A report by Jack Faucett and Associates and the Economic Development Research Group[16] studied a number of new highway corridors after highway completions. It was found that an interstate highway alone does not guarantee economic development success, but that it needs to be combined with other infrastructure and incentive policies to be most effective. This research correlated county-level data on population, employment, income, etc., with the periods before, during, and after the completion of an interstate highway. In some counties, observed changes in economic indicators implied that the influence of the interstate is positive from an economic development standpoint. Manufacturing employment increased 30% in Wisconsin's I-43 corridor. The Laurens County corridor in Georgia (I-16) experienced a 40% increase in population and a 100% increase in employment between 1969 and 2002, developing into a major logistic and warehousing center. However, the study also found areas where construction of interstate highways did not result in more jobs or additional residents, such as I-26 in Orangeburg County, South Carolina.

---

[15] Source: Chandra, Amitabh and Eric Thompson, 2000, "Does Public Infrastructure affect Economic Activity? Evidence from the Rural Interstate Highway System." *Regional Science and Urban Economics,* 30: 457-490.
[16] Source: *Economic Effects of Selected Rural Interstate at the County Level, 2005*, by Jack Faucett Associates and the Economic Development Research Group.

One particularly applicable case study by Faucett and Associates[17] is that of I-81 in Virginia. Faucett and Associates found that the population and employment growth of the I-81 corridor in Virginia, though lagging behind the state average, outperformed other rural counties in Virginia. From 1971 to 2002, the employment growth of Virginia's I-81 corridor averaged 2.0% per year compared with 1.3% for all rural Virginia areas. As a result of I-81, distribution centers became an increasingly important industry for localities along the I-81 corridor. In fact, as a result of economic and population growth in the corridor, three new metropolitan statistical areas (MSAs) were designated in the I-81 Corridor in Virginia since 2000: Blacksburg, Harrisonburg, and Winchester.

4.2.2. Simulating Potential Impact

In cases where actual post-construction data were not available, researchers utilized simulation models such as IMPLAN to estimate the economic impact of a highway. In these studies, rather than collecting before and after data, the job creation and economic outputs were calculated using an economic simulation model.

The economic impact analysis of the Maine East-West Highway utilized the simulation methodology. This study, which was conducted during the planning phase of the project, estimated the direct economic impacts in several categories: transportation costs, industry productivity, and tourism (including purchases from service businesses). The Maine study also analyzed the impact on business attraction, relocation, and retention through a case study of two similar highway investments in other parts of New England, I-89 and I-91. The researchers found that counties served by I-89 and I-91 experienced faster job growth than counties without interstate connections.

Using a REMI model, Wilbur Smith Associates (1998) researched the economic impact of the Appalachian Development Highway System (ADHS) for the Appalachian Regional Commission based on 12 highway segments in the Appalachian region. In addition to one-time construction impacts, their study estimated the following three direct ongoing impacts of the highways:

1. Lower transportation costs and improved productivity
2. Service business impact, which includes gas stations, hotels/motels, restaurants, gift shops, and other businesses that are typically located near highways
3. Tourism impact from highways that bring more visitors to the region

The three direct impacts were input into the REMI model to estimate the overall economic impact. The researchers found that: (1) from 1965 to 1995, 16,000 jobs were created that would not have existed without the ADHS; (2) the ADHS increased gross regional product by $1 billion in 1995; and (3) the ADHS highway system created travel efficiencies valued at $4.89 billion from 1965 through 1995.

4.3.3. Studies Focusing on Business Attraction and Generation

Several studies have investigated the economic development impact of rural highways. There are two types of businesses that can be attracted to a highway corridor. One is roadside service businesses that cater to motorists as well as residents. The second type is businesses such as distribution centers or manufacturing facilities that consider proximity to an interstate highway advantageous to their business.

[17] Source: *Economic Effects of Selected Rural Interstate at the County Level*, 2005, by Jack Faucett Associates and Economic Development Research Group. This study was prepared for Federal Highway Administration, U.S. Department of Transportation.

Hartgen et al[18] studied the effect of new business growth of roadside businesses. Using rural interstate highways in North Carolina as an example, they found that a rural interstate can support restaurants, gas stations, and motels that cater to motorists. However, the number of businesses that can be supported depends on the traffic volume and the distance of the interchanges to population centers.

Distribution centers are increasingly becoming an important business for communities along an interstate highway in this era of big-box retailers, widespread internet commerce, and just-in-time inventory systems. Studies have found that distribution centers are built in less populated areas where land is inexpensive, but are still close to population centers. A study of retail distribution centers in the United States[19] found that though 84.1% of distribution centers are located in metropolitan areas, the majority of distribution centers (61.2%) are located in places with a population density lower than 500 people per square mile. Retail distribution centers not only create hundreds of jobs for communities, but these jobs can also provide higher wages.

4.3.4. Studies on Tourism Development

Many academic studies have shown that the tourism industry in a particular region depends on accessibility. For example, in a study titled "Tourism Travel and Transportation System Development,"[20] researchers found that traffic congestion, construction delays, poor road conditions, and absent or confusing signage decrease the drawing power of a tourist attraction. On the other hand, transportation investment helps to increase tourist volumes, lengths of stay, and spending per visitor. This study implies that I-73 would have similar effects on tourism attraction in South Carolina.

Several case studies have shown that for many tourist attractions, road improvements have brought in tremendous increases in visitor volumes. For example, in evaluating the potential impact of a road improvement project to Chaco National Historic Park, researchers compared visitor volume to six national parks before and after the road improvement projects.[21] They found that the effect ranges from a 42% increase in four years for Canyonlands National Park to a 575% increase in four years for Capital Reef National Park, both in Utah.[22] On an annual basis, the increase in visitors to those tourism attractions ranges between 10% and 57% per year. Another study on Grand Canyon West in Arizona indicated that the improvement to the access road could increase visitor volume by

---

[18] Source: Hartgen, et al. "Growth at Rural Interchanges: What, Where, Why. *Transportation Research and Record*, 1359.

[19] Source: *Retail Distribution Centers: How New Business Processes Impact Minority Labor Markets*. http://www.eeoc.gov/stats/reports/retaildistribution/index.html.

[20] Source: Tourism Travel and Transportation System Development, by Greenhorne & O'Mara, Inc, Douglas Frechling, Michael Meyer, and Alan Pisarski, for Transportation Research Board, National Cooperative Highway Research Program, available at http://ntl.bts.gov/lib/16000/16200/16209/PB2000103006.pdf, 1998.

[21] Source: Potential Impacts Associated with Improvements to County Road 7950, prepared by Jonathan Upchurch, for Chaco Culture National Historic Park, available at http://www.chacoalliance.com/2005_Road_Study.pdf, 2005.

[22] The four year period is chosen because the study compared average visitor volume two year prior and two years after the road projects.

20% in four years.[23] Another case study shows that in Hovenweep National Monument in Utah/Colorado, the visitor volume increased 32% in 10 years after road improvements.[24]

4.3. Economic Impact Study of I-73 in Other States

Several studies were conducted for the impact of I-73 in Virginia. During the location study phase of I-73, James Gillespie of the Virginia Transportation Research Council completed an economic impact analysis of I-73. The main purpose of the Gillespie study was to rank 12 different route options in terms of economic impact. The two methods used in this study were an "exit" method and a "dollar" method. The exit method uses a narrow interpretation of the economic impact of highways because it only estimates the economic impact of service businesses.[25] Based on the Hartgen et al. (1992) paper on the relationship between rural interchanges and service businesses, Gillespie estimated that the proposed I-73 could support 61 gas stations, 60 new restaurants, and 52 new hotels, with a total job creation of 4,830.[26] The exit method did not capture other economic benefits of an interstate highway such as cost savings for existing businesses.

The dollar method evaluated the impact of I-73 on the overall regional economy based on aggregate studies reviewed in section 4.1 of this report. The method assumes that for every 1% increase in highway stock in the region, regional economic activity increases by a certain percentage. However, Gillespie did not provide a justification on the magnitude of this percentage. In the most optimistic scenario, Gillespie estimated that I-73 would create 3,186 jobs. Though this method captured the potential effect of the highway on the overall economy, the drawback of the Gillespie study is that it did not try to reconcile the seemingly different results of the exit and dollar methods. Readers were left wondering about the size of the economic impact of I-73.

The Economic Development Research Group conducted a separate study on the potential economic impact of I-73 on the city of Roanoke. The report studied the impact of I-73 on retail, office, and tourism industries. It concluded that I-73 (with a central alignment through Roanoke) could generate 5,670 jobs for the city of Roanoke. However, many of those jobs would be the result of business relocations between Roanoke and the surrounding areas. This study did not attempt to evaluate the economic impact on the entire I-73 Corridor region.

In 2007, Chmura Economics & Analytics completed a study on the economic impact of I-73 on Virginia. This study used a combination of exit and dollar methods in a simulation model framework. The study estimated that both existing businesses and potentially new businesses could benefit from I-73 after its completion. For existing businesses located in the I-73 Corridor, the highway could help improve travel efficiency and provide cost savings estimated at $141.2 million in 2020. The study estimated that a total of 141 service businesses could be supported by I-73 in 2020, generating an economic output of $210 million and directly employing 2,455 people. Furthermore, it

---

[23] Source: Economic Impacts of Prospective Diamond Bar Road Improvements, by Harvey Economics, for Grand Canyon Resort Corporation, available at http://resource.co.mohave.az.us/File/Public%20Works/Engineering/PDF/Projects/APPENDIX%20A%20DIAMOND%20BAR%20ROAD%20IMPROVEMENTS%20ECON%20IMPACT%20ANALYSIS.pdf, 2009.

[24] Source: Potential Impacts Associated with Improvements to County Road 7950, prepared by Jonathan Upchurch, for Chaco Culture National Historic Park, available at http://www.chacoalliance.com/2005_Road_Study.pdf, 2005.

[25] In this study, service businesses refer to those around interstate interchanges that serve motorists. Typical service businesses are gas stations, restaurants, and hotels.

[26] This number may not be directly comparable with what was found in the 2007 Chmura study, as the route and interchanges may have since changed.

was determined to be likely that I-73 development could support distribution centers in the I-73 Corridor with the total economic impact of one distribution center estimated to contribute $22.4 million and 277 jobs in 2020.

In 2009, Chmura Economics & Analytics completed a study on the economic impact of I-73 in West Virginia. This study used a combination of exit and dollar methods in a simulation model framework. The study estimated that a total of 83 service businesses could be supported by I-73 in 2020, generating total economic impacts of $172 million that support 1,765 jobs in the I-73 Corridor in West Virginia. Regional businesses would also benefit from cost savings and productivity improvement.

5. Economic Overview of the I-73 Corridor

The I-73 Corridor region in South Carolina is comprised of the counties of Dillon, Marion, Marlboro, and Horry. This section summarizes the historic economic performance of the I-73 Corridor in terms of population, employment, income, and industry mix.

5.1. Population

In 2009, the I-73 Corridor had an estimated population of 357,031, which accounts for 7.8% of the state total (Table 5.1). The region has experienced healthy population growth since 1970. From 1970 to 2007, regional population grew by an average 2.1% per year, faster than the state average of 1.5%. However, most of the growth occurred in Horry County, where Myrtle Beach is located. Horry County's population has expanded an average of 3.5% per year, thanks to its strong tourism sector that attracts over 15 million visitors each year.[27] In addition, due to its mild weather and rich amenities, the Myrtle Beach area has been able to attract a large number of retirees from the northern states.

Table 5.1: Population Estimates

Locality	1970	1980	1990	2000	2009	Average Annual Growth Rate
South Carolina	**2,590,516**	**3,121,820**	**3,486,703**	**4,012,012**	**4,561,212**	1.54%
I-73 Corridor	**156,251**	**198,315**	**236,427**	**291,635**	**357,031**	2.14%
Dillon	28,838	31,083	29,114	30,722	30,912	0.18%
Marion	30,270	34,179	33,899	35,466	33,468	0.26%
Marlboro	27,151	31,634	29,361	28,818	28,783	0.15%
Horry	69,992	1 01,419	144,053	196,629	263,868	3.46%

Source: U.S. Census Bureau

The other three counties in the I-73 Corridor are mostly rural and have experienced stagnant population growth in the past four decades (Table 5.2). The rural nature of those counties and the lack of easy access to a major transportation network may have contributed to an inability to retain or attract new residents.

Table 5.2: Average Annual Growth Rate in Population

Locality	1970-1980	1980-1990	1990-2000	2000-2009
South Carolina	**1.9%**	**1.1%**	**1.4%**	**1.4%**
I-73 Corridor	**2.4%**	**1.8%**	**2.1%**	**2.3%**
Dillon	0.8%	-0.7%	0.5%	0.1%
Marion	1.2%	-0.1%	0.5%	-0.6%
Marlboro	1.5%	-0.7%	-0.2%	0.0%
Horry	3.8%	3.6%	3.2%	3.3%

Source: U.S. Census Bureau

[27] Source: Myrtle Beach 2010 Summer Visitor Assessment, November 2010. Prepared by Equation Research.

5.2. Employment

In 2008, total employment in the I-73 Corridor was 193,467, or 7.5% of the state total. Over the last 38 years, employment in the I-73 Corridor increased at an average rate of 2.69% per year while employment in the state grew 2.04% per year (Table 5.3). Employment growth in the I-73 Corridor mimics the population growth of the region. Horry County has consistently added jobs at a much faster rate than the state average, but job growth in the other three counties lagged behind the state average. Employment in Marlboro County has diminished since 1980.

Table 5.3: Total Employment (Full Time and Part Time)

Locality	1970	1980	1990	2000	2008	Average Annual Growth Rate
South Carolina	**1,195,991**	**1,523,489**	**1,912,747**	**2,274,642**	**2,579,280**	**2.04%**
I-73 Corridor	**70,485**	**94,945**	**124,718**	**162,283**	**193,467**	**2.69%**
Dillon	11,377	11,270	11,449	12,783	12,710	0.29%
Marion	13,518	14,938	14,778	14,478	15,829	0.42%
Marlboro	12,078	12,473	11,379	9,931	9,962	-0.51%
Horry	33,512	56,264	87,112	125,091	154,966	4.11%

Source: Bureau of Economic Analysis

Even in swiftly developing Horry County, employment growth has slowed in recent decades when compared with previous decades (Table 5.4). From 2000 through 2008, the average job growth rate was 2.7% per year. This rate was slower than 3.7% reached from 1990 through 2000, or 4.5% reached from 1980 through1990. Marion County has reversed its declining trend after 2000, averaging 1.1% job growth per year from 2000 through 2008.

Table 5.4: Average Annual Growth Rate in Employment

Locality	1970-1980	1980-1990	1990-2000	2000-2008
South Carolina	**2.4%**	**2.3%**	**1.7%**	**1.6%**
I-73 Corridor	**3.0%**	**2.8%**	**2.7%**	**2.2%**
Dillon	-0.1%	0.2%	1.1%	-0.1%
Marion	1.0%	-0.1%	-0.2%	1.1%
Marlboro	0.3%	-0.9%	-1.4%	0.0%
Horry	5.3%	4.5%	3.7%	2.7%

Source: Bureau of Economic Analysis

5.3. Income

The latest data indicate that per capita income in the I-73 Corridor was $27,954 in 2008, 14% lower than the state average of $32,495 (Table 5.5). Historic income data indicate that the region has been keeping pace with the 1.7% income growth of the state from 1970 through 2008. Among all localities in the I-73 Corridor, only Horry County has an income level that is close to the state average. For Dillon, Marion, and Marlboro Counties, their rural nature and stagnant job growth limited the growth potential of personal incomes. For Horry County, despite rapid population and employment growth, the per capita income for the county was still below the state average because of the industry mix of the county. As will be explained later, the major economic engine in Horry County is tourism, which employs a relatively large percentage of part-time workers and low-wage employees having basic skills when compared with other industries.

Table 5.5: Per Capita Income (2008 Dollars)						
Locality	1970	1980	1990	2000	2008	Average Annual Growth Rate
South Carolina	**$16,927**	**$20,208**	**$26,096**	**$31,345**	**$32,495**	**1.73%**
I-73 Corridor	**$13,965**	**$17,139**	**$22,786**	**$28,337**	**$27,954**	**1.84%**
Dillon	$11,669	$14,001	$18,320	$22,971	$23,957	1.91%
Marion	$12,993	$15,420	$19,371	$22,886	$24,396	1.67%
Marlboro	$13,281	$14,777	$17,595	$21,646	$23,284	1.49%
Horry	$15,597	$19,416	$25,551	$31,139	$29,383	1.68%

Source: Bureau of Economic Analysis and Bureau of Labor Statistics

5.4. Industry Mix

In 2008, services were the largest industry sector in the I-73 Corridor, accounting for over 43% of regional employment, a reflection of the strong tourism industry in the Myrtle Beach region (Table 5.6). Since 2001, the service industry has expanded from 40.6% to 43.3% in 2008. Meanwhile, the importance of manufacturing in the regional economy has waned. Its share in regional employment fell from 10.1% in 2001 to 5.6% in 2008.

Table 5.6: Industry Mix-Employment as a Percentage of Total Employment								
	Ag. & Mining	Construction	Manufacturing	TWU	Trade	FIRE	Services	Government
I-73 Corridor								
2001	0.6%	7.6%	10.1%	2.0%	17.8%	9.2%	40.6%	12.2%
2008	0.3%	8.1%	5.6%	1.8%	17.7%	11.5%	43.3%	11.8%
South Carolina								
2001	0.6%	6.9%	14.4%	3.3%	15.1%	6.5%	36.1%	17.1%
2008	0.5%	6.8%	9.8%	3.2%	14.3%	8.7%	40.8%	15.8%

Ag: Agriculture

TWU: Transportation, Warehousing, and Utilities

FIRE: Finance, Insurance, and Real Estate

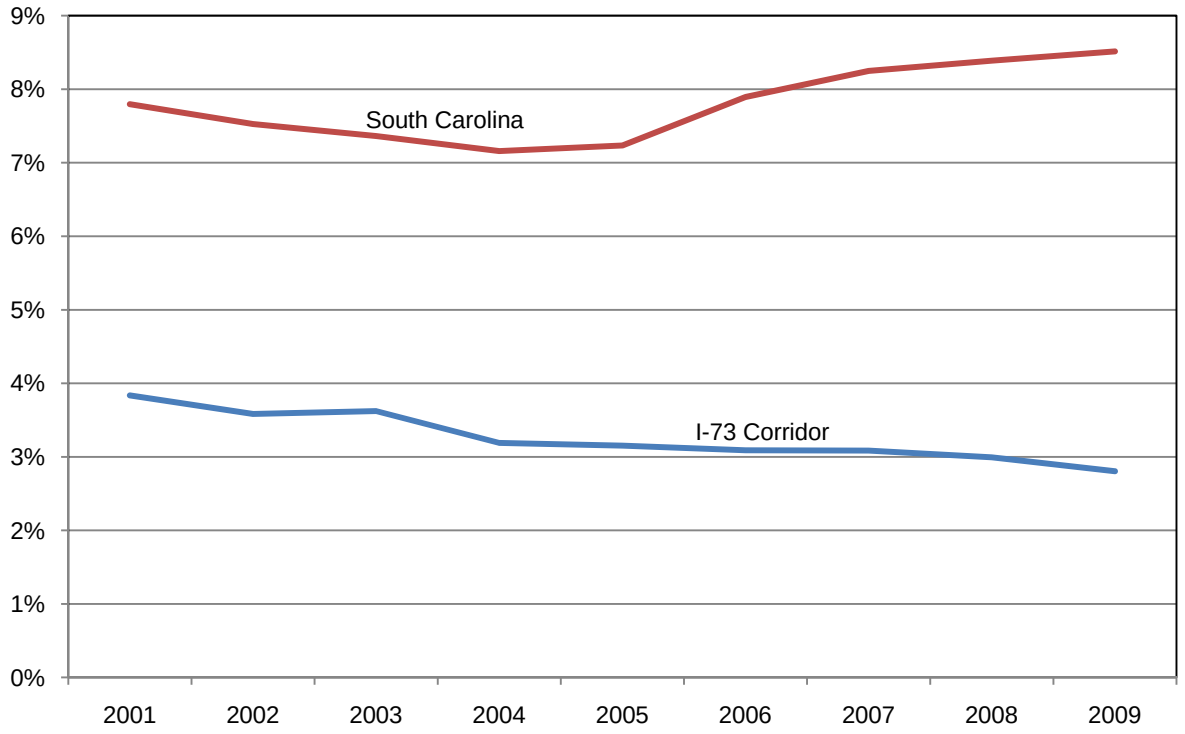
Source: Bureau of Economic Analysis

In the past seven years, the manufacturing and agricultural and mining sectors in the I-73 Corridor have experienced declining employment; other industry sectors enjoyed healthy growth (Table 5.7). Employment in the finance, insurance, and real estate (FIRE) sector registered the fastest growth at 6.3% per year. Compared with the state average, the pace of growth for the I-73 Corridor was faster for trade, government, and construction. However, it was slower for manufacturing; agricultural and mining; transportation, warehousing, and utilities (TWU); and FIRE sectors.

Table 5.7: Average Annual Growth Rate in Industries								
	Ag. & Mining	Construction	Manufacturing	TWU	Trade	FIRE	Services	Government
I-73 Corridor								
2001-2008	-5.9%	3.8%	-5.3%	1.7%	2.8%	6.3%	3.9%	2.3%
South Carolina								
2001-2008	0.6%	1.9%	-3.4%	1.8%	1.3%	6.5%	3.9%	0.9%
TWU: Transportation, Warehousing, and Utilities								
FIRE: Finance, Insurance, and Real Estate								
Source: Bureau of Economic Analysis								

Growth of the high-tech industry in the I-73 Corridor lagged behind the state (Figure 5.1). The percentage of high-tech employment in the I-73 Corridor stayed near or below 4% during the past nine years. This percentage has been steadily declining from 3.6% in 2003 to 2.8% in 2009. On the other hand, the high-tech employment rate in South Carolina has been expanding its share in recent years. For the same period, the percentage of high-tech employment in South Carolina increased from 7.3% to 8.5%.[28]

Figure 5.1: Percentage of High-tech Employment in Total Employment (2001-2009)



[28] There is no standard or widely accepted definition of high-tech industries. The definition used here is the same one used by Chmura's *Virginia Economic Trends*.

In summary, disparities exist among the counties located in the I-73 Corridor in South Carolina. Horry County, which includes Myrtle Beach, experienced faster employment and population growth than the state average. Growth in the remaining three counties in the I-73 Corridor lagged behind the state in population, employment, and income. The industry structure of the region is skewed toward tourism sectors, due to the inclusion of Myrtle Beach in the corridor. The region had very few high-tech industries.

6. Location, Access, and Traffic Impact of I-73

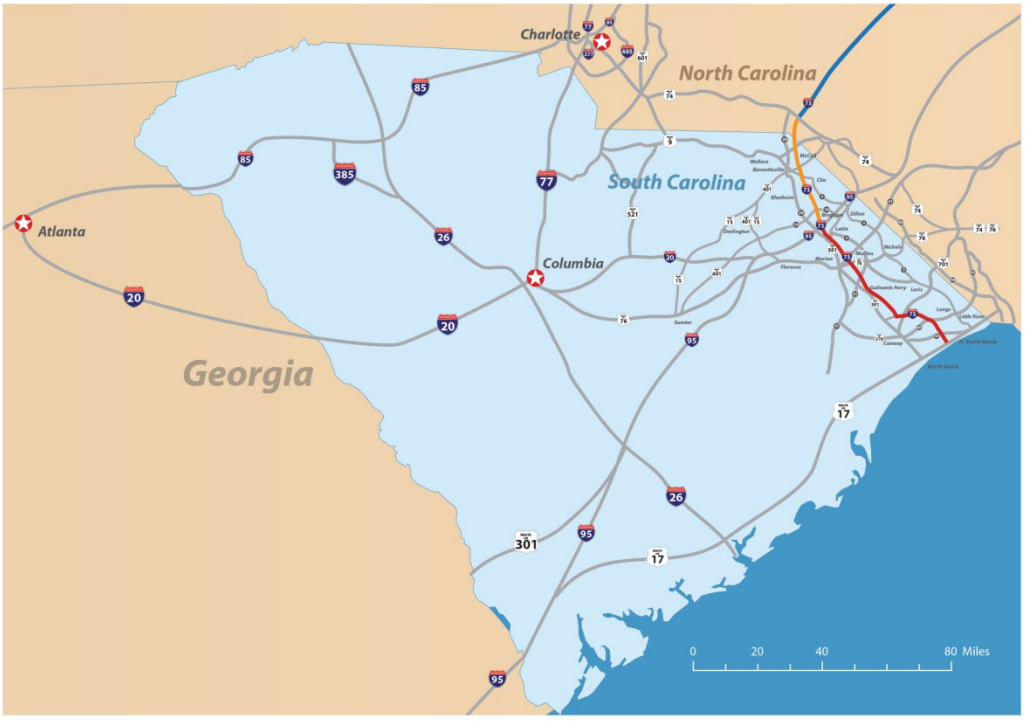
6.1. Location of I-73 in South Carolina

6.1.1. I-73 North Segment Location

The boundaries of the northern segment of I-73 in South Carolina are the North Carolina state line and I-95, for a length of 36.8 miles. The segment, shown as the blue line in Figure 6.1, passes through Dillon and Marlboro Counties.

This segment starts at the northern end of the interchange with I-95. It extends in a northern direction on the western side of Bingham where there is an interchange with S.C. Route 34. It continues north for approximately 3.5 miles north of Bingham where there is an interchange with S.C. Route 381 between Blenheim and Clio. It continues northwest where it has another interchange with U.S. Route 15/401 east of Bennettsville. Interchanges are also provided at S.C. Route 79, north of Bennettsville, and with I-74 near Hamlet, North Carolina.

Figure 6.1: Location of I-73 Northern (Yellow) and Southern (Red) Segments



Source: Colleen Balzotti, Graphic Design Manager, Myrtle Beach Area Chamber of Commerce.

6.1.2. I-73 South Location

The proposed I-73 located to the south of I-95 has two segments. The southern segment of I-73 in South Carolina runs from I-95 to SC-22 for a total of 43.5 miles. This segment consists of new roadways that need to be

constructed. From SC-22, I-73 will run for another 22.4 miles to U.S. Route 17 in Myrtle Beach, utilizing existing SC-22.

The selected route for the southern segment starts at the southernmost interchange with I-95, and from there it extends southeast on the western side of Latta where it would have an interchange with U.S. Route 501. It then crosses to the east immediately north of Temperance Hill, then extends southeast where it would interchange with S.C. Route 41A. It continues southeast and would have an interchange with U.S. Route 76 on the western side of Mullins. Once south of Mullins, it angles slightly east and crosses the Little Pee Dee River immediately adjacent to the existing S.C. Route 917. It would have an interchange with Road S-308, then continues southeast on a new alignment to an interchange with S.C. Route 22 near Bakers Chapel, about two miles west of the U.S. Route 701/S.C. Route 22 interchange. The interchange with S.C. Route 22 would be designed so that the traffic movement from I-73 to S.C. Route 22 would be the predominant movement through the interchange. After intersecting S.C. Route 22, the final segment of I-73 would follow the existing S.C. Route 22 to its terminus with U.S. Route 17 near Briarcliff Acres.[29]

6.2. Access Points

There will be 15 preliminary access points along the I-73 Corridor in South Carolina (Table 6.1). The Record of Decision (ROD), published by the Federal Highway Administration identified 5 access points within the I-73 northern segment, and 6 for the southern segment,[30] while the existing segment of SC 22 has five access points. Three of the access points are to be located in Marlboro County, three in Dillon, and two in Marion. Seven of the access points will be located in Horry County, with five being the existing access points on SC 22. These access points along I-73 will provide access to larger towns within the region such as Bennettsville, Marion, and Conway. Interchanges are also planned where I-73 crosses major roadways such as I-95, U.S. 15, U.S. 501, U.S. 76, U.S. 701, South Carolina Route 31, and U.S. 17.

Table 6.1: I-73 Access Points

County	Access Points
Marlboro	3
Dillon	3
Marion	2
Horry	2
Horry (Existing SC-22)	5
Total	15

Source: FHA ROD for I-73, and SCDOT

[29] Because the segment of SC Route 22 is in existence, and will be simply renamed to I-73 in Myrtle Beach region, the current Route 22 and its interchanges are not included in this impact analysis.

[30] The southern terminal of the northern segment and northern terminal of the southern segment are one access point at the intersection of I-95.

6.3. Traffic Projection

The economic impacts of I-73 will be affected by projected traffic volume on I-73 and the surrounding roads. Consequently, the first step in analyzing the economic impact of I-73 is to estimate the traffic pattern and volume on I-73 and the roads it intersects.

Table 6.2 shows the projected average daily traffic (ADT) for 2030 in I-73.[31] The forecasts were calculated utilizing a travel demand model by SCDOT. It is projected that the average daily traffic volume will range from 15,500 on the I-73 segment between I-95 and U.S. 501, to 33,850 on I-73 segment between SC 381 and SC 34. The traffic volumes are heavier on the final segment of I-73 (the exiting SC 22), as it gets closer to the city of Myrtle Beach. Compared with estimated average daily traffic in 2005, the traffic volume on I-73 is expected to increase 3.9% per year.

Table 6.2: I-73 Corridor Average Daily Traffic Volumes

Interchanges	Route and Location	2005(Actual)	2030 (Projected Traffic)
1	SC Route 79	4,700	28,850
2	U.S. Route 15-401	6,250	30,800
3	SC Route 381	8,450	33,850
4	SC Route 34	9,100	34,900
5	Interstate 95	8,150	25,200
6	U.S. Route 501	7,200	15,500
7	SC Route 41A	9,150	18,700
8	U.S. Route 76	12,550	25,250
9	SC Route 308	14,000	28,600
10	SC Route 22)	13,300	27,250
SC22-1	U.S. Route 701	5,566	19,100
SC22-2	SC Route 905	8,203	24,250
SC22-3	SC Route 90	12,137	32,400
SC22-4	Carolina Bay Highway 31	17,410	29,600
SC22-5	U.S. Route 17	20,507	30,200

Source: I-73 Technical Memorandum, North and South, SCDOT

[31] The year 2030 was chosen by SCDOT in its FEIS for both segments of I-73.

7. Economic Impact of I-73

This study uses a similar methodology to that employed in several studies that were reviewed in Section 3.2. Since I-73 has not been built, a before/after analysis is not feasible. As a result, prior studies are used to create assumptions regarding service business jobs and tourism jobs that may result from I-73. In the case of I-73 in South Carolina, the sources of regional economic impact accredited to a new highway can be grouped into the following four categories:[32]

1. Travel efficiency
2. Attraction of service businesses
3. Strategic economic development, such as distribution centers
4. Boost to tourism businesses

Estimates from those categories constitute the direct impacts. Direct impacts are input into the IMPLAN Pro model[33] to measure the multiplier impacts of I-73 on regional industries.

7.1. Travel Efficiency and Cost Savings

All existing businesses and residents located in the I-73 Corridor region can benefit from I-73 as a result of reduced travel cost and improved efficiency. Different industries would benefit to varying degrees. Industries requiring a significant amount of traveling, such as retail, real estate, and manufacturing, could see a bigger impact in terms of productivity improvement. Other industries, such as personal services, may see limited improvement.

The cost savings is a result of total time saved traveling on I-73 versus the current road system. Interstate 73 in South Carolina will provide significant time savings for businesses and residents in the region. For the northern segment from the North Carolina border to I-95, I-73 can reduce travel time by 32%,--from 47.5 minutes under the no-build scenario to 32.5 minutes on I-73. The improvement in travel time for the southern segment can reach 26% (see Table 7.1).[34] In addition, I-73 would also reduce accidents and their related costs to businesses and residents.

Table 7.1: Travel Time Savings I-73 (Minutes)

	No Build	Preferred Route	Time Saving
Northern Segment	47.5	32.5	32%
Southern Segment	77.5	57.5	26%
Total I-73 in South Carolina	125.0	90.0	28%

Source: FEIS of I-73 in South Carolina, North and South Segment

[32] The economic impacts of the I-73 construction have been studied by Dr. Donald Schunk of Coastal Carolina University in January 2009. Please see *The Economic Impacts of I-73 Construction: A Focus on Job Creation*.

[33] IMPLAN Pro is an economic impact assessment modeling system. It allows the user to build economic models to estimate the impacts of economic changes in states, counties, or communities. It was created in the 1970s by the Forestry Service and is widely used by economists to estimate the impact of specific events on the overall economy. It is one of the two most commonly used models to estimate the economic impact of an event. The other often-used model is REMI.

[34] It is assumed that the travel time on the final segment of I-73 (the existing SC-22) will remain the same, as no additional capacity will be added to that segment.

Chmura used secondary research to convert time savings into a dollar amount, as cost and benefit analyses for I-73 in South Carolina were not available.[35] In both Virginia and West Virginia I-73 studies, the annual value of cost savings and efficiency was estimated to be around 0.4% of the total regional output in the I-73 Corridor.[36] Based on that assumption, the value of travel efficiency and cost saving is assumed to be $120.8 million in 2030 for the I-73 Corridor in South Carolina. If businesses use their cost savings to expand and hire more people, the cost savings could potentially support over 835 new jobs, or $41.4 million in employment compensation in the I-73 Corridor region in 2030.[37]

In terms of regional distribution, about 57%[38] of the economic benefits, or $68.6 million, due to travel efficiency and cost savings, are estimated to occur in the northern segment while the remaining occur in the southern segment (Table 7.2).

Table 7.2: Travel Efficiency and Cost Saving

	2030 ($Million)
Northern Segment	$68.6
Southern Segment	$52.3
Final Segment (SC-22)	$0.0
Total	$120.8

Source: Chmura Economics & Analytics

7.2. Economic Impact of Service Businesses

7.2.1. Job Creation in Service Businesses

The most direct and visible new jobs created by I-73 will be in businesses along I-73 serving motorists. Entrepreneurs and established corporations will build gas stations, hotels, and restaurants near interchanges along the interstate to serve drivers who pass through as well as locals who live nearby. To estimate the potential service from businesses that could be located along I-73 in South Carolina, this study utilizes a "model-by-analogy" approach. Essentially, Chmura considered previous regression models built with service business data on completed interstates in urban, suburban, and rural regions. These models estimated the quantitative relationship between the number of service businesses and a few key factors. In particular, Chmura utilized a study of businesses at rural interchanges for North Carolina because it most resembles South Carolina in economic size and structure. The following five variables have an impact on the development of service businesses at interchanges along an interstate highway:

---

[35] For example, in the final version of the *Virginia I-73 Location Study: Benefits Cost Analysis Technical Report*, VDOT used a 30-year timeframe and 7% discount rate to arrive at the $1.47 billion present value.

[36] In 2007, the total economic output of the region was estimated to be $17.4 billion. Chmura assumed the total output of the region would grow 2.7% per year. Chmura used the average inflation rate from 2000 to 2009 (2.7%) as the assumption for future years.

[37] The increased output accounts for 0.4% of total output. In 2009, total economic output of the I-73 Corridor (based on the IMPLAN model) was $17.4 billion. In addition, employee compensation was 34.3% of total output. So, when travel efficiency provides a total economic impact of $120.8 million in 2030, 34.3% of it will be employee compensation. ($120.8 million * 34.3% = $41.4 million).

[38] This percentage is estimated based on average traffic volume in Table 5.1.

1. Average daily traffic (ADT) on the interstate
2. ADT on cross roads
3. Distance to the nearest major urban center
4. Design type (diamond or cloverleaf) of the interchange
5. Distance to the next interchange or intersecting interstate

Based on the projected traffic on I-73 and roads crossing I-73, the distance to towns, and interchange design, Chmura classified the 15 interchanges along I-73 in South Carolina into development stage categories: residential, light tourist service, economically competitive, economic integration, and heavy tourist service.[39]

- Residential interchanges generally are located in a rural setting, have lower traffic volume, and are not close to a town. They normally consist of only some development in single-family homes. A few intersections in Marlboro, Dillon, and northwest Horry counties are classified as residential.
- Light tourist service interchanges usually have one gas station, one small motel, and support moderate traffic flow. Several intersections in the counties of Marlboro and Marion belong in this category.
- Economically competitive interchanges usually have two to four gas stations, one to two fast-food restaurants, and two or more hotels. They typically have high traffic flow and are within three miles of nearby towns.
- Economic integration interchanges are located close to a town and have a high volume of traffic. These interchanges have more gas stations, hotels, and restaurants, because they serve motorists as well as local residents. One interchange in Marlboro and one in Dillon belong in this category. The interchange of U.S. 701 and the existing SC 22 also belongs in this category.
- Heavy tourist service intersections have the highest traffic volume and are in close proximity to another interstate. One interchange in Dillon, where I-73 intersects I-95, belongs in the heavy tourist category. Each heavy tourist service intersection can support more than six hotels, over six restaurants, and multiple gas stations. Three interchanges of I-73 in Myrtle Beach (U.S. Route 17, SC Route 31, and SC Route 90) also belong in this category.

Based on the classification of interchange types, Table 7.3 lists the projected service establishments that can be supported by I-73. In 2030, it is estimated that I-73 can support 126 businesses: 42 motels, 36 gas stations, 28 fast food restaurants, and 20 full-service restaurants.

Table 7.3: Projected Businesses Establishments in Roadside Services

	Marlboro	Dillon	Marion	Horry	Horry-SC22	I-73 Corridor
Number of Interchanges	3	3	2	2	5	15
Motels	4	8	4	2	24	42
Gas Stations	5	6	5	3	17	36
Fast-food Restaurants	3	5	3	2	15	28
Sit-down Restaurants	2	3	2	0	13	20
Total	14	22	14	7	69	126

Source: Chmura Economics & Analytics

[39] Appendix 3 lists the criteria and business activities of each intersection category.

In terms of job creation, service businesses are estimated to support 2,231 jobs in 2030 (Table 7.4). By jurisdiction, Horry County is likely to acquire more than half the jobs along I-73, as sections of road in Horry County around the city of Myrtle Beach carry the largest amount of traffic. Dillon County ranks second as it has a major intersection with I-95, which would be a concentration of motels and restaurants. That is followed in number by Marion and Marlboro Counties. To arrive at these estimates, Chmura calculated the average employment per business establishment in the I-73 Corridor in Virginia.[40] For example, an average gas station in the I-73 Corridor in Virginia employs eight workers and an average motel employs 23 workers. The average number of workers is 20 for fast food restaurants and 22 for full-service restaurants.[41]

Table 7.4: Projected Employments in Roadside Services

	Marlboro	Dillon	Marion	Horry	Horry-SC22	I-73 Corridor
Number of Interchanges	3	3	2	2	5	15
Motels	91	183	91	46	548	959
Gas Stations	40	48	40	24	135	286
Fast-food Restaurants	59	98	59	39	294	549
Sit-down Restaurants	44	66	44	-	285	438
Total	234	394	234	109	1,262	2,231

Source: Chmura Economics & Analytics

7.2.2. Economic Impact of Service Businesses

While spending by motorists at service businesses can bring millions of dollars to the economy, service businesses also have ripple effects throughout the state. These ripple effects are the sum of indirect and induced impacts. Indirect effects are generated because there are many state industries supporting restaurants, gas stations, and other visitor-service businesses. Money spent by customers in roadside restaurants and hotels also increases the sales of the suppliers for these industries. The induced effect is caused by increased income of workers employed by service businesses. These workers will in turn spend some of their income in the state, thus injecting more money into the economy.

The annual economic impact of I-73 service businesses in South Carolina is estimated to be $401.9 million in 2030 (Table 7.5). Of this, $259.1 million is direct spending on food, lodging, and gasoline at service stations. Over $142.8 million is derived from indirect and induced economic impacts. This effect indicates that for every $1 spent by I-73 motorists, the overall economic impacts can reach $1.55.

[40] Chmura possesses firm-level information from the Quarterly Census of Employment and Wages (or ES202) database to calculate the average business size in Virginia. No firm-level data are available for South Carolina.
[41] The number of employees reflects both full and part-time workers.

Table 7.5: Economic Impact Roadside Service in South Carolina (2030)	Direct	Ripple	Total
Spending ($MM)	$259.1	$142.8	$401.9
Employment Compensation ($MM)	$89.6	$48.9	$138.5
Employment (jobs created)	2,231	974	3,205
Note: The sum may not sum due to rounding			
Source: IMPLAN Pro 2009 and Chmura Economics & Analytics			

In terms of job creation, spending at I-73 business services can potentially generate 3,205 jobs in South Carolina in 2030, with the majority of them located in the I-73 Corridor. Of these, 2,231 jobs will be located at service businesses along I-73, while 974 jobs will be created by ripple spending effects.

The jobs created by service businesses will also bring new income to the region, thus benefiting residents. Based on the IMPLAN Pro estimate, the total employment compensation in 2030 will be $138.5 million. Of this, $89.6 million is compensation for individuals working at service businesses and $48.9 million is compensation for jobs due to ripple effects.

7.3. Development Potential for Distribution Centers

Distribution centers are increasingly becoming an important business for communities along interstate highways in the current era of big-box retailers, widespread internet commerce, and just-in-time inventory management systems. Distribution centers are usually located close to major population centers, allowing easy access to potential markets. Since distribution centers often require significant space,[42] they are often located in less populated areas where land is relatively economical. A study of retail distribution centers in the United States[43] found that though 84.1% of distribution centers are located in metropolitan areas, the majority of distribution centers (61.2%) are located in places with population density lower than 500 people per square mile. The most likely location for a distribution center is the fringe of a metropolitan area. Retail distribution centers create hundreds of jobs for communities, and these jobs can also provide competitive pay.

The development of distribution centers along I-81 in western Virginia provides a good example of the potential for I-73 in South Carolina. Interstate 81 provides easy access to major east coast population centers such as Washington D.C., Baltimore, and Philadelphia; yet it does not directly pass through these population centers, where land is scarce and expensive. Over the years, many major big-box retailers such as Home Depot, Kohl's, Best Buy, Wal-Mart, Target, and Marshalls have established distribution centers in Virginia along I-81. The average size of these distribution centers is close to 900,000 square feet.

The I-73 Corridor in South Carolina has the potential to develop distribution centers. All counties within the I-73 Corridor have a population density under 200 people per square mile. Dillon, Marion, and Marlboro counties have a population density below 100 people per square mile, thus they are more likely to be the location for distribution centers. Those three counties are close to I-95, providing easy access to Virginia and North Carolina markets. The

[42] Based on an EEOC study, many distributions centers are more than one million square feet in size.
[43] Source: *Retail Distribution Centers: How New Business Processes Impact Minority Labor Markets*. http://www.eeoc.gov/stats/reports/retaildistribution/index.html

distribution centers on I-73 can also serve the Myrtle Beach metropolitan areas as well as cities in Virginia and North Carolina. With proper targeting and incentives, there is potential for the I-73 Corridor in South Carolina to obtain one or more distribution centers.[44]

If the region receives one or more distribution centers after I-73 is complete, the economic impact can be sizable. Table 7.6 provides the economic impact of a typical distribution center. On average, distribution centers employ 200 workers and can directly generate about $19 million in economic output in 2030. Adding ripple impacts, the total economic impact of a distribution center can reach $31 million in output and 286 jobs in 2030 in South Carolina. In terms of wealth effects, the jobs created by a distribution center could generate an estimated $14 million in employee compensation in 2030. Of this total, $9 million is compensation for individuals working at the distribution center, and approximately $6 million is employment compensation due to ripple effects.

Table 7.6: Economic Impact of a Distribution Center in South Carolina (2030)

	Direct	Ripple	Total
Spending ($MM)	$19	$12	$31
Employment Compensation ($MM)	$9	$6	$14
Employment (jobs created)	200	86	286

Source: IMPLAN Pro 2009

Note: dollar amounts have been rounded

7.4. Potential Tourism Impact

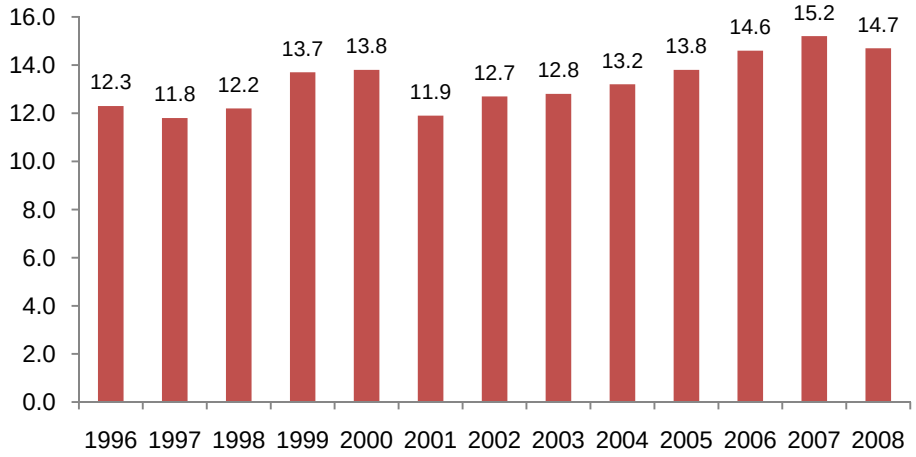
7.4.1. Direct Impact on Regional Tourism

While the western side of the I-73 Corridor will see economic development potentials in roadside services and potential distribution centers, the eastern end of I-73 Corridor (Myrtle Beach), will also benefit from I-73 as a result of a boost in tourism.

Myrtle Beach is one of the major tourism destinations in South Carolina as well as the southeastern United States. Sixty miles of coast line and mild weather make it a prime destination for beach and golf vacations. The region has also been popular among retirees, and has attracted nearly 15 million visitors annually in recent years (Figure 7.1). Despite the success, the future growth of the tourism industry can be limited. Myrtle Beach is a metropolitan area without immediate interstate access. Over 80% of visitors to Myrtle Beach travel by cars; 70% of which arrive via I-95.[45] However, there is no interstate linkage between I-95 and the Myrtle Beach area. Visitors must travel through state and local roads to reach Myrtle Beach. Visitors have consistently ranked travel distance as one of the major factors influencing their choices for vacation destinations.[46] In a recent survey prepared by Equation Research, 23% of surveyed visitors stated that transportation is a problem for the region. With the completion I-73, a direct link from I-95 to the Myrtle Beach area would be created, significantly reducing the travel time between I-95 and Myrtle Beach. As a result, there is potential to increase the number of visitors to Myrtle Beach, either by generating new visitors, or appealing to past visitors with additional convenience.

[44] The final segment of I-73 goes through densely populated areas, which is not an ideal location for distribution centers.
[45] Source: Myrtle Beach Area Chamber of Commerce.
[46] Source: ibid.

Figure 7.1: Myrtle Beach Area Visitor Volume (Millon)



Source: Myrtle Beach Area Chamber of Commerce

Pinpointing the potential impact of I-73 to regional tourism is a challenge. Many academic studies have shown that the tourism industry in a region depends on accessibility. For example, in a study titled "Tourism Travel and Transportation System Development,"[47] researchers found that traffic congestion, construction delays, poor road conditions, and absent or confusing signage decreased the drawing power of a tourist attraction. On the contrary, transportation investment helps increase tourist volumes, lengths of stay, and spending per visitor. However, this report did not establish a quantitative link between highway improvement and local tourism.

As mentioned in the literature review section, several case studies have shown that for many tourist attractions, road improvements have brought forth tremendous increases in visitor volumes. Studies on western U.S. National Parks found increases of visitor volumes ranging from 3% to 50% per year, depending on various factors such as current visitor volumes and location. Discussions with tourism leaders in the Myrtle Beach area indicate that access to an interstate will boost the tourism business significantly. Anecdotal evidence indicates that area hotels might expect a 10% to 25% increase in overall revenue with interstate access, as people would visit the Myrtle Beach area more frequently..

Chmura utilized a 2005 survey conducted by the Myrtle Beach Area Chamber of Commerce to estimate the potential increase in visitor volume as a result of the reduction in travel time after I-73 is complete. This survey asked the targeted visitors the maximum number of hours they are willing to travel to Myrtle Beach for a long vacation (5-7 days) or a short vacation (3-4 days). Not surprisingly, the percentage of targeted population willing to travel declines as necessary travel hours increase. Figures 7.2 and 7.3 summarize the survey responses for both long vacations (5-7 days) and short vacations (3-4 days).

[47] Source: Tourism Travel and Transportation System Development, by Greenhorne & O'Mara, Inc, Douglas Frechling, Michael Meyer, and Alan Pisarski, for Transportation Research Board, National Cooperative Highway Research Program, available at http://ntl.bts.gov/lib/16000/16200/16209/PB2000103006.pdf, 1998

Figure 7.2: Hours Willing to Travel to Myrtle Beach (5-7 days Vacation)

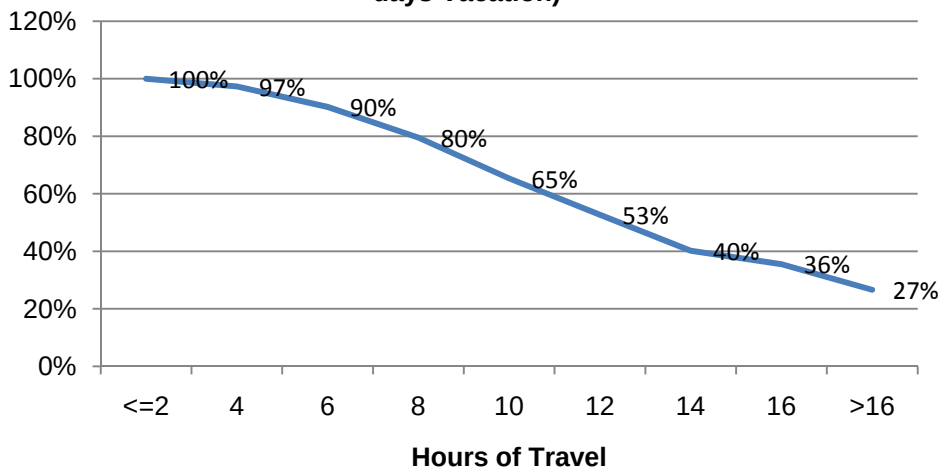
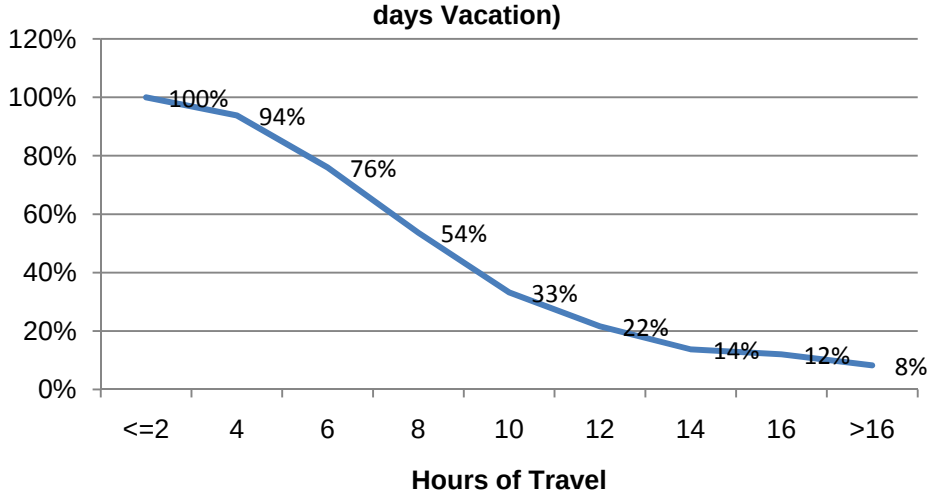


Figure 7.3: Hours Willing to Travel to Myrtle Beach (3-4 days Vacation)



In Figure 7.2, for example, survey responses show that 100% of the targeted visitors are willing to travel two hours or less for a 5-7 day vacation. However, 2.7% of the targeted visitors will not travel more than two hours. As a result, when the travel time increases to four hours, 2.7% of the target population will be lost so only 97% of the targeted visitors are willing to travel to Myrtle Beach. When the necessary travel time increases to six hours, an additional 7% of the targeted visitors will be lost so that 90% of the targeted visitors are willing to travel up to six hours. Similarly, 80% of the targeted visitors are willing to travel up to eight hours, and 65% of the target population is willing to travel up to ten hours.[48]

[48] A similar methodology is used by Bob McKercher, Andrew Chan, and Celia Lam, "The Impact of Distance on International Tourist Movements, *Journal of Travel Research*, Volume 47, Number 2, November 2008, pages 208-224.

The survey results indicate that when travel time increases by two hours, on average, 8.2% of the targeted visitors for a 5-7 day vacation will be lost. For a 3-4 day vacation, when the travel time increases two hours, 10.2% will be lost. The opposite is true that when the travel time is reduced as a result of the new interstate connection—a similar percentage of additional visitors will be willing to travel to the Myrtle Beach area.

During the peak tourist season, direct interstate access can potentially reduce travel time to Myrtle Beach by two hours. During off-peak season, however, travel time can be reduced by one hour. Figures 7.2 and 7.3 imply that each one hour of travel time leads to an attrition of 4.1% for a 5 to 7 day vacation, and 5.1% for a 3 to 4 day vacation.

Fifty-eight percent of Myrtle Beach tourists visit the area during peak season and 42% visit during off-peak season. In addition 62% of Myrtle Beach visitors stay 5 to 7 days in the area, while 42% of Myrtle Beach visitors stay 3 to 4 days.[49] Combining the information, it is estimated that I-73 can potentially increase tourist volume by 7.1%.

Based on the latest survey of visitors conducted by Equation Research in 2010, the annual visitor volume to Myrtle Beach is assumed to be 15.2 million. Based on a 2009 study, each travel party consisted on average of 4 people who stayed in the area for 5.6 nights, with average spending of $98 per person per day.[50] A 7.1% boost in tourism business could result in an increase in total tourism expenditure by $909.9 million in 2030 dollars in the Myrtle Beach Area.

7.4.2. Economic Impact of Increased Tourism

The incremental tourism expenditure will also have ripple economic impacts throughout the state. Chmura utilizes IMPLAN Pro to estimate the ripple impact of tourism spending. The first step is to distribute the $909.9 million direct spending into different spending categories such as food, lodging, transportation, and shopping, because each category will have different relationships to the state economy. A visitor survey in 2009 found that for total visitor spending in the Myrtle Beach area, 25% was spent on accommodation, 20% on restaurant or grocery, 19% on shopping, and 16% in entertainment/attractions. The remaining 20% is spent on golf, car rental, transportation, and miscellaneous.[51]

In 2030, the annual total economic impact of increased tourism expenditure in Myrtle Beach would be $1.4 billion (Table 7.7). Of this, $909.9 million is direct spending within the regional tourism industry. In terms of job creation, increased tourism spending can potentially support 18,856 jobs in South Carolina. Of these, 12,669 jobs will exist within the Myrtle Beach regional tourism industry, while 6,187 jobs will be created by ripple spending effects around the state of South Carolina.

Table 7.7: Economic Impact of Incremental Tourism in South Carolina (2030)

	Direct	Ripple	Total
Spending Impact ($Million)	$909.9	$518.7	$1,428.6
Employment Compensation	$244.7	$139.5	$384.1
Employment Impact	12,669	6,187	18,856

Note: Numbers may not sum due to rounding
Source: IMPLAN Pro 2009 and Chmura

[49] Source: Myrtle Beach Chamber of Commerce.
[50] Source: Myrtle Beach 2010 Summer Visitor Assessment, November 2010. Prepared by Equation Research.
[51] Source: Myrtle Beach 2009 Conversion Study, February 2010. Prepared by Equation Research.

7.5. Other Benefits

While extensive economic literature on the impact of interstate highways enables Chmura to project growth opportunities in service businesses, distribution centers and the boost to regional tourism, it can also bring other benefits to the region. Some of these benefits include increased appeal of the region for expanding and relocating firms, increased property values, and increased safety. Many studies that address these benefits are anecdotal in nature. As a result, while acknowledging that these benefits exist, Chmura does not attempt a formal projection of the benefits.

The proposed I-73 would likely accelerate the development of the proposed South Atlantic International Logistic Center (SAILC). The proposed SAILC is located in Western Marion County. The 3,000-acre site will be located eleven miles from I-95, and less than seven miles from the proposed I-73. When fully built, the SAILC will contain 15.0 million square feet of industrial, commercial, and manufacturing space; and will directly create 15,000 jobs in northeast South Carolina. The site will also contain a 40-acre intermodal transfer yard,[52] whose purpose is to improve the rail connection and transportation capacity between the Port of Savannah and its market areas on the east coast.

The proposed I-73 will greatly expand the market reach of SAILC to include not only east coast markets, but also mid-west markets such as Ohio and Michigan, thus accelerating the build-out of SAILC. It is estimated that I-73 can reduce the build-out time of SAILC from twenty years to ten years, thus bringing much needed jobs to northeast South Carolina faster.[53]

I-73 will benefit manufacturing and agricultural businesses in the corridor by providing improved access to markets. When I-73 is complete from Michigan to South Carolina, I-73 can provide improved access to population centers in both the Midwest and East Coast. Due to a lack of data on current flows of commodities, the exact benefit is yet to be determined.

The presence of an interstate highway can increase the appeal of the region to expanding and relocating firms. Traditionally, highway connectivity is a key consideration for many firms. However, its importance has diminished over time; this is due to the development of computer and communication technology, as well as the declining roles of manufacturing in the national economy. Proximity to markets, quantity and quality of workforce, and quality of life factors are increasingly important. However, interstate highways are still critical for certain industries. Aside from service businesses and distribution centers, manufacturing plants also tend to locate close to interstate highways for transporting supplies and finished products. Coupled with low wages and a low cost of living in the I-73 Corridor, I-73 communities should be appealing to expanding manufacturing firms.

In terms of geographic distributions of economic benefits, while the boost in tourism benefits the Myrtle Beach region, benefits of I-73 in terms of distribution centers and manufacturing industries will primarily occur in the rural areas of the I-73 Corridor in South Carolina, including Marion, Dillon, Marlboro, and western Horry counties. Another significant benefit to the rural areas is the construction impact. The last segment of I-73 around Myrtle Beach (current SC-22) has been built, and all new construction will occur primarily in the rural areas west of SC-22-- in western Holly, Marion, Dillon, and Marlboro counties. Despite the fact that the construction impact is

[52] Source: Summary of the Master Plan for the South Atlantic International Logistic Center (SAILC). Prepared for Marion County Economic Development Commission, by CH2MHILL, August, 2009.
[53] Source: South Atlantic International Logistic Center.

temporary, a major project such as I-73 can last for years, thus creating thousands of job for a sustained period of time, providing a much needed economic boost for rural communities. According to a study on the economic impact of I-73 construction,[54] $2.4 billion will be spent in rural areas to construct I-73. The direct construction spending will generate 4,680 new construction sector jobs in the Corridor per year for five years. An additional 3,040 jobs will be generated throughout the regional economy due to economic ripple effects. Taken together, the creation of 7,720 new jobs per year, for five years, would amount to a 4.6% increase in total regional employment in the I-73 Corridor. The majority of those jobs will stay in the rural areas west of SC-22, sufficient to push the rural areas out of the recession and the slow recovery.

Outside of economic and industry developments, population growth in the region can also be aided by I-73. The presence of an interstate highway and jobs associated with it will have a positive effect on population growth. With the potential of more jobs in the tourism industry in the Myrtle Beach area, the region is expected to see an influx of workers to take those jobs. In addition, an interstate highway reduces commuting time and enhances the attractiveness of a region as a destination for residential development. The region is already appealing to retirees. With a direct link to I-95 and the northeast United States, the appeal of the region to northeast retirees could be enhanced.

As noted earlier, another benefit of I-73 would be a reduction in accidents and increased road safety. Driving on interstate highways is safer for a number of reasons. Interstate highways are typically wider, have more lanes, and are straighter than other highways. More importantly, interstate highways have controlled access through on-ramps while vehicles on other non-interstate highways have to pass through non-access-controlled intersections with more traffic hazards. Traffic accidents not only incur enormous monetary costs, but the emotional cost due to the loss of human life can be even more traumatic to communities in the I-73 Corridor.

Finally, I-73 can also improve the quality of life for area residents. I-73 can make it more convenient for residents to reach destinations for work, shopping, recreation, and entertainment. It can increase the appeal of the region to future residents.

[54] Schunk, Donald. 2009. *The Economic Impacts of I-73 Construction: A Focus on Job Creation*. BB&T Center for Economic and Community Development, Coastal Carolina University.

8. Fiscal Impact

In addition to creating jobs and injecting millions of dollars into the economy, I-73 will produce tax revenue for the counties located in the I-73 Corridor region and for South Carolina. For the state, the four main tax sources are sales tax, state gasoline tax, personal income tax, and corporate income tax. Revenue from each category will increase as a result of new jobs and businesses associated with I-73. For counties along the I-73 Corridor, major revenue sources are hospitality tax, accommodation tax, admission tax, as well as various local optional sales taxes (including capital project sales and education capital improvement tax).[55]

8.1. State Fiscal Impact

Four major state taxes are estimated for South Carolina state government—sales, gasoline, individual, and corporate income taxes.

For roadside services as well as tourism spending, the state of South Carolina will collect 6% sales tax on receipts from service businesses such as gas stations, retail shops, hotels, and restaurants.[56] South Carolina charges an additional gasoline tax. We assume sales at gasoline stations increase with the additional visitor spending based on historical spending patterns for gasoline purchases. Currently, South Carolina collects $0.16 per gallon, which translates into 5.8% of total sales, based on the current gas price of $2.75 per gallon in late 2010 in South Carolina.[57] Since the gas tax is based on gallons sold, tax revenue will not increase as the price of gas appreciates. As a result, the gas tax rate as a percentage of dollar sales will decrease as gas prices increases. If gas prices appreciates as indicated by the consumer price index, the gasoline tax will be only 3.4% of gas sales in 2030.

The state will also collect corporate income tax from service businesses, tourism spending, and potential distribution centers located along I-73. Similarly, people working for these businesses will be subject to personal income tax. Chmura utilizes the following methodology to estimate corporate and personal income taxes. In Section 7, Chmura estimated the total direct impacts of service businesses, potential distribution centers, and incremental tourism spending. The IMPLAN Pro model provides profit margins and the relative weight of wages and salaries in total output for each industry in the I-73 Corridor. For example, for restaurant businesses in the I-73 Corridor region, IMPLAN Pro shows that profits account for 9.8% of the total output while wages and salaries account for 36.4%. For lodging businesses, these percentages are 15.5% and 30.3% respectively. From this information, Chmura estimates the total profits, wages, and salaries that can be attributed to I-73. (The state corporate income tax rate is 5.0% and the average personal income tax rate is 5.4%).[58]

Table 8.1 presents the tax revenues for the state after I-73 is completed. In 2030, the total state tax revenue from service businesses, potential distribution centers, and incremental tourism spending is estimated to be $86.1 million. The majority ($61.3 million per year) will be coming from increased tourism spending in the Myrtle Beach

[55] Source: South Carolina Tax Department. Only tax revenues from direct impacts are estimated.
[56] Source: South Carolina Tax Department. This does not include local optional sales taxes, which will be analyzed in Section 8.2.
[57] Based on the gas price as of late November 2010. Source: http://www.southcarolinagasprices.com/.
[58] South Carolina has a progressive state income tax system where higher income individuals pay higher percentages of their income as income tax. According to South Carolina Tax Department, for an individual earning $30,000 per year, the average tax rate is 5.4%. The average annual wage of the region was around $30,000 per year.

area. Sales tax is expected to account for more than half of incoming revenue, followed by individual and corporate income taxes.

Table 8.1: State Tax Estimate for 2030 ($MM)

	Corporate Income Tax	Personal Income Tax	State Sales Tax	State Gas Tax	Total
Roadside Services	$1.8	$4.8	$15.5	$1.0	$23.1
One Distribution Center	$1.2	$0.5	$0.0	$0.0	$1.7
Incremental Tourism	$6.1	$18.9	$34.8	$1.5	$61.3
Total	$9.1	$24.2	$50.3	$2.5	$86.1

Source: Chmura Economics & Analytics

8.2. Local Fiscal Impact

For counties along the I-73 Corridor, major revenue sources are hospitality, accommodation, and admission taxes, as well as various local optional sales taxes (including capital project sales and education capital improvement tax).

Chmura utilizes the following methodology to estimate local tax revenue.[59] Since all local taxes are based on total receipts, the direct spending impact estimated in Section 7 provides a good basis for calculating tax revenue. For roadside services and potential distribution centers, average tax rates in all four counties are used to calculate tax revenues. Since incremental tourism spending will mostly occur in the Myrtle Beach area, Chmura uses tax rates from Horry County to estimate the tax revenues from incremental tourism spending.

Many counties in South Carolina add local optional sales tax after the state sales tax. Local optional sales tax is 1% for Marlboro, Marion, and Horry Counties, and 2% for Dillon County.[60] Horry County also added 1% in Capital Project Sales tax and 1% in Education Capital Improvement tax, in addition to the state sales tax. Local optional sales taxes can generate yearly $24.0 million in tax revenue for local governments in 2030. The majority is from incremental tourism spending, which will go to Horry County.

Prepared food sales in certain South Carolina counties are subject to a hospitality tax. Marion County has 2.0% hospitality tax and Horry County has 2.5%. Dillon and Marlboro do not have a hospitality tax. The average hospitality tax for the I-73 Corridor is estimated to be 2.0%, which is applied to restaurant sales from roadside services. In Horry County, the hospitality tax is 2.5%, which is applied to restaurant sales from incremental tourism spending. The total hospitality taxes are estimated as $6.3 million per year in 2030, with the majority of them going to Horry County.

Lodging receipts in certain South Carolina counties are subject to an accommodation tax. Horry County and Marlboro Counties have 2.5% and 3% accommodation tax, respectively, while Dillon and Marion counties have no accommodation tax. The average hospitality tax for the I-73 Corridor is estimated to be 2.1%, which is applied to lodging sales from roadside services. In Horry County, the hospitality tax is 2.5%, which is applied to lodging sales

[59] Only county tax revenues are estimated in this study. In South Carolina, municipalities may also impose taxes on properties and businesses. Those are not estimated here.

[60] Source: South Carolina Association of Counties website. *Local-Option Taxes Imposed by Local Entities*. http://www.sccounties.org/client_resources/services/Research/LocalOptionTaxes.pdf.

from incremental tourism spending. The total accommodation taxes are estimated to be $8.8 million per year in 2030.

Sales from recreation and entertainment businesses are subject to admission tax in certain South Carolina counties. In the I-73 Corridor, only Horry County has a 2.5% admission tax. The total admission taxes are estimated as $4.1 million per year in 2030, all of those going to Horry County.

In summary, after the construction of I-73 is complete, local governments could collect a total of $43.2 million local taxes per year. The majority of those will go to Horry County, as it will benefit from increased tourism spending.

Table 8.2: Local Tax Estimates for 2030 ($MM)

Construction	Local Optional Sales Tax	Accommodation Tax	Hospitality Tax	Admission Tax	Total
Roadside Services	$6.6	$3.0	$1.7	$0.0	$11.4
One Distribution Center	$0.0	$0.0	$0.0	$0.0	$0.0
Incremental Tourism	$17.4	$5.7	$4.5	$4.1	$31.8
Total	$24.0	$8.8	$6.3	$4.1	$43.2

Source: Chmura Economics & Analytics

8.3. Potential Payback Period for Investment

To calculate the payback period for investment, Chmura used a 2.7% discount rate to calculate the net present value of the cumulative benefits of I-73. It then compared that with the cost of I-73. The benefits of I-73 include travel efficiency, cost savings, incremental visitor spending, benefits of service businesses, and potential distribution centers. The direct impacts of all three types of benefits can be $1.3 billion in 2030.[61] The total cost of the I-73 project was estimated at $2.9 billion in 2009.[62] Discounting potential benefits from 2030 and beyond to 2009 dollars, the net present value will exceed total cost after 2034, in just four years after I-73 is completed.

[61] This includes the direct impacts of service businesses ($259.1 million in 2030) and a distribution center ($19.0 million in 2030), travel efficiency ($120.8 million in 2030), and incremental tourism ($909.9 million in 2030).

[62] Source: *The Economic Impacts of I-73 Construction: A Focus on Job Creation*, prepared by Donald Schunk, BB&T Center for Economic and Community Development, Coastal Carolina University, January 2009.

9. Assessment of Risks

The economic impact analysis in this study attempts to project the regional economy twenty years from now in terms of output, job, and income growth. These projections are based on a set of assumptions. As a result, the projections are subject to forecasting risks as actual events may vary from the assumptions. Unpredictable events create the potential for either larger (upside) or smaller (downside) effects than indicated here. Some of these factors are discussed below.

9.1. Downside Risks

For the service businesses and associated employment to materialize, certain conditions need to be met. Since one major requirement is the availability of water and sewer services to the site, development may require additional investments by the counties along the I-73 Corridor to bring water and sewer to rural interchanges. If water and sewer systems are not in place, it will deter the development of service businesses such as hotels, restaurants, and gas stations.

In addition, a large portion of economic benefits are based on the assumption that with interstate access, the Myrtle Beach area tourism could see a 20% enhancement. To accommodate such an increase in visitors, other infrastructures, (hotel, food services, and ground transportation) should also expand their capacity in the region. Otherwise, the shortage of hotel rooms or entertainment options can discourage visitors.

Continued rises in oil prices could reduce the traffic projection and thus the economic impact. Oil prices have been volatile in the past few years, reaching as high as $134 per barrel in June 2008. The price per barrel has dropped as low as $40 in early 2009, but rebounded to $80 per barrel in late 2010. Without the discovery of new oil reserves and with the demand for oil forecasted to increase, the price of oil is likely to continue to rise over the long term. Higher oil prices could have a negative effect on the projected economic impact, since higher oil prices can reduce automobile travel.

The traffic projection cited in this report is based on the assumption that I-73 in South Carolina is not a toll road. Should a toll be imposed on the road, Chmura expects the traffic volume on I-73 to be smaller, as would the resulting economic impact of travel efficiency and service businesses, and the potential incremental visitors to Myrtle Beach area. The likelihood of obtaining a distribution center may also diminish as tolls impose additional costs for businesses using the road.

9.2. Upside Risks

One factor that could result in a higher economic impact from I-73 is the expansion and relocation of firms in industries other than service businesses. Chmura built into the projection a distribution center in the I-73 Corridor, but several other industries can potentially take advantage of the interstate access. For example, the I-73 Corridor has a competitive manufacturing industry. It is possible that I-73 can provide a boost for local manufacturing industries. Expansion and relocating to this area gives firms access to both East Coast and Midwest markets. In this study, Chmura does not assume the relocation or expansion of manufacturing firms in the I-73 Corridor.

It is possible that traffic projections on I-73 might be low. The traffic projection made by SCDOT focused only on I-73 in South Carolina. SCDOT did not assume that I-73 (from Michigan to South Carolina) was complete when making its projection. For that reason, the traffic volume could be higher than currently projected when I-73 is complete. As a result, the economic impact will be higher than projected in this report.

References

Amitabh, Chandra, and Eric Thompson. 2000. Does Public Infrastructure affect Economic Activity? Evidence from the Rural Interstate Highway System. *Regional Science and Urban Economics* 30: 457-490.

Chmura Economics & Analytics. 2000. Highway Investment and Economic Development: I-73 and the Roanoke Valley, Prepared for JobWAY.

Chmura Economics & Analytics. 2007. Economic Impact of Interstate 73 on Virginia. Prepared for The Harvest Foundation and The Virginia Tobacco Indemnification and Community Revitalization Committee.

Chmura Economics & Analytics. 2009. Economic Impact of I-73 on the I-73 Corridor in West Virginia. Prepared for King Coal Highway I73/74 Authority.

Economic Development Research Group. 2000. Economic Impact of I-73 Alignments on the City of Roanoke. Prepared for City of Roanoke, Office of Economic Development.

Economic Development Research Group, and Cambridge Systematics, Inc. 2003. Preliminary Economic Impact of the Southern Tier Expressway: Western Portion, prepared for Southern Tier West Regional Planning and Development Board.

Equation Research. 2010. Myrtle Beach 2009 Conversion Study.

Equation Research. 2010. Myrtle Beach 2010 Summer Visitor Assessment.

Freching, Douglas, Michael Meyer, and Alan Pisarski. 1998. Tourism Travel and Transportation System Development. available at http://ntl.bts.gov/lib/16000/16200/16209/PB2000103006.pdf.

Gillespie, James. 1995. I-73 Economic Impact Analysis, Virginia Transportation Research Council Technical Report, January 1995.

Hartgen, David, Janet O'Callaghan, Wayne Walcott, and Jane Opgenorth, 1992. Growth at Rural Interchanges: What, Where, Why. Transportation Research Records 1359: 141-150.

Harvey Economics, 2009. Economic Impacts of Prospective Diamond Bar Road Improvements. Available at http://resource.co.mohave.az.us/File/Public%20Works/Engineering/PDF/Projects/APPENDIX%20A%20DIAMOND%20BAR%20ROAD%20IMPROVEMENTS%20ECON%20IMPACT%20ANALYSIS.pdf.

Jack Faucett Associates and Economic Development Research Group. 2005. Economic Effects of Selected Rural Interstates at the County Level. Prepared for Federal Highway Administration, U.S. Department of Transportation.

Nadiri, M. Ishaq and Theofanis Mamuneas. 1996. Contribution of Highway Capital to Output and Productivity Growth in the U.S. Economy and Industries. New York University Manuscript.

PB Consult. 2006. The Economic Impact of the Interstate Highway System, Technical Memorandum Task 2. National Cooperative Highway Research Program (NCHRP). Project 20-24 (52) FY 2006. Retrieved June 27, 2007 from http://www.interstate50th.org/index.shtml.

Schunk, Donald. 2009. The Economic Impacts of I-73 Construction: A Focus on Job Creation. BB&T Center for Economic and Community Development, Coastal Carolina University.

Thompson, Eric and Amitabh Chandra. 1998. Economic Impact of Interstate Highways in Kentucky, 1998 Kentucky Annual Economic Report.

Upchurch, Jonathan. 2005. Potential Impacts Associated with Improvements to County Road 7950. Available at http://www.chacoalliance.com/2005_Road_Study.pdf,

U.S. Equal Employment Opportunity Commission. Retail Distribution Centers: How New Businesses Process Impact Minority Labor Markets. Available at: http://www.eeoc.gov/stats/reports/retaildistribution/index.html.

Virginia Department of Transportation. 2006. I-73 Final Environment Impact Statement, I-73 Location Study: Benefit Cost Analysis Technical Report. 2006. Retrieved June 12th, 2007 from http://www.virginiadot.org/projects/I73/i73-FEIS.asp.

Wilbur Smith Associates. 1998. Appalachian Development Highways Economic Impact Studies, Prepared for Appalachian Regional Commission, 1998.

Wilbur Smith Associates. 2006. Delta Development Highway System Plan. Prepared for Delta Regional Authority, 2006.

Appendix 1: Glossary

IMPLAN Professional—an economic impact assessment modeling system. It allows the user to build economic models to estimate the impacts of economic changes in states, counties, or communities. It was created in the 1970s by the Forestry Service and is widely used by economists to estimate the impact of specific events on the overall economy.

Input-Out Analysis—an examination of business-business and business-consumer economic relationships capturing all monetary transactions in a given period, allowing one to calculate the effects of a change in an economic activity on the entire economy (impact analysis).

Direct Impact—economic activity generated by a project or operation. For construction, this represents activity of the contractor; for operations, this represents activity by tenants of the property.

Overhead—construction input not provided by the contractor.

Indirect Impact—secondary economic activity that is generated by a project or operation. An example might be a new office building generating demand for parking garages.

Induced (Household) Impact—economic activity generated by household income resulting from direct and indirect impacts.

Ripple Effect—the sum of induced and indirect impacts. In some projects, it is more appropriate to report ripple effects than indirect and induced impacts separately.

Multiplier—the cumulative impacts of a unit change in economic activity on the entire economy.

Appendix 2: Interchange Development Categories

Table A3: Interstate Interchange Classifications		
Category	Development	Requirements for Classifications
0	Minimum Forest Agriculture Agriculture-residential	no requirements
1	**Residential** single family homes medium sized lots	< 2,000 average daily traffic (ADT) not close to town rural setting
2A	**Light Tourist Service** 1+ gas station 1 small motel	> 4,000 ADT water service availability moderate visibility within 10 miles of town
2B	**Economically Competitive** 2-4 gas stations 1-2 fast-food restaurants 2+ hotels	> 8,000 ADT water & sewer availability town within 3 miles > 5 miles from next exit
2C	**Economic Integration** 4+ gas stations 3+ fast-food restaurants 2+ full-service restaurants other business/malls	> 12,000 ADT water and sewer availability town within 2 miles
3A	**Heavy Tourist** 6+ hotels 3+ full-service restaurants 3+ fast-food restaurants 3+ gas stations	water and sewer availability 2-3 miles from interchange
Source: Hartgen, et al. "Growth at Rural Interchanges: What, Where, Why. Transportation Research and Record, 1359		

Appendix 3: Economic Impact of I-73 by Segments

This Appendix provides the economic impact of the I-73 northern, southern, and final segments on the state of South Carolina. The northern segment includes Marlboro County, while the southern segment includes Dillon, Marion and Horry Counties. The final segment is located entirely in Horry County. The sum of the economic impacts of these three segments equals to the economic impacts of I-73 presented in the main report.

Travel Efficiency

Table A1: Travel Efficiency and Cost Saving	2030 ($Million)
Northern Segment	$68.6
Southern Segment	$52.3
Final Segment	$0.0
Total	$120.8
Source: Chmura Economics & Analytics	

Road-Side Services

Based on the number of interchanges and their types in northern, southern, and final segments, the economic impacts can be broken down as follows:

Table A2: Projected Businesses Establishments in Roadside Services	Northern Segment	Southern Segment	Final Segment (SC22)	I-73 Corridor
Number of Interchanges	3	7	5	15
Motels	4	14	24	42
Gas Stations	5	14	17	36
Fast-food Restaurants	3	10	15	28
Sit-down Restaurants	2	5	13	20
Total	14	43	69	126
Source: Chmura Economics & Analytics				

Table A2: Projected Businesses Establishments in Roadside Services	Northern Segment	Southern Segment	Final Segment (SC22)	I-73 Corridor
Number of Interchanges	3	7	5	15
Motels	4	14	24	42
Gas Stations	5	14	17	36
Fast-food Restaurants	3	10	15	28
Sit-down Restaurants	2	5	13	20
Total	14	43	69	126
Source: Chmura Economics & Analytics				

Table A4: Economic Impact I-73 Road-side Service in South Carolina (2030)				
Region		Direct	Ripple	Total
Northern Segment	Spending ($MM)	$26.7	$14.6	$41.3
	Employment Compensation ($MM)	$9.4	$5.1	$14.6
	Employment	234	100	333
Southern Segment	Spending ($MM)	$85.9	$47.2	$133.2
	Employment Compensation ($MM)	$29.9	$16.3	$46.2
	Employment	736	323	1,059
Existing Segment (SC22)	Spending ($MM)	$146.5	$80.9	$227.4
	Employment Compensation ($MM)	$50.2	$27.5	$77.8
	Employment	1,262	552	1,814
I-73	Spending ($MM)	$259.1	$142.8	$401.9
	Employment Compensation ($MM)	$89.6	$48.9	$138.5
	Employment	2,231	974	3,205
Note: The sum may not sum due to rounding Source: IMPLAN Pro 2009 and Chmura Economics & Analytics				

Distribution Centers

Both northern and southern segments of I-73 in South Carolina have potential in hosting a distribution center. Due to high population density in the final segment of I-73 (existing SC22), it is unlikely that the final segment will host a distribution center.

Table A5: Economic Impact of a Distribution Center in South Carolina (2030)			
	Direct	Ripple	Total
Spending ($MM)	$19	$12	$31
Employment Compensation ($MM)	$9	$6	$14
Employment (jobs created)	200	86	286
Source: IMPLAN Pro 2009 Note: dollar amounts have been rounded			

Incremental Tourism

Incremental tourism occurs in the final segments segment of I-73 in South Carolina.

Table A6: Economic Impact of Incremental Tourism in South Carolina (2030)			
	Direct	Ripple	Total
Spending Impact ($MM)	$909.9	$518.7	$1,428.6
Employment Compensation	$244.7	$139.5	$384.1
Employment Impact	12,669	6,187	18,856
Note: Numbers may not sum due to rounding Source: IMPLAN Pro 2009 and Chmura			

Fiscal Impacts

Table A7: State Tax Estimate by Segment 2030 ($MM)						
Region		Corporate Income Tax	Personal Income Tax	State Sales Tax	State Gas Tax	Total
Northern	Roadside Services	$0.2	$0.5	$1.6	$0.1	$2.4
Segment	One Distribution Center	$1.2	$0.5	$0.0	$0.0	$1.7
Southern	Roadside Services	$0.6	$1.6	$5.2	$0.4	$7.7
Segment	One Distribution Center	$1.2	$0.5	$0.0	$0.0	$1.7
Final Segment	Roadside Services	$1.0	$2.7	$8.8	$0.5	$13.0
	Incremental Tourism	$6.1	$18.9	$34.8	$1.5	$61.3
I-73	Roadside Services	$1.8	$4.8	$15.5	$1.0	$23.1
	One Distribution Center	$1.2	$0.5	$0.0	$0.0	$1.7
	Incremental Tourism	$6.1	$18.9	$34.8	$1.5	$61.3
Note: The sum may not sum due to rounding						
Source: IMPLAN Pro 2009 and Chmura Economics & Analytics						

Table A8: Local Tax Estimate by Segments 2030 ($MM)						
Region		Local Optional Sales Tax	Accommodation Tax	Hospitality Tax	Admission Tax	Total
Northern	Roadside Services	$0.7	$0.3	$0.2	$0.0	$1.2
Segment	One Distribution Center	$0.0	$0.0	$0.0	$0.0	$0.0
Southern	Roadside Services	$2.2	$1.0	$0.5	$0.0	$3.8
Segment	One Distribution Center	$0.0	$0.0	$0.0	$0.0	$0.0
Final Segment	Roadside Services	$3.8	$1.7	$1.0	$0.0	$6.5
	Incremental Tourism	$17.4	$5.7	$4.5	$4.1	$31.8
I-73	Roadside Services	$6.6	$3.0	$1.7	$0.0	$11.4
	One Distribution Center	$0.0	$0.0	$0.0	$0.0	$0.0
	Incremental Tourism	$17.4	$5.7	$4.5	$4.1	$31.8
Note: The sum may not sum due to rounding						
Source: IMPLAN Pro 2009 and Chmura Economics & Analytics						

Economic Impacts Summary

Table A9: I-73 Economic Impact Summary-By Segments	Total Economic Impact ($MM)	Total Employment Compensation ($MM)	Total Job Creation	State Tax Revenues ($MM)	Local Tax Revenues ($MM)
Northern Segment-2030 Annual Cost Saving (Productivity)	$68.6				
Roadside Services	$41.3	$14.6	333	$2.4	$1.2
One Distribution Center	$31.1	$14.5	286	$1.7	$0.0
Total Northern Segment	**$140.9**	**$29.1**	**619**	**$4.1**	**$1.2**
Southern Segment-2030 Annual Cost Saving (Productivity)	$52.3				
Roadside Services	$133.2	$46.2	1,059	$7.7	$3.8
Distribution Center	$31.1	$14.5	286	$1.7	$0.0
Total Southern Segment	**$216.5**	**$60.7**	**1,344.4**	**$9.4**	**$3.8**
Existing Segment-2030 Annual Cost Saving (Productivity)	$0.0				
Roadside Services	$227.4	$77.8	1,814	$13.0	$6.5
Incremental Tourism	$1,428.6	$384.1	18,856	$61.3	$31.8
Total Existing Segment	**$1,656.0**	**$461.9**	**20,670**	**$74.2**	**$38.3**
I-73 South Carolina 2030 Annual Cost Saving (Productivity)	$120.8				
Roadside Services	$401.9	$138.5	3,205	$23.1	$11.4
One Distribution Center	$31.1	$14.5	286	$1.7	$0.0
Incremental Tourism	$1,428.6	$384.1	18,856	$61.3	$31.8
Total I-73 South Carolina	**$1,982.4**	**$537.2**	**22,347**	**$86.1**	**$43.2**
Source: Chmura Economics & Analytics					