Economic Development Analysis 14

Economic development has been a key consideration in metropolitan transportation planning from the beginning. In the most basic sense, a region's transportation system and its economy are intrinsically linked, as it is the transportation system that shapes a region's ability to move goods from producer to consumer and all steps in between. Regional transportation networks also shape and influence local land use, influencing the value of properties and sometimes opening properties to more profitable uses. There is ample evidence of a strong relationship between the design and function of a region's transportation network and its overall competitiveness in the economy.

The SAFETEA-LU Reauthorization Bill, which authorizes the federal surface transportation programs for highways, highway safety, and transit for the 5-year period 2005-2009, further emphasized the importance of economic development as a key planning factor to consider in metropolitan planning. SAFETEA-LU continues the Transportation Equity Act for the 21st Century requirement of supporting economic vitality as one of the factors in metropolitan transportation planning, but it also expands the requirement to assert that transportation plans must refer to efforts to promote consistency with state and local land use plans or economic development plans. Furthermore, SAFETEA-LU requires that planners add "economic development" as a criterion for application and selection of New Starts transit-related capital investments.

This chapter will focus primarily on analyzing the 11 projects selected for Pre-Environmental Screening for indirect and induced economic impacts based on the initial project investment. This analysis will utilize a regional economic impact model built on data provided by the Minnesota IMPLAN Group in Stillwater Minnesota.

Economic Impact Modeling

IMPLAN, a regional economic input-output model for regional economies and economic impacts, was created in the 1970's through a joint partnership between the US Forest Service and the University of Minnesota. The Forest Service needed a tool to effectively describe the impacts of its operations on local and regional economies. IMPLAN version 2.0 was developed in 1999 by the Minnesota IMPLAN Group. The data was improved through the late 1980s and eventually made accessible to a wider number of users and data applications by the Minnesota IMPLAN Group in the mid-1990s.

IMPLAN models include a complete set of social accounting matrices to provide economic impact estimates of new firms moving into a region, ensuring increased accuracy of results over traditional Type II multipliers. The IMPLAN software reads database data provided by the Minnesota IMPLAN Group to determine the economic impacts, and data is updated frequently to ensure greater accuracy. The model used by RVARC staff in estimating impacts for CLRTP 2035 uses 2007 data for the localities represented in the MPO area (the Counties of Bedford, Botetourt, and Roanoke, and the Cities of Roanoke and Salem).

The IMPLAN model is an economic input-output model used to estimate the volume of supporting economic activity that might be expected to result from a certain direct impact. This supporting activity might also be referred to as the multiplier effect. Whenever a positive impact is made on a regional economy, supporting activity is spurred on by those organizations that have benefited when those recipient organizations (organizations or businesses receiving the bulk of the initial impact) purchase goods and services. There is also re-spending of wages and income received by individuals paid in providing this economic activity. These supporting economic activities or multipliers occurs in two different ways: indirect spending and induced spending. Indirect activity is activity related to suppliers (both those suppliers directly serving recipient organizations and those serving other more immediate suppliers to the initial recipient organizations) purchasing goods (in several rounds of purchases) within the regional economy to provide services and goods to recipient organizations. Induced activity represents the re-spending of wages and salaries paid to workers who are employed directly by recipient organizations and by suppliers providing goods and services to recipient organizations.

In the case of most transportation projects, funding comes primarily from two sources: federal transportation funding from the US DOT and state transportation funding from the State Transportation Trust Fund. Both sources originate from outside the MPO area and represent new money being infused and invested in the region.

However, not all project money goes directly to construction activities. RVARC staff controlled for the expenditure of Right-of-Way acquisition, which represents a transfer of capital investment and not necessarily new money that will circulate in the regional economy. Staff used a VDOT planning cost estimate worksheet to estimate the Right-of-Way costs for each project. The table below illustrates the assumed costs for various land uses.

Right of Way & Utilities Cost % of Cost Estimate

	Remainder of State	NOVA/Hampton Roads
Rural	25%	30%
Residential/Suburban low density	50%	55%
Outlying business/Suburban high density	60%	75%
Central business district	100%	125%

Staff also formulated an estimated proportion of project leakage as there is a great deal of potential for leakage of the project funds. Leakage is essentially the proportion of the initial economic impact that leaves the project area through the substitution of imported goods or labor, primarily the utilization of construction and construction management firms that are based outside the MPO area to build projects.

The model's regional purchase coefficient estimated leakage in transportation construction at around 5%. This estimate was based on the structure of the regional economy. Staff realized that this assumption was untenable and that many of the largest projects of the type listed in the LRTP go to vendors outside the project area. When outside contractors are chosen, an impact is still made to the RVAMPO regional economy -- albeit a lesser one. For instance, while the bulk of the funds would leak out of the study area to managers and laborers who live outside the region, many materials would be sourced locally, and local contractors may still get work through subcontracts. A quick poll of local transportation construction firms led staff to an assumed leakage value of 60% for projects of the type in the LRTP.

An important assumption made is that most of the projects in the LRTP will be multi-year projects. The assumption is that disbursements will take place over a minimum of two years for each project. This is an important assumption because the IMPLAN model assumes that all impacts occur during a single year. Since construction projects are a one-time impact, this does not have any effect on output estimates but it does affect employment. If, for instance, a project requires two years to complete the employment, impact is effectively halved.

The table below illustrates the model's results.

Project Name	Cost	Direct Effect	Indirect Effect	Induced Effect	Total Output	Direct Jobs Supported Each Project Year	Total Jobs Supported Each Project Year
I-581/Valley View Interchange	$69,165,000	$17,291,250	$8,788,907	$8,369,740	$34,449,897	78	126
I-581/Elm Ave. Interchange	$10,850,000	$4,340,000	$1,378,727	$1,312,972	$7,031,698	20	32
Elm Avenue	$4,762,000	$1,190,500	$605,115	$576,255	$2,371,870	5	9
US 460/Orange Avenue	$28,764,000	$7,191,000	$3,655,088	$3,480,766	$14,326,854	33	53
Plantation Road	$14,072,000	$3,518,000	$1,788,152	$1,702,870	$7,009,021	16	26
Route 11 - Apperson Dr.	$17,114,000	$4,278,500	$2,174,703	$2,070,986	$8,524,189	19	31
Roanoke River Crossing	$11,672,000	$3,112,533	$1,483,180	$1,412,443	$6,008,156	14	23
Route 634 - Hardy Road	$5,950,000	$1,586,667	$756,076	$720,017	$3,062,759	7	12
Route 634 - Hardy Road	$750,012	$300,005	$95,305	$90,760	$486,070	1	2
Route 613 - Merriman Road	$14,333,030	$3,822,141	$1,821,321	$1,734,457	$7,377,920	17	28
Route 11/460	$42,719,000	$11,391,733	$5,428,372	$5,169,477	$21,989,582	52	83

Description of Results

Please note that the direct economic effect felt in the RVAMPO region is significantly lower than the project cost. This is because the estimated proportion of project costs going to Right-of-Way acquisition have been removed and the assumed leakage has been removed to arrive at a direct regional impact.

The indirect effect represents the impact resulting from spending by suppliers to supply construction firms with needed goods and services. The indirect spending category includes several rounds of spending going down the supply chain within the study region until all activity is accounted for through leakage.

The induced effect category represents activity related to the spending of wages by those individuals (households) employed by firms in both the direct spending and indirect spending categories.

The table includes estimates of jobs supported through the public expenditures made on the LRTP projects within the region. These are not necessarily new jobs and include both full and part time positions. The LRTP projects will support these jobs only as long as expenditures are being made on the project. The total number of jobs includes jobs supported through direct, indirect, and induced expenditures.

Limitations

Examining economic impact of projects is both useful and interesting, but a number of limitations hamper further analysis of impact. It should be noted that the analysis above does not include any notion of increased development or commercial activity that may be induced through increased transportation efficiency or increased traffic demand on the regional network. The impact estimate is based solely on estimations of project cost and the proportion of which one might expect to be spent through firms located in the Roanoke Valley Metropolitan Area.