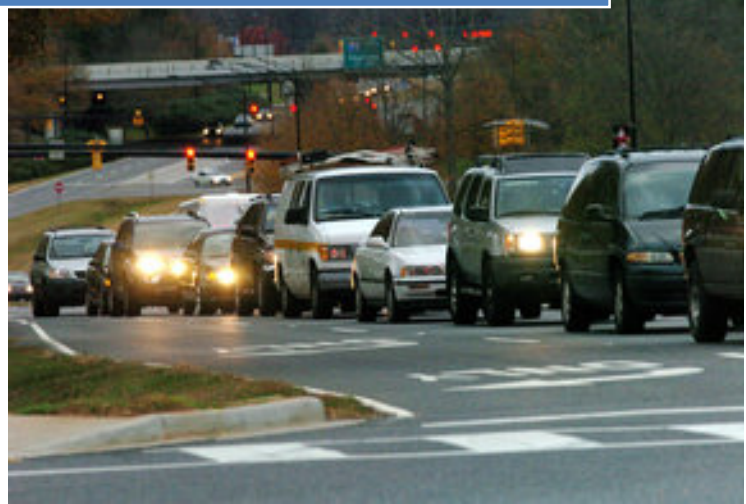


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## ECONOMIC IMPACT OF THE DAVE LYLE BOULEVARD EXTENSION IN YORK AND LANCASTER COUNTIES, SOUTH CAROLINA



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## EXECUTIVE SUMMARY

The Division of Research (Division) in the Moore School of Business, the University of South Carolina, has conducted a study of the economic impact of the possible extension of Dave Lyle Boulevard. This major infrastructure project could produce tangible benefits for South Carolina in terms of jobs and income through construction and expansion of residential housing, commercial development, and other new economic activity along the corridor.

The Moore School study used county-level data and assessed the total impacts with IMPLAN, a form of regional input-output (I-O) model, to quantify the statewide ripple (or multiplier) impacts of the infrastructure project. The Division research team was responsible for tailoring the model to the proposed development. The main quantitative results are a set of summary statistics, including income, value added, and employment, describing the total economic impact.

The focus of the study was on the extent to which the extension of Dave Lyle would help create jobs in South Carolina. The infrastructure project would produce direct jobs and substantial income that would cascade across the two counties and the state, leading to more employment and income not directly associated with benefits of the highway extension.

## INTRODUCTION

The counties of York and Lancaster South Carolina have long considered a proposed expansion of the Dave Lyle Boulevard in York County. The proposed project involves extending this roadway from its current abrupt ending just east of I-77 at exit #77, across the Catawba River and into Lancaster County and linking with U.S. Route 521. This would connect I-77 and Rock Hill to that portion of Lancaster County, which is increasingly experiencing the growth effects of the Charlotte metropolitan area.

The most recent activity on moving forward with this proposed extension concluded with an approval of a Final Environmental Impact Statement (FEIS) in 2002. Much public discussion surrounded this process resulting in the FEIS specifying a preferred alternative route for the new extension. The project, however, has been on hold since this time due to the lack of funding.

In 2008, in a sign of inter-county cooperation and renewal of interests, Lancaster and York Counties contracted with the University of South Carolina (Division), Clemson University, and the Florence and Hutcheson engineering firm to re-examine various aspects of the project. Florence and Hutcheson were to analyze the previous proposal and re-evaluate the original preferred alternative route in light of new information, particularly those associated with costs. The team from Clemson was to use mapping and GIS (geographic information system) capabilities to examine land use impacts of the proposed extension including identification of areas in the roadway corridor suitable for development given infrastructure availability and lack of environmental constraints. Finally, the Division was responsible for tailoring a model to examine the anticipated economic impact of the project. Included in the results would be summary statistics on annual income (value added), employment, and fiscal impacts (tax revenues and public costs).

The remainder of this report presents the findings associated with the USC study. The initial task is to explain the nature of the model used to examine the economic activities associated with this project. The following provides an overview of the IMPLAN model. The next task is to examine the economic impact of the road construction and related activities associated with the building of the roadway. It is assumed that the construction of this project will continue from a start date of late 2010 through 2015. Somewhat in phase with the construction and running through to 2030 will be the build out of residential and commercial development attracted by the extension. A presentation of the economic impact of these activities then follows.

Once the housing and commercial development is fully completed, there will be a continuation of new retail sales beyond 2030. The anticipated economic impact of this spending is then examined. Finally, since any development activity brings benefits (tax revenues) and costs (school and other public expenditures), to local and state governments, the final empirical task is to evaluate the anticipated fiscal impact of this project. A summary and conclusion wraps up the report.

## METHODS

The economic impact of the infrastructure project in York and Lancaster counties is a combination of what are called direct, indirect, and induced effects on local economies. The *direct* impact is the economic activity generated by the construction, home building, local spending by new residents and shoppers from elsewhere. These local purchases generate further expenditures within the South Carolina economy, leading to *indirect* impacts. As suppliers and local vendors spend income received, businesses benefit further upstream. Moreover, wages are paid to employees as a result of the direct and indirect expenditures. The wage income then exerts an increase in expenditures via the local consumption of goods and services. These

effects are called *induced* impacts. The sum of the direct, indirect, and induced impacts is the total economic impact.

The first step in an economic impact analysis is to compile information on direct dollar flows into the state. Information was obtained from the engineering reports, county data from the U.S. Department of Commerce, and projections based on Moore School forecasting models.

Given construction, retail and other expenditures, the multiplier impacts on the counties and state were calculated using the IMPLAN model, a form of input-output analysis widely used across the United States. The impacts generated by IMPLAN produce the indirect and induced effects.

IMPLAN's input-output model accounts for the linkages—including intermediate inputs and final consumer demand—that characterize the inner working of the South Carolina economy. IMPLAN has information for 508 industrial sectors (industries) that comprise the South Carolina economy. It is a highly complex and detailed set of equations that accounts for all industry purchases of commodities, services, employee compensation, value added, and imports, which are in turn set equal to the value of the commodities produced in the state.

Impacts were calculated for four categories that reflect the

- Total Impact (or Output). This is the contribution to overall amount of transactions associated with any new spending generated by the project.
- Employment. This is the contribution to the job base.
- Labor Income (or Earnings). This is the contribution to wages and salaries.
- Value Added: The net overall contribution to the state's economy—similar to gross domestic product (GDP).

The total impact, employment, labor income, and value added impacts were calculated for each of the three major phases of the

project: construction of the highway, home building and retail construction, and spending by new residents and other local shoppers.

## RESULTS

The impact results are based on the following activities (all impacts will be calculated in 2008 dollars).

### Road Construction and Related Activities

This impact is the result of the local and state stimulus effect of highway, bridge and other road construction through 2015. Figures 1 and 2 provide the information on this aspect of the economic impact. The values are “one-time” in nature since construction activity will stop once

the roadway is completed (2015). Figure 1 reflects a statewide employment impact of nearly 2,400 jobs, total output of \$248 million, and income of \$93 million. The value added impact is \$128 million, and the construction generates \$14 million in state revenue.

**Figure 1: Highway Construction Impact on the State of South Carolina**

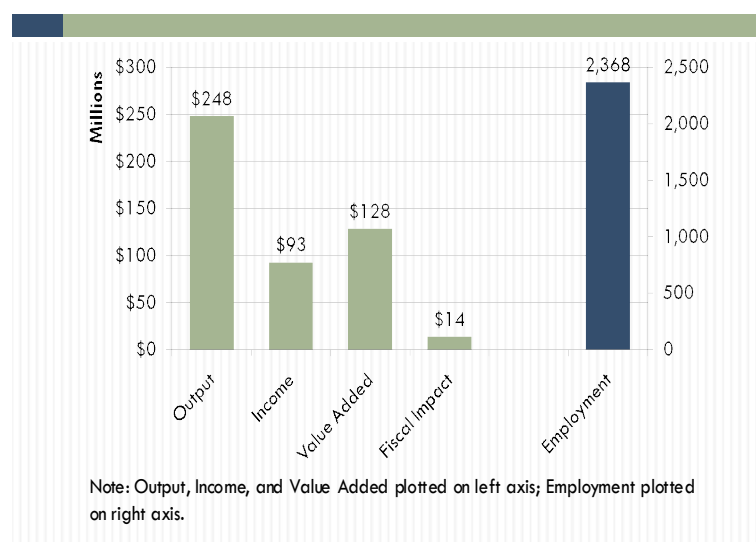
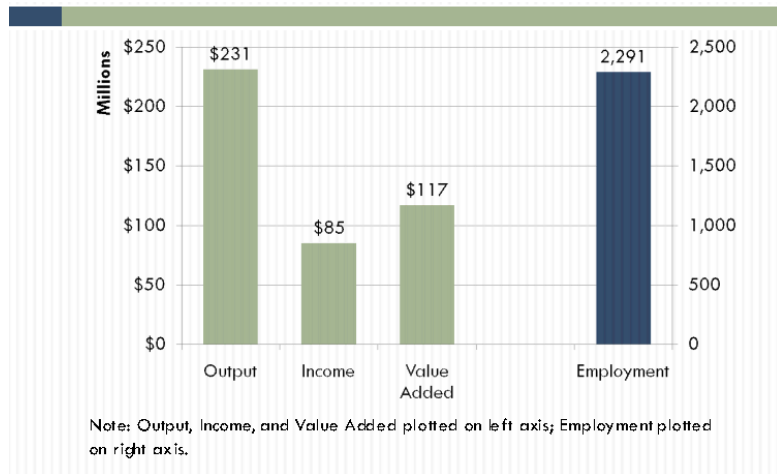


Figure 2 provides similar impact measures of construction activity on the local economies of York and Lancaster Counties. As seen, the majority of the statewide impact occurs at the local area. For example, 2,291 local jobs will be associated with road construction. Similar observations can be observed for output, income, and value added.

**Figure 2: Highway Construction Impact on York and Lancaster Counties**

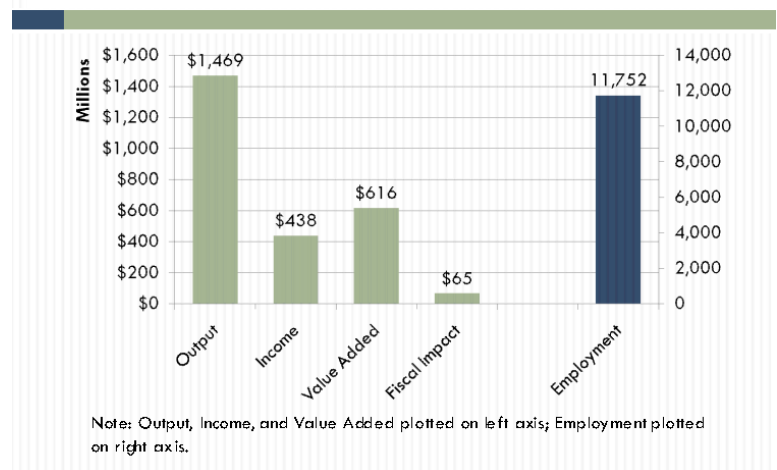


### Home Building and Commercial Development

This impact follows from the projection of new home building and commercial development through 2030. As with highway construction, new housing and retail space will be built though out a given period. In this case, build-out is assumed to be completed by 2030.

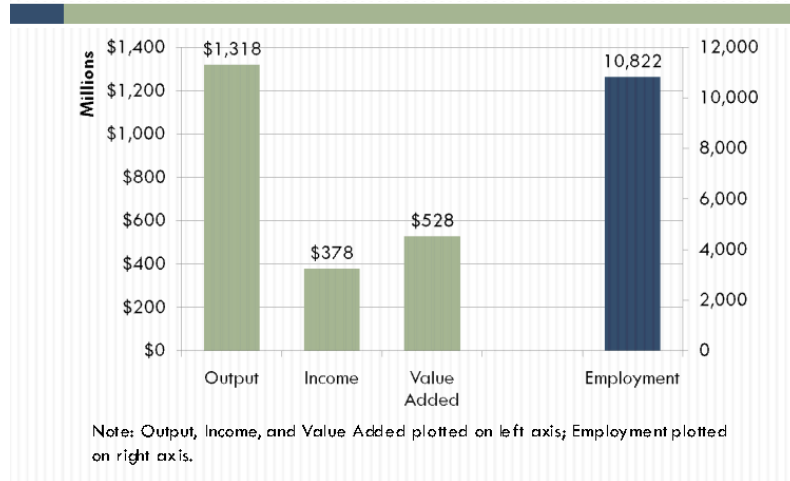
Figures 3 and 4 (next page) contain the expected state wide and local economic impact of these activities. State wide, over 11,700 additional jobs are generated by the building of new housing and retail space. Again, the majority of these jobs will be at the local area (Figure 4). Total economic activity (Output) is estimated to be nearly \$1.5 billion (Figure 3). The related dollar value

**Figure 3: Housing and Retail Construction Impact on the State of South Carolina**



impact values associate with this building activity is reported in these two tables.

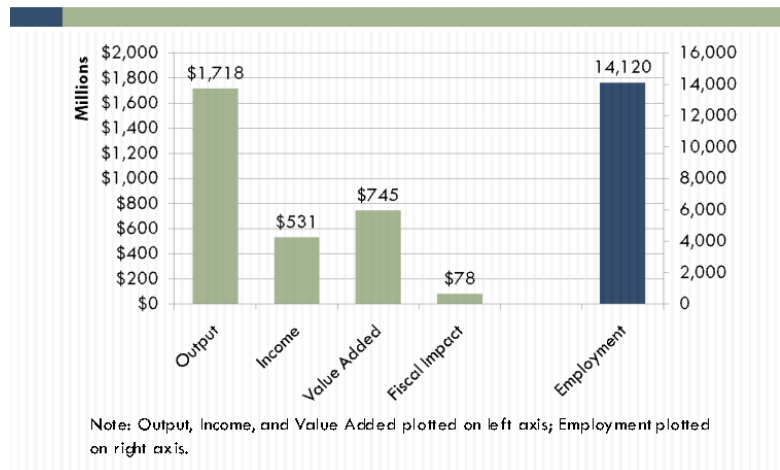
**Figure 4: Housing and Retail Construction Impact on York and Lancaster Counties**



### Total Construction Impact

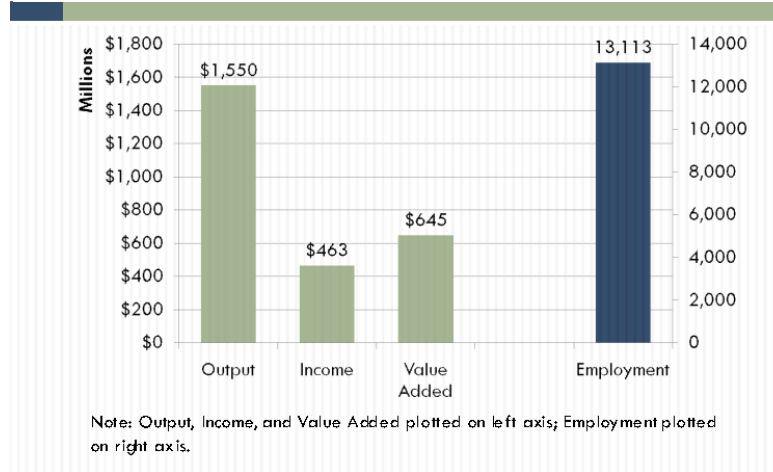
Figures 5 and 6 simply summarize the findings for all construction activity associated with the Dave Lyle Extension. Over 14,000 state wide jobs will be created over the build-out period, most being in the local area (York and Lancaster Counties). This will create \$745 million in income and have a total output effect of \$1.7 billion.

**Figure 5: Total Construction Impact on the State of South Carolina**





**Figure 6: Total Construction Impact on York and Lancaster Counties**

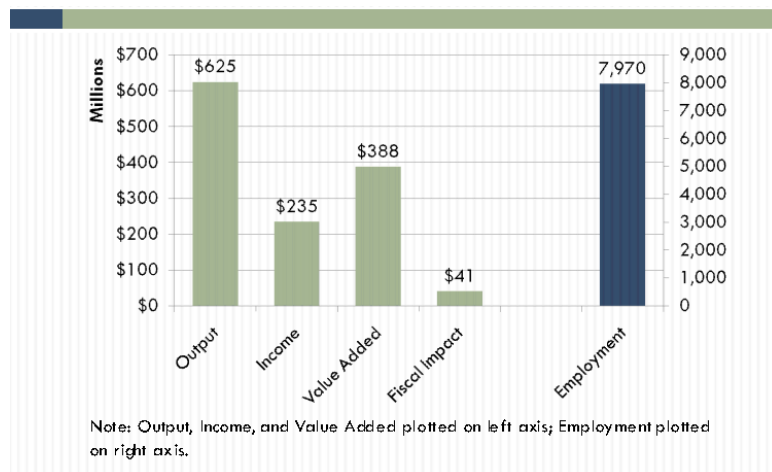


## Retail Sales

This impact results from the new retail sales projected for 2030 and beyond. Unlike construction, retail sales activities associated with the project will continue beyond the end of the build out period. This will then create ongoing economic benefits for the state and local area.

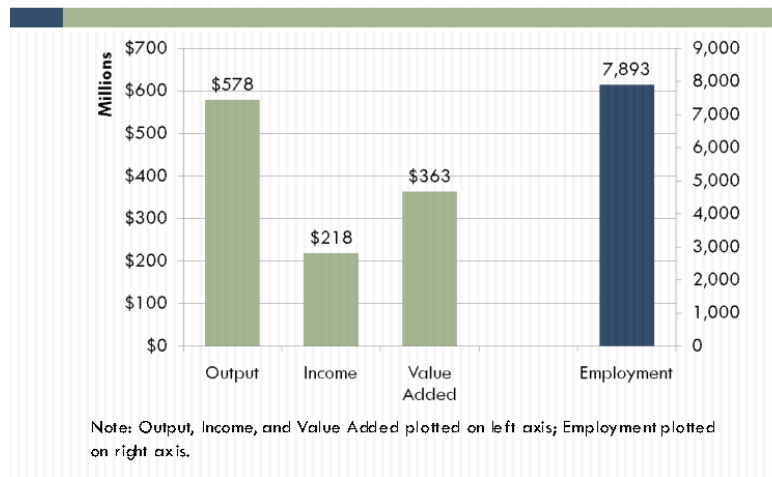
Figures 7 and 8 present the impact figures associated with these sales (again stated in 2008 dollars). Also, information is provided for the State as well as the local area. As seen, nearly 8,000 new jobs will be associated with the continuing new retail

**Figure 7: Retail Sales Impact on the State of South Carolina**



sales creating an income effect of over \$200 million. Total associated economic activity (Output) tops \$600 million. The State is expected to gain annual revenue of \$41 million.

**Figure 8: Retail Sales Impact on York and Lancaster Counties**



### Assumptions

To generate the above economic impact estimates, two key assumptions were necessary.

First, the analysis assumes 5,335 new homes. This value was an important input to a variety of estimates including expected number of new students, increased demand for other local public services, and retail sales from new local residents.

The estimate of new homes at build out started with the gross land area in the corridor generated by the Clemson land use study. This was over 15,000 acres or 23.6 square miles. Using this information and U.S. Census data (*City and County Data Book*, 2007) on housing units per square mile for U.S. counties, it was possible to generate an estimate of the number of new units at build out for this area.

Greenville County's value (226 units per square mile) was used for this purpose, and the above estimate for the corridor was generated. With the smaller and more concentrated geography of the corridor and with Greenville being one of the more densely housed counties in the state, this comparison seemed reasonable. The estimate was also consistent with a population value generated independently by the researchers at Clemson.

The second assumption involved an increase in annual retail sales: \$385 million. This included retail spending from the new residents attracted to the corridor and a recapture of sales by existing residents currently going to North Carolina.

Concerning retail sales of new residents, Census data on average household size and average annual retail sales per capital for York and Lancaster Counties were applied to the number of new housing units discussed in the preceding paragraph (5,335 units). This allowed an estimate of what the residents residing in the new units would spend annually on retail sales.

Lowering the transportation costs between Lancaster and York Counties via the Dave Lyle Extension would increase local sales (especially The Galleria in Rock Hill) and diminish sales in North Carolina. An estimate of this increase was generated by the Division of Research.

Together, it is estimated that annual retail sales will increase by approximately \$385 million dollars a year. This figure was then used for generating the previously-reported impact measures.

## FISCAL IMPACTS

The above material has examined the direct, indirect, and induced economic impact of extending the Dave Lyle Boulevard on the economies of Lancaster and York Counties and the State of South Carolina. Another issue of importance in examining this project is the

impact on the revenues and costs of local and state government. It is this fiscal impact to which we now turn.

The fiscal impact estimates were generated from the same set of assumptions that drove the economic impact calculated via the IMPLAN model. This includes the development of slightly over 5,300 new homes and an increase in annual retail sales of \$385 million due to the extension of Dale Lyle Boulevard.

The fiscal benefits fall into two categories: property tax revenue and sales tax revenue. Property tax revenues are generated from new retail establishments and residential structures. Sales tax revenue come from expected retail spending. Fiscal costs of these activities are contained in two categories: school operating and capital costs from new students; and county level operating and capital costs resulting from the new population.

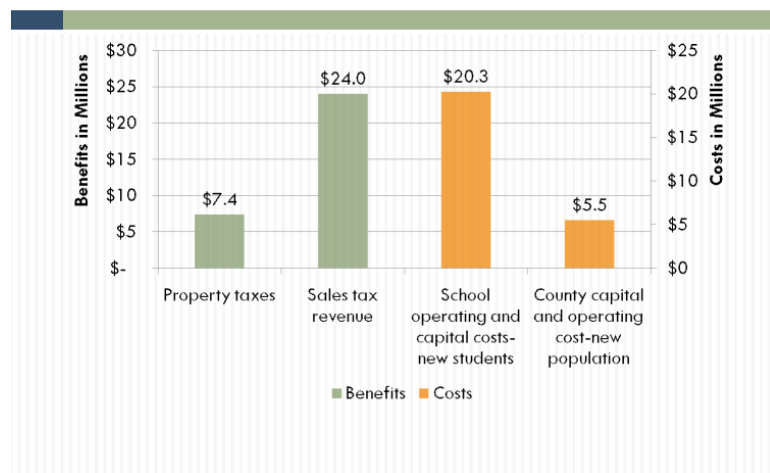
The various cost and benefits are presented in Figure 9. Property taxes on completed retail and residential structures are shown as \$7.4 million dollars. Retail property values were estimated using estimated sales

generated by the project and average sales per square foot of U.S. department stores.

With average construction cost values, the non-residential assessment rate, and local millage levels, it was possible to generate property tax

estimates from new residential structures. On the residential side, given an estimated value of new housing units and over 5,000 units, with local millage rates and residential assessment rates, property tax revenues generated by these new units are estimated.

**Figure 9: Fiscal Benefits and Costs**



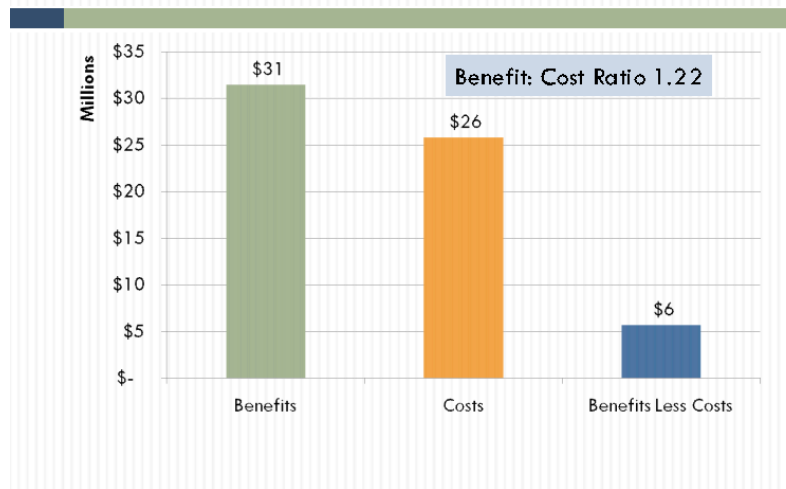
Concerning sales tax revenues, total estimated retail sales were reduced by 15 percent to reflect the reported portion going to grocery sales (exempt from sales tax). The 7 percent rate existing in both counties was applied to this figure to arrive at a \$24 million in annual sales tax revenue for the state upon the build out of this project by 2030.

As noted above, the fiscal costs associated with the extension of Dave Lyle Boulevard included operating and capital costs to local schools and the two county governments. On the school side, per student capital and operating costs were obtained from Rock Hill District 3 and Lancaster School District. Using the average student per capita for the two counties and the population estimated from the new households associated with the project, a total operating and capital cost impact for schools was generated. As seen in Figure 9, this is estimated to be a \$20.3 million cost for the anticipated new students.

Using the general funds budgets ('08) for the two counties, it was possible to calculate average per capita cost for operating and capital expenses. Applying this to the estimated new population generated by the project, it is expected that an additional annual \$5.5 million dollars will be needed by the two counties to cover these costs (Figure 9).

A summary of the fiscal benefits and costs of the project are highlighted in Figure 10. Benefits (property and sales tax revenues) and costs (operating and capital costs for the schools and county government) are presented. Benefits total \$31 million while costs are estimated at \$26 million per year. Thus, there is a net benefit of \$6 million and a positive benefit/cost ratio of 1.22.

**Figure 10: Fiscal Benefits Less Costs**



## CONCLUSION

The objective of this study was to quantify the economic and fiscal impact of the proposed Dave Lyle Extension, linking Lancaster County with York County and the Rock Hill area shopping centers. The economic impact estimates which include direct, indirect and induced impacts were based on a widely used IMPLAN model and projections base on the Division's forecasting models.

Highway construction alone is expected to generate nearly 2,400 jobs and \$93 million income for the state over this beginning phase of the project. In addition, construction associate with housing and retail facilities are estimated to add an additional 10,800 jobs and \$531 million in income. Total construction impact on the state economy (output) is estimated at \$1.7 billion. As noted above, these impacts are one-time in nature, stretching out to 2030. This is the assumed completion or build out date for this infrastructure project and its associated construction activity.

The second aspect of the economic impact is the continuing retail spending related to the extension of Dave Lyle Boulevard. It is estimated that nearly 8,000 job will be created from this activity.

These jobs and \$235 million in income will be ongoing, unlike the construction activity.

The final aspect of the study is concern with the fiscal impact expected for state and local governments. Primary benefits are the new property and sales tax revenue generated by the economic activities. On the cost side, operating and capital costs for the schools needed to serve the growing population and the addition to demand for county services represent the bulk of the public costs.

As one might expect, the majority of the costs come from school activities (over \$20 million). On the benefit side, sales tax revenues generated by retail activity add \$24 million to governmental income. In total, these estimates generate a small (1.22) but positive benefit: cost ratio or a surplus of \$6 million.

In closing, it should be noted that the above calculations of economic and fiscal impact exclude any consideration of office construction, manufacturing, or warehouse activity. There is little doubt that the extension would attract these activities although estimates of how much is difficult to foresee. It is clear, however, that such events will add even more to the economic estimates presented here. Further, unlike housing construction, office buildings and the like add little to the demand for local schools. On the other hand, they do make significant contributions to property tax revenues. Thus, the anticipated effects of these activities are most likely to have a positive impact on the fiscal benefit/cost picture.