

RTA Economic Impact Study and Revenue vs. Bid/Cost Comparison

Final Report

Submitted to:

Regional Transportation Authority
Pima County

Submitted by:

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1. Introduction

Highways, streets and transit systems are most efficiently provided by government entities. It is almost impossible for individuals to provide streets and roads privately; these facilities and services are best provided collectively, through taxation and spending by a government entity.

The Regional Transportation Authority (RTA) came into existence in 2004, which was, followed by the passage of a voter referendum in May 2006 to improve transportation in Pima County and to raise funds for those improvements with a ½ cent sales tax. RTA sales tax collection began in July 2006. As of the end of October 2009, \$138.23 million has been spent. In addition, \$2.07 million in federal money was obtained and spent as a result of RTA projects. These funds have been spent on both improving Pima County roads and on expanding the geographic reach and frequency of service of the transit system.

The purpose of this study is two-fold. The first is to assess the economic impacts of RTA expenditures and the federal funds that have been brought into the county as a result of those funds. Economic impacts are assessed on new dollars entering an economy or on an increased retention of money in a region. In the case of the RTA, the revenue is derived from local sales taxes, so it is not all new money. Thus, the economic impact of the RTA expenditures will be offset by the negative economic impacts of the ½ cent tax.

The second is to address the concern that the RTA may not be able to complete their plan because RTA tax revenues are falling below the originally projected revenues. Actual revenues to date will be compared to projections for the same time period to assess the decline from expected revenues. This decline will be compared to the decline in project costs and/or bids from the original plan's estimated costs.

In section 2, the research method for the impact analysis is described along with a description of the models used in the analysis. The results of the economic and revenue impact analyses are in sections 3 and 4. The comparison of the decline in revenues to the decline in project costs/bids is in section 5. A brief summary and conclusion is in section 6.

2. Research Method for Impact Analysis

RTA spending was provided by project, disaggregated into planning, design, right-of way, construction, environmental/other, in-house, and "other" expenditures. In-house expenditures are paid to professionals within government for planning, design and/or oversight of some projects. The 'other' category is

used for expenditures that are not related to construction, which consist mostly of subsidies for the transit system.

Each category of spending is classified into local and non-local spending. Only the local spending is included in the economic impact, since non-local spending does not have an economic impact within the region.

This information is inputted into an input-output (I-O) model to estimate the economic impact of RTA projects on the economy in Pima County. The net economic impact of the RTA is the difference between the increased local spending due to RTA projects and the loss of economic activity due to lower consumer spending as a result of the ½ cent sales tax.

RTA spending and the economic impact results are then used to calculate the impact of RTA expenditures on incremental city, county and state tax revenues.

The Models

IMPLAN (IMPact Analysis for PLANning) is an I-O model, which is a collection of mathematical relationships that represent the interrelationships within an economy. In the present analysis, an IMPLAN model for Pima County is used. The model consists of a social accounting matrix, in which transactions between producers, and intermediate and final consumers are represented. This matrix is used to assess the economic impact of purchases made within a region. An increase in demand for the output of a particular industry requires that industry to purchase additional goods and services, some of which are produced locally. When the local demand for those inputs increases, producers of those inputs must also increase their demand for goods and services, some of which are produced locally.

At each round of purchases, there is an increase in local economic activity. In addition to purchasing additional goods and services, industries also hire additional labor and pay additional wages at each round. These additional wages create an increase in local economic activity via an increase in consumer expenditures.

This cycle continues until, in the final round, all money remaining leaks out of the region. The cumulative effect of these purchases is referred to as the multiplier effect and the additional purchases and economic activity created as a result of the initial increased demand is referred to as the economic impact.

Three different types of impacts are measured with an I-O model. Direct impacts are the changes that occur in the immediately impacted industry or industries. Indirect impacts are economic changes that occur because of all the inter-industry

purchases that that are made at each round of purchases. Induced impacts occur when impacted workers spend their money locally.

In the present analysis, impacts for the following economic measures will be reported: jobs, labor income, and output. Jobs are measured in man-years, so a job may represent one person working for a year or two persons each working half a year. Labor income includes both employee compensation and an estimate of proprietor's income. Output represents gross sales, or the accumulation of sales at each round of purchases.

Revenue impacts are assessed using the Revenue Impact Model, developed at the Economic and Business Research Center in the Eller College of Management, at the University of Arizona. The model computes both direct revenues, which are paid by the directly impacted industries; and induced revenues, which are paid by workers in the impacted directly, indirectly and induced sectors.

3. Economic Impacts

Generally, economic impacts are only computed for new money coming into a region, e.g., a newly locating facility, an increase in federal spending, etc. In the present application, RTA funding is obtained largely from within the local area (the obvious exceptions to this are the ½ cent tax revenues paid by tourists and federal dollars that would not be available without the RTA expenditures).

However, economic impact assessment is also used to measure the impact of an increase in money *retained* in an area (or alternatively, the impact of reducing the leakage of money from a region). In this section, the economic impacts of the RTA expenditures and the associated federal expenditures are assessed, net of the negative impacts associated with the collection of the RTA tax dollars.

RTA Expenditure Impacts

The impact of the \$138.23 million in RTA expenditures from June 2006 through October 2009 is assessed along with the impact of \$2.07 million in federal funds that were obtained as a result of the RTA projects. Expenditures were disaggregated into: planning, design, construction management, right of way purchases, environmental and other studies, in-house expenditures used for management and/or design and an "other" category.

The "other" category was disaggregated into: subsidies for expanding the geographic reach and frequency of service of the transit system, consulting services, management expenses, such as accounting and legal expenses, and the purchase of buses for the transit system. The construction category was further subdivided into the construction of the bus storage and maintenance facility (a

non-residential commercial structure), parking lots for park and ride for transit service, and road-related construction.

Non-local purchases are removed from expenditures before inputting the data into IMPLAN. For example, buses are not produced in Pima County, so bus purchase expenditures are removed before inputting data into IMPLAN. A portion of design, planning, project and construction management is obtained out-of-area. Further, it is assumed that a portion of landowners from whom right-of-way rights are purchased are from outside of Pima County.

The impact of \$140.3 million combined RTA and federal money expenditures is shown below in Table 1. The direct output impact is less than \$140.3 million because of the out-of-area purchases and because for wholesale/retail sectors, only the “margin,” or the portion paid to workers and owners, is retained in the area.

In addition to 1,031 direct jobs created by RTA expenditures, the sectors that receive RTA funding, such as construction, transit services and design/consulting services, make purchases locally, creating another 303 indirect jobs. Those direct and indirect workers spend their money locally, inducing another 522 jobs, for a total of 1,856 jobs created in Pima County due to RTA spending.

Table 1

Total Impacts of RTA Expenditures (including Federal Expenditures)				
	Direct	Indirect	Induced	Total
Jobs (man-years)	1,031	303	522	1,856
Labor Income \$2009	63,875,137	13,633,203	20,633,969	98,142,308
Output \$2009	122,834,232	35,512,120	55,597,287	213,943,639

Economic Impact of the Sales Tax

The negative economic impact associated with raising the revenue from the ½ cent sales tax is also assessed. Not all of the ½ cent revenue is paid by local households and businesses. In particular, a portion is paid by tourists.

The portion of the RTA revenues paid by tourists is estimated using the average of 2007 and 2008 hotel/motel tax collections as the basis and applying the tourism expenditure mix obtained from a 2005-2006 Pima County tourism survey to obtain an estimate of total expenditures, by category. These were converted to taxable sales, by taxable sales category. Estimated taxable tourism expenditures are less than estimated total tourism expenditures because some types of expenditures, e.g., groceries and services, are not taxable. Based on these calculations, tourism taxable sales are estimated to account for approximately 8.66 percent of total RTA tax collections. This is considered a very conservative

estimate because tourism activity was extremely weak during the two years used to compute the tourism share.

Tourism does not contribute uniformly to all categories of taxable sales. Tourism accounts for almost all of hotel/motel collections, a substantial portion of restaurant and bar tax collections and lesser amounts of personal property rentals (car rentals), retail sales, and amusements. However, very little of tourism expenditures occur in other sales tax categories, such as contracting, utilities, and communications. Tourism taxable sales, by category, were subtracted prior to assessing the impact of the sales tax.

A ½ cent sales tax is comparable to increasing the price of taxable goods and services by ½ of a percent. In Arizona, the sales tax applies mostly to the price of goods, although some services, such as telephone services and car rental services, are taxable.

In order to assess the impact of the non-tourism portion of the ½ cent sales tax, some assumptions must be made about how consumers and businesses will respond to the tax. First, it is assumed that any sales taxes paid by businesses will be passed either forward onto consumers or backwards onto labor in the form of lower wages. Second, households view the ½ cent sales tax as an increase in the price of taxable goods and services. Their likely response to the price increase will be to cut back somewhat on purchases of taxable goods and services, but not by the full amount of the tax. Rather, they will cut back on their purchases of the taxable goods and services somewhat; they will shift some consumption to other, non-taxable items (mainly services).

Local consumers will be purchasing less as a result of the tax but it is impossible to know exactly how consumers will respond. As a result, two different impact scenarios are created and averaged. The first scenario has consumers reducing their consumption of taxable goods and services by the full amount of the tax for each taxable sales category. In this scenario, the impact of reducing taxable sales, by category, by the amount of the tax, is estimated. This implicitly assumes that the price elasticity of all taxable purchases is equal to 1 so that consumers continue to spend the same amount of money on taxable items, but receive ½ percent fewer goods and services.

The second scenario assumes that households view the ½ cent sales tax as a reduction in income. That is, their budgets require cutting back on all expenditure components in proportion to their personal consumption expenditures mix. Both of these scenarios are assessed excluding the federal money and excluding the portion of RTA taxes paid by tourists. Both of these scenarios will overstate the negative impact of the tax, if any, if the tax is paid for out of savings. In the present analysis, it is assumed that there is no change in savings.

The results of the impact calculations of the two scenarios were within seven percent of each other. Because it is impossible to know the precise consumer response to the RTA tax, the two impacts are averaged and presented in Table 2 below. The ½ cent sales tax is estimated to reduce jobs (man-years) by approximately 1,136.

Table 2

Total Impacts of RTA Taxation of Local Households & Businesses				
	Direct	Indirect	Induced	Total
Jobs (man-years)	(690)	(157)	(290)	(1,136)
Labor Income \$2009	(24,926,749)	(7,120,875)	(12,032,591)	(22,797,837)
Output \$2009	(77,510,186)	(21,275,307)	(27,619,671)	(67,161,877)

Net Impact of RTA Expenditures

The net impact of RTA expenditures less the impact of the tax on Pima County’s economy is provided below in Table 3. RTA expenditures have created 341 net direct jobs (man-years) in Pima County. Including indirect and induced jobs, the RTA has created an estimated 720 net jobs in Pima County.

Table 3

Net Impacts of RTA Expenditures Less the Impact of Taxation				
	Direct	Indirect	Induced	Total
Jobs (man-years)	341	146	232	720
Labor Income \$2009	38,948,388	6,512,327	8,601,378	75,344,471
Output \$2009	45,324,045	14,236,813	27,977,616	146,781,762

There are two reasons why the impact of RTA expenditures is substantially higher than the negative consequences of imposing the tax. First, the share of RTA purchases made locally is larger than the share of purchases made locally by businesses and consumers. A substantial portion of construction inputs such as concrete, stone, and gravel are all produced and quarried locally. In addition, a major portion of design, engineering, and project management services, etc., are obtained from local vendors or conducted within county government. In contrast, most consumer goods purchased are produced outside of the county. Second, a substantially higher share of RTA purchases result in direct and indirect jobs and wages. The result of both of these is that a larger amount of money is retained in the community during the early rounds of expenditures. Less money leaking out of the region results in larger impacts.

4. Revenue Impacts

RTA activities also create tax revenue. Sales taxes are paid on construction contracts (less the wage component) and use taxes are imposed on out of area purchases, such as buses. The construction expenditures (less the 35 percent exemption for labor) are taxable by both state and city governments. A portion of what the state receives is shared with incorporated cities and counties. Sales and use taxes collected as a result of RTA spending are referred to as direct revenues.

In addition, the workers earn and spend their net income locally, creating revenues for all levels of government. These revenues are referred to as induced revenues. The induced revenues reported below in Table 4 are the result of the *net* wages earned (from Table 3).

Table 4

Revenue Impact of RTA Expenditures (including Federal money)			
	Direct	Induced	Total
State of Arizona	1,851,843	1,929,465	3,781,308
Pima County	62,118	766,419	828,537
Regional Transit Authority (RTA)	138,122	126,732	264,854
City of Tucson	711,531	506,204	1,217,735
Other Cities in Pima County	117,095	20,645	137,739
Arizona Cities outside Pima County	60,323	226,453	286,776
Other Arizona Counties	49,788	77,856	127,644
Pima Association of Governments	0	6,584	6,584
Maricopa Association of Governments	0	19,753	19,753
Total	2,990,820	3,680,111	6,670,931
Total Retained Within Pima County	1,028,866	1,426,584	2,455,450

The total (direct and induced) revenue impact for all levels of government is approximately \$6.7 million. State government receives the largest share of these revenues, collecting close to \$3.8 million. Various government entities within Pima County receive both direct and induced revenues from RTA expenditures, including Pima County government, the City of Tucson and other cities within Pima County. Pima Association of Governments collects a small amount of induced revenues as workers earn and spend their additional earnings locally. The total revenues retained within Pima County is approximately \$2.5 million, or 37 percent of all tax revenue generated as a result of RTA expenditures.

5. Comparison of RTA Revenue and Cost Estimates

The Regional Transportation Authority's (RTA) actual tax revenues have been underperforming, when compared to the revenue projections that were made in late 2005 for the period 2006 through 2026. The current recession has seriously impacted taxable sales and therefore the revenue stream collected by the RTA. However, the recession has also increased competition among bidders for construction projects and has reduced some construction input costs, resulting in

lower construction bids. The critical question is whether or not the drop in construction bid costs is enough to compensate for the weakness in RTA revenues.

The answer appears to be yes, based on data available to date. The following table compares the decline in revenues from their expected levels with the decline in RTA project bids/costs from original estimates. This comparison is made for the period September 2006, when the RTA first began receiving sales tax revenues, through October 2009.

Table 5

RTA Revenues vs. Costs	
September 2006 through October 2009	
	% Change Between
Revenue Projections and Actual Revenue Collections	(13.52)
Original Project Cost Estimates and Recent Bids	(22.63)

Actual revenue collections are below the original revenue projections (produced late 2005) by 13.53%. However, the actual construction costs and bids, combined with construction management costs, design and engineering costs, and right-of-way costs are 22.63% below the corresponding original cost estimates.

Although the situation may change in the future, e.g., if construction bids begin rising faster than revenue collections as Pima County's economy recovers from the recession, the figures available to date indicate that the RTA's fiscal situation is on track to complete the list of projects.

Method and Assumptions for Revenue and Cost Estimates Comparison

Revenue projections, produced in 2005 by the Economic and Business Research Forecasting Project, were originally provided on a calendar year basis. These were converted to fiscal year (FY) figures by averaging consecutive pairs of calendar year figures. Then the FY2007 projections were adjusted downward to reflect the fact that revenues did not begin for the RTA until September 2006. In addition, FY2010 projections were adjusted to reflect that the current analysis is through October 2009, a period that includes only four months of FY2010. Actual revenue collections from September 2006 through October 2009 were compared with the sum of the projections for the same time period and a percent change was calculated.

The RTA provided construction cost estimates from their original plan and actual construction bids/costs for 10 projects. Construction management costs, which are tied to construction costs, are assumed to be 15 percent of both original estimated and actual construction bids/costs.

Original/estimated design and engineering costs were also assumed to be 15 percent of original/estimated construction costs because that was the expected percentage at the time the RTA plan was developed. These were compared to actual design and engineering costs for the six projects for which data is available. In addition, expected and actual right-of-way costs were compared for the three projects for which comparable data were available.

The difference between total actual project costs/bids and total expected/planned project costs was computed and compared to the expected/planned costs to compute the percent change.

6. Summary and Conclusions

The RTA has expended \$138.23 million of locally-derived revenues and \$2.07 million of federal money. Those expenditures were for design and management, related studies, construction projects, and for the expansion of the transit system. That spending created 1,856 jobs (man-years) from July 2007 through October 2009.

The collection of the \$138.23 million in taxes, less the portion paid by tourists, negatively impacted the economy by approximately 1,136 jobs (man-years) over the same time period.

The job impact of RTA expenditures, net of collecting the tax, was 720 jobs (man-years). These jobs resulted in a net increase of \$75.3 million in labor income and \$146.8 million in gross sales.

For each \$1 of RTA expenditure, \$0.54 of labor income is created, and \$1.05 output is generated, net of the negative impacts of collecting the tax. For each \$1 of RTA expenditures, almost 5 cents in revenues are returned to state and local governments.

Revenues to date are 13.52 percent below original projections but project costs are running 22.63 percent below original estimates. So far, the concern regarding revenue falling short of projections appears to be unfounded, because the weak economy that produced lower revenues is also resulting in lower bids for construction projects.

In addition to the economic impacts associated with RTA expenditures, there are numerous benefits to improved roads and an expanded transit system, including but not limited to: less congestion costs to both car and transit passengers, less wear and tear on automobiles, improved safety, enhanced property values along transit routes, increased access for persons without automobiles, and a broader labor market for Pima County employers. These non-market benefits accrue to vehicle passengers, transit riders, and the broader community, but they are not analyzed in the current analysis.