



# **Executive Summary Report**

## **ECONOMIC IMPACT OF THE APPALACHIAN DEVELOPMENT HIGHWAY SYSTEM**

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Congress established the Appalachian Regional Commission (ARC) in 1965. The intent was to foster and promote the economic and social development of the Appalachian Region which includes all of West Virginia and portions of 12 other states from Mississippi to New York.

### **THE APPALACHIAN DEVELOPMENT HIGHWAY SYSTEM (ADHS)**

In order to promote economic development in the Region, Congress authorized the Commission to carry out a number of programs, including the development of the Appalachian Development Highway System. The ADHS is envisaged as a 3,440 mile network of highways (with 3,025 miles authorized for improvements by the ARC) providing essential transportation access for improving the Appalachian Region's economic position. The ADHS has 26 corridors and, to date, is 75% complete.

### **THIS ECONOMIC IMPACT STUDY**

This study focuses on 12 of the 26 ADHS highway corridors that are largely complete and determines the extent to which these corridors have helped the Region's economy. By restricting the study to 12 of the 26 corridors, the counties impacted are limited to 165 counties of the total 399 counties in the Appalachia Region. These counties are most affected by improvements in the 12 corridors.

A primary objective of this study is to measure, in retrospect, the extent to which the completed portions of the ADHS have contributed to the economic well-being of Appalachia. If the completed corridor segments have succeeded, then it bodes well for the economic development potential of the remainder of the ADHS corridors that are not yet funded and/or built.

### **THIS EXECUTIVE SUMMARY**

This brief report summarizes a study conducted by Wilbur Smith Associates in 1998 that included a comprehensive data collection effort and a thorough economic impact analysis. Highlighted in this report are the economic benefits created from the 12 ADHS corridor improvements, the benefit/impact-cost analysis, and a summary of the conclusions and implications. The full details of the analysis are documented in a study volume entitled "Appalachian Development Highways: Economic Impact Studies," dated June 11, 1998.

### **KEY STUDY ISSUES**

The study focuses specifically on the ability of the ADHS highways to contribute economic value and development to the Appalachian Region. Based on transportation data and an economic model, which utilizes the transportation data, the study addresses the economic impact that the improved ADHS corridors have had and will have on the Appalachian Region.

As part of this analysis, systematic economic benefits and economic costs are presented based upon the travel efficiencies created from the improved highways, which accrue to both automobile and truck users who utilize the improved facilities. These travel efficiencies are in the form of reduced travel time, reduced vehicle operating costs, and a reduced number of accidents. The improved travel efficiency along the ADHS corridors ultimately leads to an increase in economic production, job opportunities, wages, population, and travel benefits to the people and the communities the highways serve. A major objective is to quantify and present these impacts.

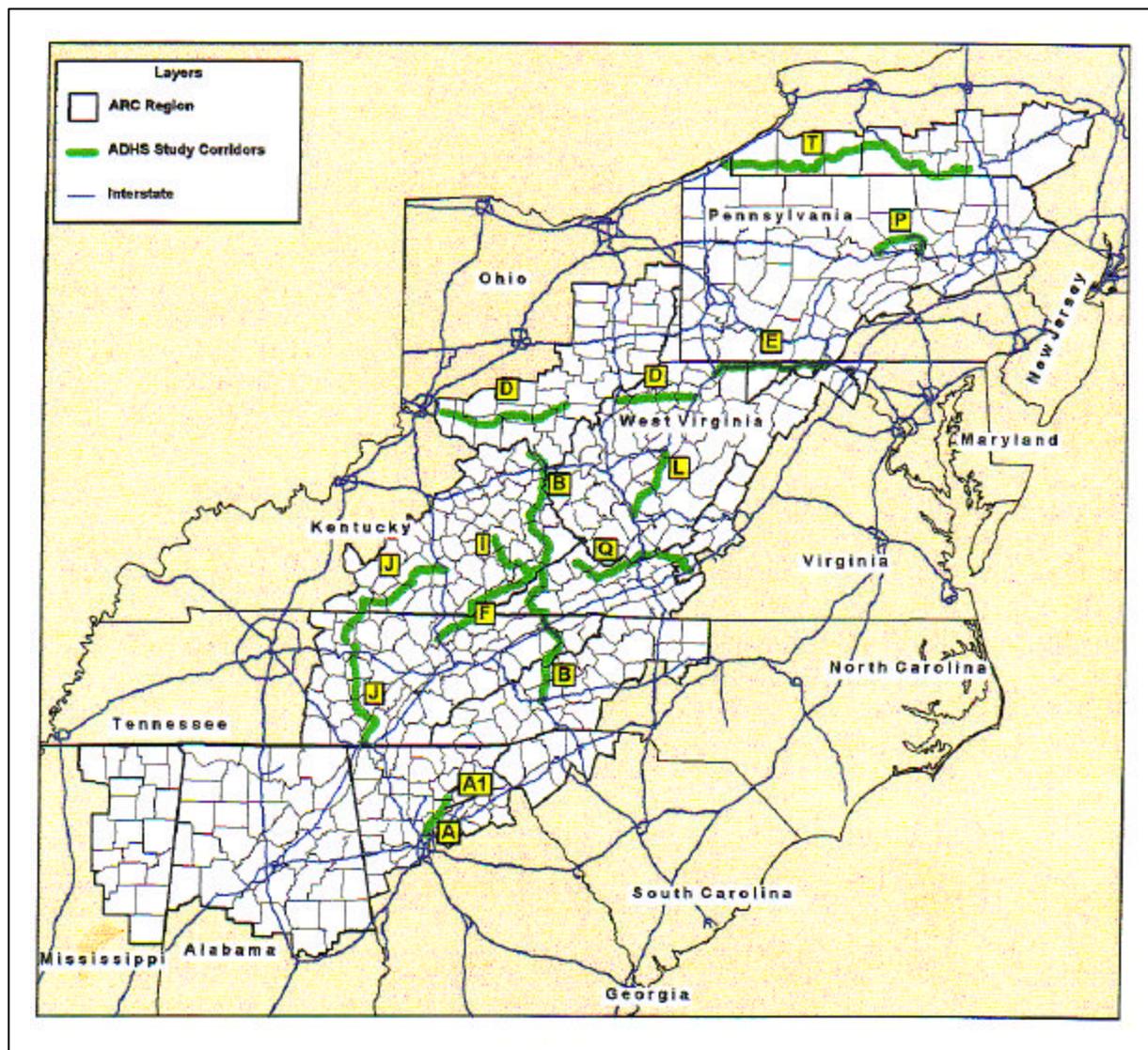
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### ADHS CORRIDORS INCLUDED IN THIS STUDY

This economic impact study focuses exclusively on those ADHS corridors and corridor segments that are already built and open to traffic. The 12 corridors included and evaluated in this study are illustrated on the following map and labeled as **A/A-1** (Georgia), **B** (North Carolina, Tennessee, Virginia, and Kentucky), **D** (Ohio and West Virginia), **E** (West Virginia and Maryland), **F** (Tennessee and Kentucky), **I** (Kentucky), **J** (Kentucky and Tennessee), **L** (West Virginia), **P** (Pennsylvania), **Q** (Virginia and West Virginia), and **T** (Pennsylvania and New York).

### THE ECONOMIC EVALUATION PROCESS

The effectiveness of the ADHS in creating economic opportunity is estimated by the use of a regional economic model (the REMI model). The REMI model is a comprehensive economic forecasting and simulation model that has been employed in the evaluation of a wide array of issues, including investments in infrastructure. Travel efficiency benefits (shorter travel times and reduced vehicle operating costs) are inputs into the REMI model which generate the regionally specific economic development impact estimates, as measured by jobs, wages and value-added.



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### ECONOMIC EFFICIENCY RESULTS

The ADHS corridors were evaluated from both a travel efficiency perspective and a regional economic development perspective. The table at the bottom of the page displays the results of these evaluations. Included in the table is the net present value (NPV), the internal rate of return (IRR), and the benefit/cost ratio (impact/cost ratio for the economic development perspective) of the ARC's investment into the ADHS. From the perspective of travel efficiency, the table indicates that:

- The net present value created from the travel efficiencies is \$755 million over the course of the study time frame.
- The constant dollar economic return is an attractive 7.87%.
- The life cycle economic travel efficiency benefits exceed the costs (benefit/cost is 1.18). For each \$1.00 invested in the ADHS, the ADHS has yielded \$1.18 in travel efficiency benefits.
- The corridors as a whole seem to have been reasonable investments from a travel efficiency perspective.

### ECONOMIC DEVELOPMENT RESULTS

The evaluation of the corridors from the regional economic development perspective indicates that:

- The net present value created from the travel efficiency is \$1.344 billion over the course of the study time frame.
- The constant dollar economic return is a very attractive 8.29%.
- The economic impacts exceed the costs (impact/cost is 1.32). For each \$1.00 invested in the ADHS, the ADHS has yielded \$1.32 in economic development impacts.

These impacts are also broken down in terms of the jobs, population, wages, and value added for the Region, and are displayed for three selected years in the following table:

#### Economic Development Impacts

Increases Due to ADHS	<u>1975</u>	<u>1995</u>	<u>2015</u>
Jobs	6,100	16,270	42,190
Population	14,690	30,420	84,480
Wages (\$ million)	\$68	\$426	\$1,178
Value Added (\$million)	\$271	\$1,002	\$2,975

### ECONOMIC EVALUATION RESULTS

Perspective	Net Present Value	Internal Rate of Return	Benefit or Impact/Cost Ratio
Economic Efficiency	\$755,743,000	7.87%	1.18
Regional Economic Development	\$1,344,376,000	8.29%	1.32

Evaluation Rules: The Appalachian Development Highway System is economically justified (has an economic rationale) if:

- The Net Present Value is positive (+).
- The Internal Rate of Return is 7.0% or greater.
- The Benefit/Cost Ratio is 1.0 or greater.

SOURCE: Wilbur Smith Associates

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### STUDY CONCLUSIONS

1. **ADHS Has Created Jobs** – By 1995 a net increase of 16,000 jobs are estimated to have been created that would not have existed without the completed portions of the ADHS; it is estimated that these twelve corridors will, by the year 2015, have created a net increase of 42,000 Appalachian jobs. These jobs occurred because the ADHS made the Region a better place to invest, live, and work.
2. **ADHS Has Led to Increased Production** - The net increase in value added was \$1 billion in 1995, and will increase to \$2.9 billion by the year 2015. The total present value of this increased production is \$6.9 billion (1965-2025). Therefore, the ADHS has been successful in increasing the Region's production, which results in increased job opportunities and increased wages.
3. **ADHS Has Created Efficiency** - The ADHS highway corridors have created travel efficiencies valued at \$4.89 billion over the 1965-2025 period. Improved road conditions and access resulted in greater efficiency. By helping the Region to be more efficient and accessible, economic opportunity has been expanded.
4. **The Federal Investment is Warranted** - The economic rate of return from an efficiency perspective is 7.87 percent, and from an economic development perspective is 8.29 percent per year (in inflation adjusted terms, the rate of return would be higher). This is a solid return on the investment. Over the life cycle of the ADHS, for each \$1 invested, the return is \$1.18 in efficiency benefits, and \$1.32 in economic impact benefits. These are indicative of a good use of tax payer funds.
5. **All ADHS Corridors Yielded Benefits** - All of the twelve completed ADHS corridors produce efficiency benefits, from a corridor-specific low of \$59 million to a corridor high of \$1.2 billion. The individual corridor efficiency returns on investment range from 5.44

percent per year to 10.06 percent. While some corridors are better than others, they all appear to have been reasonable investments.

6. **Many People Have Benefited** – While the most direct beneficiary of the ADHS is the highway user, non-users of the highways were also positively impacted—due to job creation, better jobs (wages), and other opportunities. Therefore, the ADHS highways have benefited the people of Appalachia, even those who do not use the specific highways.
7. **The ADHS Has Made Appalachia More Competitive** – The ADHS highways have helped the Appalachian Region to be better able to compete for economic opportunity. This competitiveness is valued at \$2.7 billion over the 1965-2025 period. Clearly, the ADHS has helped the Region to make progress, even though the system is not yet complete.

The Appalachian Development Highway System, as conceived by the U.S. Congress, was intended to help the economy of the Appalachian Region. This study examined the ADHS, to determine whether the completed portions of the ADHS have attained their economic development objective.

The ADHS cannot take credit for all growth, or even a majority of the growth, in Appalachia's prosperity. But it can take credit for enough growth (42,000 jobs, 84,000 people, \$2.9 billion wages, \$6.9 billion value added) to demonstrate that the ADHS has been a good investment in Appalachia's, and America's, future.

**FOR FURTHER INFORMATION**  
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