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Economic Impact of I-73 on the I-73 Corridor in West Virginia

The construction and ongoing existence of I-73 will inject hundreds of millions of dollars into the I-73 Corridor and provide jobs for workers in construction, retail, service, and warehouse industries. The annual economic impact is estimated to be \$220.3 million that sustains 2,020 jobs after construction is complete.

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for**

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1. Executive Summary

The United States Congress designated Interstate 73/74 (I-73/74) as a corridor of national significance, connecting the Great Lakes with the Carolinas' coast. In West Virginia, I-73 traverses the southern part of the state through Mercer, McDowell, Wyoming, Mingo, and Wayne Counties. This study, produced by Chmura Economics & Analytics,¹ evaluates the economic impact of the proposed I-73 on the surrounding localities (I-73 Corridor region) in West Virginia.

The I-73 Corridor is made up of five counties in West Virginia.

In this study, the I-73 Corridor region is defined as the following counties in West Virginia: Mercer, McDowell, Wyoming, Mingo, and Wayne. I-73 in West Virginia is divided into two segments. The northern segment, from Interstate 64 in Wayne County to Williamson in Mingo County, is called Tolsia Highway. The southern segment, from Williamson to Interstate 77 near Bluefield in Mercer County, is called King Coal Highway. In this study, economic impacts are presented for the Tolsia Highway and King Coal Highway corridors. The Tolsia Highway Corridor consists of Wayne and Mingo counties while the King Coal Highway Corridor consists of Mingo, McDowell, Wyoming, and Mercer counties.

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:

1. **Travel efficiency.** The construction of a highway can reduce travel time for area businesses and residents alike. Trade, manufacturing, and construction sectors will benefit more from a new highway than other sectors such as health care and education.
2. **Attraction of service businesses.** Oftentimes, businesses such as hotels, gas stations, retail stores, and restaurants cluster around interstate interchanges.
3. **Economic development benefits of firm relocations and expansions.** Several case studies have found that rural counties with an interstate highway enjoy faster population and employment growth than similar counties without an interstate highway.

In the past four decades, the economy in the I-73 Corridor performed below the state average in population, employment, and high-tech industry growth.

The population in the I-73 Corridor region declined at a 0.5% annual pace from 1970 to 2007 compared with statewide growth of 0.1%. From 1970 to 2006, the I-73 Corridor experienced 0.1% annual average employment growth compared to 0.9% in the state. The lack of employment growth in the I-73 Corridor occurred partially because mining, which has been in decline nationwide, is more concentrated in the region than in the state. In addition, the relatively fast-growing high-tech sector is less concentrated in the I-73 Corridor region than in the state.

¹ 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.

Per capita income in all localities of the I-73 Corridor region was lower than the statewide average in 2006. However, per capita income growth has been keeping pace with the state average in the past four decades.

Economic growth rates of the individual counties in the I-73 Corridor region varied significantly in the past three decades.

Localities at the ends of I-73 (Wayne and Mercer counties) that are part of the metropolitan areas of Huntington and micropolitan areas of Bluefield generally experienced less drastic declines in population and employment while the communities in between saw a larger decline in both population and employment. Population in Mercer and Wayne counties, for example, declined an annual average 0.7% and 0.6% from 2000 through 2007 while McDowell, Mingo, and Wyoming saw annual average declines of 2.4%, 0.8%, and 1.2%, respectively, over the same period.

The one-time economic impact of I-73 construction can reach \$2.8 billion in the Corridor region from 2007 to 2020.

From 2007 to 2020, the construction of I-73 is projected to generate \$2.8 billion in economic impact in the Corridor region. Of this total, \$2.0 billion is direct construction spending while \$0.8 billion is the ripple economic impact of the construction.² The construction of I-73 is expected to support an average 1,222 new jobs per year from 2007 through 2020 and an additional 449 jobs per year in the region because of the ripple effect. This sums to an average 1,661 jobs per year during the construction phase. Forty-two percent of the economic impact from the construction of I-73 is expected to occur in the Tolsia Highway Corridor with the rest occurring in the King Coal Highway Corridor.

I-73 can provide \$23.6 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 39% time savings for businesses and motorists using the road. The total cost savings for the region is estimated to reach \$23.6 million in 2020, assuming the interstate is in place. The value of travel efficiency and cost savings is estimated to be 0.4% of the total corridor regional output. About 57% of the cost savings will take place in the Tolsia Highway Corridor as this segment has a higher traffic volume.

By 2020, I-73 can support 87 service businesses and 1,765 jobs in the region with a total annual economic impact of \$172 million.

In 2020, it is estimated that I-73 can support approximately 87 businesses with 36 motels/hotels, 29 gas stations, 13 fast food restaurants, and 9 full-service restaurants. The direct output of these businesses is estimated to be \$130 million in 2020 with ripple effects of \$42 million. In terms of job creation, service businesses will directly employ 1,504 workers with a ripple effect of an additional 261 jobs per year. The King Coal Highway Corridor is expected to capture 68% of the economic impacts of service businesses.

² The direct impact is economic activity generated by a project or operation. For construction, this represents activity of the contractor. The indirect impact is the secondary economic activity that is generated by a project or operation. An example is a new office building generating demand for parking garages. The induced or household impact is economic activity that occurs when households employed by the construction firm or its suppliers spend their income in the region. The ripple effect is the sum of induced and indirect impacts.

The newly built I-73 may attract distribution centers, each averaging \$24 million in economic impact and 254 new jobs in 2020.

I-73 may be a magnet for retail distribution centers. An average distribution center employs about 200 workers and would directly generate about \$18 million in economic output in 2020. Adding ripple effects, the total economic impact of a distribution center can reach \$24 million in output and 254 jobs in 2020.

After I-73 is completed, it is estimated that West Virginia will receive \$12.0 million in annual tax revenue while fiscal benefits for local governments will be \$0.5 million per year.

After construction is complete, the state is expected to collect corporate and personal income taxes from service businesses and other businesses along I-73. Tax revenues are estimated to be \$11.3 million for 2020 from service businesses and \$0.6 million from the potential distribution center. For local governments, I-73 is projected to contribute \$0.5 million in revenue per year.

Other benefits of I-73 are better market access, increased appeal for business relocations, faster population growth, increased tourism, better road safety, and improved quality of life.

I-73 will benefit mining and manufacturers in the 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 and tourism growth in the region. Other benefits include fewer accidents and better safety on the roads.

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 ten years from now based on a certain set of assumptions. Some examples of these assumptions are that I-73 is a non-toll road and that there are no recessions or oil crises during the projection period. 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 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. On the positive side, 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.

The economic impact of I-73 is summarized in Table 1.1, which is found on the next page.

Table 1.1: I-73 Economic Impact Summary					
	Total Economic Impact (\$MM)	Total Employment Compensation (\$MM)	Total Job Creation	State Tax Revenues (\$MM)	Local Tax Revenues (\$MM)
Average Annual One-time Construction Impact (2007-2020)					
Tolsia Corridor	\$83.7	\$33.8	690	\$1.2	\$0.7
King Coal Corridor	\$117.9	\$47.6	972	\$1.7	\$0.7
I-73 Corridor	\$201.6	\$81.4	1,661	\$2.9	\$1.5
On-going Impact (2020)-Tolsia Corridor					
Cost Saving (Productivity)	\$13.4				
Roadside Services	\$55.1	\$17.6	570	\$3.6	\$0.8
One Distribution Center	\$24.3	\$13.3	254	\$0.6	\$0.1
Total Tolsia Corridor 2020	\$92.8	\$30.9	824	\$4.2	\$0.9
On-going Impact (2020)-King Coal Corridor					
Cost Saving (Productivity)	\$10.2				
Roadside Services	\$117.3	\$37.7	1,196	\$7.7	\$3.1
Distribution Center	\$24.3	\$13.3	254	\$0.6	\$0.1
Total King Coal Corridor 2020	\$151.9	\$51.0	1,450	\$8.4	\$3.1
On-going Impact (2020)-I-73 Corridor					
Cost Saving (Productivity)	\$23.6				
Roadside Services	\$172.4	\$55.3	1,765	\$11.3	\$3.8
One Distribution Center ³	\$24.3	\$13.3	254	\$0.6	\$0.1
Total I-73 Corridor 2020	\$220.3	\$68.6	2,020	\$12.0	\$0.4
Source: Chmura Economics & Analytics					

³ Only one distribution center is included in the total regional impact. It is anticipated that the I-73 Corridor can support one distribution center, but it can occur in either King Coal Highway Corridor or Tolsia Corridor. As a result, the potential impact of the distribution center were included in both regional impacts, but only one is included in the total I-73 Corridor impact.

2. Introduction

In 1991, the U.S. 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 will pass through South Carolina, North Carolina, Virginia, West Virginia, Ohio, and Michigan. In West Virginia, I-73 will travel near the southern border of the state with two broad segments. The southern portion, from the vicinity of Bluefield near the West Virginia/Virginia border to the vicinity of Williamson, West Virginia, is also named King Coal Highway. The northern portion of I-73, from the vicinity of Williamson to the vicinity of Huntington, West Virginia near the West Virginia/Ohio border, is also named Tolsia Highway. This route will widen the current route US 52 from two lanes to four lanes with controlled access.

Figure 2.1: I-73 in West Virginia



In 1994, the West Virginia Department of Transportation (WVDOT) conducted the *King Coal Highway Purpose and Need Study*, which concluded that there is a need for the King Coal Highway. The study found that the King Coal Highway would enhance both regional and local system linkage, would improve access for emergency services and community services, and would enhance employment opportunities in the region.⁴ In 2000, WVDOT completed the *King Coal Highway Final Environmental Impact Statement*. This study evaluated different alternatives, including a “No Build” alternative, and recommended a preferred alternative (PA) route based on “...its ability to best facilitate the project’s Purpose and Need while minimizing impacts to the natural, physical, and social environment.”⁵ In 2000, the Federal Highway Administration issued a Record of Decision (ROD) on the King Coal Highway.⁶ The Federal Highway Administration approved the PA route so the design and eventual construction of the King Coal Highway could proceed.

⁴ Source: *King Coal Highway Final Environmental Impact Statement*, WVDOT, 2000.

⁵ Source: *King Coal Highway Final Environmental Impact Statement*, WVDOT, 2000.

⁶ The Record of Decision provides a final decision of the location of I-73 (King Coal Highway). With it, the project can move forward to the design phase.

For the Tolsia Highway, the Final Environment Impact Statement (FEIS) was completed by the West Virginia Department of Transportation in 1995. The FEIS stated that the Tolsia highway would improve transportation service and encourage economic development. Better access and additional employment opportunities in the area would substantially reduce travel time and commuting distance for local residents.⁷

In March 1999, the West Virginia Legislature established The King Coal Highway Authority to promote and advance the construction of a modern highway through McDowell, Mercer, Mingo, Wyoming, and Wayne counties. Moreover, the Authority was charged with coordinating various entities for the purpose of planning, assisting, and establishing recreational, tourism, industrial, economic, and community development of the King Coal Highway for the benefit of West Virginians. Chmura Economics & Analytics (Chmura) was retained to provide a detailed economic impact analysis, based on the preferred route outlined in the FEIS, of the King Coal and Tolsia highways on the I-73 Corridor and West Virginia.

The remainder of this report is organized into seven sections. Section 3 provides a review of the economic literature on the role of highways in economic development. Section 4 is an analysis of the current economic strength of the Corridor region. Section 5 summarizes the traffic analysis data from WVDOT. A detailed analysis of the economic impact of I-73 is presented in Section 6, including both the one-time construction impact and the ongoing impact due to cost savings, new service businesses, and other economic benefits. Section 7 estimates the fiscal benefits for the state and local governments and Section 8 details the assessment of risk. The conclusion is in Section 9.

⁷ Source: US 52 (Tolsia Highway) *Final Environmental Impact Statement*, WVDOT, 1995.

3. 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 utilized a variety of economic analysis tools. In terms of geographical region, some studies have had 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 generally 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).⁸

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 the King Coal Highway. Representative studies are categorized in the following four sections: 3.1 Aggregate National Studies, 3.2 Regional Studies, 3.3 Studies Discussing Social Benefits, and 3.4 Previous Economic Impact Studies on I-73.

3.1. 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)⁹ 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 1950 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, and real estate; construction; and transportation equipment manufacturing.¹⁰

⁸ Source: *The Economic Impact of the Interstate High 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>.

⁹ Source: *Contribution of Highway Capital to Output and Productivity Growth*.

¹⁰ Source: *Delta Development Highway System Plan*, prepared by Wilbur Smith Associates for the Delta Regional Authority.

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 highway-located counties 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)¹¹ 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 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.

3.2. 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 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 (King Coal Highway) provided in this report relies on a forecasting and simulation model. Nevertheless, the studies based on post-construction data are important as they provide important assumptions.

3.2.1. Evaluating Post-construction Impact

A report by Jack Faucett and Associates and the Economic Development Research Group¹² studied a number of new highway corridors after completion and 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, changes 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 residents.

¹¹ 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.

¹² 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 Associates¹³ is that of I-81 in Virginia. I-81 is in close proximity to the proposed I-73 (King Coal Highway). Consequently, the changes in the I-81 corridor in Virginia may provide valuable information in projecting the employment and demographic trends for the King Coal Highway Corridor. 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 region since 2000: Blacksburg, Harrisonburg, and Winchester.

3.2.2. 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 had 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 businesses impact, which includes gas stations, hotels/motels, restaurants, gift shops, and other businesses that are typically located near highways
3. Tourism impact from the highways bringing in 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.

3.3.3. Studies Focusing on Economic Development

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

¹³ 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.

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.

Hartgen et al¹⁴ studied the effect of new business growth of roadside businesses. Using rural interstate highways in North Carolina as 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 usually located close to population centers, but in less populated areas where land is cheap. A study of retail distribution centers in the United States¹⁵ found that though 84.1% 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. Retail distribution centers not only create hundreds of jobs for communities, but these jobs can also provide higher wages.

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

In Virginia, several studies were conducted for the impact of I-73. 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 order 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.¹⁶ Based on the Hartgen et al. (1992) paper on the relationship between rural interchanges and service businesses, Gillespie estimated that the proposed I-73 (alternative 6 in their study) could support 61 gas stations, 60 new restaurants, and 52 new hotels, with a total job creation of 4,830.¹⁷ 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 3.1 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 (alternative 6) 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

¹⁴ Source: Hartgen, et al. "Growth at Rural Interchanges: What, Where, Why. *Transportation Research and Record*, 1359.

¹⁵ Source: *Retail Distribution Centers: How New Business Processes Impact Minority Labor Markets*.

<http://www.eeoc.gov/stats/reports/retaildistribution/index.html>

¹⁶ In this study, service businesses refer to those around interstate interchanges that serve motorists. Typical service businesses are gas stations, restaurants, and hotels.

¹⁷ This number may not be directly comparable with that found in the Chmura study as the route and interchanges may have changed since the 1995 study.

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 potential 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 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 be \$22.4 million and 277 jobs in 2020.



4. Location and Economic Overview of the I-73 Corridor

4.1. Location of I-73 in West Virginia

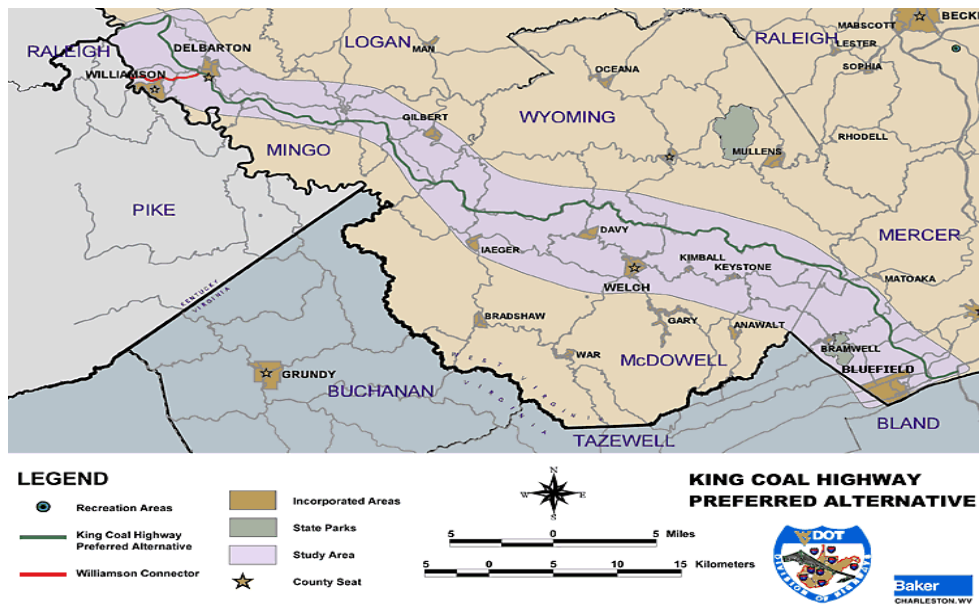
4.1.1. King Coal Highway Location

The southern portion of I-93 is called King Coal Highway. According to the Federal Highway Administration Record of Decision issued in 2000, the King Coal Highway is a four-lane divided highway with partially controlled access extending from the vicinity of Williamson, West Virginia to the vicinity of Bluefield, West Virginia, for a length of 94 miles. The King Coal Highway passes through Mingo, McDowell, Wyoming and Mercer Counties (Figure 4.1).¹⁸

The King Coal Highway starts in Mingo County at the intersection of US 52 and US 119 north of Williamson, West Virginia.¹⁹ I-73 follows US 119 northeasterly to the east of the WV 65 intersection near Belo. At this location, I-73 proceeds south and then east crossing Buffalo Mountain and US 52. It proceeds easterly and passes to the south of Delbarton. It then turns southeasterly and generally parallels US 52 to the north. I-73 crosses over Mingo County Route 9 and ascends to the ridge top following an easterly direction. As it passes to the south of Coon Knob, Hampden, and Sharon Heights, it turns south and crosses Mingo County Route 10 near Twisted Gun Gap.

I-73 continues southeasterly and then easterly, following the ridge line over the Mingo/McDowell and McDowell/Wyoming County lines. The route follows Indian Ridge east to Crumpler. Near Crumpler, it passes over Flat Top Mountain and parallels Pinnacle Creek. It crosses Pinnacle Creek, Mercer County Route 11, Lambert Browning Mountain, and Bluestone Rive.

Figure 4.1: Location of King Coal Highway



¹⁸ Even though King Coal Highway does not pass through Wayne County directly, because it is close to Mingo, and also because it is the location of the northern portion of I-73, it is included in the study region.

¹⁹ King Coal Highway also includes a segment that collect Williamson to I-73 near Delbarton.

East of the Bluestone River, I-73 parallels Sandlick Creek and traverses the summit of Micajah Ridge. I-73 continues easterly, crossing WV 20 and Mercer County Routes 23 and 36. I-73 then veers south, crossing WV 123. I-73 then traverses Stony Ridge in a southerly direction where it crosses US 19 and US 460 to the intersection with US 52. The route then follows US 52 northeasterly to its terminus at the US52/I-77 interchange.

4.1.2. Tolsia Highway Location

The northern portion of I-73 in West Virginia is called Tolsia Highway,²⁰ which is the widening of 61 miles of US 52 from south of I-64 in Wayne County to US 119 in Mingo County. Its northern end begins at I-64 in Wayne County and extends south, generally following the alignment of the existing US 52. It then proceeds on a new location west of existing US 52, bypassing the intersection of Riverside Road and US 52 and crosses existing US 52 with an interchange. From this interchange, the Tolsia Highway proceeds south, parallel to and east of US 52, to an interchange at County Route 8. It remains on the location crossing County Route 7/1 (Cedar Run Road) and Co. 7/1 (Sharps Branch Road), and crosses over Whites Creek before connecting back to US 52 one mile south of Co.18. It then stays on US 52 to a point close to Co. 20. It then leaves US 52 and heads west of and parallel to US 52 until it ties back into US 52 three miles south at the intersection of US 52 and WV 37. The Tolsia Highway intersects WV37 at this point with a new connector to WV 37 at Fort Gay.

From Fort Gay, the PA route proceeds south, crossing Mill Creek near the intersection of County Route 37/1 (South Hill Road). It stays on current US 52, and passes Co. 36, where it proceeds south on new location east of existing US 52. The alignment continues southward, crossing County Route 29/4 (Vinson Branch Road) at Vinson Branch. It continues south and southwest and ties back in US 52 at Powder Branch. It proceeds east on a new location and crosses Lost Creek and Lower Right Ford. It then follows along the north side of Lower Right Ford and ties back into US 52. It then proceeds south on new location west of US 52, crossing Drag Creek and Summer Fork before tying back into US 52 County Route 29/9 (Webb Road). It then leaves US 52 on a new location to east of Crum.

From Crum, Tolsia Highway is located approximately one-half to three-quarters of a mile east of existing US 52 to Kermit. South of Kermit near Lower Burning Creek, Tolsia Highway curves back to rejoin US 52, following US 52 to near Upper Burning Creek where they approach Tunnel No 1. The Tolsia Highway continues to follow US 52 through Naugatuck. One mile south of Naugatuck, It leaves US 52 to the east and rejoins US 52 before interchanging with US 119, the end of Tolsia Highway.

There are 34 preliminary access points along the I-73 corridor. The exact locations of the access points have not yet been decided. Those decisions will be made during the final engineering phase, which will include public hearings. For the purpose of this report, WV VDOT identified 25 access points for King Coal Highway, and the FEIS for Tolsia Highway estimated 10 for Tolsia.²¹ Ten of the potential access points are located in Mercer County, nine in Mingo County, and eight in Wyoming County. Since one segment of I-73 follows the county line between Wyoming and McDowell counties, the exact locations of the access points can be in either county, and seven access points are planned in that stretch. The access points along I-73 provide access to population centers in the region. Interchanges are also planned where I-73 crosses major roadways such as Coalfield Express, I-64, and I-77.

²⁰ Source: Information in this section was obtained from FEIS Tolsia Highway.

²¹ The western terminal of King Coal and eastern terminal of Tolsia are one access point.

Table 4.1: I-73 Preliminary Access Points	
Mercer	10
Mingo	9
Wayne	8
Wyoming/McDowell	7
Total	34
Source: WV DOT and FEIS for Tolsia Highway	

4.2. Economic Background of Communities in the I-73 Corridor

The King Coal Highway Corridor region consists of the four counties it directly passes through: Mingo, McDowell, Wyoming, and Mercer. The Tolsia Highway Corridor consists of Mingo and Wayne counties, the localities that it passes through. The I-73 Corridor region is the union of these two regions, comprising the five counties of McDowell, Mercer, Mingo, Wayne, and Wyoming. This section summarizes the historic economic performance of the I-73 Corridor in terms of population, employment, income, and industry mix.

4.2.1. Population

In 2007, the I-73 Corridor had a population of 176,001, accounting for 9.7% of the state total (Table 4.2). The region has lost population in every decade since 1980. From 1970 to 2007, regional population declined by an average 0.5% per year, with McDowell County suffering the most severe decline. Only Wayne County had more population in 2007 than in 1970. In fact, the population growth of Wayne County outpaced that of the state average. This is due to the fact that Wayne County is part of the Huntington Metropolitan Statistical Area (MSA).

Table 4.2: Population in Study Region						
Locality	1970	1980	1990	2000	2007	Average Annual Growth Rate
West Virginia	1,744,237	1,949,644	1,793,477	1,808,344	1,812,035	0.10%
I-73 Corridor	214,328	243,191	204,488	187,174	176,001	-0.53%
McDowell	50,666	49,899	35,233	27,329	22,991	-2.11%
Mercer	63,206	73,942	64,980	62,980	61,350	-0.08%
Mingo	32,780	37,336	33,739	28,253	26,755	-0.55%
Wyoming	30,095	35,993	28,900	25,708	23,674	-0.65%
Wayne	37,581	46,021	41,636	42,904	41,231	0.25%
Source: U.S. Census Bureau						

Population in the I-73 Corridor grew faster than the state in the 1970s (Table 4.3), but that has changed since 1980. The remote location of the region, and the lack of easy access to it, may have contributed to the Corridor's relative inability to retain its residents or attract new residents.

Table 4.3: Average Annual Population Growth Rate

Locality	1970-1980	1980-1990	1990-2000	2000-2007
West Virginia	1.1%	-0.8%	0.1%	0.0%
I-73 Corridor	1.3%	-1.7%	-0.9%	-0.9%
McDowell	-0.2%	-3.4%	-2.5%	-2.4%
Mercer	1.6%	-1.3%	-0.3%	-0.4%
Mingo	1.3%	-1.0%	-1.8%	-0.8%
Wyoming	1.8%	-2.2%	-1.2%	-1.2%
Wayne	2.0%	-1.0%	0.3%	-0.6%

Source: U.S. Census Bureau

4.2.2. Employment

In 2006, total employment in the I-73 Corridor was 65,303, or 7.1% of the state total. Employment growth in the I-73 Corridor has been considerably slower than in the state. Over the last 36 years, employment in the I-73 Corridor increased at an average rate of 0.1% per year while employment in the state grew 0.9% per year (Table 4.4). From 1990 to 2006, total employment in the region has been nearly unchanged. There is large disparity among the five corridor counties in employment growth. The job growth in Wayne County outpaced that of the state while Mingo and Mercer counties also grew in the past 36 years. On the other hand, McDowell and Wyoming Counties lost a large number of jobs. From 1970 to 2006, McDowell County lost 8,243 jobs while Wyoming County lost 2,450 jobs.

Table 4.4: Total Employment (Full Time and Part Time)

Locality	1970	1980	1990	2000	2006	Average Annual Growth Rate
West Virginia	659,514	783,750	782,852	886,620	917,289	0.92%
I-73 Corridor	63,047	75,277	65,325	65,367	65,303	0.10%
McDowell	14,997	15,832	7,993	6,334	6,754	-2.19%
Mercer	22,317	27,834	27,402	29,748	28,991	0.73%
Mingo	8,537	11,122	11,792	9,964	10,148	0.48%
Wyoming	9,593	10,782	7,130	6,978	7,143	-0.82%
Wayne	7,603	9,707	11,008	12,343	12,267	1.34%

Source: Bureau of Economic Analysis

Fortune reversed among the corridor counties at the turn of the century. Counties that expanded in the 1990s experienced job contractions from 2000 to 2006, and counties that shed jobs in the 1990s gained jobs from 2000 to 2006. From 2000 to 2006, McDowell, Wyoming, and Mingo counties experienced job gains while Wayne and Mercer counties suffered job losses (Table 4.5). McDowell County employment grew a half percentage point faster than state average from 2000 to 2006.

Table 4.5: Average Annual Growth Rate in Employment

Locality	1970-1980	1980-1990	1990-2000	2000-2006
West Virginia	1.7%	0.0%	1.3%	0.6%
I-73 Corridor	1.8%	-1.4%	0.0%	0.0%
McDowell	0.5%	-6.6%	-2.3%	1.1%
Mercer	2.2%	-0.2%	0.8%	-0.4%
Mingo	2.7%	0.6%	-1.7%	0.3%
Wyoming	1.2%	-4.1%	-0.2%	0.4%
Wayne	2.5%	1.3%	1.2%	-0.1%

Source: Bureau of Economic Analysis

4.2.3. Income

The latest data indicate that per capita income in the I-73 Corridor was \$24,555 in 2006, 12% lower than the state average of \$27,895 (Table 4.6). Historic income data indicate that the region has been keeping pace with the 1.5% income growth of the state from 1970 to 2006. As a result, the income gap between the region and state has remained constant. Among all localities in the I-73 Corridor, only Mercer County has an income level that is close to the state average. McDowell County lags behind the rest of the corridor counties in income and it has fallen further compared to the state with an average income of 71% of the state average in 2006 compared to 84% in 1970.

Locality	1970	1980	1990	2000	2006	Average Annual Growth Rate
West Virginia	\$16,131	\$19,864	\$22,360	\$25,643	\$27,895	1.53%
I-73 Corridor	\$14,211	\$18,669	\$19,379	\$21,723	\$24,555	1.53%
McDowell	\$13,624	\$17,691	\$15,879	\$16,983	\$19,898	1.06%
Mercer	\$15,944	\$20,806	\$22,951	\$25,296	\$27,231	1.50%
Mingo	\$12,991	\$19,105	\$19,396	\$22,698	\$25,150	1.85%
Wyoming	\$14,050	\$17,307	\$16,862	\$19,419	\$23,462	1.43%
Wayne	\$13,281	\$17,008	\$18,497	\$20,233	\$23,412	1.59%

Source: Bureau of Economic Analysis and Bureau of Labor Statistics

4.2.4. Industry Mix

In 1970 and 1980, mining was the largest industry sector in the I-73 Corridor, accounting for over 20% of regional employment (Table 4.7). But its importance has been declining, and in 2006 it only employed 9.6% of regional workers. While mining is still a competitive industry for the region, service and government are now the largest sectors in the region. For West Virginia, manufacturing was the largest employment sector in 1970, but its importance waned with services and government becoming the largest sectors.

	Agr. & Mining	Construction	Manufacturing	TWU*	Trade	FIRE**	Services	Government
I-73 Corridor								
1970	23.2%	5.2%	9.3%	9.8%	15.1%	3.2%	16.2%	18.0%
1980	23.2%	5.2%	7.0%	8.8%	17.1%	4.0%	17.3%	17.4%
1990	11.7%	4.9%	6.4%	8.8%	19.0%	4.5%	22.4%	22.3%
2000	8.2%	5.4%	6.1%	8.6%	18.7%	4.4%	26.4%	22.1%
2006	9.6%	5.8%	4.9%	6.5%	15.5%	4.5%	32.0%	21.3%
West Virginia								
1970	8.9%	6.1%	21.4%	7.3%	15.3%	4.7%	18.0%	18.2%
1980	9.7%	6.4%	16.9%	6.5%	16.7%	5.2%	19.8%	18.8%
1990	6.4%	5.7%	12.6%	6.0%	19.0%	5.2%	26.3%	18.9%
2000	4.0%	5.8%	10.2%	5.4%	19.1%	5.6%	31.6%	18.3%
2006	4.1%	6.6%	7.1%	3.7%	15.8%	5.9%	40.0%	16.8%

*TWU: Transportation, Warehousing, and Utilities
 **FIRE: Finance, Insurance, and Real Estate
 Source: Bureau of Economic Analysis

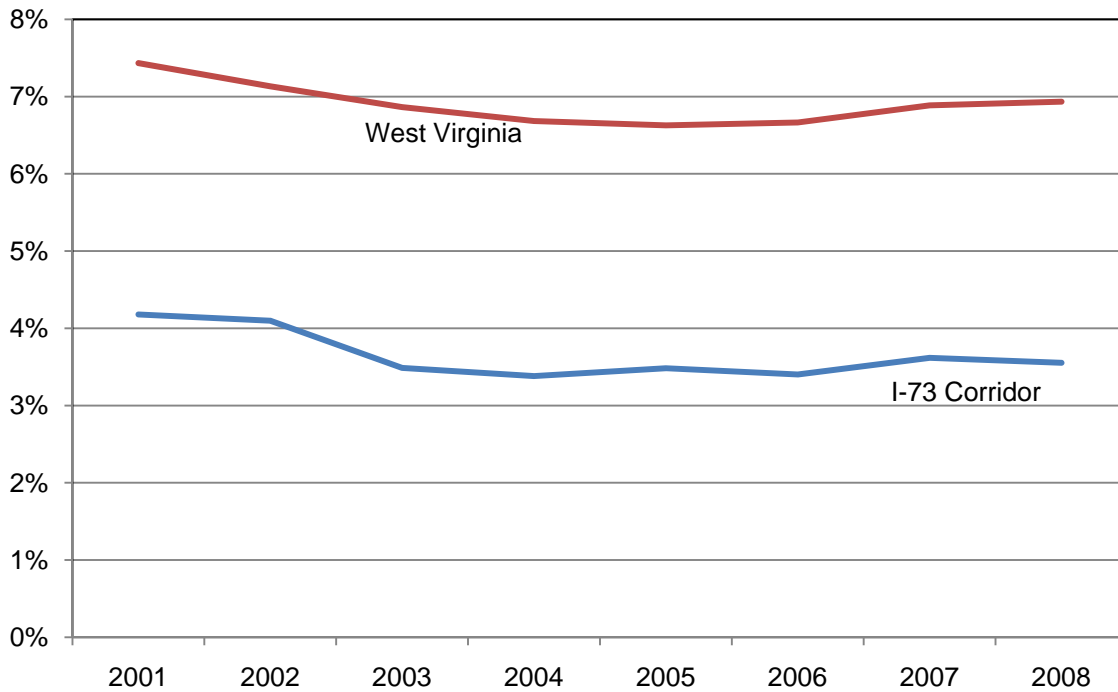
The regional industry base enjoyed healthy growth in the 1970s with all sectors expanding except manufacturing (Table 4.8). The region suffered rough times during the 1980s and 1990s with almost all sectors contracting except for services and government. After 2000, mining rebounded to a certain degree. The services sector displayed the most consistent growth for the I-73 Corridor region from 1970-2006 with average annual growth rates ranging from 1.2% to 8.4%. However, the pace of growth in services for the I-73 Corridor was slower than in the state. In the state, manufacturing employment contracted consistently from 1970 to 2006, while services, FIRE (finance, insurance, and real estate), and government expanded consistently.

Table 4.8: Average Annual Growth Rate in Sectors								
	Ag. & Mining	Construction	Manufacturing	TWU	Trade	FIRE	Services	Government
I-73 Corridor								
1970-1980	6.2%	5.9%	-3.7%	2.4%	10.5%	13.9%	8.4%	5.0%
1980-1990	-7.9%	-1.9%	-2.3%	-1.3%	-0.3%	-0.2%	1.2%	1.1%
1990-2000	-3.4%	1.0%	-0.2%	-0.2%	0.0%	-0.1%	1.8%	0.0%
2000-2006	2.2%	0.8%	-4.1%	-4.9%	-3.5%	0.0%	2.8%	-1.0%
West Virginia								
1970-1980	9.3%	8.2%	-1.8%	2.1%	9.3%	9.8%	9.6%	7.3%
1980-1990	-4.1%	-1.1%	-2.9%	-0.8%	1.3%	0.1%	2.9%	0.1%
1990-2000	-3.2%	1.5%	-0.8%	0.3%	1.4%	2.2%	3.2%	1.0%
2000-2006	1.8%	3.6%	-4.6%	-4.7%	-1.7%	2.2%	5.5%	0.0%
TWI: 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 and the region did not capitalize on the high-tech boom in the late 1990s. The percentage of high-tech employment in the I-73 Corridor stayed near or below 4% during the past eight years. For the same period, the percentage of high-tech employment in West Virginia was around 7%.²²

²² 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*.

Figure 4.2: Percentage of High-Tech Employment in Total Employment (2001-2008Q2)



In summary, growth in the I-73 Corridor lagged behind other parts of the state during the past few decades in terms of population, employment, income, and high-tech industries. The industry structure of the region is skewed toward the mining and manufacturing sectors. Disparities exist among the study region counties. Wayne County experienced faster population and employment growth due to its location within the Huntington MSA. The counties of McDowell and Wyoming suffered severe erosion of their population and employment bases. The counties of Mercer and Mingo fell somewhere in between in terms of their economic performances.



5. Traffic Impact

Generally speaking, the sources of regional economic impact attributable to a new highway can be grouped into the following three categories:

1. Temporary construction impact
2. Increased economic efficiency
3. Strategic development or business attraction effects²³

Both the increased economic efficiency and business attraction 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 the new road.

Table 5.1 shows the projected average daily traffic for 2020.²⁴ The forecasts were calculated utilizing a travel demand model by WVDOT. It is projected that the average traffic volume will range from 24,500 on the Tolsia Highway near I-64 to a 12,220 low on King Coal Highway from Williamson to Delbarton. Since Wayne County, where most of the Tolsia Highway is located, is in the Huntington MSA, it generally has higher traffic volume than the other rural counties. The traffic volume picks up toward the eastern terminus of I-73 around Bluefield, one of the large towns in the I-73 Corridor.

Table 5.1: I-73 Corridor Average Daily Traffic Volumes		
Route and Location	2020 Traffic Projection	Distance (Miles)
Tolsia Section I (I64 to Fort Gay)	24,500	22.6
Tolsia Section II (Fort Gay to Crum)	16,000	21.4
Tolsia Section III (Crum to Route 119)	19,700	15.5
King Coal Section I (Terminus to Delbarton)	12,200	12.2
King Coal Section II (Delbarton to Ikes Fork)	14,000	29.7
King Coal Section III (Ikes Fork to Crumpler)	14,000	32.3
King Coal Section IV (Crumpler to Bluefield)	14,500	15.6
King Coal Section V (Bluefield to East Terminus)	22,000	3.3
Average ADT for I-73	16,495	152.6
Source: FEIS for King Coal and Tolsia Highway		

²³ The same framework was used in Delta Highway System study.

²⁴ The Year 2020 was chosen by WVDOT in its travel demand simulation.

6. Economic Impact in the Region

This study uses the methodology 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 were used to create assumptions regarding service business jobs and other economic development jobs that may result from I-73. Generally speaking, the sources of regional economic impact attributable to a new highway can be grouped into the following three categories:

1. Temporary construction impact
2. Increased economic efficiency
3. Strategic development or business-attraction effects²⁵

Estimates from the three categories above are input into an IMPLAN model²⁶ to measure the multiplier impacts of I-73 on regional industries.

6.1. One-time Impact of Construction

During the construction phase, the construction of I-73 will create jobs in construction and related industries such as design and site development. In turn, the construction companies will boost their purchasing from suppliers. As a result, the I-73 construction will bring more sales to local suppliers, some of which will see enough sales to add employees.²⁷ In addition, area restaurants and shops will benefit as the construction workers spend their income at local establishments.²⁸ The economic impact of construction is temporary, however, lasting only during the construction phase.

The most recent estimate (2004) put total construction costs at \$2.39 billion.²⁹ Of this, \$1.4 billion is for the King Coal Highway and \$0.99 billion is for the construction of Tolsia Highway. These numbers do not include estimated costs for rights-of-way; the money spent on rights-of-way represents a transfer of property which will not generate additional economic impact on the I-73 corridor region. The \$2.39 billion includes pre-construction design and engineering work and the construction of the road and bridges. Different types of spending will impact industries in the region with varying magnitudes. Among estimated costs to construct I-73, the major expenditure categories

²⁵ The same framework was used in the I-73 Virginia study by Chmura Economics & Analytics and the Delta Highway System study.

²⁶ IMPLAN 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.

²⁷ This is referred to as the indirect impact.

²⁸ This is referred to as the induced impact. The sum of the indirect and induced impact is referred to as the ripple impact.

²⁹ Source: West Virginia Department of Transportation. This number is different from cost estimate in FEIS. In the King Coal Highway FEIS, the total cost estimate was \$1.1 billion. In the Tolsia Highway FEIS, the cost estimate was \$583.1 million. Those estimates were created in the early 1990s. The latest estimates are higher and assumed to be in 2004 dollars.

include preliminary engineering (14% of the total cost), major structure (32% of total cost), and sub-base and base (40% of the total cost).³⁰ The cost estimates are displayed in Table 6.1 below.

Table 6.1: Construction Cost Estimate (\$Million)		
	Cost Estimate	Cost Distribution
Preliminary Engineering	\$344	14%
Right of Way	\$0	0%
Major Structure	\$771	32%
Drainage & Grading	\$226	9%
Sub-base & Base	\$952	40%
Surface	\$101	4%
Total	\$2,394	
Source: West Virginia Department of Transportation		

For the project timeline, some of the construction has already begun. For King Coal Highway, \$173 million has been authorized and work has begun on the interchange near Bluefield. For the Tolsia Highway, \$156 million has been authorized. The start of the project is assumed to be 2007. Since projected traffic estimates were created for year 2020, Chmura assumes that the construction lasts from 2007 to 2020.

Table 6.2 displays the one-time economic impact of I-73 construction on the I-73 Corridor region. From 2007 to 2020, the construction of I-73 is estimated to generate a total of \$2.82 billion in the region. This total is the sum of \$2.03 billion³¹ in direct spending and \$0.79 billion of ripple economic impact from the interstate construction. As expected, the construction industry will experience the largest one-time benefit. Ripple impacts³² are distributed among local suppliers and retailers and service providers who will benefit from the construction as workers spend their income at local establishments.

The construction is estimated to directly create an annual average of 1,223 jobs in the I-73 Corridor from 2007 to 2020, causing a ripple effect that will result in 439 additional jobs in the region per year. In total, I-73 construction is expected to result in the creation of 1,661 jobs per year during the construction phase.

In terms of wealth creation, the construction of I-73 can generate an annual average of \$81.4 million in wages and salaries in the I-73 Corridor region. Of this total, \$58.5 million will be paid directly to people working on the construction of I-73 while the other \$22.9 million is wages and salaries resulting from the ripple effects of construction activities.

³⁰ Spending on major structures in highway engineering includes construction of bridges and ramps. Sub-base is a layer of aggregate below the base layer. The materials for sub-base are crushed stones, crushed slag, or concrete. Base is a layer between the road surface layer and the sub-base layer.

³¹ This figure does not include spending on rights-of-way. In addition, the IMPLAN model estimates that 88% of the construction spending on highways is spent locally. For example, some of the design work is performed outside of the region.

³² Ripple impacts are defined as the secondary economic impacts derived from the direct spending. In this study, ripple impacts are the sum of indirect (secondary impacts enjoyed by suppliers) and induced impacts (secondary economic impacts as a result of household income). See Appendix 1 for more explanation.

In terms of regional distribution, the Tolsia Highway Corridor is expected to account for 41.5%³³ of the total economic impact from construction with the King Coal Highway Corridor receiving 58.5% of the one-time economic impact of construction. Specifically, the total direct construction spending in the Tolsia Highway Corridor is estimated to be \$60.2 million per year during the construction phase, generating \$83.7 million of economic benefits. The total job creation in the Tolsia Corridor is expected to average 690 per year from 2007 to 2020, with 508 jobs associated directly with I-73 construction and 182 jobs resulting from economic ripple effects. The total direct construction spending in the King Coal Highway Corridor is estimated to be \$84.7 million per year during the construction phase, generating \$117.9 million of economic benefits. The total job creation in the King Coal Highway Corridor is expected to average 972 per year from 2007 to 2020, with 715 jobs per year associated directly with I-73 construction and 257 jobs resulting from economic ripple effects.

Table 6.2: Economic Impact of I-73 Construction on the I-73 Corridor (Annual Average 2007-2020)				
		Direct	Ripple	Total
Tolsia Highway	Spending (\$MM)	\$60.2	\$23.5	\$83.7
	Employment Compensation (\$MM)	\$24.3	\$9.5	\$33.8
	Employment	508	182	690
King Coal Highway	Spending (\$MM)	\$84.7	\$33.1	\$117.9
	Employment Compensation (\$MM)	\$34.2	\$13.4	\$47.6
	Employment	715	257	972
Total	Spending (\$MM)	\$144.9	\$56.7	\$201.6
	Employment Compensation (\$MM)	\$58.5	\$22.9	\$81.4
	Employment	1,223	439	1,661
Note: Figures may not sum due to rounding				
Source: IMPLAN Pro 2007				

6.2. Travel Efficiency and Cost Savings

While the economic impact of construction activity only lasts during the construction phase, I-73 will generate sustained economic impacts for the I-73 Corridor communities after it is built. These impacts are analyzed in this section.

All existing businesses and residents located in the I-73 Corridor region can benefit from I-73³⁴ as a result of reduced travel cost and improved efficiency. Different industries 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.

³³ This percentage is estimated based on the construction spending broken out by Tolsia Highway and King Coal Highway, provided by the West Virginia Department of Transportation.

³⁴ Businesses outside the I-73 Corridor will also benefit. Estimating those benefits is beyond the scope of this study. The new businesses that could be attracted by I-73 will be analyzed in Section 6.3 and 6.4.

The cost savings is usually estimated through a simulation model based on the amount of traffic and the total time saved traveling on I-73 versus the current road system. Both the King Coal and Tolsia highways will provide significant time savings for businesses and residents in the region. From Huntington to Bluefield, I-73 can reduce travel time by 39%, from 228 minutes on the current road to 138 minutes on I-73. The improvement in travel time for King Coal Highway can reach 44% (Table 6.3). In addition, current roads in the I-73 Corridor have higher accident rates than in the state overall. Therefore, I-73 would also reduce accidents and the related costs to businesses and residents

Table 6.3: Travel Time Savings (Minutes)			
	No Build	Preferred Route	Time Saving
Tolsia Highway (Huntington to Williamson)	79	55	30%
King Coal Highway (Williamson to Bluefield)	149	83	44%
Total I-73	228	138	39%

Source: Federal Highway Administration

Chmura used secondary research to convert time savings into a dollar amount, as cost and benefit analyses for Tolsia and King Coal highways were not available.³⁵ In the Virginia I-73 study, the annual value of cost savings and efficiency was estimated to be 0.4% of the total regional output.³⁶ Based on that assumption, the value of travel efficiency and cost saving is assumed to be \$23.6 million in 2020. If businesses use their cost savings to expand, the cost savings could potentially support over 139 new jobs, or \$7.8 million in employment compensation in the I-73 Corridor region in 2020.³⁷

The cost savings estimate here is smaller than that found in other studies. In Virginia, for every dollar of I-73 investment, the annual cost savings for I-73 Corridor region businesses was estimated at 6.5 cents. Similarly, the Delta Development Highway System was estimated to produce 5.9 cents in cost savings per dollar of investment. The West Virginia figures indicate that for every dollar of investment, the annual cost savings is 2.8 cents. The reason for the lower savings in West Virginia may be that other highways have a much larger traffic volume, resulting in larger cost savings for each dollar invested. For example, the average daily traffic on I-73 in Virginia is over 36,000³⁸ while that in West Virginia averages only 16,495. Given this, it is not surprising that its cost savings per dollar investment is expected to be lower in West Virginia than along I-73 in Virginia.

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 Source: IMPLAN Pro 2004. In 2007, the total economic output of the region was estimated to be \$4.2 billion. Chmura assumed the total output of the region grows by 2.7% per year. The average inflation rate from 2000 to 2007 was 2.7%. Chmura used this average as the assumption for future years.

³⁷ The increased output accounts for 0.4% of total output. In 2004, total employment of the I-73 Corridor (based on the IMPLAN model) was \$201,701 million. In addition, employee compensation is 33.1% of total output. So, when travel efficiency provides a total economic impact of \$23.6 million in 2020, 33.1% of it will be employee compensation. \$23.6 million * 33.1% = \$7.8 million.

³⁸ Source: Calculated based on data in *I-73 Economic Impact Study in Virginia*, by Chmura Economics & Analytics.

In terms of regional distribution, about 57%³⁹ of the economic benefits due to travel efficiency and cost savings are estimated to occur in the Tolsia Highway Corridor while the remaining occur in the King Coal Highway Corridor (Table 6.4).

Table 6.4: Annual Travel Efficiency and Cost Saving	
	2020 (\$Million)
Tolsia Highway	\$13.4
King Coal Highway	\$10.2
Total	\$23.6
Source: Chmura Economics & Analytics	

6.3. Economic Impact of Service Businesses

6.3.1. 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 businesses that could be located along I-73 in West Virginia, 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 West Virginia in economic size and structure. The following five variables have an impact on the development of service businesses at interchanges along an interstate highway:

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 34 interchanges along I-73 into development stage categories: residential, light tourist service, economically competitive, economic integration, and heavy tourist service (Table 6.5).⁴⁰

- Residential interchanges generally are located in a rural setting, have lower traffic volume, and are not close to a town. They normally have some development in single-family homes and nothing else. Many intersections in Wyoming/McDowell, Wayne and Mingo 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 Wayne, Mingo, and Mercer Counties are classified as this type.

³⁹ This percentage is estimated based on average traffic volume in Table 5.1.

⁴⁰ Appendix 3 lists the criteria and business activities of each intersection 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 Mingo Counties belongs to this category.
- Heavy tourist intersections have the highest traffic volume and are in close proximity to another interstate. One interchange in Wayne County (at I-64) and two interchanges in Mercer County (at I-77 and US Route 460) belong to the heavy tourist category. Each heavy tourist intersection can support more than six hotels, over six restaurants, and multiple gas stations.

In addition, the interchange between I-73 and the Coal Field Expressway is categorized as a Truck Stop. It is relatively far away from population centers such as Huntington or Bluefield; but still has sizable traffic, which is ideal for trucks to stop. The Truck Stop usually can support more than three gas stations, one to two fast food restaurants and one to two motels.

Table 6.5 lists the projected service establishments that can be supported by I-73. In 2020, it is estimated that I-73 can support 87 businesses comprising 36 motels, 29 gas stations, 13 fast food restaurants, and 9 full-service restaurants.⁴¹

Table 6.5: Projected Businesses Establishments in Roadside Services					
	Wayne	Mingo	Wyoming/McDowell	Mercer	I-73 Corridor
Number of Interchanges	8	9	7	10	34
Motels	8	8	3	17	36
Gas Stations	5	9	4	11	29
Fast Food Restaurants	3	2	2	6	13
Full Service Restaurants	3	0	0	6	9
Total	19	19	9	40	87

Source: Chmura Economics & Analytics

In terms of job creation, service businesses are estimated to support 1,504 jobs in 2020 (Table 6.5). By jurisdiction, Mercer County is likely to land close to half of the jobs along I-73, followed in number by Wayne and Mingo Counties. To arrive at these estimates, Chmura calculated the average employment per business in the I-73 corridor in Virginia.⁴² 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 Due to the fact that I-73 is an upgrade of several current roads in the area, the projected businesses are not entirely new. Some businesses may have existed, especially along the current US 52.

⁴² Chmura has firm-level information from the Quarterly Census of Employment and Wages (or ES202) database to calculate the average business size. No firm-level data are available for West Virginia.

Table 6.6: Projected Employment in Roadside Services					
	Wayne	Mingo	Wyoming/McDowell	Mercer	I-73 Corridor
Number of Interchanges	8	9	7	10	34
Motels	183	183	69	388	822
Gas Stations	40	71	32	87	230
Fast Food Restaurants	59	39	39	118	255
Full Service Restaurants	66	-	-	131	197
Total	347	293	139	724	1,504

Source: Chmura Economics & Analytics

6.3.2. 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 region. These ripple effects are summarized as indirect and induced. Indirect effects are generated because there are many local 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 region, thus injecting more money into the economy.

The annual economic impact of service businesses on the I-73 Corridor region is estimated to be \$172 million in 2020 (Table 6.8). Of this, \$130 million is direct spending on food, lodging, and gas at service establishments. Over \$42 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 \$1.32.

In terms of job creation, spending at I-73 business services can potentially generate 1,765 jobs for the region. Of these, 1,504 jobs will be located at service businesses while 261 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 estimate, the total employment compensation in 2020 will be \$55 million. Of this, \$42 million is compensation for individuals working at service businesses and \$14 million is compensation for jobs due to ripple effects.

In 2020, about one-third of the economic impact, in terms of total spending, employment compensation, and job creation, is expected to occur in the Tolsia Highway Corridor and the rest in the King Coal Highway Corridor. The King Coal Highway is much longer and will have more than twice the interchanges when compare with the Tolsia Highway. Also, I-73 will pass through some major roads in the King Coal Highway Corridor such as the Coalfield Expressway and I-77. As a result, more service businesses will be located in the King Coal Highway Corridor.

Table 6.7: Economic Impact of Service Businesses in the I-73 Corridor (2020)				
Region		Direct	Ripple	Total
Tolsia	Spending (\$MM)	\$42	\$14	\$55
Corridor	Employment Compensation (\$MM)	\$13	\$4	\$18
	Employment	486	84	570
King Coal	Spending (\$MM)	\$88	\$29	\$117
Corridor	Employment Compensation (\$MM)	\$28	\$9	\$38
	Employment	1,018	178	1,196
I-73	Spending (\$MM)	\$130	\$42	\$172
Corridor	Employment Compensation (\$MM)	\$42	\$14	\$55
	Employment	1,504	261	1,765

Note: Figures may not sum due to rounding.
 Source: IMPLAN Pro 2007 and Chmura Economics & Analytics

6.4. Development Potential for Distribution Centers

Distribution centers are increasingly becoming an important business for communities along interstate highways in this 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,⁴³ they are often located in less populated areas where land is relatively cheap. A study of retail distribution centers in the United States⁴⁴ found that though 84.1% 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 not only create hundreds of jobs for communities, these jobs can also provide relatively high wages.

The development of distribution centers along I-81 in western Virginia provides a good example of the potential for I-73 in West Virginia. 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. 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 West Virginia has potential to develop distribution centers. All counties are in rural areas with population density well under 200 people per square mile. Low density implies that low-cost land will be available along I-73 for potential distribution centers. The counties toward the western section of the I-73 (Wayne and Mingo) are located within a one-hour drive to Huntington and Charleston and within a three-hour drive of Columbus and Cincinnati, Ohio. Distribution centers there have easy access to Midwest markets. The counties on the eastern segment of the I-73 can provide easy access to Virginia and North Carolina markets.

⁴³ Based on an EEOC study, many distributions centers are more than one million square feet in size.

⁴⁴ Source: *Retail Distribution Centers: How New Business Processes Impact Minority Labor Markets*.
<http://www.eeoc.gov/stats/reports/retaildistribution/index.html>

With proper targeting and incentives, there is potential for I-73 in West Virginia to land a couple of distribution centers serving mid-sized metropolitan areas such as Charleston, Huntington, and Bluefield. It may also land major distribution centers for big markets such as Columbus and Cincinnati in Ohio. At this time, sufficient information does not exist for Chmura to conclude which segment is more likely to land distribution centers. Wayne County already has an intermodal facility built along Tolsia Highway.⁴⁵

If the region lands one or more distribution centers after I-73 is complete, the economic impact can be sizable (Table 6.9). On average, distribution centers employ 200 workers and can directly generate about \$18 million in economic output in 2020. Adding ripple impacts, the total economic impact of a distribution center can reach \$24 million in output and 254 jobs in 2020. In terms of wealth effects, the jobs created by a distribution center could generate an estimated \$13 million in employee compensation in 2020. Of this total, \$10 million is compensation for individuals working at the distribution center and about \$4 million is employment compensation due to ripple effects.

Table 6.8: Economic Impact of Distribution Center on I-73 Corridor			
	Direct	Ripple	Total
Spending (\$MM)	\$18	\$6	\$24
Employment Compensation	\$10	\$4	\$13
Employment	200	54	254
Source: IMPLAN Pro 2007			
Note: Numbers may not sum due to rounding.			

6.5. Other Benefits

While extensive economic literature on the impact of interstate highways enables Chmura to project growth opportunities in service businesses, distribution centers, and cost savings for current businesses, I-73 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.

I-73 will benefit mining, manufacturing, and agricultural businesses in the corridor by providing improved access to markets. Examples of these markets include Huntington in West Virginia and Roanoke in Virginia. When I-73 is complete from Michigan to South Carolina, I-73 can provide improved access to population centers in the Midwest and Carolinas. 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, with the development of computer and communication technology as well as the declining roles of manufacturing in the national economy, its importance relative to other factors has diminished over time. 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. The I-73 corridor already has a strong mining and manufacturing base. Coupled with low wages and a low cost of living, as well as a renewed emphasis on clean coal technology, I-73 communities should be appealing to expanding mining and manufacturing firms.

⁴⁵ Source: King Coal Highway Authority.

Many counties have initiated projects along I-73: Wayne County built an intermodal facility along the Tolsia Highway, McDowell County is working on a development plan for Indian Ridge Industrial Park, and Mingo County has plans for an energy industry park. Economic development officers in the region also reported inquiries from many businesses which are relocating or expanding.⁴⁶

Population growth in the region can also be aided by I-73. The presence of an interstate highway and jobs associated with it has a positive effect on population growth. Jobs created by service businesses and other relocating/expanding firms can lure people to the area. In addition, an interstate highway reduces commuting time and enhances the attractiveness of a region as a destination for residential development.

I-73 will also have a positive effect on tourism in the region. A large part of the tourism boost is captured by service business development along I-73, but tourism attractions in the corridor will also benefit. For example, the Hatfield McCoy Trail, a major tourism attraction in southern West Virginia, can see a boost in visitors along with other state parks and hiking trails located in the I-73 Corridor.

As noted earlier, another benefit of I-73 is a reduction in accidents and better safety on the roads. 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. The proposed route would mean neither school buses nor school-age children would have to use I-73, but would instead use local roads. Traffic accidents not only incur enormous monetary costs, the emotional cost due to the loss of human life can be even more traumatic to communities in the 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.

⁴⁶ Source: King Coal Highway Authority, Economic Development Authority of Wayne, Mingo, McDowell, Mercer and Wyoming Counties.

7. 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 West Virginia. For the state, three main tax sources are sales 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 business and occupation (B&O) taxes and, for some counties, hotel and motel taxes.⁴⁷

7.1. State Fiscal Impact

During the construction phase, the state can collect corporate income tax from companies involved in the construction of I-73, including architecture firms and construction companies. The state also collects personal income tax from wages and salaries paid to individuals working on the project. After the construction is complete, the state will collect corporate income tax from service businesses and potential distribution centers located along I-73. Similarly, people working in these businesses will be subject to personal income tax. In addition, West Virginia assesses 6% sales tax on receipts from service businesses such as gas stations, hotels, and restaurants.⁴⁸

Chmura utilized the following methodology to estimate corporate and personal income taxes. In Section 6, Chmura estimated the total output value of construction, service businesses, and a distribution center. The IMPLAN 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 construction businesses in the I-73 Corridor region, IMPLAN shows that profits account for 2.5% of the total output while wages and salaries account for 38%. For restaurants, these percentages are 7.9% and 30%. From this information, Chmura estimates the total profits and wages and salaries that can be attributed to I-73. The state corporate income tax rate is 8.75% and the average personal income tax rate is 4.5%.⁴⁹

Table 7.1 presents the tax revenues for the state. The construction of I-73 is estimated to bring state government a total of \$40.6 million during the construction phase. The majority of state tax revenue will come from personal income tax, amounting to \$36.9 million. Corporate income tax is estimated to total \$3.7 million during the construction phase.

Table 7.1: State Tax Estimate				
	Corporate Income Tax	Personal Income Tax	State Sales Tax	Total
Construction (Total 2007-2020)	\$3,716,074	\$36,877,167		\$40,593,242
Roadside Services (Annual 2020)	\$1,652,688	\$1,880,561	\$7,800,400	\$11,333,650
One Distribution Center (Annual 2020)	\$190,262	\$438,486		\$628,747

Source: Chmura Economics & Analytics

⁴⁷ Minor taxes such as utility tax (electricity and telephone) are not estimated. Only tax revenues from direct impacts are estimated.

⁴⁸ Source: West Virginia Tax Department.

⁴⁹ West Virginia has a progressive state income tax system where higher income individuals pay higher percentages of their income as income tax. The rate is 4.5% for an individual earning \$25,000 to \$40,000 per year and 6.5% for an individual earning more than \$60,000 per year. Therefore, 4.5% is a reasonable and conservative average assumption for construction and service jobs created by this project.

After construction is complete, the state is expected to collect sales tax, corporate tax, and personal income tax from service businesses and other business along I-73. In 2020, the total state tax revenue from service businesses is estimated to be \$11.3 million with sales tax accounting for more than half. In addition, one distribution center in the I-73 Corridor is expected to generate more than half a million dollars in annual tax revenue for the state.⁵⁰

7.2. Local Fiscal Impact

Chmura utilized the following methodology to estimate local tax revenue:⁵¹ since all local taxes are based on total receipts, the direct spending impact estimated in Section 6 provides a good basis for calculating tax revenue. Two local tax sources are B&O taxes and hotel/motel taxes. Chmura calculates the regional average tax rate with current employment as a weight. Local tax revenues for the northern corridor and southern corridor are estimated separately.

During the construction phase, the counties and cities located in the I-73 Corridor can collect B&O taxes from construction spending. It is estimated that the average B&O tax revenue will total \$20.6 million for localities in the I-73 Corridor during the construction phase (Table 7.2).

After the construction of I-73 is complete, local governments will collect B&O taxes and potential hotel/motel taxes from service businesses. In 2020, the service businesses in the northern corridor are estimated to generate \$0.3 million in revenue for local governments. McDowell and Wayne County have no hotel/motel tax while Mingo, Mercer, and Wyoming Counties have a 6% hotel/motel tax.⁵² The total hotel and motel taxes are estimated to be \$3.5 million per year for local governments.

Table 7.2: Local Tax Estimate			
	B&O Tax	Hotel/Motel Tax	Total
Construction (Total 2007-2020)	\$20,622,629		\$20,622,629
Roadside Services (Annual 2020)	\$299,138	\$3,522,466	\$3,821,604
One Distribution Center (Annual 2020)	\$80,378		\$80,378

Source: Chmura Economics & Analytics

The potential distribution centers will generate B&O taxes. Each distribution center in the northern corridor can bring over \$80,000 in B&O tax revenues for local governments.

7.3. 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

⁵⁰ Chmura did not break out the state tax benefit for Tolsia and King Coal Corridors since it is the state government that is the recipient of these tax revenues.

⁵¹ Only county tax revenues are estimated in this study. In West Virginia, municipalities can also impose taxes on properties and businesses. Those are not estimated here.

⁵² Source: Wayne, Mingo, Wyoming, Mercer and McDowell County Economic Development Authority.

travel efficiency, cost savings, and economic benefits of service businesses and potential distribution centers. The direct impacts of all three types of benefits can be \$171.4 million in 2020.⁵³ The total cost of I-73 was estimated at \$2.4 billion (in 2007 dollars). Discounting potential benefits to 2007 dollars, the net present value will exceed total cost after 26 years. As a result, the potential payback period is estimated to be 26 years.

⁵³ This includes the direct impacts of service businesses (\$130.0 million in 2020) and a distribution center (\$17.8 million in 2020), and travel efficiency (\$23.6 million in 2020).



8. Assessment of Risks

The economic impact of I-73 attempts to project the regional economy ten to 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.

8.1. 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.

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 July 2008. The price has retreated since then to \$48 per barrel in March 2009. Despite the fall, without the discovery of new oil reserves and with the demand for oil forecast to increase, the long-term trend is likely that the price of oil will continue to rise. Higher oil prices could have a negative effect on the projected economic impact as high oil prices can reduce automobile travel.

The impact analysis is based on the assumption that no recession will occur after 2020, and businesses can maintain 2020 levels of output. The downside risk is that if there is a recession, the projected service businesses and overall cost savings would be less than estimated in this study. In addition, a recession would also slow the pace of business expansion and relocation.

The traffic projection cited in this report is based on the assumption that I-73 in West Virginia is not a toll road. Should a toll be imposed on the road, Chmura expects the traffic volume on I-73 would be smaller, as would the resulting economic impact of travel efficiency and service businesses. The likelihood of landing a distribution center may also be diminished as tolls impose additional costs for businesses using the road.

There is downside risk in the projected construction impact. Chmura utilizes IMPLAN assumptions to estimate the percentage of construction outlays that is spent on local construction and architecture firms. IMPLAN calculates the assumption based on the current industry structure and capacity. It is possible that, for a large project like the construction of I-73, more contractors outside the area may be used which could reduce the economic impact projected in Section 6.1.

8.2. 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 West Virginia region has a competitive mining and manufacturing industry. It is possible that I-73 can provide a boost for local mining and manufacturing industries. Expansion and relocating to this area gives firms access to east coast and midwest markets. In this study, Chmura does not assume the relocation or expansion of mining or manufacturing firms in the I-73 Corridor. As a result, there are upside risks for the projection.

In addition, this report does not incorporate several projects that are already in process or in the planning stage. Wayne County built an intermodal facility along Tolsia Highway and McDowell County is working on a development plan for Indian Ridge Industrial Park.⁵⁴ The economic impacts of those projects are not estimated here.

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

⁵⁴ Source: King Coal Highway Authority and Economic Development Authority of Wayne, Mingo, McDowell, Wyoming and Mercer Counties.

9. Conclusion

The construction and ongoing operations of I-73 will inject hundreds of millions of dollars into the I-73 Corridor and provide jobs for workers in construction, retail, service, and warehouse industries. This study estimates that the construction of I-73 will inject an annual average of \$201.6 million in total economic impact (direct plus ripple impacts) into the local economy from 2007 through 2020. The construction will also generate 1,661 jobs each year during this period.

After the completion of I-73, both existing businesses and potential new businesses can benefit from the highway. For existing businesses located in the I-73 Corridor, the interstate can help improve travel efficiency and provide cost savings. These cost savings amount to \$23.6 million in 2020 (Table 9.1).

The most immediate new businesses as a result of I-73 are the service businesses clustering around interchanges along I-73. These service businesses will serve motorists on I-73 and local residents. Chmura estimates that a total of 87 service businesses can be supported by I-73 in 2020. These service businesses can generate an economic impact of \$172.4 million and create 1,765 jobs in the I-73 corridor.

It is likely that I-73 development can support distribution centers in the corridor. The total economic impact of one average distribution center is estimated to be \$24.3 million and 254 jobs in 2020.

I-73 will benefit mining, manufacturing, and agricultural businesses in the I-73 Corridor by providing easier access to markets. The presence of an interstate highway can increase the appeal of the region to expanding and relocating firms. I-73 will also contribute to the stability of the existing manufacturing base, allowing for higher levels of employment retention in addition to making the region more attractive to manufacturers seeking interstate locations, due to the efficiencies derived from such locations. I-73 will also have a positive effect on population and tourism growth in the region.

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 state government will receive \$12.0 million in 2020 in sales tax and corporate and individual income tax on an annual basis. The local governments in the I-73 corridor will receive annual tax benefits totaling \$0.4 million in 2020 in the form of local business and occupation taxes.

Table 9.1 summarizes the economic impact of I-73 on the corridor region.

Table 9.1: I-73 Economic Impact Summary					
	Total Economic Impact (\$MM)	Total Employment Compensation (\$MM)	Total Job Creation	State Tax Revenues (\$MM)	Local Tax Revenues (\$MM)
Average Annual One-time Construction Impact (2012-2020)					
Tolsia Corridor	\$83.7	\$33.8	690	\$1.2	\$0.7
King Coal Corridor	\$117.9	\$47.6	972	\$1.7	\$0.7
I-73 Corridor	\$201.6	\$81.4	1,661	\$2.9	\$1.5
On-going Impact (2020)-Tolsia Corridor					
Cost Saving (Productivity)	\$13.4				
Roadside Services	\$55.1	\$17.6	570	\$3.6	\$0.8
One Distribution Center	\$24.3	\$13.3	254	\$0.6	\$0.1
Total Tolsia Corridor 2020	\$92.8	\$30.9	824	\$4.2	\$0.9
On-going Impact (2020)-King Coal Corridor					
Cost Saving (Productivity)	\$10.2				
Roadside Services	\$117.3	\$37.7	1,196	\$7.7	\$3.1
Distribution Center	\$24.3	\$13.3	254	\$0.6	\$0.1
Total King Coal Corridor 2020	\$151.9	\$51.0	1,450	\$8.4	\$3.1
On-going Impact (2020)-I-73 Corridor					
Cost Saving (Productivity)	\$23.6				
Roadside Services	\$172.4	\$55.3	1,765	\$11.3	\$3.8
One Distribution Center ⁵⁵	\$24.3	\$13.3	254	\$0.6	\$0.1
Total I-73 Corridor 2020	\$220.3	\$68.6	2,020	\$12.0	\$3.9
Source: Chmura Economics & Analytics					

⁵⁵ Only one distribution center is included in the total regional impact. The I-73 Corridor can support one distribution center, but it can occur in either King Coal Highway Corridor or Tolsia Corridor. As a result, the potential impacts of distribution center were included in both regional impacts, but only one are included in total I-73 Corridor impact.

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Appendix 2: 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 inputs 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 3: Interchange Development Categories

Table A3: Interstate Interchange Classifications		
Category	Development	Requirement
0	Minimum Forest Agriculture agriculture-residential	no requirements
1	Residential single family homes medium sized lots	traffic < 2,000 ATD not close to town rural setting
2A	Light Tourist Service 1+ gas station 1 small motel	traffic > 4,000 ATD water service moderate visibility within 10 mile of town
2B	Economically Competitive 2-4 gas stations 1-2 fast food restaurants 2+ hotels	traffic > 8,000 ATD water & sewer town < 3 mile more than 5 mile from next exit
2C	Economic Integration 4+ gas stations 3+ fast food restaurants 2+ full-service restaurants other business/malls	traffic > 12,000 ATD water and sewer town < 2 miles
3A	Heavy Tourist 6+ hotels 3+ full-service restaurants 3+ fast food restaurants 3+ gas stations	water and sewer 2-3 miles from intersecting interstate
3B	Truck Stop 3+ gas stations/truck stop 1-2 fast food restaurants no malls 1-2 hotels	3-5 miles from town 20+ miles from intersecting interstate traffic < 6,000 1-2 per 100 miles
Source: Hartgen, et al. "Growth at Rural Interchanges: What, Where, Why. Transportation Research and Record, 1359		