

# **How & Why to Fund Light Rail in the Phoenix Metro Area**

**Arizona PIRG Education Fund**

Updated November 2010

# How & Why to Fund Light Rail in the Phoenix Metro Area

By Serena Unrein

## Acknowledgments

The author thanks Phineas Baxandall of U.S. PIRG, Diane E. Brown of the Arizona PIRG Education Fund and Christopher Brown for their comments on earlier drafts.

The author bears responsibility for any factual errors. The views expressed in this report are those of the author and do not necessarily reflect the views of our funders or those who provided editorial review.

## About the Arizona PIRG Education Fund:

With public debate around important issues often dominated by special interests pursuing their own narrow agendas, the Arizona PIRG Education Fund offers an independent voice that works on behalf of the public interest. The Arizona PIRG Education Fund, a 501(c)(3) organization, works to protect consumers and promote good government. We investigate problems, craft solutions, educate the public, and offer Arizonans meaning opportunities for civic participation.

For additional copies of the report:

Arizona PIRG Education Fund

130 N. Central Avenue, Suite 202

Phoenix, AZ 85004

(602) 252-9227 (phone)

(602) 252-9201 (fax)

[info@arizonapirg.org](mailto:info@arizonapirg.org)

[www.arizonapirg.org](http://www.arizonapirg.org)

**Arizona PIRG**  
Education Fund

## Table of Contents

<b>Executive Summary .....</b>	<b>4</b>
<b>I. Overview &amp; Background .....</b>	<b>6</b>
<b>II. Why Fund Public Transit .....</b>	<b>7</b>
Transit Creates Public Benefits .....	7
Congestion Reduction .....	8
Reduced Pollution .....	9
Allows More Efficient Land Development .....	9
Fewer Auto Injuries and Deaths .....	10
Other Benefits Derived from Public Transit.....	11
Enhanced Mobility.....	11
Economic Development .....	12
Public Transit Needs Will Outpace Existing Funding .....	13
<b>III. General Principles for Funding Public Transit .....</b>	<b>13</b>
<b>IV. Current Revenue Sources for METRO Light Rail.....</b>	<b>14</b>
Sales Tax .....	14
Fares .....	15
State Funding.....	16
Federal Funding .....	16
<b>V. Potential Revenue Sources .....</b>	<b>16</b>
Discretionary Funding Sources .....	17
General Revenues.....	17
“Flexing” Federal Transportation Funds.....	18
Dedicated Transportation Revenues .....	18
Sales Taxes.....	18
Gas Taxes .....	19
Vehicle License Tax.....	20
Registration and Title Fees .....	20
Rental Car Tax.....	21
Tire Tax .....	21
Weight-Based Vehicle Sales Tax .....	21

Vehicle Battery Tax.....	21
Weight Mile Truck Fee.....	21
Toll Roads .....	22
Managed Lanes .....	22
Sidebar: Transportation Privatization and Protecting the Public Interest.....	23
Development and Real Estate Charges.....	23
Development Impact Fees.....	23
Value Capture .....	24
Storm Water Fees.....	24
Real Estate Transfer Tax .....	24
Parking Tax .....	24
Fare Increases.....	25
Sidebar: Should Transit Be Free?.....	26
Agency Consolidation .....	26
<b>VI. Conclusion .....</b>	<b>27</b>

## Executive Summary

The METRO Light Rail opened in the Phoenix area in December 2008 and exceeded projected ridership numbers. Businesses and Arizonans in other parts of the metropolitan area began to express their eagerness for the light rail system to be expanded so that they could experience the benefits of light rail as well. The planned extensions were to be funded by a regional sales tax. However, revenues from the sales tax have been far lower than original expectations, causing delays for the planned extensions and uncertainty whether some of the extensions will be built if new funds are not identified.

Light rail creates a number of public benefits in the Phoenix metro area, including reducing congestion and pollution. Light rail also provides a transportation option for those who do not wish or cannot drive. In addition, the new transit system has encouraged economic development in the area and received praise from small business owners along the line. In short, METRO Light Rail has exceeded expectations and brought many benefits to the region, so it is important to expand the system so that more people can receive the benefits of light rail.

Typically the biggest obstacle to improved public transportation is how to pay for it. Ideally, mechanisms for funding transit would be reliable, have low collection costs, have the capacity for future growth, and should not place disproportionate burdens on those that use transit.

The METRO Light Rail system relies primarily on sales tax revenues, which is not ideal since during a recession, sales tax revenues fall even as the need for public transit increases. Fares also provide some revenue for the system and, until recently, the State of Arizona had provided some money through state lottery dollars. Most of the planned extensions for the light rail system were to be paid for through the Proposition 400 sales tax, which was enacted by voters in the region in 2004, but the current estimates of revenues for the 20-year life of the sales tax are 26% lower than originally expected.

Funding for transit can come from a variety of sources, both discretionary and dedicated. Discretionary funding sources would include funding from the state general fund, "flexing" federal transportation dollars given to the state to be used for transit, and sales tax revenues. However, these sources lack the reliability that a dedicated funding source would have.

The best dedicated funding sources are those that correct market failures by discouraging pollution and encouraging compact development, or by targeting revenues from those who will most benefit from the reduced congestion brought about by public transit. There are numerous examples of dedicated funding sources that could be used to fund METRO Light Rail, which include: gas taxes, vehicle license taxes, registration and title fees, various specialty taxes (such as rental car taxes, tire taxes, weight-based vehicle sales taxes, vehicle battery taxes, and weight-mile truck fees), toll roads, and managed lanes. The discretionary funding sources differ widely on their ease of implementation and the amount of revenue they would generate. Increased transit fares are typically a poor source of additional revenues because higher levels decrease ridership and the broader benefits created by transit systems.

Almost every state uses gas tax dollars to fund their transportation budgets, while 15 states use gas tax money to fund public transit specifically. In Arizona, gas tax revenues are restricted to highway and road purposes by the state constitution. To use gas tax monies to fund transit in Arizona, voters would need to approve a constitutional change via a ballot initiative. While this would be a serious undertaking, it is

an option worth exploring since so many other states have been able to fund transit projects through their gas taxes.

Other ways to fund public transit include development and real estate charges. Development and real estate charges that could fund public transit include impact fees, value capture strategies, storm water fees, real estate transfer taxes, and parking taxes. Development impact fees, for example, are charges paid by developers for the “impact” their new development places on a community; they are quite common across the country. Impact fees are used for specific infrastructure needs.

The recession and subsequent declining sales tax revenues have shown that transit funding needs to rely on a diverse set of funding options. To expand the light rail system and provide more transportation options for residents in the Phoenix metro area, it is essential to find reliable, dedicated revenues sources. Policymakers should act swiftly to ensure that there are no further delays in building the light rail expansions that people in the area urgently want and need.

## I. Overview and Background

**Definition:** Transit, public transportation, and public transit are treated synonymously in this paper to comprise transportation systems in which passengers ride together on vehicles they do not own and share with others. It includes buses, light rail, traditional trolleys, subways, and other forms of heavy passenger rail. It does not include airlines, shared-ride taxis, or inter-city bus service. The benefits of inter-city rail are similar to those discussed in these pages, but traditionally have different funding mechanisms.

The METRO Light Rail opened in December 2008 with a 20-mile starter track through central and downtown Phoenix, downtown Tempe, and west Mesa. When it first opened, the news media and elected officials wondered if light rail could be successful in the Phoenix area.

Despite this doubt, the light rail system has proven to be enormously popular with Arizonans, with ridership exceeding original projections by 34% in METRO Light Rail's first year of operations.<sup>1</sup> Thus far ridership in 2010 has been higher every month than it was in the same month of 2009.<sup>2</sup> The initial success of light rail has generated additional enthusiasm for future expansion – but the Phoenix metro area and the State of Arizona have not yet figured out how to fund this important opportunity.

Public enthusiasm remains strong for light rail, but its chief source of funding – sales tax revenues – has lagged far behind projections. Most of the planned extensions for the light rail system were to be paid for through the Proposition 400 sales tax enacted by Maricopa County voters in 2004. However, the current estimates of revenues for the 20-year life of the sales tax are 26% lower than originally expected, causing the planned expansions to be delayed significantly. As a result of forces outside its control, METRO Light Rail has had to work harder to accommodate greater ridership while doing so with fewer resources.

With lower-than-anticipated funding for light rail, METRO Light Rail has increased fares and cut back on service. Fares increased in July 2009 from \$1.25 to \$1.75 for a one-way ticket. In July 2010, peak hours were shortened by two hours each day and the frequency of trains during peak hours was reduced as well.

Worse still, with long-term sales tax revenue projections similarly bleak, planned expansion of the light rail line has been delayed, even as more Valley residents wish to have access to public transit. The original plans called for the next expansion of light rail to be placed in the northwestern part of Phoenix and to be operational by 2012. The declining sales tax revenues have pushed the scheduled completion date for the extension all the way to 2026. Its future is uncertain.

Without expanded and enhanced light rail, Phoenix and its suburbs will continue to struggle with the problems created by rapid growth. The metropolitan Phoenix area has seen its population increase from 983,000 people in 1990 to approximately 1,585,000 in 2010,<sup>3</sup> which is a population increase of 61% in two decades. As a result of this growth, we now face problems from a lack of public transit infrastructure and funding. Highways are plagued with congestion, no matter how many we build or

<sup>1</sup> "Triumphs, troubles mark rail's first year," *The Arizona Republic*, December 26, 2009, page A1.

<sup>2</sup> METRO Light Rail, "2009 vs. 2010 Total Ridership," October 2010, [http://www.valleymetro.org/images/uploads/lightrail\\_publications/METRO-ridership-2010.pdf](http://www.valleymetro.org/images/uploads/lightrail_publications/METRO-ridership-2010.pdf).

<sup>3</sup> City of Phoenix, "Phoenix Growth," January 2010, <http://phoenix.gov/planning/phoenixgrowth.pdf>.

how quickly we expand them. Pollution has increasingly become a problem; ozone health watches are issued on many summer days, more of our children and seniors are being affected by asthma and other respiratory illnesses, and a brown cloud hangs over our valley. People once moved to the Phoenix area for its clean, dry air, but the Arizona Department of Environmental Quality notes that carbon monoxide, nitrogen dioxide, sulfur dioxide, ozone, and particulate matter are now environmental risks in the area.<sup>4</sup> Since many of these problems are caused by a transportation system that is reliant on single-passenger vehicles, it is increasingly important to provide public transit options.

In addition to addressing the congestion and air quality problems the Phoenix area faces, public transit provides a variety of other benefits. Light rail provides people who live far away from work with an affordable option for getting to work. Light rail can make a big difference for people with limited mobility, such as the elderly or disabled. Even for people who do have a car and ordinarily drive, light rail provides a convenient option when the car is in the shop, attending events downtown when parking might be difficult, or when going out on the weekend. Light rail also has stimulated the local economy by attracting more shops, restaurants, and businesses along the line. Existing local businesses have been bolstered by light rail because of increased foot traffic, increased visibility, and community redevelopment.<sup>5</sup>

To continue the positive effects of light rail, secure funding must be obtained so the line can be expanded and more Valley residents can use the system.

## **II. Why Fund Public Transit?**

Public transportation provides a variety of public goods, many of which come from replacing the impacts of car and truck travel. Trains, buses, and trolleys replace the greater congestion and pollution generated by cars and trucks. Public transit encourages more compact development patterns, making more walkable communities possible and avoiding the costs of more dispersed infrastructure for sewage, water, electrical, gas and roads. Public transit also increases property values near transit stops, conserves fuel, extends the available labor pool for businesses, and reduces auto fatalities. More visibly, public transit provides a transportation option that can be crucial to people without cars or to car owners when their vehicles are unavailable. Transit, including dedicated local shuttle buses, can also allow seniors and those with reduced mobility to lead a more independent life. Public transit is highly visible, but – like sewer systems and water mains – many benefits remain unseen and under-appreciated.

### **Transit Creates Public Benefits**

Public transportation's main benefits come from replacing car trips. According to the U.S. Department of Transportation, motorists cover only three-quarters of the costs they generate from congestion, pollution, accidents, and noise – even after accounting for the gas taxes, registration taxes, sales taxes,

---

<sup>4</sup> Arizona Department of Environmental Quality (ADEQ), *Air Quality Report*, [http://www.azdeq.gov/function/forms/download/2009\\_Annual\\_Report-AQD.pdf](http://www.azdeq.gov/function/forms/download/2009_Annual_Report-AQD.pdf).

<sup>5</sup> Arizona PIRG Education Fund, *The Business of Light Rail: A Compilation of Local Business Interviews*, April 2010, <http://www.arizonapirg.org/home/reports/report-archives/smart-transportation/smart-transportation/the-businesses-of-light-rail-a-compilation-of-local-business-interviews>.



and other fees that drivers pay on their vehicles. According to the analysis, federal highway monies subsidize driving to the tune of eight cents per miles for automobiles and over twenty centers per mile for the heaviest trucks.<sup>6</sup> In urban areas, autos impose costs of almost three cents per mile, while heavy trucks create social costs of almost 70 cents per mile. Some estimates put the average external cost of driving on society at over 40 cents per mile, not including land-use effects.<sup>7</sup> The Federal Highway Administration (FHWA) calculates that motor vehicles imposed \$90 billion in accident, congestion, noise, and pollution costs on non-motorists in 2000. Additionally, all levels of government combined to spend approximately \$125 billion on highways.<sup>8</sup>

According to the FHWA: “With the exception of their own travel time, vehicle operating costs, and perhaps risks of having a crash, highway users normally do not consider many of these marginal costs when deciding whether to make a trip. In general, economic efficiency would be enhanced if users had to pay those marginal costs they do not consider in trip-making decisions.” Even after gas taxes and other fees, about a third of net driving costs are externalized onto society, according to analysis by Todd Litman at the Victoria Transportation Policy Institute.

### Congestion Reduction

Traffic congestion is a growing problem on Arizona’s roads that wastes both time and fuel. For the average commuter in the United States, annual additional time wasted to traffic delays increased from 14 hours in 1982 to 36 hours in 2007.<sup>9</sup> In the Phoenix metropolitan area, commuters wasted 44 hours annually, 9 hours more than the time they spent sitting in traffic just a decade previously.<sup>10</sup>

In the Phoenix area, congestion wasted an estimated 57.2 million gallons of gasoline in 2007.<sup>11</sup> Congestion costs for the Phoenix metro area added up to nearly \$1.9 billion – or about \$555 per person – that year.<sup>12</sup> By reducing driving, public transit has a double benefit for energy-savings – rail and bus travel is more fuel-efficient than driving and reduced congestion makes automobile travel more fuel-efficient, as congested driving, particularly stop-and-go style driving during peak periods, greatly erodes vehicle fuel economy.

Public transit reduces congestion. According to estimates by the Texas Transportation Institute, which produces the gold standard in congestion data, if transit passengers were part of the general traffic flow, then total congestion would increase 16 percent, creating about 646 million hours in additional lost time

---

<sup>6</sup> FHWA, 2000, table 4.

<sup>7</sup> Victoria Transport Policy Institute, “Motor Vehicle External Cost Summary,” Table 4  
<http://www.vtpi.org/tm/tm82.htm>.

<sup>8</sup> FHWA, 2000, figure 7. Ian W. H. Parry, Margaret Walls and Winston Harrington, in a study by Resources for the Future, calculate \$1.57 per gallon in costs to others – *not including* costs associated with global warming, oil dependency, noise, sprawl, highway maintenance, parking subsidies, or automobile disposal costs. See “Automobile Externalities and Policies,” Resources for the Future discussion papers, DP-06-26, June 2006. See also <http://www.vtpi.org/documents/transportation.php>.

<sup>9</sup> David Schrank and Tim Lomax, The 2009 Urban Mobility Report, page 1, College Station, TX: Texas Transportation Institute, 2009. [http://tti.tamu.edu/documents/mobility\\_report\\_2009.pdf](http://tti.tamu.edu/documents/mobility_report_2009.pdf).

<sup>10</sup> David Schrank and Tim Lomax, Performance Measure Summary – Phoenix, AZ, College Station, TX: Texas Transportation Institute, 2009 [http://mobility.tamu.edu/ums/congestion\\_data/tables/phoenix.pdf](http://mobility.tamu.edu/ums/congestion_data/tables/phoenix.pdf).

<sup>11</sup> David Schrank and Tim Lomax, The 2009 Urban Mobility Report, page 24, College Station, TX: Texas Transportation Institute, 2009. [http://tti.tamu.edu/documents/mobility\\_report\\_2009.pdf](http://tti.tamu.edu/documents/mobility_report_2009.pdf).

<sup>12</sup> Schrank and Lomax, page 24.

across the nation.<sup>13</sup> Public transportation in Phoenix saved 2.5 million hours in traffic delays and amounted to nearly \$60 million in cost savings in 2007.<sup>14</sup> (This data, which is the most recent available, is prior to the light rail system in Phoenix becoming operational, so it stands to reason that there are likely further benefits from the new light rail system in terms of reducing congestion and costs related to congestion).

### Reduced Pollution

Air pollution is an important issue in Arizona. Phoenix in particular has air quality issues due to its large population and heavy reliance on personal automobiles. The Arizona Department of Environmental Quality's (ADEQ) 2009 Air Quality Report noted carbon monoxide, nitrogen dioxide, sulfur dioxide, ozone, and particulate matter as environmental risks in the Phoenix area.<sup>15</sup> While concentration levels are generally trending slightly downward, especially for carbon monoxide, air quality is still a problem. The Phoenix area has ozone levels that do not meet the standards recommended by the Environmental Protection Agency; high ozone levels can impair breathing and are particularly problematic for those with asthma. Tailpipe emissions are a main contributor to ozone levels. Health risks that accompany poor air quality include: asthma, lung and heart disease, and cognitive impairment with heavy exposure, and generally affect children and the elderly, those who drive the least, more than healthy adults. ADEQ cites automobiles as a main contributor to diminished air quality and recommends reducing tailpipe emissions to improve air quality.<sup>16</sup>

By removing cars from the road, public transit reduces pollution by preventing auto emissions and polluted road run-off. These mechanisms parallel the ways that transit reduces congestion. Most directly, trains and buses create less pollution-causing emissions than would be created if the same transit riders traveled in individual cars or even carpooled. Public transit also reduces air pollution by reducing congestion for the remaining cars on the road, thus polluting less to make the same trips.

The Federal Highway Administration estimates that motor vehicles create, on average, 1.5 cents per mile in social costs from air pollution-caused health problems. Pickups and vans create 2.6 cents in social costs per mile of travel and large diesel trucks create almost four cents per mile in costs. These estimates do not include health problems caused by fuel-based toxins, road dust, or additional costs created by pollution.

### Allows More Efficient Land Development

Land-use in the Phoenix metropolitan area can best be described as inefficient. The City of Phoenix has grown by 94.5 square miles in the last two decades, an increase of 22 percent.<sup>17</sup> Inefficient land-use causes an array of effects, including increased costs for public infrastructure and the loss of natural and agricultural lands.

Transportation and land-use problems are tightly connected. On the one side, light rail, commuter rail, and rapid bus systems allow development of more walkable communities where using a car is an option rather than a requirement. For example, communities which are more compact save money because

---

<sup>13</sup> Schrank and Lomax, page 14.

<sup>14</sup> Schrank and Lomax, page 26.

<sup>15</sup> Air Quality Report, Arizona Department of Environmental Quality (ADEQ), 2009, <http://www.azdeq.gov/environ/air/prevent/download/pm.pdf>

<sup>16</sup> ADEQ Fact Sheets: <http://www.azdeq.gov/environ/air/prevent/download/ozone.pdf>

<sup>17</sup> City of Phoenix, "Phoenix Growth," January 2010, <http://phoenix.gov/planning/phoenixgrowth.pdf>.

smaller networks can be constructed for driving, sewage, electricity, and parking. Centralized cities thrive as physical “hubs” for business activity, many doubling their population during the work day.

Seen from the other direction, compact residential development also facilitates public transit by boosting the potential ridership along a transit route. Thus, more efficient land-use patterns encourage more efficient transportation. These twin relationships reinforce one another, but can leave policy makers facing a chicken-and-egg problem: compact development is more difficult without public transit; yet, transit is less effective without compact development.

A spread-out development pattern like the one that exists in the Phoenix metro area creates additional driving and additional expenses for residents and communities. Research also has shown that individuals who live in densely populated neighborhoods are more likely to walk or use a bicycle to engage in shopping, recreation, or other opportunities – as opposed to needing to drive to complete routine errands.<sup>18</sup>

Encouraging more compact land use also saves money for private and public budgets. Denser mixed-use living patterns require fewer resources and less driving than do single-family homes spaced out on large lots segregated from commercial districts. Localities with more compact land-use spend less per home on sewers, gas, and electric infrastructure, or on additional roads and parking. Police, fire departments, and school buses also save money by traveling shorter distances. Families often move to distant suburbs as a way to find lower home prices. But families in metropolitan areas that work further from central business districts typically lose more money on higher driving costs than they save in lower mortgage payments.<sup>19</sup>

#### Fewer Auto Injuries and Deaths

The Bureau of Transportation Statistics estimates that motor vehicles cause over 40,000 accidental deaths and more than 2.3 million injuries each year.<sup>20</sup> By contrast, less than 300 deaths annually take place on public transit.<sup>21</sup> Using conservative estimates to quantify these costs in financial terms, the National Highway Traffic Safety Administration in 2002 estimated an average social cost from accidents totaling 15.8 cents per vehicle mile or \$433.5 billion, amounting to 4.3 percent of GDP.<sup>22</sup>

In 2009 in Arizona, 106,767 motor vehicle crashes took place. Of those crashes, 709 were fatal, killing 806 people, and 33,380 involved injuries, hurting 50,610 people. Alcohol accounted for about a third of

---

<sup>18</sup> U.S. PIRG, *Making Sense of America's Oil Needs*, August 2005

<sup>19</sup> “A Heavy Load: The Combined Housing and Transportation Burdens of Working Families,” Center for Housing Policy, Washington, D.C., 2006. [http://www.nhc.org/pdf/pub\\_heavy\\_load\\_10\\_06.pdf](http://www.nhc.org/pdf/pub_heavy_load_10_06.pdf).

<sup>20</sup> Bureau of Transportation Statistics, National Transportation Statistics, Tables 2.1 and 2.2, U.S. Department of Transportation, Washington, D.C., 2010.

[http://www.bts.gov/publications/national\\_transportation\\_statistics/#chapter\\_2](http://www.bts.gov/publications/national_transportation_statistics/#chapter_2)

<sup>21</sup> Bureau of Transportation Statistics, National Transportation Statistics, Tables 2.1, U.S. Department of Transportation, Washington, D.C., 2010.

[http://www.bts.gov/publications/national\\_transportation\\_statistics/html/table\\_02\\_01.html](http://www.bts.gov/publications/national_transportation_statistics/html/table_02_01.html)

<sup>22</sup> U.S. National Highway Traffic Safety Administration (NHTSA), 2002. The Economic Impact of Motor Vehicle Crashes, 2000. NHSTA, U.S. Department of Transportation, Washington, D.C.

<http://www.nhtsa.gov/DOT/NHTSA/Communication%20&%20Consumer%20Information/Articles/Associated%20Files/EconomicImpact2000.pdf>

the fatalities, and less than one tenth of the injuries, meaning motor vehicle transportation is dangerous, regardless of the effect of alcohol.<sup>23</sup>

Substituting driving with public transit tends to reduce death and injuries because riding transit is safer than driving.<sup>24</sup> Rail and buses have a lower crash risk per-passenger-trip because professional drivers tend to have lower crash rates and total vehicle traffic is reduced. Bus passengers have about one-tenth the per-mile crash fatality rate as automobile passengers. Rail passengers have a rate of risk about one-quarter that of drivers – higher than bus because of generally higher speeds. More compact communities have far lower crash and fatality rates than less compact communities.

### **Other Benefits Derived from Public Transit**

#### **Enhanced Mobility**

Public transit provides benefits as a transportation option, especially when car travel is too expensive or impractical. From this perspective, public transit funds are akin to the large subsidies the government pays for air travel. At the federal level, the Bureau of Transportation Statistics calculates those yearly net subsidies at \$4 billion as of 2002.<sup>25</sup> In addition, the federal Airport Improvement Program typically picks up 90 percent of any state and local capital funding for airports. The Government Accountability Office (GAO) estimates that from 1999 through 2001, airports received an average of about \$12 billion a year for planned capital development.<sup>26</sup>

One of the most obvious benefits of public transit is creating mobility for people who do not have access to automobiles. These groups are often some of society's most vulnerable people. According to the Federal Transit Agency (FTA), in 1998, 24 million disabled Americans were dependent on transit.<sup>27</sup> An analysis by the FTA on 1995 data estimated that transit provided 2.6 billion trips that year for people who were either too impoverished to own a car, too young to drive, or over 74 years of age. These trips comprised 40 percent of the total for transit.<sup>28</sup>

---

<sup>23</sup> "Arizona Motor Vehicle Crash Facts," Arizona Department of Transportation, 2009, <http://www.azdot.gov/mvd/Statistics/crash/PDF/09crashfacts.pdf>

<sup>24</sup> *Online TDM Encyclopedia*, "Evaluating Safety and Health Impacts," Victoria Transport Policy Institute. [http://vtpi.org/tdm/tdm58.htm#\\_Toc65190634](http://vtpi.org/tdm/tdm58.htm#_Toc65190634). See also FTA safety statistics at <http://transit-safety.volpe.dot.gov/Data/samis/default.asp?ReportID=2>.

<sup>25</sup> [http://www.bts.gov/programs/federal\\_subsidies\\_to\\_passenger\\_transportation/pdf/entire.pdf](http://www.bts.gov/programs/federal_subsidies_to_passenger_transportation/pdf/entire.pdf) These figures do not include the ways that air travel cross-subsidizes its own infrastructure needs. Similar to the prime role the national gas tax plays in financing America's National Highway System, the National Airspace System (NAS) is funded through a tax on airplane fuel. The Airport and Airway Trust Fund also receives money through taxes on tickets and freight shipping.

<sup>26</sup> The primary source of this funding was bonds, which accounted for almost \$7 billion, followed by federal grants and passenger facility charges, which accounted for \$2.4 billion, and \$1.6 billion, respectively. Testimony Before the Subcommittee on Aviation, Senate Committee on Commerce, Science, and Transportation, Airport Finance Past Funding Levels May Not Be Sufficient to Cover Airports' Planned Capital Development, Statement of Gerald L. Dillingham, Director, Civil Aviation Issues, Tuesday, February 25, 2003.

<sup>27</sup> William W. Millar, Testimony of the American Public Transit Association Before the Labor Health and Human Services, Education and Related Agencies Subcommittee of the House Appropriations Committee, February 5, 1998, 1998 WL 8991781.

<sup>28</sup> "A Public Choice Policy Analysis," Transit Benefits 2000 Working papers, FTA Policy Paper (Office of Policy Development, FTA, 2000), chapter 1. <http://www.fta.dot.gov/documents/tb2analysis.pdf> Their share of net transit subsidies after subtracting for fares, however, was only 29 percent of the total. By contrast, among working-age

Many individuals with access to automobiles choose to take rail or bus as a way to avoid congestion and parking hassles. Some use public transit sporadically on weekends or when their regular automobile is unavailable. Merely having transit as a viable backup option delivers great value. For instance, public transit provides an important alternative during the rare occasions when a car is being repaired, when a commuter will fly out of town after work, or when a large event closes roads or makes parking scarce.

### Economic Development

Metropolitan areas are engines of the economy because they draw investment and skilled workers. They function as the hub for the interaction of people, information, and ideas. Economists talk about the productivity-enhancing effects of agglomeration in cities. Phoenix is Arizona's largest metropolitan area and contains 65 percent of the state's population, 70 percent of the state's jobs, and 75 percent of the state's GDP.<sup>29</sup>

Public transit makes this productivity-enhancing agglomeration possible by reducing congestion. As one analysis by the Federal Transit Agency (FTA) concludes, "Other things equal, transit enables a higher degree of agglomeration which in turn results in higher productivity and stimulates economic growth."<sup>30</sup> They find moreover "that cities with more transit tend to be more efficient than cities with less transit."

Evidence shows that public transportation boosts property values. Based on controlled comparisons of a sample of 2,842 commercial property sales in Washington, D.C., an FTA study found that proximity to a Metro station corresponds to higher property values. For every thousand feet closer to a Metro station, properties gained \$70,000 in value. Measured differently, for every 3 blocks closer to a Metro station, properties gained \$2.30 per square foot.<sup>31</sup> Similarly, a U.S. Department of Transportation study of Massachusetts commuter rail found that single-family homes located within a half mile of rail stations were worth 10 percent more than similar homes in similar communities further from a station.<sup>32</sup>

The Phoenix metro area can harness this kind of economic potential by adjusting land-use restrictions and creating incentives for transit-oriented development, focused especially on compact projects combining resident and commercial uses and clustered around public transit stops. Additionally, METRO Light Rail has estimated that for every \$1 invested in rail transit, about \$1.30 is returned on the investment in other community benefits. Existing local businesses have told how their business has been bolstered by the light rail because of increased foot traffic, increased visibility, and community redevelopment.<sup>33</sup>

---

transit users with above poverty incomes, those who did not own an automobile comprised 25 percent of all trips with 15 percent of public subsidies, and transit passengers who did own one or more automobiles comprised 35 percent of the total trips while incurring 56 percent of net subsidies. These numbers should not be treated as precise since 21 percent of costs could not be allocated between passenger groups.

<sup>29</sup> "MetroNation Profile: Arizona's Metropolitan Areas," Blueprint for American Prosperity, Brookings Institution. <http://www.brookings.edu/~media/Files/Projects/blueprint/statesbp/Arizonabp.pdf>

<sup>30</sup> "A Public Choice Analysis," Transit Benefits 2000 Working papers, FTA Policy Paper (Office of Policy Development, FTA, 2000) <http://www.fta.dot.gov/documents/tb2analysis.pdf>.

<sup>31</sup> "A Public Choice Analysis," chapter 5.

<sup>32</sup> Robert J. Armstrong (U.S. Department of Transportation) and Daniel Rodriguez (Department of City and Regional Planning, University of North Carolina at Chapel Hill) *Transportation*, 33:1, January 2006.

<sup>33</sup> Arizona PIRG Education Fund, *The Business of Light Rail: A Compilation of Local Business Interviews*, April 2010, <http://www.arizonapirg.org/home/reports/report-archives/smart-transportation/smart-transportation/the-businesses-of-light-rail-a-compilation-of-local-business-interviews>.

## **Public Transit Needs Will Outpace Existing Funding**

There are a number of reasons that public transportation will require growing levels of support in the future.<sup>34</sup>

Traffic congestion is compounded by many ongoing trends, making the need for public transportation grow. The population in Maricopa County is expected to grow to more than six million people by 2030 – which is a 50 percent increase in population over the next twenty years.<sup>35</sup> As the population in the Phoenix metro area increases, the number of cars on the road likely will increase and people likely will drive more miles in their vehicles. As parts of the area grow and face increasing traffic and parking problems, public transit will become more attractive if financing and rights of way can be obtained.

Population growth is not the only factor that will contribute to increased public transit needs. Transportation currently is the biggest consumer of oil in the United States, accounting for about two-thirds of the country's petroleum demand and almost 80 percent of growth in recent decades. The world is meanwhile having an increasingly difficult time producing enough oil to satisfy rising demand. Although economic conditions can cause a temporary drop in the price of oil, the long-term trend of price increases is expected to continue. Indeed, it appears that the era of "cheap oil" may well be over – oil prices have increased during the last decade because of increased global demand from countries such as China, Brazil, and India. Rising gas prices make public transit more attractive because of greater fuel efficiency compared to cars and trucks.

### **III. General Principles for Funding Public Transit**

Typically the biggest obstacle to improved public transportation is how to pay for it. Not all revenue sources are created equal. Ideally, mechanisms for funding public transit would have all the qualities listed below. In practice, some taxes or fees may be strong in some ways, but weak in others.

#### *Enhanced Market Efficiency*

Markets work best when the costs that individuals face accurately reflect societal costs. As previously discussed, drivers bear some of the costs they generate, but do not fully cover the larger set of costs they generate for others. Taxes and fees that increase the individual cost of driving are therefore market correcting. In economists' jargon, the total social welfare is improved when external costs get internalized for decision makers. This occurs when taxes and fees discourage vehicle trips by requiring

---

<sup>34</sup> The Federal Highway Administration's Condition and Performance Cost to Maintain Report to Congress estimates the minimum amount of capital investment needed to maintain the nation's transit systems at \$35 billion annually, increasing to \$45 billion in 2025, driven by population and economic growth. These totals do not include operating costs. Similarly, the American Association of State Highway and Transportation Officials in their 2002 Bottom Line Report, using slightly different analytical assumptions, estimates that the minimum amount of capital investment to maintain the transit system will be \$39 billion annually, increasing to \$49 billion in 2025. These are just estimates for maintaining existing transit services. Both analyses report significantly higher and less precise estimates of the costs for needed improvements in transit systems.

<sup>35</sup> "Socioeconomic Projections of Population, Housing and Employment by Municipal Planning Area and Regional Analysis Zone," Maricopa Association of Governments, May 2007, page 4, <http://www.azcommerce.com/doclib/econinfo/FILES/2006MAGprojectionsJURI.pdf>.

drivers to consider those external costs. Similarly society's well-being is improved when developers must pay the otherwise-invisible costs of development which make land-use patterns less compact.

#### *Low Collection Costs*

The costs incurred by collecting, monitoring, and enforcing taxes are a drain that should be minimized. Taxes and fees that are easier and cheaper to collect are preferable to those that require elaborate and costly mechanisms to implement.

#### *Reliability*

Transportation planners need to be sure they can cover costs in the future. Projects should have adequate operating expenses to keep systems running well. Public transit riders who make long-term decisions about purchasing vehicles or where to live based on transit options will be particularly harmed by unexpected reductions in service or fare increases.

#### *Capacity for Growth*

Securing future funding is particularly important in the case of expanding public transit systems because they often take on debt for capital investments in new or improved transit infrastructure. Banks and bond traders who extend credit to public transit agencies will be willing to do so at lower interest rates if the agency has a more certain revenue stream. Over time these lower interest rates can mean large cost savings. Due to federal rules, individual agencies without reliable revenue sources may also have to forego federal monies for transit capital projects.

#### *Fairness*

New fees or levies should not place disproportionate burdens on those that use public transit. Those who drive regularly do not fully pay the impacts of driving, so to increase the funding burden on transit users is counterproductive because these riders create fewer impacts than if they drove. In addition, drivers benefit from the social goods produced by public transit users.

## **IV. Current Revenue Sources for METRO Light Rail**

The METRO Light Rail system relies primarily on sales tax revenues, which is not ideal, since during a recession, sales tax revenues fall even as the need for public transit increases. Fares also provide some revenue for the system and, until recently, the State of Arizona had provided some money through state lottery dollars.

The initial 20-miles of the light rail line in the Phoenix metro area were envisioned as the "starter line," with the planned future extensions bringing the system to 57 miles by 2025. However, revenue sources for light rail have fallen far short of original projections due to the recession, putting a number of the light rail extensions in jeopardy.

#### Sales Tax

Much of the initial funding for the capital costs of the light rail system came from a sales tax passed by voters in the City of Phoenix through the Transit 2000 initiative.<sup>36</sup> Voter-approved municipal sales taxes

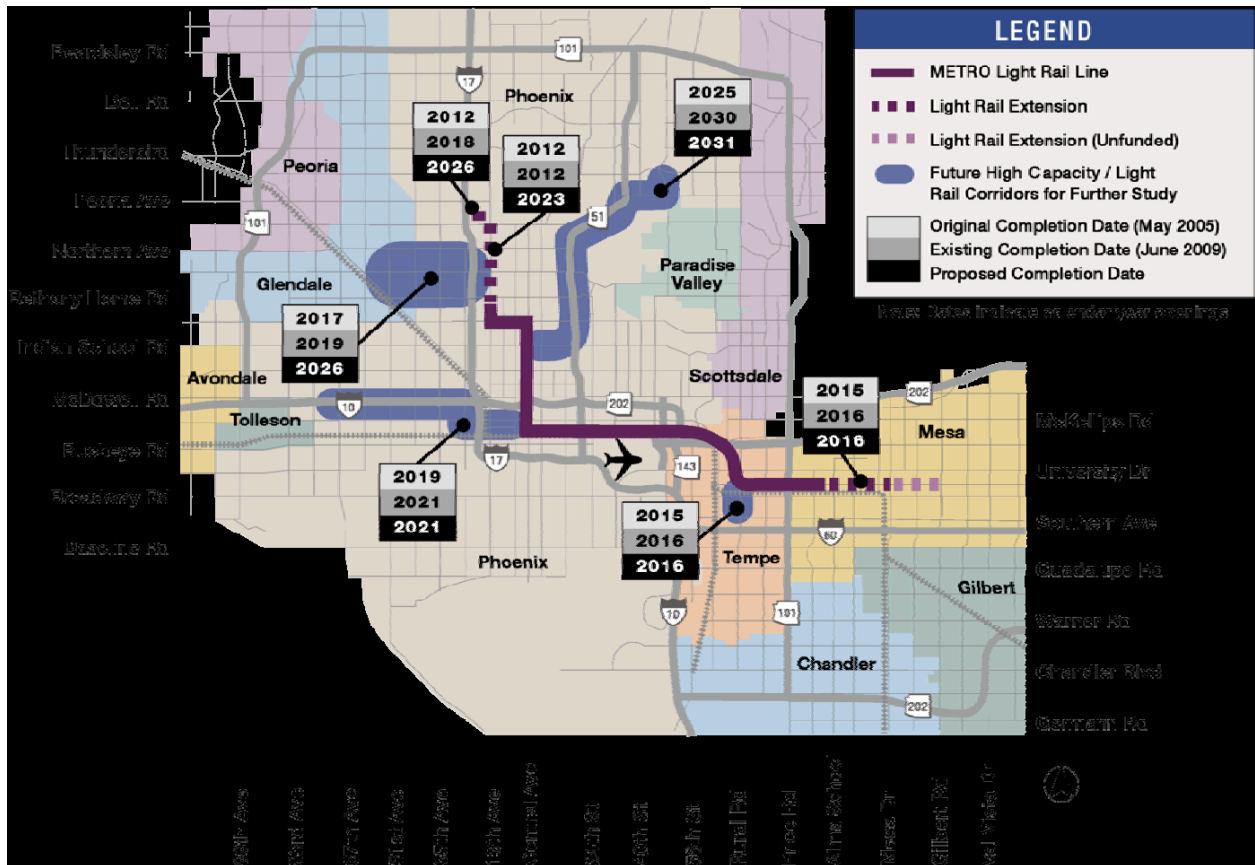
---

<sup>36</sup> "A Brief History of Transportation Elections in the Valley of the Sun," The Information Group, Phoenix, AZ, 2000, <http://www.azrail.org/trains/transit/transit-elections/>.

from Tempe (via a 1996 transportation sales tax initiative) and Phoenix (through the Transit 2000 initiative) and general fund dollars from Mesa cover the operating costs of the system.

Most of the planned extensions for the light rail system were to be paid for through Proposition 400, which was a transportation initiative passed by Maricopa County voters in 2004 and funded through a half-cent sales tax. However, estimates of revenues for the 20-year life of the sales tax are 26% lower than originally expected. It currently is believed that the sales tax will include \$1.16 billion less in public transit funding from Proposition 400 than the original projections estimated. As a result, twelve miles of light rail expansion have been deferred.

The decline in Proposition 400 sales tax revenues for Fiscal Year 2010 were 8.9% lower than they were in Fiscal Year 2009, marking the third consecutive year that revenues have fallen.<sup>37</sup> Proposition 400 originally was projected to bring in \$15 billion and now is projected to bring in \$11 billion. The map shows how declining revenues have delayed many light rail extensions.<sup>38</sup>



### Fares

While sales tax revenue provides the largest funding source for light rail, passenger fares support the balance of operating costs, which is approximately 25 percent. Despite double-digit increases in

<sup>37</sup> FY10 sales tax revenues were 8.9% lower than FY09, FY09 revenues were 13.7% lower than FY08, and FY08 revenues were 3.1% lower than FY07. Maricopa Association of Governments.

<sup>38</sup> METRO Light Rail Board Packet, April 14, 2010, page 14.

[http://www.valleymetro.org/images/uploads/board\\_minutes/Board\\_Packet\\_042110-fin.pdf](http://www.valleymetro.org/images/uploads/board_minutes/Board_Packet_042110-fin.pdf)



ridership nearly every month of 2010 over ridership numbers in 2009,<sup>39</sup> fare revenue cannot make up for the drop in sales tax collections.

#### State Funding

Arizona recently became one of five states to not provide any state funding for public transit. In April 2010, the State Legislature swept funds from the Local Transportation Assistance Fund (LTAF), which was established when voters authorized the state lottery, into the state general fund and permanently eliminated LTAF monies. This meant that the Phoenix metro area lost \$22 million in funds earmarked for public transit.

#### Federal Funding

In January 2005 the federal government provided \$587 million in funds to go toward capital expenses for the initial light rail line.<sup>40</sup> Federal funds currently cannot be used to fund public transit operations though, so no federal funds are available to help with the day-to-day costs of keeping light rail running. In August 2010, the Federal Transit Administration (FTA) approved the Central Mesa Light Rail Extension (which is currently scheduled to be operational in 2016) into Project Development, the first step in receiving an approval for federal funding.<sup>41</sup>

## **V. Potential Revenue Sources**

Funding for public transit can come from a variety of sources. The Arizona legislature could choose to appropriate operating and capital funds in each yearly budget. They also can commit to use more federal transportation funds for public transit, and they can dedicate revenue streams from particular funding sources. Local governments in Arizona also have the ability to fund public transit.

The best dedicated funding sources are those that correct market failures by discouraging pollution and encouraging compact development, or by targeting revenues from those who will most benefit from the reduced congestion brought about by public transit.

Among the 25 largest transit agencies in the nation, the GAO reports that a total of 23 (92%) received funds from dedicated funding sources. These funds, moreover, averaged 70 percent of the total state and local share of revenues.<sup>42</sup> Two or more sources of dedicated funding were reported in 18 (72%) of these public transit systems. As the GAO reports, using a diverse basket of revenue sources protects transit systems from fluctuations in the economy that might hit one particular revenue source harder than others. Currently public transit in Arizona is funded largely by sales tax revenues, which can fall dramatically during an economic downturn, as we have seen in recent years. This has resulted in cuts in public transit service in the Phoenix metropolitan area and across the state, which further exacerbates economic problems, as people rely more heavily on public transit during a down economy.

---

<sup>39</sup> "Ridership 2010," METRO Light Rail [http://www.valleymetro.org/images/uploads/lightrail\\_publications/METRO-ridership-2010.pdf](http://www.valleymetro.org/images/uploads/lightrail_publications/METRO-ridership-2010.pdf).

<sup>40</sup> METRO Light Rail [http://www.valleymetro.org/metro\\_light\\_rail/newsroom/metro\\_milestones/](http://www.valleymetro.org/metro_light_rail/newsroom/metro_milestones/).

<sup>41</sup> METRO Light Rail [http://www.valleymetro.org/metro\\_light\\_rail/future\\_extensions/mesa/](http://www.valleymetro.org/metro_light_rail/future_extensions/mesa/)

<sup>42</sup> Government Accountability Office, Mass Transit: Issues Related to Provided Dedicated Funding for the Washington Area Metropolitan Transit Authority, May 2006, GAO-06-516.

Across the country, cities, counties, and transportation districts increasingly fund new transportation projects through taxes or fees that apply only in their local jurisdiction.<sup>43</sup> Fifteen states authorize local-option fuel taxes, though these tend to be used for road maintenance; Arizona is not among the states that have local-option fuel taxes. Communities in many states levy local impact fees on developers or real-estate transfer fees. Thirty-three states authorize some sort of local license or registration tax, which are assessed based on weight in Hawaii and part of Virginia. Local or county sales taxes exist in 33 states, including Arizona. While Arizona does allow local option sales taxes to exist, it takes a more restrictive approach than some other states by requiring the development of project specific, legally binding expenditure plans before a tax is adopted.<sup>44</sup> And unlike most other local-option taxes, sales taxes often have been designated for new public transit projects.

Local-option taxes have benefits and drawbacks. Residents tend to be more supportive of paying for services in their own area. The disadvantage of localized taxation is that the narrow base for these taxes makes it more difficult to raise significant revenue without high rates, but high rates prompt people to cross local jurisdictions when making purchases to avoid the tax. The revenues discussed below could be applied either statewide or in the Phoenix metropolitan area.

### **Discretionary Funding Sources**

Discretionary funds come from monies that are not dedicated solely for transit and are allocated at the discretion of the state legislature or a state agency. States can appropriate funds for transit from the general fund or other sources on an annual basis as part of the state budgeting process. Another source of transit funding can come from flexible federal dollars.

### **General Revenues**

Many public transit systems receive at least some funding from the legislature's general budget. In 2004, the General Fund was the chief source of funding for public transit in 19 states,<sup>45</sup> but Arizona does not provide funding from its General Fund for public transit and permanently eliminated the Local Transportation Assistance Fund (LTAF) recently, which provided some money through the state lottery for public transit.

The shifting winds of budgetary politics can make public transit funding unstable. Passengers need service to be dependable and investors issuing bonds to transit agencies need to know that payments will be made. States' general budgetary funds are also increasingly squeezed by growing costs from healthcare, federal No Child Left Behind requirements, homeland security mandates, and other factors such as decreased revenues due to the economy. These rising costs limit states' ability to use general revenue funds for transportation.

Moreover Arizona likely faces significant budget shortfalls for at least the next two fiscal years. It is estimated that the budget shortfall for the current fiscal year could be as high as \$825 million and the

---

<sup>43</sup> Todd Goldman and Martin Wachs, "A Quiet Revolution in Transportation: The Rise in Local Option Transportation Taxes," *Transportation Quarterly*, 57, 1, Winter 2003, pp. 19-32.

<http://www.uctc.net/papers/644.pdf>

<sup>44</sup> Goldman and Wachs, page 24.

<sup>45</sup> American Association of State Highway Transportation Officials, Innovative Finance Website – Other Revenue Sources at [http://www.innovativefinance.org/topics/revenue\\_sources](http://www.innovativefinance.org/topics/revenue_sources).

budget shortfall for Fiscal Year 2012 could be as much as \$1.4 billion.<sup>46</sup> With a budget situation this bleak it is difficult to imagine any scenario in which the state would provide funding for public transit from the general fund.

Significant dedicated revenues can insulate public transit budgets from short-term shocks. It also may be more politically popular to dedicate funds: taxpayers often feel better about paying an extra fee for a distinct public service such as transit rather than to the general fund where benefits are harder to perceive.

#### “Flexing” Federal Transportation Funds

Federal transportation programs allow states to use federal highway trust fund money for public transit. Most flex funding involves a transfer of funds to the Federal Transit Authority from the federal Surface Transportation Program (STP) or Congestion Mitigation & Air Quality (CMAQ) Improvement Program. Since 1997, federal rules have encouraged “flex funding” for metropolitan planning areas (MPOs) with populations over 200,000, which includes the greater Phoenix area. By deploying funds flexibly across traditional federal spending silos, these areas can thereby make more integrated decisions about how to manage their air quality, land use, and congestion problems.

Beginning in 2000, the Arizona State Transportation Board began “flexing” a portion of federal funds from the STP, making these monies available statewide for transit projects. During Fiscal Year 2008, the State Transportation Board flexed \$6.5 million of STP dollars to support public transportation activities, approximately \$4 million of which went to MPOs in the state.<sup>47</sup> The funds are generally used for capital projects such as vehicles and transit facilities.

From FY2011-FY2015, METRO Light Rail expects to receive nearly \$89 million in flexed federal funds from the STP and CMAQ programs.<sup>48</sup>

#### Dedicated Transportation Revenues

Dedicated funds are reserved explicitly for transit and are not subject to an appropriations process. Taxes or fees on driving to finance public transportation make sense for two reasons: these levies directly discourage driving and also help to fund alternatives to driving. However, in Arizona, the state constitution prohibits the use of auto-based taxes for any purpose other than roads. In order to use any of the following revenue sources, voters would have to affirm changes in the state constitution.

#### Sales Taxes

Sales taxes are the most common form of dedicated transit revenues for transit agencies. A GAO study of the nation’s 25 largest public transit systems found 15 systems (60%) received dedicated sales tax funds, totaling \$4.5 billion in 2003, or 43 percent of dedicated funds for these systems. Among a broader sample, sales taxes have a similar, though slightly smaller, role. The National Transit Database

---

<sup>46</sup> Revenue and Budget Update of the Finance Advisory Committee for the Arizona Joint Legislative Budget Committee, September 29, 2010. <http://www.azleg.gov/jlbc/revenuebudgetupdate.pdf>

<sup>47</sup> Arizona Department of Transportation, *Public Transportation State Management Plan*, page 4, [http://www.azdot.gov/mpd/Community\\_Grant\\_Services/PDF/2008\\_State\\_Management\\_Plan.pdf](http://www.azdot.gov/mpd/Community_Grant_Services/PDF/2008_State_Management_Plan.pdf)

<sup>48</sup> METRO Light Rail, *Five-Year Operating Forecast and Capital Program*, page 6, [http://www.valleymetro.org/images/uploads/lightrail\\_publications/FY\\_2011\\_Five-Year\\_Final\\_Accepted\\_Budget.pdf](http://www.valleymetro.org/images/uploads/lightrail_publications/FY_2011_Five-Year_Final_Accepted_Budget.pdf)

of approximately 600 transit agencies reporting to the Federal Transit Administration shows that, after federal funds, sales taxes comprised the largest source of revenues for capital spending (38 percent) and the second largest source of operating expenses (27 percent) after fares (32 percent).<sup>49</sup>

Sales taxes are unpredictable and therefore not an ideal source of revenue for public transit. As a result of declining sales tax revenues due to the recession, a number of transit systems across the country have delayed planned expansions or scrapped some plans altogether. In Seattle, for example, the transit agency has experienced sales tax revenues that are 25 percent lower than originally expected, forcing the city to put one of its planned extensions on hold.<sup>50</sup>

Sales taxes nonetheless may be more politically popular than other broad taxes such as income or business taxes. Their simplicity gives citizens confidence that sales taxes will be collected fairly, at least on their own terms. Sales taxes also are regressive, but can be made somewhat less regressive by exempting items where lower-income people spend larger parts of their income, such as groceries, or extending sales taxes to services used by higher-income consumers.

### Gas Taxes

Gas taxes are the staple of transportation spending in most states, but are restricted to highway and road purposes in 30 states, 22 of which are by constitutional restriction, including Arizona. To use gas tax monies to fund public transit in Arizona, voters would need to approve a constitutional change via a ballot initiative. While this would be a serious undertaking, it is an option worth exploring since so many other states have been able to fund public transit projects through their gas taxes.

Gas tax funds contribute to public transit funding in 15 states.<sup>51</sup> According to a GAO analysis of the 25 largest transit systems in 2003, dedicated gas taxes contribute to public transit in seven of these systems, providing about 3 percent of dedicated funds in those systems.

The advantage of gas taxes are that they are a relatively fair “user fee” that makes apparent some of the societal costs of driving. One problem with funding public transit with gas taxes is that while rising gas prices are likely to increase future demand for transit, they simultaneously reduce this source of revenue. More fuel-efficient cars also will decrease the revenue available for public transit.

The “gas tax” or state motor vehicle fuel taxes actually can include several types of taxes on different types of fuel. States all assess an excise tax at a flat rate per gallon of gasoline. States vary in the way they tax diesel and gasohol, and they vary which point in the process they impose the tax (importation into the state, fuel distribution, into storage tanks, etc.). Only nine states levy sales taxes on gasoline – California, Delaware, Georgia, Hawaii, Illinois, Indiana, Michigan, New York, and West Virginia.

In the United States, the value of gas taxes has eroded over time because they are not indexed to inflation. Since 1993 the federal gas tax has remained unchanged at 18.4 cents per gallon. States’ own

---

<sup>49</sup> All data are from 2002. See the Central Broward East-West Transit Analysis, Financial Feasibility Study, appendix.

<sup>50</sup> Yonah Freemark, “When the Recession Strikes, Little Maneuvering Room for Better Transit,” *The Transport Politic*, September 2010, <http://www.thetransportpolitic.com/2010/09/26/when-the-recession-strikes-little-maneuvering-room-for-better-transit/>.

<sup>51</sup> U.S. DOT, Survey of State Funding for Public Transportation, 2004. See also [http://www.fhwa.dot.gov/ohim/hwytaxes/2001/tab6\\_toc.htm](http://www.fhwa.dot.gov/ohim/hwytaxes/2001/tab6_toc.htm).

gas taxes also have not kept up with inflation, losing 43 percent of their value during the 1970s, 80s, and 90s.<sup>52</sup> State gasoline taxes averaged 20.3 cents per gallon among the 50 states, ranging from a low of 7.5 cents per gallon in Georgia to a high of 30 cents per gallon in Rhode Island.<sup>53</sup> Taking state and federal gas taxes together on a per-mile basis, their inflation-adjusted value has declined by about 40 percent since 1960. The failure of nominal gas tax rates to keep pace with inflation is responsible for half this decline, with fuel-economy improvements during the 1970s and 1980s responsible for the other half.<sup>54</sup>

Some have called for indexing gas taxes to inflation or pegging gas taxes to a constant portion of gas prices. Seven states (Florida, Iowa, Kentucky, Maine, Nebraska, New York, and North Carolina) have some variability in their rate linked to inflation. These tax increases are politically unpopular and their effect on public transit is indirect since most additional funds go to highways.

### Vehicle License Tax

Local governments in at least 34 states assess vehicle license and registration taxes; 20 have state-level versions of these taxes dedicated for public transit.<sup>55</sup> While Arizona collects vehicle license taxes, the revenues do not go toward public transit. The vehicle license tax revenues are distributed to the State Highway User Revenue Fund, State Highway Fund, State General Fund (for school financial assistance), County General Fund, to the counties for the same use as the State Highway User Revenue Fund, and to the incorporated cities and towns for transportation, maintenance, and improvements.<sup>56</sup>

All states require vehicle owners to pay for the privilege of driving within a state. Collectively, states license over 200 million drivers. These taxes commonly differ according to the type or class of license issued, and sometimes they differ based on other factors, such as the age of the driver. Increasing these taxes can provide a dependable source of revenue. These fees provide highly reliable revenue sources because they are relatively unaffected by economic downturns. Fees should not be so high, however, as to encourage low-income drivers from avoiding the licensing process.

### Registration and Title Fees

Registration fees are a user fee on the state system of recordkeeping and administration. Title fees are transaction fees imposed on the cost of processing changes in vehicle title. Most states impose these fees as a flat charge from as little as \$2 to as much as \$33 per transaction. Arizona assesses an \$8 registration fee and a \$4 title fee.

Additional registration or title fees could be targeted according to how much vehicles are driven and how much each model-type pollutes. In Chicago, the city began charging elevated registration fees for 33 models of heavy SUVs. These pollution fees would create an incentive to reduce pollution by internalizing some of the costs imposed on society by gas-guzzling vehicles. A fee could be placed, for

---

<sup>52</sup> Robert Puentes and Ryan Prince, *Fueling Transportation Finance: A Primer on the Gas Tax*, Brookings Institution, March 2003.

<sup>53</sup> From Martin Wachs, "A Dozen Reasons for Raising the Gasoline Tax," Institute of Transportation Studies, University of California at Berkeley, Research Report UCB-ITS-RR-2003-1 (2003).

<sup>54</sup> Ian W. H. Parry, Margaret Walls, and Winston Harrington, "Automobile Externalities and Policies," Resources for the Future discussion papers DP-06-25, June 2006.

<sup>55</sup> Todd Goldman, Sam Corbett, and Martin Wachs, *Local Option Transportation Taxes in the United States*, Berkeley, CA: Institute of Transportation Students, University of California at Berkeley, March 2001.

<sup>56</sup> Arizona Department of Transportation, <http://www.azdot.gov/mvd/azwelcome.asp>.

instance, on vehicles with fuel efficiency below state fleet average, perhaps with still higher rates on the least fuel-efficient.

#### Rental Car Tax

Thirty-eight states levy taxes on rentals of motor vehicles. In Arizona, both Maricopa and Pima counties assess a surcharge on rental cars; the Maricopa County surcharge is \$2.50 per car or 3.25% of the contract, whichever is greater.<sup>57</sup> Rental car taxes are largely paid by out-of-state visitors. This makes economic sense because visitors in rental cars would not otherwise pay the many fees that in-state drivers pay to defray the costs of driving. Taxing non-residents also may have political appeal, although it likely will face opposition from the tourism industry.

In June 2006, former Governor Jeb Bush vetoed a doubling of Florida's \$2 per day rental car tax that would have supported public transit. Proponents framed the issue in terms of requiring tourists who clog the roads to contribute to transportation infrastructure in ways that would also relieve congestion. Places like Orlando where much of the daily road population is tourists are disadvantaged by current funding formulas that are allocated on the basis of residential population. Governor Bush objected to the measure as "taxation without representation for the tourists." The tax was opposed by rental car companies and travel groups, including the regional AAA and county tourism agencies.

#### Tire Tax

Some states place a tax on the sale of new tires. It can be administered either as a percentage or flat fee on sales. A tire tax makes sense because tires clog public landfills and proper disposal of tires in government waste sites is expensive. This fee makes sense as a type of user charge because people who drive more must change their tires more frequently. Although no state does so presently, this fee could be waived or reduced for high-efficiency tires that improve fuel efficiency.

#### Weight-Based Vehicle Sales Tax

Most states impose a sales tax on new vehicles purchased in the state or on vehicles imported into the state for sale. Indexing these sales taxes upward by weight would make economic sense because heavier vehicles put more stress on roads and bridges. Heavier cars also are typically less fuel-efficient. To better target an environmental incentive, the tax increase could be indexed by fuel efficiency. This type of policy would send the message that if drivers want to have heavier cars that pollute more, they will have to pay more to offset those costs.

#### Vehicle Battery Tax

As with tires, this tax is a type of disposal fee. The acid-lead batteries used in cars, trucks, boats, and aircraft are toxic and their disposal is expensive. Florida levies a fee of \$1.50 on each new or re-manufactured vehicle battery that is sold in the state.

#### Weight Mile Truck Fee

Germany uses Global Positioning Systems (GPS) to levy fees on trucks for using the national motorway system. In America there is currently a system that charges trucks exceeding 26,000 pounds a fee according to their weight and distance traveled in the state. These factors typically are recorded at weigh stations for trucks beyond the weight threshold. The economic logic behind this tax is that it precisely targets heavy vehicles that put the most wear on roads.

---

<sup>57</sup> Transaction Privilege and Other Tax Rates Table, Arizona Department of Revenue, October 2010.  
<http://www.azdor.gov/Portals/0/TPTRates/201010.pdf>

The trucking industry likely will oppose such a system and will argue that it will increase costs for the consumer goods transported by trucks. On the other hand, if the charge ends up encouraging more efficient long-distance trucking, then it will have air-quality benefits, reduce congestion, and encourage locally produced goods.

### Toll Roads

Tolls are a reliable revenue source, charging drivers for road use. When combined with congestion-pricing, which is a system of surcharging users during periods of peak demand, they encourage drivers to see the costs of driving and congestion. Additionally they provide a framework in which excess congestion can be managed, rather than simply relieved through new highway capacity.

Toll roads have a number of disadvantages. Traditionally, tolls require drivers to slow down and the costs of collection are high. Even new electronic tolling technologies such as E-Z Pass and Fast Track have significant costs to maintain and operate and require cars to slow down at toll booths.<sup>58</sup> Another problem with toll charges is that because they are levied only on some roads, drivers may be prompted to take less efficient routes as a way to avoid paying tolls.

Another problem with tolls is that, unlike gas taxes, fuel-efficient cars pay no less than gas guzzlers. Per-gallon gas taxes help make it cheaper to drive more fuel-efficient vehicles. Road pricing technologies do not necessarily include any of these beneficial forms of variable pricing. New road-pricing technologies, such as GPS-based road fees, perversely could eliminate some existing incentives for fuel efficiency.

Econometric studies suggest that drivers notice electronic tolling less than traditional toll payments. As a result, governments seem to find it politically easier to raise electronic toll rates and drivers also find electronic tolls less of a disincentive for driving than traditional tolls.<sup>59</sup>

### Managed Lanes

New tolling technologies could be adjusted to include incentives, such as congestion-pricing, to encourage more efficient use of highways while raising revenue. The federal Intermodal Surface Transportation Efficiency Act created pilot programs to explore congestion-pricing options that would charge drivers different amounts for using roads at different times, which has been done in cities such as London and Singapore. The concept is similar to airlines charging higher fares during peak-travel times, a practice which encourages travelers to fly at off-peak times and reduces airport congestion.

Some projects, such as the State-Road 91 project in southern California, have introduced new tolling by creating premium-price lanes that would require a larger toll, but would allow drivers paying more to face less congestion. These projects are sometimes called either “hot lanes” or “managed lanes.” Some have dubbed these arrangements “Lexus lanes” out of concerns that they might inadvertently create a two-tiered highway system with congestion mitigated only for upper-income drivers.

A more favorable variant of this approach makes the new lanes free to high-occupancy vehicles (HOVs), such as the Express Lanes on I-25 in Denver that opened in 2006.<sup>60</sup> Travel in these lanes is permitted for

---

<sup>58</sup> “Innovative Toll Collection System Pays Off for Motorists and Agencies,” prepared by the National Associations Working Group for the U.S. DOT, Report No. FHWA-SA-97-0988. Washington, D.C.

<sup>59</sup> Amy Finkelstein, “EZ-Tax: Tax Salience and Tax Rates,” National Bureau of Economic Research, NBER Working Papers No. 12924, February 2007, available at <http://papers.nber.org/papers/W12924>.

<sup>60</sup> Colorado Department of Transportation, <http://www.coloradodot.info/travel/tolling/i-25-hov-express-lanes>.

vehicles with more than one passenger and for single drivers who pay a premium, which in some cases is adjusted with demand to ensure that HOV drivers still enjoy less congestion.<sup>61</sup> Money from tolls could be used to fund public transit in the travel corridor, as it did in San Diego. New toll lanes in Minnesota also will dedicate half of net revenue to public transit. Transit also can benefit if public buses utilize the HOV lanes that single-occupancy drivers can use only if they pay a premium price.

#### **Sidebar: Transportation Privatization and Protecting the Public Interest**

Road privatization has been on the rise in the United States as cash-strapped governments struggle to plug holes in their budgets. Private infrastructure companies, with support from their investment bankers, are touting the benefits of public-private partnerships across the country and seeking to build new private highways or offering up-front cash for existing roads in exchange for the right to charge and collect tolls on motorists over future years.

Government agencies in Arizona also are considering private-sector involvement as a solution to the challenges their transportation budgets currently face. Private toll road operators seek to maximize their profits, but what is good for business is not always good for motorists or for transportation policy in general. While road privatization can offer a hard-to-resist “quick fix” for the transportation budget challenges faced in Maricopa County and across the state of Arizona, poorly done deals could have hidden costs and big potential downsides for the public.

To protect the public interest, the Arizona PIRG Education Fund recommends that existing roadways not be privatized and that private deals to construct new roadways be allowed only under the following conditions:

- The public should retain control over decisions about transportation planning and management
- The public must receive full value so future toll revenues won't be sold off at a discount
- No deal should last longer than 30 years because of uncertainty over future conditions and because the risks of a bad deal grow exponentially over time
- Contracts should require state-of-the-art maintenance and safety standards, instead of regional minimums
- Complete transparency and public disclosure are needed to ensure proper public vetting of privatization proposals

#### **Development and Real Estate Charges**

Fees charged to real estate to fund transit make sense because more development in an area increases the need for public infrastructure. Additionally, transit directly benefits development and real estate.

#### **Development Impact Fees**

Development impact fees are charges paid by developers for the “impact” their new development places on a community. These charges can be assessed locally or on a statewide basis. In Arizona,

---

<sup>61</sup> For an extended discussion of road pricing, see FHWA conference proceedings: [http://knowledge.fhwa.dot.gov/cops/hcx.nsf/All+Documents/9C1501C3320F3FE485257067004941E3/\\$FILE/TRB%20CP34%20Road%20Pricing.pdf](http://knowledge.fhwa.dot.gov/cops/hcx.nsf/All+Documents/9C1501C3320F3FE485257067004941E3/$FILE/TRB%20CP34%20Road%20Pricing.pdf) and Environmental Defense, No More Just Throwing Money Out the Window, Using Road Tolls to Cut Congestion, Protect the Environment, and Boost Access for All, 2006.



municipalities are allowed to assess development fees “to offset costs to the municipality associated with providing necessary public services to a development, including the costs of infrastructure.”<sup>62</sup>

When properly targeted, impact fees can internalize the burdens that developers place on the road system to accommodate increased traffic flow or to offset the infrastructure requirements of wide-spread development. Impact fees are quite common across the country. A GAO study found that 59 percent of communities over 25,000 people used these fees.<sup>63</sup> Fee exemptions for developments near public transit can be given to encourage smarter growth.

### Value Capture

A number of cities across the country have looked to value capture as a way to fund public transit. Value capture strategies – which include joint development, special assessment districts, and tax increment financing – charge real estate developers around new stations for the dramatic windfall in property values that they will receive from the public transit. Value capture strategies are designed to dedicate to public transit either a portion of increased tax revenue or additional revenue through assessments, fees, or rents based on value expected to accrue as a result of transit investments.<sup>64</sup>

### Storm Water Fees

Storm water fees are special charges applied to impervious surfaces (pavement and buildings) to fund storm water management systems. Unlike gardens, yards, and undeveloped land, impervious surfaces prevent rain water from returning to the water table. Therefore they impose costs on the public by creating the need for infrastructure, such as drainage systems and treatment facilities. This is a major environmental cost of wide-spread development that is normally pushed onto the general taxpaying public. Such fees exist in many cities and range from about \$3 to \$22 per 1,000 square feet, or about \$1 to \$7.50 annually per off-street parking space.<sup>65</sup>

### Real Estate Transfer Tax

Real estate transfer taxes require the purchase of stamps based on the value of the property to be attached to the transfer document for almost any real estate transfer, except wills or trusts. These taxes exist in many states at different rates.<sup>66</sup> These taxes currently do not exist in Arizona and this option is no longer available to policy makers as a result of the passage of Proposition 100 in 2008. This proposition constitutionally prohibited any new tax or fee on the transfer of real estate. For this to be an option in Arizona, voters would need to pass a new proposition reversing the new rule in the state constitution.

### Parking Tax

Local fees on paid parking or on physical parking spaces have limited revenue-raising potential, but likely encourage the use of public transit. Urban residents would end up paying the tax more, as well as suburban visitors, which may have some fairness appeal since public transit is more concentrated in

---

<sup>62</sup> Arizona Revised Statutes, <http://azleg.gov/FormatDocument.asp?inDoc=/ars/9/00463-05.htm&Title=9&DocType=ARS>.

<sup>63</sup> General Accounting Office. 2000. *Local Growth Issues – Federal Opportunities and Challenges*. Washington, D.C.: U.S. Government Printing Office, <http://gao.gov/products/RCED-00-178>. For a primer on impact fees, see <http://huduser.org/periodicals/cityscope/vol8num1/ch4.pdf>.

<sup>64</sup> <http://www.gao.gov/highlights/d10781high.pdf>

<sup>65</sup> “Parking Taxes: Evaluating Options and Impacts,” Victoria Transport Policy Institute, July 2010, page 8, [http://www.vtpi.org/parking\\_tax.pdf](http://www.vtpi.org/parking_tax.pdf).

<sup>66</sup> See <http://www.taxadmin.org/fta/rate/Realtytransfer.html#Table>.

urban areas. The parking tax could be levied as a percent surcharge on parking transactions or as a flat fee for hourly, daily, and monthly rates.

One strategy would be to combine a fee on parking spaces with programs for employers to purchase reduced-rate public transit passes for their employees. Employers that currently provide parking will want to reduce the number of parking spots they pay for and likely will be more eager to participate in the program. For large employers, their participation in the program will reduce administrative costs.

Parking taxes tend to be levied by large cities rather than entire states. The City of Pittsburgh imposes a 50 percent tax on parking; the City of San Francisco has a 25 percent tax on commercial, non-residential off-street parking. New York, Miami, Los Angeles, and Chicago have their own versions; Chicago's parking tax is a flat tax.<sup>67</sup> A more efficient version would be a levy on non-residential parking spaces themselves, which could be imposed on each parking space or per volume of parking area. Such arrangements exist in three Australian cities and Vancouver, British Columbia.<sup>68</sup>

### **Fare Increases**

Passenger fares do not advance public transit goals. They are not akin to user fees for socially costly activities such as tolls or polluter fines to fund environmental cleanup. Public transit ridership is a public good and increasing the price of fares will discourage riders. It makes poor economic sense to operate costly transit systems, but then discourage ridership through high fares. The net benefits of additional public transit riders tend to outweigh whatever additional fares might be paid.

Likewise, public transit systems therefore should not designate minimum rates for fares to cover total costs (sometimes referred to as "fare box recovery ratios"). Transportation officials should not pose fare-policy questions such as, "What can we recoup at the fare box?" Instead they should ask, "What can we charge before we lose significant numbers of riders to cars?" Even though public transit ridership produces a net benefit to society, fares that do not significantly discourage ridership are justifiable nonetheless because riders enjoy disproportionate benefits from the service. Larger public transit systems with high ridership can generate enough fares to cover a significant portion of operating expenses. On average fares cover a third of operating expenses for public transit systems. According to a Brookings Institution study, passenger fares covered about two-thirds of operating costs for New York City's subways in 2002, the highest fare-box recovery ratio among the nation's 14 heavy rail transit systems. By comparison, fares covered 44 percent of operating expenses for the system in Boston, 41 percent for New Jersey, 21 percent of greater Cleveland, and 16 percent in the Miami-Dade area.<sup>69</sup> For the Phoenix area light rail system, fares cover about 25 percent of operating expenses. More extensive systems tend to cover more of their costs through fares because they benefit from economies of scale and tend to be located in denser communities where commuters tend to prefer public transit over the congestion and parking hassles of driving.

---

<sup>67</sup> "Parking Taxes: Evaluating Options and Impacts," Victoria Transport Policy Institute, July 2010, page 4, [http://www.vtpi.org/parking\\_tax.pdf](http://www.vtpi.org/parking_tax.pdf).

<sup>68</sup> "Parking Taxes: Evaluating Options and Impacts," Victoria Transport Policy Institute, July 2010, page 5-7, [http://www.vtpi.org/parking\\_tax.pdf](http://www.vtpi.org/parking_tax.pdf).

<sup>69</sup> More specifically MTA: 67.3%, WMATA: 61.6%, PATCO: 61.4%, SEPTA: 58.6%, and BART: 58.4%. CTA came in at 44.3%, MBTA: 43.7%, PATH: 41.0%, MARTA: 39.2%, Maryland Mass Transit: 26.3%, Greater Cleveland RTA: 21.5%, LACMTA: 19.6%, Miami-Dade Metrorail: 16.1%, and the Staten Island RTOA: 15.2%.

### **Sidebar: Should Public Transit Be Free?**

Free public transit might seem like the most efficient and equitable pricing strategy. With free fares, no money would be taken from low-income riders and no riders would be discouraged by fare boxes. Moreover, current spending on selling tokens or enforcing fare collection could be eliminated. Likewise transit vehicles could board more swiftly by using all doors for entry and by letting riders board without fumbling for payment.<sup>70</sup>

Free service exists in a number of smaller-city bus systems or for certain limited groups, routes, or times in larger systems.<sup>71</sup> Among larger public transit systems, two notable fare-free experiments were conducted during off-peak hours in Denver, Colorado and Trenton, New Jersey during the late 1970s. Both were discontinued after approximately one-year, despite increased ridership. The only other system-wide experiment with free fares in a large system was conducted in Austin, Texas from October 1989 until December 1990. In June and July of 2006, on a more limited basis, California's Metropolitan Transportation Commission eliminated bus, train, and ferry fares when officials announced "Spare the Air" alerts on hot, smoggy days. The program cost \$13.3 million, including advertising for the program, and prevented 8 tons of smog. Critics noted that the this cost was far higher than alternative programs to reduce smog, such as replacing the aging diesel engines of old school buses.

The experiments with free-fare service have shown that free fares do not entice more drivers to leave their cars. Instead free-fare entry to the transit system attracted groups of joy riders and homeless occupants. Increased numbers of riders who previously walked, biked, or carpooled also led to overcrowding. The incidence of vandalism and graffiti increased substantially, escalating maintenance costs and arguably discouraging commuters from leaving their cars. Instead of free fares, increased ridership might be created with passes for the elderly or students, or pre-paid passes from employers and social service agencies.

### **Agency Consolidation**

Another option for funding public transit would be to consolidate some of the agencies tasked with planning and running transportation systems in the greater Phoenix region. Currently there are separate agencies for the light rail system, (METRO Light Rail), the bus system (Valley Metro Regional Public Transportation Agency), municipal transportation (individual cities and towns' transportation/transit departments, which are primarily responsible for paratransit services), and the regional transportation planning (Maricopa Association of Governments). Duties such as procurement, scheduling, safety, data collection, and fare collection could take place under one agency, rather than being the responsibility of many individual agencies. Steps already are being made in this direction, as Valley Metro RPTA and METRO Light Rail are in the process of combining their offices. It is worth exploring what additional efficiencies and cost savings could occur if some or all of these agencies were consolidated.

---

<sup>70</sup> Jennifer S. Perone, "Advantages and Disadvantages of Fare-Free Transit Policy," National Center for Transit Research, Report Number: NCTR-473-133, BC137-38 (October 2002). See also: Hodge, D.C.; Orrell III, J.D., and Strauss, T.R., 1994. Fare-free Policy: Costs, Impacts on Transit Service and Attainment of Transit System Goals. Report Number WA-RD 277.1.

<sup>71</sup> For instance, in Seattle, WA; Ann Arbor, MI; and Cache Valley, UT.

## VI. Conclusion

The light rail system in the Phoenix metropolitan area was a smart investment that has revitalized areas along the line and created enormous potential for continued economic development. Additionally, the system has been a well-liked transportation option for the area's residents. Light rail creates a number of public benefits in the Phoenix metro area, including reducing congestion and pollution. Light rail also provides a transportation option for those who do not wish or cannot drive. In addition, the new transit system has encouraged economic development in the area and received praise from small business owners along the line. METRO Light Rail has exceeded expectations and brought many benefits to the region. It is important to expand the system so that more people can receive the benefits of light rail.

Inadequate funding and the lack of stable funding sources have caused planned expansions to the light rail system to be delayed significantly (and in some cases, delayed indefinitely). Not expanding light rail is a squandered opportunity for the Phoenix metropolitan area. Funding for the light rail needs to be secured to expand the system and tap its full potential to reinvigorate the economy.

The recession and subsequent declining sales tax revenues have shown that public transit funding needs to rely on a diverse set of funding options, a number of which have been discussed in this paper. A few options stand out for their potential positive or negative impacts:

### General Fund Dollars

Since light rail provides so many benefits to the Phoenix area and since public transportation is an essential government service, the State of Arizona should provide funding from its General Fund for public transit. Since the state faces an extreme budget shortfall, robust state funding for transit is unlikely to materialize in the short-term. However, transit agencies should make the case for state funding due to the economic benefits that expanding public transit will provide both now and in the future. Because General Fund monies can be unreliable, it will be essential for light rail to have other dedicated funding sources if the state does provide funding for public transit in the future.

### Gas Tax Restrictions

In many other states, public transit projects have been funded through the gas tax. In Arizona, however, there is a Constitutional restriction prohibiting gas tax monies from being used for non-road projects. This makes little sense, as cars have an adverse impact that can be mitigated through public transit, and transit projects benefit drivers, as increased public transportation options will ease congestion. Efforts to change this restriction should be made in order to allow the gas tax to fund expansion of the light rail as well as other worthy public transit projects in the state.

### Fare Increases

Revenue streams that would discourage the positive impacts of public transit, such as fare increases, should be avoided. It makes little sense to build a costly light rail system, only to discourage ridership by increasing fares.

To expand the light rail system and provide more transportation options for residents in the Phoenix metro area, it is essential to find reliable, dedicated revenues sources. Policymakers should act swiftly to ensure that there are no further delays in building the light rail expansions that people in the area urgently want and need.