Transportation's Role in Regional Economic Vitality

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With Support from the Economic Vitality Advisory Committee of Pima Association of Governments

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1.0 Executive Summary of Findings and Policy Considerations

Pima Association of Governments (PAG) collaborated with Rounds Consulting Group, Inc. (RCG) to examine how carefully considered investment in transportation infrastructure will help to grow the regional economy. While the focus of this white paper relates to transportation infrastructure investment, the conclusions are based on broader economic development principles. This review can be considered the first in a number of "stepping stones" in understanding the interaction between transportation infrastructure investment and economic prosperity.

PAG's programs and services support regional planning efforts to enhance mobility, sustainability and livability. PAG members include the Cities of South Tucson and Tucson, the Towns of Marana, Oro Valley and Sahuarita, Pima County, the Pascua Yaqui Tribe, the Tohono O'odham Nation and the Governor-appointed Pima County representative of the Arizona State Transportation Board. As the region's federally designated metropolitan planning organization, PAG oversees long-range transportation planning. The planning process includes developing strategies that support economic vitality of the metropolitan area, especially those that enable global competitiveness, productivity and efficiency.

A key point in this broader exercise is that a number of things make an economy function. These include quality transportation infrastructure, the provision of a competitive tax structure, responsible economic development programs, a qualified workforce, limited regulatory obstacles, and effective telecommunications infrastructure, among many others. The concept of multiple factors influencing growth is not new. Site Selection Magazine annually publishes a list of the top site selection factors as reported by professionals in the field. ***Transportation infrastructure is consistently on the list of key community development inputs.*** For 2016, the top five included:

1) Workforce
2) State and local taxes
3) Transportation infrastructure
4) Utility infrastructure
5) Land and building costs/availability

Other sources also provide survey results related to top business location and expansion factors and all include transportation infrastructure prominently on their list. It is important to note that proactively working to build the economy is not simply an exercise in providing a list of local business inputs since some items are at odds with others. For example, the provision of a quality workforce and network of roads has a cost that must be paid by taxpayers. Yet, tax rates are analyzed in the development of economic development policy. ***Successful economic development includes finding the right balance of government inputs given limited resources.*** This means that planning, related to the investment in transportation infrastructure, needs to become more financially savvy and include economic development in the analysis as well as a discussion of return on investment (ROI) and opportunity cost, a value given up in exchange for something.

Furthermore, transportation infrastructure is not generally analyzed at the margin, meaning the quality of the infrastructure is not always monetized or given a precise "score." It is more of a "binary" analysis. A region either has a transportation network that works for a company or it does not (and by "working" meaning no major shortcomings are expected for at least ten years). This has significant policy implications. ***Investing too little in the local transportation network will result in economic losses if the region becomes known for problematic roads. On the other hand, over-investing will not yield additional economic development benefits beyond the cost of a properly designed and implemented network.*** This is because the negative effects from excess taxation will eventually offset the marginal benefits from the additional transportation construction. Any local transportation plan must consider this balance.

Finally, ***transportation infrastructure is core to economic development opportunities in a region, yet is expensive. There needs to be a closer tie between transportation planning and regional economic development efforts, so they must be integrated with one another.*** The existence of limited resources requires planners to establish a queue of projects. This list can be expanded if economic gains related to the infrastructure plan help to advance the region's economic development goals. Net new business activity will occur by combining economic development tools and proper road construction. ***Minor enhancements or investments in the region will yield sizeable economic and fiscal growth benefits.***

For example, Pima County has a well-defined plan for economic development for the next several years that can be encouraged and furthered with proper advancements in the transportation network. If the transportation investment and economic development tools are combined into the same effort, additional expansion in the overall employment base will occur as will the growth of the region's target industries.

Consider a scenario where the current 20-year average employment growth forecast for Pima County of 1.4% were advanced to just 1.5% from this more holistic approach to economic development that includes transportation and other important inputs. In this scenario, 9,800 additional jobs would be created earning a combined total of $467.1M in wages. The total economic output of these jobs would be approximately $1.3B. This alone would yield approximately $80.7M in county tax revenues over the 20-year infrastructure development period. The City of Tucson would collect approximately $36.8M.

If the rate of job growth were advanced by 0.2 percentage points, the economic and fiscal impact figures would be double the above (i.e. $161.4M in County tax revenues and $73.6M for the City), etc. On the other hand, if the current infrastructure network were to decay over time and the rate of job growth were to slow by similar increments, the economic losses would be the same as the above figures (i.e. a loss of economic output of approximately $1.3B, resulting in a decrease in county and city tax revenues of $80.7M and $36.8M, respectively, over 20 years).

A second scenario also was analyzed. In this scenario, the “advanced” job growth was enhanced further by raising the annual wage in 0.1 percentage point increments. By year 20, 10,700 jobs would instead be created earning a combined total of $564.3M in wages. In total, $1.5B in economic output would be produced in the regional economy. Pima County would collect $84.8M in tax revenues over the 20-year period. The City of Tucson would collect $39.1M.

Again, these example impacts are for minor investment changes in regional economic improvement. Job growth and wage growth in some instances may improve far beyond these modest increments. Additional economic and fiscal benefits could similarly be realized by growth in the region’s target industries and even through the encouragement of small business and entrepreneurship opportunities. The region’s opportunities are indeed a function of recruiting large businesses and growing small businesses from within.

When considered together, a properly designed transportation infrastructure plan that combines economic development and advanced project queuing will have a positive impact on the Pima County economy by hundreds of millions of dollars in new tax revenue. This approach can add thousands of jobs to the region, and increase residents’ standard of living. The goal is for area residents to enjoy an efficient trip to their higher-paying jobs using their preferred mode of transportation through a well-planned community.

This is a departure from the widely-used method of calculating economic and fiscal benefits from only analyzing construction expenditures. The construction expenditure method, if used in isolation, is partly flawed. This is because the redirected local taxes would have been spent throughout the economy if not used on transportation projects. This has an economic and fiscal impact as well. However, the key is to identify the point where the ROI on transportation projects becomes positive. This means “net new” economic activity has been created from the efforts. Federal funds used on transportation projects also can be considered net-new.

If done properly, the transportation investments will yield a positive ROI for the region, enhance local incomes, and create new jobs for area residents. This also will yield new tax revenues that can be reinvested, and the cycle will continue.

2.0 Key Policy Questions

As a transportation planning agency, PAG is charged with developing regional transportation plans for the long and short term for the greater Tucson region. Part of that process is to educate the public on the benefits and costs related to different transportation investments. Topics of analysis include comparing how much each project will cost, how effective each project will be in reducing congestion and improving safety, and how each project will impact the surrounding environment. Several higher-level policy questions also must be addressed:

- Is the region efficiently investing in transportation infrastructure?
- Is the region investing a proper amount?
- Has a proper balance been achieved among the various areas of community investment?
- Will taxpayers receive a positive return on their investment?
- Are these facts being communicated properly so wise policy decisions can be formulated?

To put things in context, a majority of funding for transportation in the PAG region comes primarily from five sources. The table below shows the average Pima County household contribution each month in taxes and fees to fund transportation infrastructure:

Transportation funding source**:	Average monthly household contribution (2016):
Federal gas tax	$15.16
State gas tax	$14.83
Vehicle license tax*	$12.23
License and registration*	$5.43
RTA sales tax	$16.04
MONTHLY TOTAL	$63.69

*Source: PAG. These expenditures are usually incurred once a year or once every 2 years, but have been expressed here as monthly payments to aid in the comparison.
**Does not include local funding sources for transportation.
Note: The above VLT only includes the 44.99% that is distributed to the Highway User Revenue Fund and the 5.83% that is distributed to individual counties for transportation purposes.

This $64 a month also supports the building and maintaining of the state highway network and the federal interstate system that connects the region to the rest of the nation. ***This contribution allows for current businesses to be profitable and expand, new business to locate to the region, and for new jobs and wealth to be created.***

Ultimately, all funding for transportation comes from the public to support a multimodal transportation system that includes transit, bicycle and pedestrian facilities (e.g. bicycle lanes, sidewalks), etc.

The economic impact analysis is dynamic since growth is based on many factors. ***However, the key is to identify the point where the ROI on the transportation projects becomes positive.*** This means “net new” economic activity has been created from the efforts. This also means transportation planners need to better understand how the broader economy functions and assist with finding the proper balance among taxation, spending on non-transportation inputs, and construction and maintenance of roads. This represents good public policy and is a goal of PAG.

3.0 Investment Choices and Public Policy – The Personal Perspective

Ultimately, voters will support or reject whatever transportation plan is produced for their review. PAG and its members strive to program transportation projects and recommend taxing options that yield a positive return on a voter's investment, among many other considerations. Some taxation scenarios are presented below for perspective on investment scale.

For the purposes of this discussion, consider a scenario where the average household contribution to transportation infrastructure and maintenance were increased from $64 a month to $80. This 25 percent increase would amount to roughly an additional $77.0M per year for transportation infrastructure. Small changes in investment per household can yield sizeable community-wide benefits and return more than the example of a $16 per month investment to each household.

PAG considers how transportation infrastructure investments benefit its businesses and residents. See examples below:

Benefits to Businesses	Benefits to Individuals
Reduced vehicle maintenance costs from using higher quality roads	Better air quality through increased transportation network efficiency
Less congestion translating into better business productivity	Less congestion means a faster, safer commute that equates to more time with family and friends
More employment stability	More job choices are available when the transportation network allows for greater mobility
More efficient access to Interstates 10 & 19, the Union Pacific Railroad mainline, and air cargo facilities at Tucson International Airport	Job creation when new businesses locate to Tucson/Pima County because an improved transportation network makes us more competitive with other regions
More opportunities for employment advancement	Greater access to educational opportunities through a more efficient multimodal transportation network

PAG is committed to understanding the connectivity between transportation planning and economic development, how this translates into higher income for taxpayers, improves on quality of life measures, and how it fuels new job creation.

4.0 Example Economic and Fiscal Impacts

It is difficult to conceptualize how investment decisions might impact the local economy from a job creation and tax revenue perspective. For this review, some examples of community growth versus economic decay are monetized.

Impact analyses provide quantifiable methods to estimate the economic and fiscal implications of a particular activity/development in a given area. Typically, the level of effects resulting from the activity are estimated in terms of output, earnings, employment, and tax revenues.

Output captures the broader level of economic activity, or the total value of goods and services produced, in the region similar to how GDP captures economic volume in individual states and across the country. Earnings simply represent income to employees, and employment is the job count on an annualized basis. The economic activity is then converted into tax revenues.

In order to gauge the effects from proper investment in transportation infrastructure, an "advanced" job growth scenario was developed. In this scenario, the current 20-year average employment forecast for Pima County of 1.4% was advanced to 1.5%. By year 20, about 9,800 additional jobs would be created earning a combined total of $467.1M in wages. The total economic output of these jobs is $1.3B. This alone would yield $80.7M in County tax revenues over the 20-year infrastructure development period. The City of Tucson would collect $36.8M. The following tables show the impacts and breakdown of the additional revenue that could be generated under such a scenario.

20-year Economic Impact Summary
Projections based on 0.1% additional employment growth

	Total
Jobs	9,827
Wages	$467,054,800
Economic Output	$1,267,375,400

In 2016 dollars. May not sum to total due to rounding.

Source: Rounds Consulting Group, Inc.

20-year Fiscal Impacts Summary
(based on job growth increasing by 0.1 percentage points)

Operations	Pima County	City of Tucson	Total
Primary Impact from Operations	$15,426,700	$9,414,400	$24,841,100
Facility Purchases - Retail Sales Tax	$317,800	$1,588,500	$1,906,300
Facility Utility Sales Tax	$243,700	$1,217,100	$1,460,800
Facility Commercial Lease Tax	$435,800	$2,179,500	$2,615,300
Real Property Tax	$14,330,300	$4,384,000	$18,714,300
State Shared Revenues	$99,100	$45,300	$144,400
Secondary Impact from Employees	$65,266,700	$27,342,800	$92,609,500
Employee Spending Sales Tax	$5,152,900	$15,446,700	$20,599,600
Residential Property Tax	$56,506,200	$8,509,600	$65,015,800
State Shared Revenues	$3,607,600	$3,386,500	$6,994,100
Total Impact from Operations	$80,693,400	$36,757,200	$117,450,600

In 2016 dollars. May not sum to total due to rounding.

Source: Rounds Consulting Group, Inc.

A second scenario also was analyzed. In this scenario, the “advanced” job growth scenario was enhanced further by raising the annual wage in 0.1 percentage point increments. By year 20, 10,700 jobs would be created, with those employees earning a combined total of $564.3M in wages. In total, $1.5B in economic output is produced in the regional economy. Pima County would collect an estimated $84.8M in tax revenues over the 20-year period. The City of Tucson would collect an estimated $39.1M.

Thus, advancing the local economy is based partly on new job creation and partly based on higher quality job creation. If done properly, the region will realize both.

5.0 Conclusions

Taxpayers have different income levels, different-sized households to support, and are at different places on the age and education spectrums. However, there is an overall gain to be realized for all household types from transportation investments based on sound and balanced economic analysis.

This more advanced approach to considering transportation infrastructure investment choices is central to any well-conceived economic platform at the state, county, and city levels. The key is for the planning to occur more holistically than in previous decades. New investment will raise incomes, create new job opportunities, and yield an overall positive ROI for area residents.

This is a dramatic departure from the days of displaying the economic and fiscal impacts for new construction. This is a discussion of building an economy through sound investments and understanding the economic and fiscal impacts.