Arizona's New Frontier

Moving Our Transportation System into the 21st Century

Arizona PIRG Education Fund

Arizona's New Frontier

Moving Our Transportation System into the 21st Century

Arizona PIRG Education Fund

Alex Nelson and Diane E. Brown,
Arizona PIRG Education Fund

Siena Kaplan, Kari Wohlschlegal, and Tony Dutzik,
Frontier Group

April 2009

Acknowledgments

The authors wish to thank Kevin Wallace, Transit Program Manager, Maricopa Association of Governments; Representative Steve Farley, Founder of Tucsonians for Sensible Transportation and State Representative of the 28th District; Jason Franz, Phoenix Urban Research Laboratory (PURL) Coordinator, College of Design, Arizona State University; and Teresa Brice, Executive Director, Local Initiatives Support Corporation (LISC) for their review of this report. The authors would also like to thank Tony Dutzik of Frontier Group and Carolyn Kramer for their editorial assistance, and Gene Holmerud; Matthew DoCampo; Hillary Foose, Valley Metro; Sandy Smith, Bullhead Area Transit System (BATS); and Jeff Mielbeck and Sheri Torres, Northern Arizona Intergovernmental Public Transportation Authority (NAIPTA) for the information and photographs they provided. The generous financial support of the Rockefeller Foundation and Surdna Foundation made this report possible.

The authors bear responsibility for any factual errors. The recommendations are those of Arizona PIRG Education Fund. The views expressed in this report are those of the authors and do not necessarily reflect the views of our funders or those who provided review.

With public debate around important issues often dominated by special interests pursuing their own narrow agendas, Arizona PIRG Education Fund offers an independent voice that works on behalf of the public interest. 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 meaningful opportunities for civic participation.

Frontier Group conducts independent research and policy analysis to support a cleaner, healthier and more democratic society. Our mission is to inject accurate information and compelling ideas into public policy debates at the local, state and federal levels. www.frontiergroup.org

For more information about Arizona PIRG Education Fund or for additional copies of this report, please visit www.arizonapirg.org.

Cover photos: (top) Valley Metro, Jim Jeffers; (bottom, left to right) Flagstaff Mountain Line bus, NAIPTA; Tempe Orbit shuttle, Matt DoCampo; Bullhead City buses, BATS.

Layout: Harriet Eckstein Graphic Design

Table of Contents

Executive Summary

Over the past few decades, Arizona's population has skyrocketed. This population growth has not been matched by public transportation investment, and Arizona's resulting dependence on cars is hurting the state. High and wildly fluctuating gas prices add to Arizonans' economic woes, traffic congestion wastes valuable time and energy, and our cars and trucks produce pollution that harms Arizonans' health and contributes to global warming.

Recently, there has been a surge of support for public transportation in Arizona, and the subsequent expanded bus service and new Valley Metro light rail have been a boon to the state and its residents. The public transit systems in Arizona are beginning to relieve congestion, reduce our dependence on oil, curb pollution, stimulate the economy, and help to sustain healthy, vibrant communities.

Arizona needs a transportation system that meets the needs of the 21st century – one in which public transportation plays a much bigger role than it does today. Arizona should build on the public transit investments we've recently made and work to provide all Arizona residents with the transit options they need. To get there, we need to start investing now in critical public transportation projects.

Public transportation helps address Arizona's economic, transportation and energy challenges.

- Public transportation pays dividends for Arizona residents and our economy.
    - In 2006, public transportation in Arizona saved approximately 5.8 million gallons of oil, saving consumers more than $15 million at the pump.
    - Public transportation prevented almost 3 million hours of traffic delay – equivalent to about 68,000 work weeks – in the Phoenix metropolitan area in 2006, saving the economy more than $55 million in wasted time and lost productivity. In the Tucson metropolitan area, public transportation prevented half a million hours of traffic delay,

or 14,000 work weeks, preventing over $11 million worth of wasted money and productivity.

- Public transportation is helping to reduce global warming pollution in Arizona, averting about 7,000 metric tons of carbon dioxide pollution in 2006, the equivalent of taking over 1,100 cars off the road.

- More and more Arizonans are choosing to take public transit rather than drive. Travel via public transportation in Arizona has increased at a faster rate than automobile travel since the early 1990s – with the number of passenger miles traveled on transit jumping 76 percent between 1993 and 2006.

- Transit ridership continues to increase. In the first eight months of 2008, ridership on the state's transit lines jumped 8.8 percent versus the year before, compared with a 2.9 percent drop in vehicle travel.

- 74.8 percent of Arizonans still drive to work alone while only 2.1 percent take public transportation, meaning that there are plenty of opportunities to entice new riders to transit.

Our public transit system has not kept up with growing need. Arizona residents drive more miles, spend more on gasoline, experience more congestion, and produce more global warming pollution from transportation than they did two decades ago.

- Vehicle travel on Arizona highways increased by approximately 80 percent between 1992 and 2007. This is due both to a larger population and to more driving per person – the average Arizona resident is also driving about 11 percent more miles each year than 15 years ago.

- Arizona residents spent about $4.5 billion more on gasoline in 2006 than they did in 1998, a product of more miles being driven in less efficient vehicles, coupled with higher gasoline prices.

- Congestion on Arizona roads has continued to get worse. In 2005, Phoenix area residents spent about 82 million hours in traffic delays, while congestion cost the area's economy about $1.7 billion. In the Tucson metropolitan area, travelers spent about 17 million hours in congestion, and congestion cost about $338 million.

- Transportation is a leading source of global warming pollution in Arizona. Arizona's transportation system produced 65 percent more carbon dioxide in 2005 than it did in 1990.

There are dozens of worthy public transit improvements that would give Arizona residents alternatives to the rising cost of driving, reduce congestion by removing cars from the road, save oil and reduce pollution.

A comprehensive transit system for Arizona would include the following representative projects (not in order of priority):

A New Transportation Future for the Sun Corridor

- **Starting passenger rail service between Phoenix and Tucson**, making travel easier between the cities as they become more and more interdependent.

- **Extending the new Valley Metro light rail system to Glendale**, easing

commutes and providing access to Glendale's growing list of entertainment facilities and workplaces.

- **Extending Valley Metro along I-10 West** to Tolleson, expanding travel options between Phoenix and the burgeoning West Valley to relieve congestion on I-10.

- **Building a commuter rail line between Phoenix and Wickenburg**, increasing options for commuters in some of the most quickly growing cities in Arizona.

- **Extending the Orbit Shuttle Bus to South Tempe**, giving neighborhoods easy and free connections with downtown Tempe, Arizona State University, and the Valley Metro light rail line.

- **Building and expanding a modern streetcar system in Tucson**, helping people get around downtown and spurring investment in local business districts without creating new traffic and parking problems.

Adding Transportation Options Across the State

- **Launching bus service to connect Kingman, Bullhead City, and Lake Havasu**, to increase the convenience of transportation for these rural towns.

- **Launching the Mountain Links Bus Rapid Transit line in Flagstaff**, connecting North Arizona University and downtown Flagstaff with local shopping and residential areas.

- **Expanding public transportation in Yuma**, to provide more frequent and flexible service on current bus routes and build transit infrastructure with an eye towards future growth.

- **Improving paratransit service in Mesa and elsewhere**, providing vital transportation options for the elderly and disabled.

To build a 21st century transit system that will accommodate Arizona's current population and expected enormous growth, the state needs a visionary and comprehensive public transportation plan with a stable and long-term source of funding. Arizona should do the following to address current and future transportation needs:

- Develop a statewide transportation

development in and around transit stations.

- Urge the U.S. Congress to revamp federal transportation policy when the federal transportation funding law comes up for reauthorization in 2009. Revisions should include shifting resources from highway expansion to transit projects and focusing federal money on strategic goals such as transportation system efficiency and safety, energy conservation, environmental improvement, and the creation of compact, sustainable communities.

Introduction

Arizonans have always been frontier people. We value our freedom and independence, and don't like being told what to do. This individualism has defined us, and we're proud of it.

But over the last generation, areas that used to be wide open spaces have filled up with houses and businesses. Arizona towns that were just a dot on the map have turned into burgeoning cities and our cities have turned into metropolises. In the blink of an eye, Phoenix has become the nation's fifth-largest city – we were 10th largest just two decades ago.

Against all odds, we've built thriving, booming cities in the midst of the desert. But this success has brought us a new challenge – how to build a transportation system that gives us more options, relieves the crushing congestion on our roads, and enables us to accommodate future growth.

As we've built more public transportation over the past decade, many Arizonans have jumped at the opportunity to travel free from fluctuating gas prices, smog, and – with Phoenix's new light rail line – rush hour traffic. Other Western states are experiencing this as well, with popular new commuter rail and light rail lines in cities like Albuquerque and Salt Lake City.

To catch up with our recent growth and accommodate the future growth we're expecting, however, we need to go farther and build a strong and comprehensive public transit system. Just as Arizonans have surmounted countless obstacles in the past, now is the time build a transportation system for Arizona's future.

This report is the beginning of a roadmap for a modern public transit system that will keep Arizonans' transportation options open, and curb congestion and smog in our cities.

The Case for More and Better Public Transportation in Arizona

Over the past few decades, Arizona's population has skyrocketed, and Arizonans have driven more and more. We've become more dependent on oil and spent more time in traffic. Our dependence on automobiles is increasingly a drain on our economy and our pocketbooks, particularly given the recent volatility in gasoline prices.

In many cities, rail and other forms of modern public transportation play an important role in reducing congestion, curbing air pollution, and promoting the creation of lively, compact urban neighborhoods where driving is an option, not a requirement. Arizonans have shown that they want the benefits of a modern public transportation system. With fluctuating gas prices and growing awareness of the dangers of global warming, ridership on existing public transit has risen dramatically in the past few years, and people in Maricopa County have voted for two large public transit expansions since 2000.

Arizona is moving in the right direction with the new Valley Metro light rail in Phoenix and expanded bus service in a number of cities. Still, there's a lot more that Arizona can and should do to provide Arizona residents with the transit options they desire. Most Arizonans still don't have access to transit, and those who do often find service limited, slow, and unreliable. Expanding and improving public transportation must be a top priority for public officials in the years ahead.

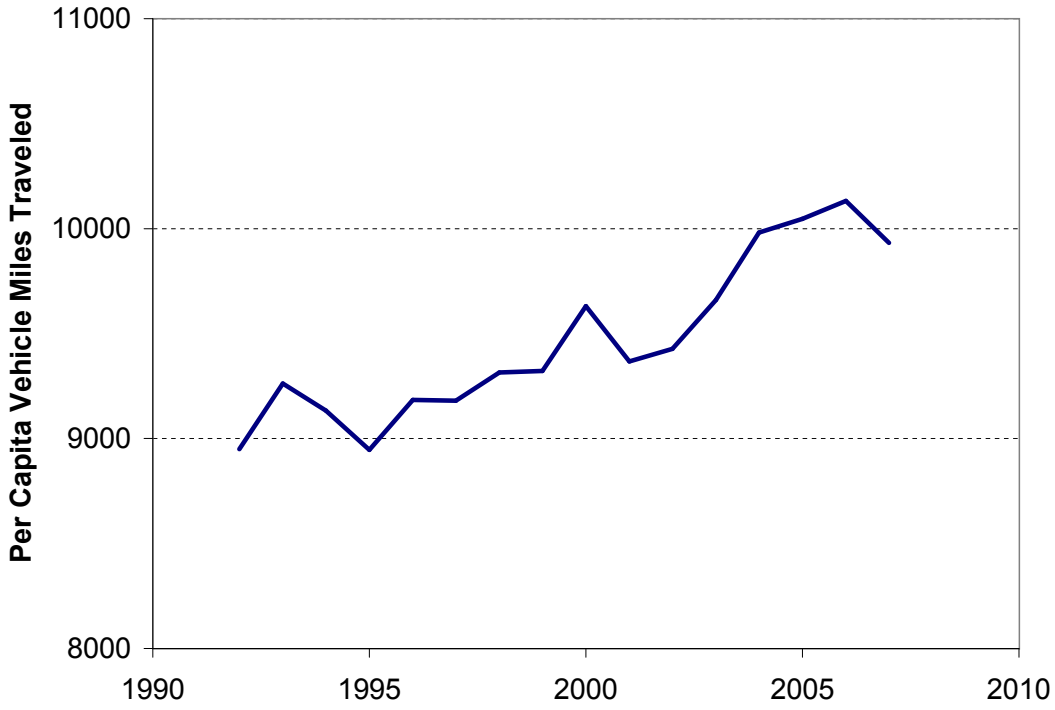
Travel Trends: More Driving, Rising Transit Ridership

Automobile Travel

Arizona residents drive far more than they did several decades ago – both in terms of total miles and miles per person – leading to more congestion, greater dependence on oil, and increased emissions of global warming pollution.

Almost 63 billion miles were traveled on Arizona roads in 2007 – up from just 35 billion miles in 1992. While most of the increase is due to population growth, the average Arizona resident is also driving about 11 percent more miles each year than 15 years ago. (See Figure 1).

Figure 1. Per Capita Vehicle Miles Traveled, Arizona[1]



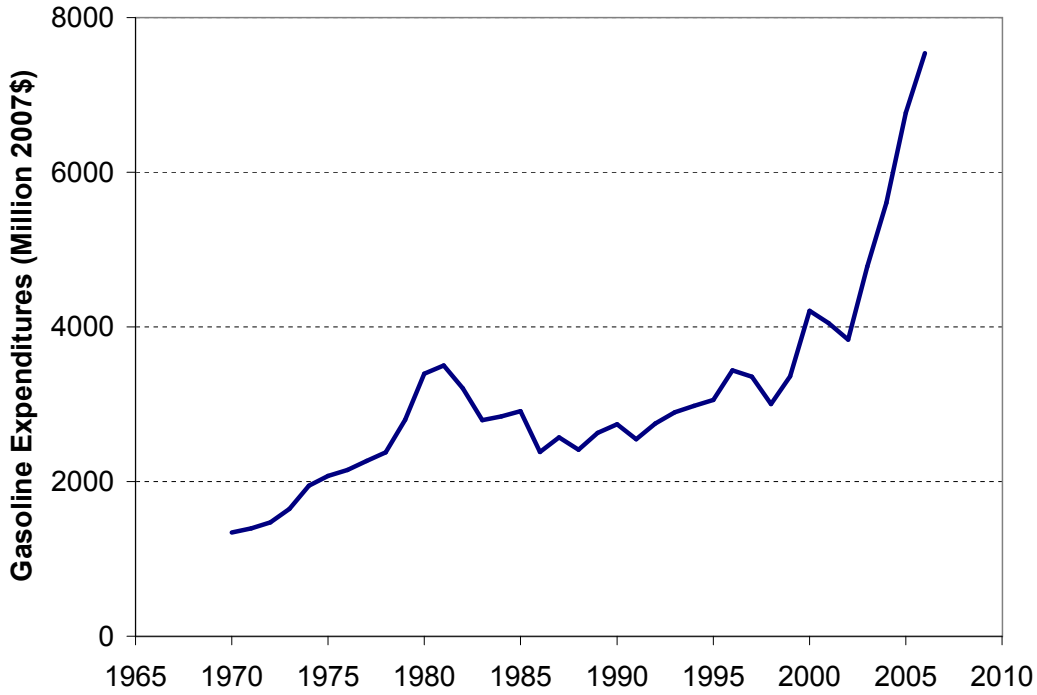
The increased travel on Arizona highways has led to worsening traffic congestion. Residents of the Phoenix metropolitan area spent approximately 82 million hours in traffic congestion in 2005 – a four-fold increase since 1982.[2] In the Tucson metropolitan area, travelers spent about 17 million hours in congestion in 2005, close to a four-fold increase from 1982.[3]

Congestion imposes real costs on Arizona's economy. Between the cost of wasted time and wasted fuel, congestion cost the Phoenix metropolitan area approximately $1.7 billion in 2005 and the Tucson area approximately $338 million.[4]

Increasing vehicle travel has also helped lead to a recent increase in the amount of money that Arizona residents must spend on fuel. After a spike in fuel expenditures in the 1970s during the fuel crisis, new fuel economy standards led to a rapid increase in vehicle fuel economy nationally.[5] The improved fleet combined with low gasoline prices actually led to a substantial drop in the amount of money that Arizona residents spent on gasoline between the early 1980s and the late 1990s. In 1997, Arizona residents were spending almost exactly the same amount each year on gasoline in inflation-adjusted terms that they had in 1980, despite a dramatic rise in vehicle travel over that time.[6] (See Figure 2).

The expectation that the era of cheap gasoline would continue, however, led Arizona residents (as well as public officials responsible for energy and development policy) to make choices that increased Arizona's dependence on oil, including the proliferation of SUVs on Arizona highways. In 1998, passenger cars (as opposed to SUVs and other trucks) made up

Figure 2. Inflation-Adjusted Spending on Gasoline, Arizona[7]



59 percent of all motor vehicles registered in Arizona. By 2006, the percentage of passenger cars had declined to 52 percent. By the end of that eight-year span, there were 27 percent more cars registered in Arizona, but 254 percent more SUVs.[8] Nationally, the sudden increase in SUVs actually led to a slight drop in average fuel economy by 2006.[9]

As a result, when gasoline prices started to spike in 2004, Arizona families were hit hard and many were left with few good alternatives. In 2006, Arizona residents spent more than twice as much on gasoline as they did a decade before, costing Arizona families an estimated $4.5 billion in additional annual costs in 2006 compared with 1998.[10]

The sudden spikes and drops over the past few decades have shown us that our reliance on cars for transportation makes Arizona families vulnerable to wild fluctuations in gas prices.

Rising vehicle travel – not just in personal vehicles but also in the form of increased freight traffic – has also increased Arizona's emissions of global warming pollution. In 2005, Arizona's transportation network emitted 65 percent more carbon dioxide than in 1990. Moreover, global warming emissions from the transportation sector increased more than emissions from any other sector during that period.[11]

Public Transportation

While Arizonans are driving more miles than in the past, they are also taking more trips on public transportation. Between 1991 and 2007, the number of passenger-miles traveled annually on public transportation in Arizona increased by 63 percent.[12] This increase has been due both to increased ridership on existing services, and ridership growing quickly on new services that were introduced during this time period.[13]

Transit ridership has been rising over the past 15 years with increases in service and increasing gas prices. Between 2002 and 2007, transit ridership in Arizona increased by 48 percent.[15] Over the first eight months of 2008, transit ridership in Arizona was up by 9 percent over the year before.[16] Over the same period, vehicle travel declined by 3 percent.[17] Most of the increase in transit ridership is in bus service in the Phoenix and Tucson metropolitan areas. At a time of rising gasoline prices, Arizona's transit systems provided an important alternative for thousands of travelers.

But while transit ridership is on the rise, too many Arizona residents still find themselves without good options other than driving. Among Arizona commuters, for example, 75 percent drive to work by themselves, compared to just 2.1 percent who take transit.[18] (See Figure 5).

The lack of options means that Phoenix and Tucson residents take far fewer transit trips each year than people in similar cities. People in Seattle take three times as many transit trips, and people in Las Vegas, Denver, and Salt Lake City take about twice as many public transit trips as residents of Phoenix and Tucson. (See Figure 6).

Providing more and better public transportation options would allow more Arizona residents to choose transit – reducing congestion, curbing pollution, and minimizing Arizona's dependence on oil.

Figure 3. Passenger-Miles Traveled via Transit, Arizona[14]

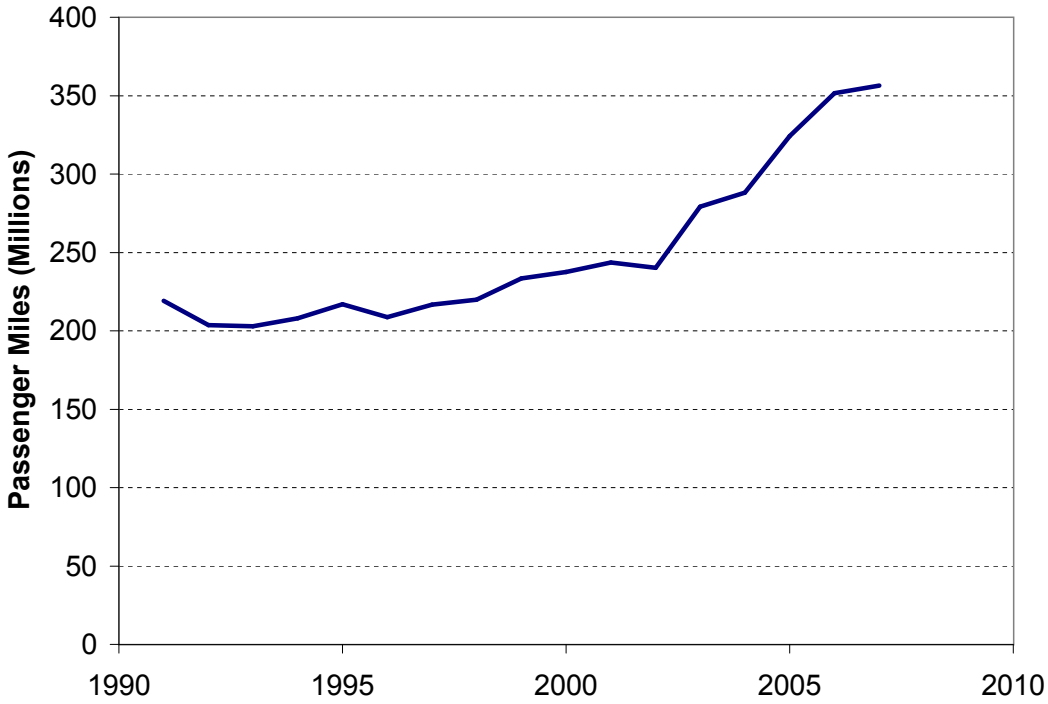


Figure 4. Year-Over-Year Change in Transit Ridership vs. Vehicle Miles Traveled, Change from January-August 2007 to January-August 2008

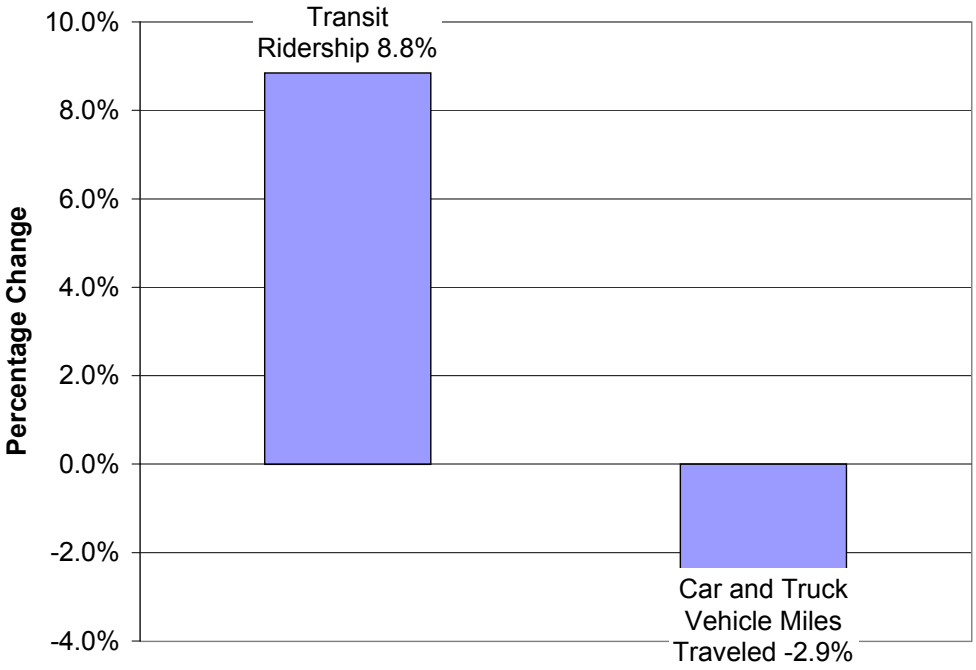


Figure 5. Means of Travel to Work in Arizona, 2007[19]

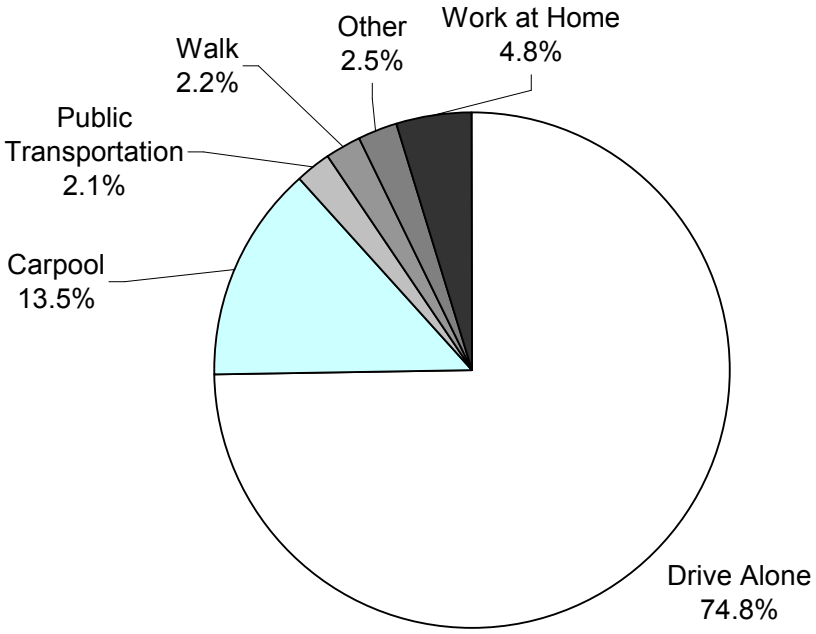
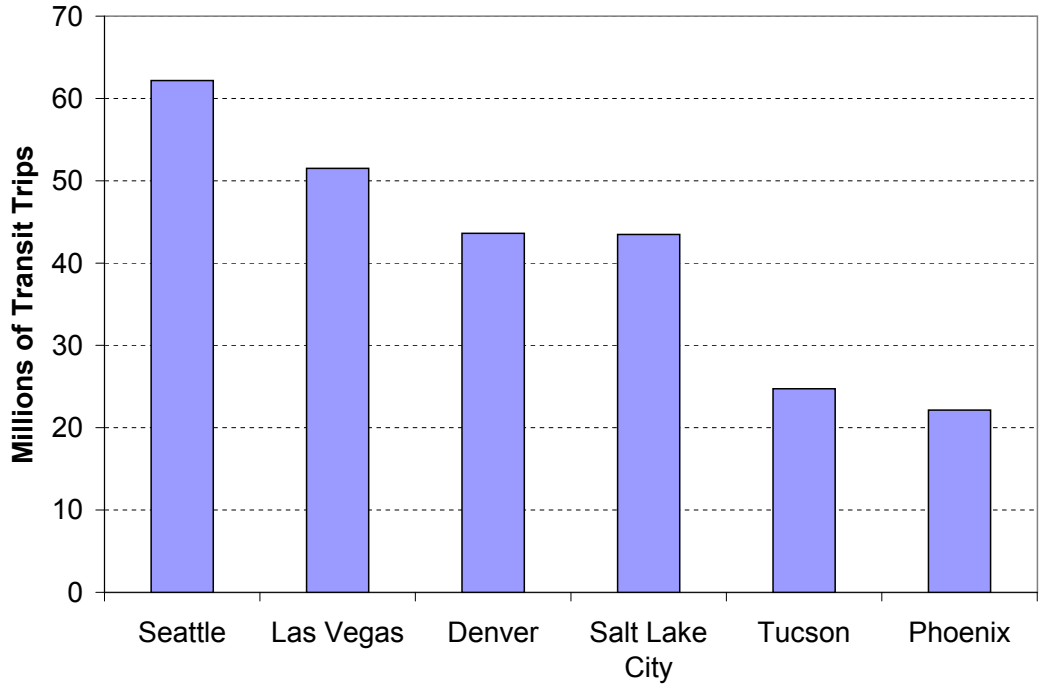


Figure 6. Total unlinked passenger trips on public transit in cities similar to Phoenix and Tucson in 2006[20]



The Benefits of Transit in Arizona

Public transportation provides a wide range of benefits to Arizona – saving oil, reducing congestion, and reducing emissions of global warming pollution, while serving as an important economic asset for the state.

In 2006, public transportation in Arizona saved approximately 5.8 million gallons of oil that would have otherwise been burned in vehicles, saving consumers more than $15 million at the pump, based on an average gasoline price in 2006 of $2.68 per gallon.[21]

Public transportation also plays an important role in reducing traffic congestion. A 2007 study by the Texas Transportation Institute estimated that public transportation prevented almost 3 million hours of traffic delay – equivalent to about 68,000 work weeks – in the Phoenix metropolitan area in 2005, saving the economy more than $55 million in wasted fuel, time and productivity. In the Tucson metropolitan area, public transportation prevented half a million hours of traffic delay, or 14,000 work weeks, saving over $11 million of wasted money and productivity.[22]

In addition, public transportation is helping to reduce global warming pollution in Arizona, averting almost 7,000 metric tons of carbon dioxide pollution in 2006.[23] This is the equivalent of taking over 1,100 cars off the road.[24]

Public transportation provides a host of other important, if difficult to quantify, benefits. Transit provides a source of mobility to the elderly, children, disabled and others who cannot afford a car or choose not to drive. Investments in transit have helped spark the economic revitalization of areas around transit stations, helping

to create vibrant communities that are less dependent on the automobile – a big advantage for economic development in an era of higher fuel prices. Transit can also increase property values in areas accessible to stations. Transit riders are free from the responsibilities of driving, meaning that they can use their time to read, chat, catch up on the day's news or, in an increasing number of transit vehicles, use wireless Internet to check e-mail or do important work.

Every day, residents across Arizona count on transit to get where they need to go. And even those of us who don't take transit every day can rely on it in a pinch – when gasoline prices are high or when we don't have the use of a car.

In short, public transportation is a vital resource for Arizona – one that will become even more important in a world of unstable oil prices and increased concern about congestion and global warming. Investing in transit can build on this important public asset and position Arizona for even greater benefits in the years to come.

A Vision for the Future of Public Transportation in Arizona

For decades in Arizona, whenever a transportation problem emerged, there was only one response: more roads.

Over the past decade, however, Arizonans have come to realize that the state needs a balanced transportation system – one in which residents have access to a range of transportation options. Since 2000, Arizona cities and counties – with support from voters – have added new public transportation services at a breakneck pace. And Arizonans are using those services, as demonstrated by the new records for transit ridership that are set on a yearly basis.

Yet, in comparison to other fast-growing states in the West, Arizona has a long way to go, and is at risk of being left behind. Other western cities such as Denver and Salt Lake City are moving aggressively toward expansions of their light rail transit systems and the addition of new commuter rail service. In 2006, the Tucson area ranked 34th and the Phoenix-Mesa area ranked 37th in the nation for transit trips per capita, behind other Western cities such as Las Vegas, Reno, Denver and Salt Lake City.

This report lists 10 projects that symbolize the types of investments Arizona must make in its public transportation system. It is not an exhaustive list of projects, nor are the projects listed here in order of priority. Rather, these projects were chosen to highlight the broad range of transit services that can help move Arizona in the future – from passenger rail to dial-a-ride services for the disabled – and the broad range of Arizona communities that can benefit from a focus on transit.

Goals of Transit Investments in Arizona

Any transit investment strategy for Arizona should have a blueprint to guide it—a set of goals that the state wishes to achieve. While some efforts toward such a vision have been made at the state and local levels, it is important that decision-makers articulate overall objectives for investments in transit.

The state should set a target of completing investments by 2030 at the latest that would achieve the following goals:

1) Complete a world-class transit system in the Phoenix and Tucson metropolitan areas, with commuter rail lines linking suburbs with employment centers, light rail transit lines serving every major corridor in the region, and efficient bus and local transit services.

2) Ensure that residents of all Arizona cities have access to transit as an option in addition to driving.

3) Integrate transit and land-use planning wherever transit projects exist. Use principles of transit-oriented development, including making sure that roads around transit stations are bikable and walkable, to combat sprawl and create a healthier future for Arizona's communities and economy.

4) Develop long-distance options besides automobile travel. Use passenger rail to connect cities within Arizona.

Achieving these goals will create an Arizona that is more economically vibrant, less dependent on oil, less impacted by traffic on the roadways, and capable of meeting the transportation challenges of the 21st century.

A New Transportation Future for the Sun Corridor

Phoenix and Tucson are the most populous cities in Arizona, representing the center of economic development in the state. The two cities account for 85 percent of all jobs in Arizona and 75 percent of the state's population.[25] All of Arizona has experienced enormous growth over the past few decades, but a large segment of the growth has been in the area around and connecting Phoenix and Tucson, also known as the Sun Corridor – out of the ten cities that grew the most between 2000 and 2008, all are in this corridor.[26]

Some of the towns in the Sun Corridor have seen explosions in population in the past decade, which are expected to continue. El Mirage's population is more than four times what it was in 2000, increasing from about 7,000 to over 30,000.[27] Surprise has grown from 30,000 people to over 100,000, and expects its population to increase to over 400,000 by 2030. [28]

In fact, the entire Sun Corridor is expected to continue growing quickly over the next few decades, increasing from 4.5 million residents in 2000 to 7.4 million in 2025.[29] While some population growth projections may be inflated due to the housing bubble, there is little doubt that Arizona's towns and cities will continue to grow over the next few decades.[30]

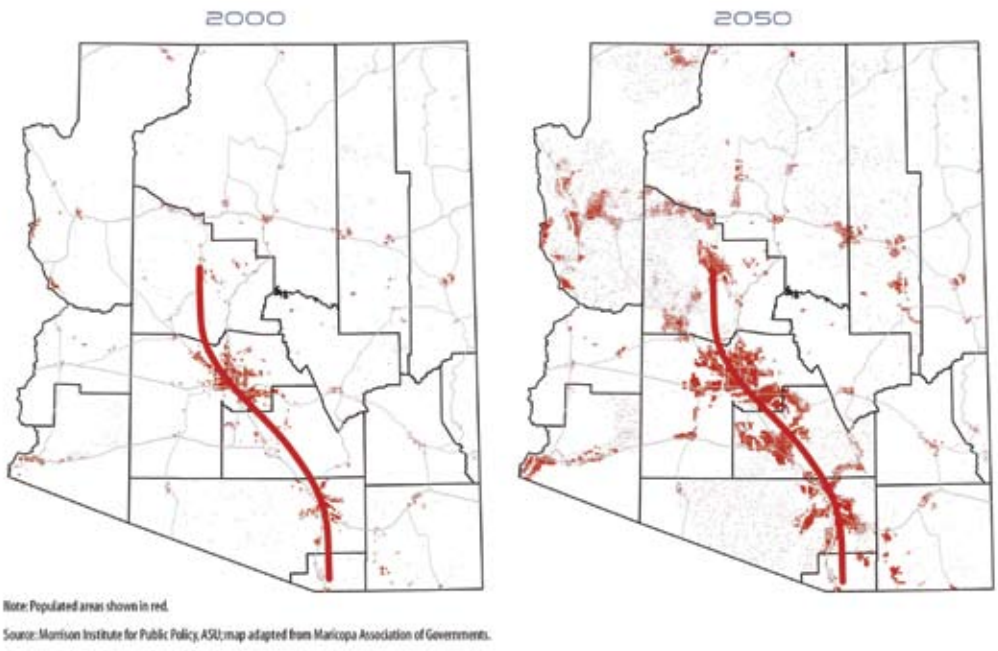
The public transit systems of Phoenix and Tucson are starting to catch up to their population growth, with bus service improvements over the last five years and the new Valley Metro light rail. However, this new service is only the tip of the iceberg compared to the transit projects needed to provide Sun Corridor residents with convenient transportation options that will minimize congestion and keep travel costs low as these towns grow.

The following public transportation projects are examples of the transit expansions that will be necessary to manage our current transportation needs, and allow the Sun Corridor to stay healthy and livable as the cities grow.

Rail Service Between Phoenix and Tucson

For years, Phoenix and Tucson have grown in virtual isolation of one another due to

Figure 7. Populated areas in Arizona in 2000 and projected for 2050[31]



Much of the growth in Arizona over the next 40 years will in the Sun Corridor (denoted by the curved line) – around Phoenix and Tucson and between the two cities.

their physical separation. Recent population growth and economic development, however, have forced the metro areas to become more interdependent, with connections developing between businesses, universities, and residents. Today, many consider the Phoenix-Tucson area to be a "megapolitan" area, or a region that combines two or more metropolitan areas into a single economic unit.

Recognizing the growth potential in the Phoenix and Tucson areas, a 1993 Joint Legislative Study Committee ranked a potential passenger line between the two cities as the highest of 39 rail options in the state.[32] Today, construction of this rail line has become critical to the future economic well-being of the state. As one Arizona Department of Transportation report notes, "Maintaining convenient and uncongested travel between the two major metropolitan areas of the state is essential for the economy, growth and development of the state."[33]

The construction of public transportation within the Sun Corridor, which encompasses Phoenix and Tucson, is necessary for both economic and growth considerations. Phoenix and Tucson account for 85 percent of all jobs in Arizona and 75 percent of the state's population.[34] Each day, an average of 11,400 vehicles make the trip between Phoenix and Tucson; by 2050, that number is projected to grow to 37,000.[35] The large projected population growth for the Sun Corridor will further magnify the economic strength of the area and its demands on current transportation infrastructure.

Despite the escalating importance of travel between these two areas, however, travelers have few options for getting from

one city to the other. The only forms of transport connecting the two metro areas are a freight line, Interstate 10, Greyhound and airport buses, and air travel.

After examining numerous options, Arizona officials have determined that a passenger rail line would best satisfy these economic and growth considerations. In its 1998 feasibility study, the Arizona Department of Transportation considered various transportation options for the Sun Corridor, ranging from the widening of I-10 to the construction of a high-speed train. The study determined that the best option for the state would be to construct a high-speed passenger rail in an incremental fashion. Under this option, the government would initially make upgrades to the existing rail lines to allow for passenger trains. Over time, as ridership develops and funding becomes available, the lines would be upgraded for high-speed travel. This construction schedule would allow the region to quickly take advantage of the benefits of passenger rail, while laying the foundation for more advanced rail in the future.[36]

The construction of this modern rail system is expected to cost $600 million.[37] This rail system is projected to transport 1.2 million passengers each year, significantly reducing the strain on I-10.[38] The passenger rail line would also improve economic productivity by reducing the travel time between the two urban areas. Even simple improvements to the current rail line, such as straightening the tracks, would allow the trains to operate at 100 mph speeds, greatly decreasing the amount of time lost during transit. Additionally, a passenger rail system would allow people without other transportation options to easily travel between the two cities.[39]

Due to the projected benefits of a commuter rail, Arizona has begun an in-depth study of the project's feasibility. The Federal Railroad Administration has awarded the state a million dollar grant that will be matched by state and local funds. The money will allow Arizona Department of Transportation to conduct an Environmental Impact Statement (EIS) that will examine improvements at many of the 150 grade crossings. The EIS is the first step in the construction process for a rail project. Upon completion of the EIS, the rail service will ready for implementation.[40]

Ultimately, it is time for Arizona's transportation infrastructure to meet the needs of the 21st Century. In order for the state to progress economically, it is essential for its two largest cities to be connected by more than a four-lane highway. The construction of a passenger rail between the two locales is the most efficient way to transport people in the corridor.

Phoenix Light Rail System Extension to Glendale

In December 2008, Valley Metro opened the first light rail line in Arizona, with a 20-mile starter line traveling through Phoenix, Tempe and Mesa. The line gives Phoenix-area residents more transportation options, allowing students to quickly reach Arizona State University's (ASU) downtown campus and providing tourists easy access to and from the Sky Harbor International Airport. Metro predicted an average ridership of 26,000 people per day for the first year of operation. However, in its first months, the line has far surpassed these expectations, averaging 30,617 riders per day.[41] As the system becomes more established, an even larger number of people are expected to take to the rails. Additionally, the line has begun to revitalize certain communities as businesses seek to move closer to the system. Metro estimates that since 2004, $7.4 billion has been dedicated to construction and businesses along the rail line.[42]

Building upon the success of the starter line, transportation officials are now planning an extension of the rail line to Glendale. Glendale is home to many popular

attractions, such as the Westgate City Center, one of the largest commercial real estate developments in North America, the state-of-the-art University of Phoenix Stadium, home of the Cardinals, and the Jobing.com Arena, one of the best concert venues and sports arenas in the United States.[43] These attractions are integral to the development of Glendale as they generate tax revenue and create thousands of jobs.

Glendale is also the fourth largest incorporated city in Arizona, with almost 250,000 residents, and with the exploding population in areas surrounding the city, the city has experienced growing pains. Average travel times between Glendale and other cities in the Phoenix suburbs have increased over the past two decades. Driving to Phoenix in 2007 took about 25 percent longer than it did in 1986.[44] A 2001 study of traffic conditions in the northwest Phoenix area found that during rush hour, most of the main roads in Glendale that lead to downtown Phoenix were congested enough to slow traffic, often to a halt.[45]

The extension of Valley Metro light rail will be a significant step forward in combating these growing pains, helping outside residents reach Glendale's attractions more easily and making commutes between Glendale and Phoenix easier. The extension will travel from Phoenix westbound to Glendale, and it is scheduled for completion in 2017.[46] The line will be 10 miles long with stations placed less than a mile apart. The entire project is expected to cost $430 million, with approximately $9 million in yearly operating costs.[47] The project will be funded through transportation tax measures that have been approved by residents of Glendale and Phoenix. The Maricopa Association of Governments predicts that the transit line will attract 7,226 passengers each day, for a yearly total of 2,637,490.[48] Such high ridership will significantly reduce the number of vehicles on the road and relieve growing congestion.

The new Valley Metro light rail, linking Phoenix, Tempe and Mesa, has been very popular and is making traveling more convenient to downtown areas, Arizona State University, and the Sky Harbor International Airport. The planned extensions of the starter line will be critical in reducing traffic and smog in communities surrounding Phoenix. Photo credit: Matthew DoCampo.

Glendale officials are also hoping to capture some of the economic growth that Phoenix has experienced due to the light rail. The $7.4 billion in construction activity around the Phoenix rail has more than surpassed the initial $1.4 billion capital investment.[49] By extending the line to Glendale, there will be more opportunities for investments in businesses and residences that will benefit from easy rail access.

The Glendale extension is clearly a smart investment for Arizona. Its construction will ensure that Glendale is developing in a smart and efficient way, while also providing an economic benefit to the local economies. Officials should even attempt to hasten the construction of the line.

I-10 West Light Rail Extension

The West Valley area has been the center of much of the population growth in Arizona over the past decade. For proof, you only need to take a drive along I-10. Commuters traveling from the new communities

in quickly growing cities like Avondale, Goodyear, and Buckeye sit in backed up traffic as they approach Phoenix every morning and when they leave the city in the evening.

I-10 West is the main route into the city for much of the West Valley. Each day, 250,000 to 550,000 people travel along I-10, and travel time has increased 35 percent due to this high demand. Frequent accidents along the highway exacerbate these delays.[50] The Maricopa Association of Governments (MAG) has identified numerous bottlenecks along I-10, and the Arizona Department of Transportation has promised to widen the highway by 2012. MAG notes, however, that widening the highway will be insufficient because of the pace of population growth and the limitations on expansion in certain areas.[51] A new express bus route on I-10 has been very successful, with more than 900 riders a day. But with the heavy travel on this road the bus cannot meet the demand for better public transit.[52]

The planned extension of the Valley Metro light rail line along the I-10 West corridor will help prevent this traffic congestion from increasing as these areas continue to grow, and will give commuters an easier and cheaper option for getting into the city every day. It will also help people in the West Valley access Sky Harbor Airport and government facilities downtown. Voters approved this extension in November 2004, and the project is expected to be operational by 2019. With the pressures of growth already felt and much more expected over the next ten years, the West Valley would benefit from faster completion of this important project.

The I-10 West extension will begin with a connection to the Valley Metro starter line in downtown Phoenix and continue westward down the median of I-10 until it reaches the 79th Avenue park-and-ride area.[53] Stations will be located less than one mile apart, and during peak periods trains will stop at the stations every 5 to 10 minutes, which will ensure that passengers do not have to wait long periods.[54] Each car will have the ability to carry between 175 to 200 passengers, or 526 to 600 per train.[55] The entire project is expected to cost $400 million to build, with $10 million in yearly operating costs.[56]

The I-10 West extension will address many concerns in the region by providing quick and efficient transportation between Phoenix, the West Valley, and surrounding communities. Project planners predict a daily ridership of approximately 13,800.[57] This high ridership will reduce the number of vehicles on I-10. Traffic engineers have noted that even a small reduction in cars on a freeway can have a large impact on congestion.[58]

Bringing the Valley Metro light rail to the West Valley will make life easier for commuters and other I-10 travelers, in addition to reducing smog in the communities I-10 passes through, especially as this area continues to grow. The need for this transit line is already keenly felt, and Maricopa County and the state should work to build the extension as soon as possible.

Grand Avenue Commuter Rail Line Between Phoenix and Wickenburg

Phoenix is one of only four of the 15 largest metropolitan areas in the country without a commuter rail service.[60] Many smaller cities also have commuter rail lines – the New Mexico Rail Runner Express opened in Albuquerque in 2006, and Salt Lake City just opened its first FrontRunner line last year.

In these cities, people living in towns far from the downtown areas where they work can take the train from a station near their home instead of driving in every day, relieving traffic on crowded highways and saving commuters money. One Rail Runner commuter in Albuquerque said that his

family of six was able to pare down to one car when the commuter line opened, and saved enough money in 2008 to pay for a family vacation.[61]

Phoenix commuters could soon see the same benefits with the commuter rail system MAG has been developing. One line would follow Grand Avenue from downtown Phoenix with stops in Glendale, Peoria, El Mirage, and Surprise before ending in Wickenburg.

Combined with the expanding Valley Metro light rail system, the commuter rail would give people who live in the outlying communities convenient access to a variety of centers of employment, shopping and culture in Tempe, Mesa and downtown Phoenix. Such access is important given future demographic trends. Officials expect population growth to occur most rapidly in the outer areas of the state where affordable housing is being built, such as in Peoria and Surprise. However, the majority of employment growth will occur in the central areas, such as Phoenix. The construction of a commuter rail line would allow residents

Transit-Oriented Development

For decades, transit-oriented development (TOD) has been used to create thriving urban and suburban corridors in cities. Its basic idea is both simple and sensible: mixed-use zoning around a major transit station encourages compact, walkable development that is good for people, businesses and the environment alike.

Arizona State University's Urban Planning Studio worked with the City of Phoenix, the Valley Metro light rail, and local business owners and citizens to look at opportunities to encourage TOD along Phoenix's Camelback Corridor, especially within a half mile radius around three new Valley Metro light rail stations. This area includes three historic neighborhoods, a number of schools, Uptown Plaza, and Camelback Village Square. Students found that Phoenix could encourage TOD in the Camelback Corridor by changing zoning to make it easy for businesses to locate near residential areas so that there are more stores and restaurants that people can walk to; making walking more attractive by creating more public spaces, planting trees for shade, landscaping along sidewalks, installing benches, and slowing car traffic; encouraging denser development nearer to the transit stations grading down to lower density to buffer neighborhoods; and connecting expanded bike paths so that it's possible to bike continuously on safe routes to important destinations.[59]

One key thing Arizona cities can do to encourage transit-oriented development is to make sure that city streets are friendly to bikers and walkers, especially around transit stations. Thousands of commuters bring their bicycles on Phoenix area buses every year, and this is expected to carry over to the light rail, especially since Valley Metro has done a good job of making it easy to bring bicycles on the new trains. To complement this feature on both trains and buses, roads should have bike lanes that are safe and well-marked, biker safety should be considered when building and marking light rail tracks, and all stations should be equipped with ample bike racks. This will make it possible for more commuters to use the light rail lines, by making it easy to bike to work from the closest station when it's too far to walk.

of the outlying communities to reach the central employment areas more easily. This is particularly important since Arizona has seen vast amounts of residential development in distant, car-dependent areas – areas whose residents have suffered from higher gasoline prices. The long-term stability and health of some of these communities may well depend on providing efficient new transportation options.

Commuter rail has other advantages as well. It would promise a better commute than personal vehicles by offering high-speed travel, operating on a schedule, and not having to compete with automobile traffic.[62] In addition to serving commuters to downtown Phoenix, the line would also help bring people from Phoenix and the East Valley to the entertainment centers in Glendale and Peoria, helping to spur economic development in these areas.

MAG predicts that the rail will attract 4,900 riders each day in its initial phases, before eventually reaching a daily average of 16,100.[63] This number of passengers would ease congestion along Grand Avenue, a key transportation link between Phoenix and the Northwest Valley, as well as on other local roads and highways. Transportation officials note that if the rail could attract 2,000 riders during a peak hour, it would reduce auto congestion by an amount equivalent to one highway lane.[64]

The Burlington Northern Santa Fe (BNSF) railroad currently runs freight trains along Grand Avenue. With upgrades, the tracks could be used to provide commuter rail service as well. The project was first considered by MAG in its 2003 transit study, but MAG has only recently commissioned a more in-depth study of the project's feasibility. Currently, MAG intends to build a second main track along the BNSF corridor while also constructing stations, signals and sidings to allow trains to pass one another. The rail would probably be built in an incremental fashion by offering only limited services in the beginning until ridership develops. In 2003, MAG calculated that an entire commuter rail would cost $736 million, but the first phase would likely only cost $290 million.[65]

Maricopa County, the state, and local governments should move forward quickly to build a modern commuter rail system for Phoenix, to provide the transportation options that can benefit a city of Phoenix's size. This will save time and money for the residents and workers in the burgeoning towns of the Northwest Valley, as well as relieving traffic pressure and putting the Northwest Valley on the right track to manage the further growth expected over the next few decades.

Extending the Orbit Shuttle Bus to South Tempe

In December 2008, after more than a decade of anticipation and amid great fanfare, light rail transit finally arrived in Tempe. In its first months in operation, the Valley Metro light rail line has proven to be wildly popular, providing quick, clean and efficient transportation between locations in Tempe, Phoenix and Mesa.

But a less-heralded transit innovation has also made a big splash in Tempe: the "Orbit" neighborhood circulator shuttle buses that began serving the community in 2007. The five Orbit routes – named Mercury, Venus, Earth, Mars and Jupiter – provide free, frequent service that links residents of several Tempe neighborhoods with key destinations such as downtown Tempe, Arizona State University, Tempe Marketplace, and now the Valley Metro light rail.

The Orbit looks and feels different from traditional transit buses. Orbit mini-buses resemble airport shuttle vans, come every 15 minutes, and are free. Free service reduces the time and hassle involved in collecting fares, ensuring that service is quick and convenient. In some residential

neighborhoods, Orbit buses make only "flag stops" – stopping only at places where riders wish to disembark or new riders wave at the approaching bus.

Neighborhood circulator buses such as the Orbit are becoming an important transit option in a small but growing number of cities, including Phoenix and Scottsdale. Transit system planners have long struggled with how to solve what is called the "last mile" problem. Many would-be transit riders have a transit line that runs most of the way between their home and destination, but no good way to get to or from the transit stop itself. The transit stop may be just outside of walking distance. In the case of some suburban office parks and subdivisions without sidewalks, walking to a nearby bus stop may be dangerous or otherwise difficult. Or, in Arizona's climate, walking long distances in the searing summer sun to catch a bus may simply be too much for a person to bear.

Neighborhood circulators address the last mile problem by using relatively small transit vehicles to bring residents to transit stations or other nearby attractions. A resident of one of Tempe's residential neighborhoods can feel confident leaving his car at home, knowing that an Orbit bus will come along every 15 minutes to carry him to the light rail station or a destination within Tempe.

The Orbit system has its roots in the Neighborhood Flash service, which began serving Tempe in 2001. The Neighborhood Flash linked downtown and the Arizona State campus with the Escalante and Fifth Street neighborhoods. By 2006, the service was drawing more than 775,000 riders per year.[66]

In 2007, the city of Tempe rebranded the neighborhood circulator system and created four routes – two of them covering territory once covered by the Neighborhood Flash and two additional routes. (A fifth route was added in 2008.) Four of the five routes connect with downtown and the Arizona State campus, and all five now include connections to the Valley Metro light rail.

The free Orbit buses in Tempe link neighborhoods with downtown Tempe, Arizona State University, the Tempe Marketplace, and the Valley Metro light rail. Photo credit: Matthew DoCampo.

The Orbit system has quickly amassed impressive ridership. Prior to the launch of light rail, the Orbit accounted for 19 percent of Tempe's total transit ridership, with more than 190,000 riders using the service in April 2008 alone.[67] According to an analysis by the city of Tempe, the Orbit service eliminated an estimated 1.3 million automobile miles traveled from Tempe's streets between July 2007 and April 2008 – easing traffic congestion and curbing pollution.[68] The Orbit is likely to make an even more important contribution now that the light rail system is up and running.

The Orbit has also proven to be extremely popular. Surveys of residents along the recently added Jupiter route, for example, found that 86 to 98 percent of area residents support the service.[69]

The success of the Orbit system has led Tempe officials to consider several options to expand and enhance service. One option is to extend Orbit service to 1 a.m. each night from the current closing time of 10 p.m. Tempe is also considering various options for realigning Orbit routes in order to maximize ridership, as well as extending

one or more routes to carry residents to the Tempe Center for the Arts.[70]

One of the most important potential improvements, however, would be to extend Orbit service to South Tempe. Currently, all five Orbit lines operate north of U.S. Highway 60. Extending Orbit service to South Tempe would improve area residents' ability to access the Valley Metro light rail system and destinations in downtown Tempe.

Valley Metro is in the midst of a long-term study of the potential to extend high-capacity transit service to South Tempe and Chandler, with a target of having the new service available around 2015.[71] Clearly, South Tempe would benefit from a light rail extension or other high-capacity transit service. Until this extension is built, South Tempe could also benefit from the kinds of frequent, convenient and free connections that the Orbit system has been delivering to northern Tempe for nearly two years. Once there is more high-capacity transit in the area, the Orbit will continue to be useful as a complement to the new transit line. The free circulator bus service that Orbit offers should also be expanded in other parts of the Phoenix and Tucson metropolitan areas and the rest of the state.

Modern Streetcars for Tucson

In Tucson, as in most American cities, streetcars were once a key form of transportation, carrying people between work, home, shopping, school and other destinations. The electric streetcar era in Tucson began around the turn of the 20th century and ended in 1930, when the city opted to replace the streetcars with buses.[72] Most American cities soon followed suit in abandoning streetcars.

Tucson residents can still get a taste of the old-time streetcar era by riding the Old Pueblo Trolley, a volunteer-run rolling transportation museum which operates historic trolley cars through the 4th Avenue business district and along University Boulevard on Friday nights and weekends. Launched in 1993, the Old Pueblo Trolley provides an attractive amenity for visitors and residents alike, and also gives Tucson residents a taste of the benefits of rail transit.

Now, Tucson is preparing to embark on a new streetcar era, with the construction of a modern streetcar line that will link downtown, the convention center, government offices and the University of Arizona with the wealth of cultural and recreational opportunities Tucson has to

The planned modern streetcar line in Tucson will make it easy for residents, students and visitors to get around downtown Tucson. Image credit: Tucson Department of Transportation.

offer. The four-mile-long route will begin at the proposed new University of Arizona Science Center at Rio Nuevo west of I-10 and end up near the Arizona Health Sciences Center, passing through downtown and the 4th Avenue business district and alongside the campus of the university.

Streetcars play a different role in the transportation system than commuter rail, light rail or buses. Instead of carrying large numbers of people *to* a particular destination, streetcars help people *get around* in densely developed urban areas. A city worker downtown, for example, might take the streetcar to dinner along 4th Avenue, a convention visitor might use it to get to and from his hotel, and a University of Arizona student might decide that she can leave her car at home because the streetcar will take her most places she might need to go.

The streetcar acts as a draw to the businesses along its route, helping to encourage investment along the corridor without creating more automobile traffic. Modern streetcars in other American cities have a proven track record of spurring investment in urban business districts and helping to alleviate the parking and congestion problems that come with more intensive development. Portland, Oregon, for example, launched its modern streetcar in 2001, in part as a means to spur redevelopment in one city neighborhood. Not only has ridership on the streetcar line been triple the original projection, but the streetcar has also helped fuel a renaissance in downtown Portland. Approximately $3.5 billion has been invested in real estate development within two blocks of the streetcar line – including the construction of 10,000 new housing units.[73]

For Tucson, one of the major motivations for building the streetcar is to facilitate the growth of institutions such as the University of Arizona and promote downtown redevelopment without creating the need for tens of thousands of new parking spaces or sparking increased congestion on local roads. There is already a shortfall of approximately 3,000 parking spaces in downtown Tucson and with continued growth in the number of students at the University of Arizona and workers at the Arizona Health Sciences Center, parking and local street capacity will continue to be a challenge.[74] The streetcar can reduce students' need to bring cars to campus and can provide a transportation alternative for workers and visitors seeking to move around downtown Tucson without a car.

Pima County citizens voted to provide the local share of funding for the $162 million project in the Regional Transportation Authority vote in May 2006. However, the federal government, in late 2008, opted to provide only $25 million of the anticipated $75 million in federal funds for the project.[75] Transit advocates have long criticized the Federal Transit Administration's funding evaluations for undervaluing the benefits of rail transit.[76] Tucson officials are working to find other federal sources of funding for the project.[77]

The Tucson streetcar project has the potential to pump new life into downtown Tucson, promote sustainable development by reducing vehicle trips, and address existing parking and congestion challenges. The city, along with state and federal officials, should work to ensure that the project receives the funding needed to begin service, on schedule, by the end of 2011.

Adding Transportation Options Across the State

Although most population and employment in Arizona is centered around Phoenix and Tucson, Arizonans in smaller cities and rural areas also have a need for better public transit options. Bus and shuttle systems help people rely less on their cars, relieving congestion and pollution as well as saving Arizonans money. There are

also many people, such as many elderly or handicapped individuals, who rely on public transit because they have no other option. Providing ways for these populations to get around is essential, whether in the city or in more rural areas.

In addition, many of these areas are growing rapidly, and population is expected to increase over the next few decades, possibly even faster than in the Sun Corridor as space becomes limited in the major cities. It will serve these towns well to look ahead and plan the infrastructure they'll need to prepare for future growth. Establishing public transit systems that can accommodate new residents and provide more options will be vital in planning healthy, livable cities as population grows. Strong public transit systems can also be used to encourage more compact growth.

Many cities outside the Sun Corridor are doing exactly this, and have been laying the groundwork for public transit systems that can provide residents with the options they need now, as well as providing a good starting place for larger systems as communities grow. At this point, however, many of these fledgling transit systems are still limited, have large gaps in service, and do not yet meet current demand.

Local bus systems such as the Bullhead Area Transit System (BATS) help rural Arizonans travel from their homes to work, downtown areas, schools, doctors' offices and shopping centers without having to rely on cars, which is especially important when gas prices rise. Photo credit: BATS.

Arizona should work with local governments to ensure that all Arizonans have the public transit options they need. The following projects would be a good place to start, and represent the sorts of service improvement that would help build well-planned cities with strong public transit systems across the state.

Kingman-Bullhead City-Lake Havasu City Bus Connection

Public transportation is often associated with big cities. But in many rural Arizona communities, transit plays a vital role in linking people with employment, education, medical care and critical public services. Transit is particularly important for those who cannot always drive – the young, the elderly, the disabled and those who cannot afford the expense of owning a car.

Rural transit providers across Arizona offer valuable services, but there is large unmet need. According to a 2008 study, current rural transit services in Arizona meet only 18 percent of existing demand and that figure could dip to 13 percent in 2013 as population grows if no new services are initiated.[78]

The communities of Kingman, Bullhead City and Lake Havasu City in Mohave County exemplify both the importance of rural transit and some of the ways in which existing rural transit service often falls short.

Each of the three communities has limited fixed- or flexible-route transit service, along with dial-a-ride service for the elderly and infirm. Between July 2005 and June 2006, more than 317,000 passenger trips were taken on transit services in the three communities.[79]

High-quality transit service has come to the area only recently. Bullhead Area Transit System (BATS) launched its service

in 2000, while Havasu Area Transit (HAT) moved in 2006 from a purely dial-a-ride system to one that incorporates regularly scheduled buses along fixed routes.[80] Kingman Area Regional Transit (KART) began service in 2003, and tripled the number of bus stops it served between 2005 and 2007.[81]

Transit service was particularly important during the rapid spike in gasoline prices that ended with the economic crisis in late 2008. Ridership on Kingman's KART service, for example, increased 12 percent between fiscal year 07-08 and fiscal year 08-09.[82] Bullhead City's BATS system saw an 18 percent ridership increase in the third quarter of 2008 alone.[83]

But while existing transit agencies provide important services within each of the three communities, there are currently no transit lines that run between the cities. For example, a resident of Bullhead City looking to go to Kingman for a medical appointment or to Lake Havasu City for work currently does not have the option of using regularly scheduled transit service.

Transit service among the three cities is also important because of Mohave County's rapid population growth. The county's population has more than doubled since 1990 and increased by 26 percent between 2000 and 2007.[84] As of early 2008, more than 100,000 units of housing were planned in master-planned communities in the county.[85] The state of Arizona, meanwhile, projects that the county's population will increase by more than 120,000 more residents by 2030.[86]

A recent study projected that more than 80,000 riders each year would use bus services that connected Kingman, Bullhead City and Lake Havasu City. The study projected 50,000 one-way trips per year between Kingman and Bullhead City, 22,000 trips between Lake Havasu City and Kingman, and 8,600 trips between Lake Havasu City and Bullhead City.[87] Projected increases in population would likely lead to further increases in ridership in the years to come.

The Mountain Line in Flagstaff makes it possible to travel around Flagstaff without a car, from neighborhoods and Northern Arizona University to downtown Flagstaff, Flagstaff Mall, parks and trails, and other important destinations. Photo credit: Northern Arizona Intergovernmental Public Transportation Authority (NAIPTA)

Given the success of local transit service in western Arizona, it is a good time to expand those services to include intercity connections between Kingman, Bullhead City and Lake Havasu City.

Arizona should work to expand access to rural transit services generally – and establish a bus connection between Kingman, Lake Havasu City and Bullhead City specifically – in order to make the benefits of transit service available to more rural residents.

Mountain Links Line in Flagstaff

Flagstaff is a vibrant town that is populated year-round by permanent residents, students, and tourists. For years, Flagstaff has attempted to balance the pressures of development against protection of its unique culture and natural landscapes. Central to this policy is the use of public transit, which reduces vehicular use and pollution.

Public transit in the city of Flagstaff is provided by the Mountain Line system, featuring a fixed-route bus network that serves downtown Flagstaff. It was founded three years after the creation of the Flagstaff Metropolitan Planning Organization in 1996. Before that time, Pine County Transit was the only public transportation option. This system primarily catered to social service needs, such as medical transportation, and offered only three fixed bus routes. After Flagstaff was recognized as an urban area, however, the city began to receive federal and state funds for transit planning. This led to the transformation of Pine County Transit into the Mountain Line system.[88]

Though the Mountain Line system has provided efficient transportation to residents for years, the service remains less than ideal. The main impediment has been a lack of coordination between the city and Northern Arizona University (NAU), which provides its own on-campus busing. Despite the number of people who travel between the city and campus daily, the two busing systems have not been integrated. Additionally, many of the buses in commission operate too infrequently to be a viable option for some travelers. Experts maintain that riders are wiling to wait no more than 15 minutes. However Mountain Line buses run only every half hour.[89]

Due to these concerns, many people continue to rely on their personal vehicles for transportation, which is exacerbating Northern Arizona University's parking shortage. Parking on the campus has already become extremely competitive, and often the only spots available are in the distant commuter lots. The university predicts that in a few years, even these lots will not be available.[90]

The Mountain Links Bus Rapid Transit (BRT) program, recently approved by voters, would significantly improve transit services by addressing many of these current problems.

Mountain Links is a joint project of the Northern Arizona Intergovernmental Public Transportation Authority (NAIPTA), NAU, and the City of Flagstaff. It would connect the NAU campus to downtown Flagstaff with bus services and provide a seamless connection to the Mountain Line system.[91] The line would begin at a local shopping and residential center to the southwest of campus, continue onto campus, and then go north into downtown Flagstaff. The line would run for 5.8 miles, with 1.3 miles of dedicated lanes, and it would enjoy preferential treatment at traffic signals and 24 new bus stations.[92] The program will also feature the purchase of eight hybrid-electric buses that offer 40 percent better fuel efficiency than conventional buses, and are 50 percent quieter.[93] These buses will run every 10 to 15 minutes.[94]

The entire project will cost $10.4 million. The program has already received $6.2 million from the Federal Transit Administration through the "Small Starts" grant program. NAU and the City of Flagstaff intend to share the remaining 20 percent of project costs. Flagstaff voters have already approved a ballot measure to pay for the off-campus costs of operating the route, while NAU intends to cover the on-campus service. Currently, NAIPTA, the City of Flagstaff, and NAU are pursuing funds for the capital construction of the on-campus transitway through economic recovery legislation.

Mountain Links would provide a viable transportation option to many residents of Flagstaff. The high frequency service coupled with reduced travel times would entice many travelers to choose the bus service. Additionally, improved connections between the city and campus would allow many students to take the bus to class, which would alleviate some of the parking pressure at NAU. Due to these advantages, the program is expected to average 4,150 weekday riders.[95] University officials hope

that ridership on the Mountain Line and Mountain Links services will increase to one million within five years.[96]

Expanded Public Transportation in Yuma

Yuma, like many Arizona cities, is experiencing growing pains.

The population of Yuma County nearly doubled between 1990 and 2007, with 94,000 new residents settling in the county.[97] While the city of Yuma itself has accounted for a large share of that growth, adding 40,000 new residents since 1990, population growth in some outlying areas of Yuma County has been even more rapid.[98] San Luis, located on the Mexican border, has seen its population grow sixfold since 1990.[99] And in the Fortuna Foothills, located east of Yuma along Interstate 8, more than 7,000 new residential units have been added since 2000 alone.[100]

Analysts expect that rapid growth to continue in the years to come, with the population of Yuma County increasing by another 130,000 residents by 2030.[101]

Among the results has been an increase in traffic congestion in rapidly growing areas of the county, as well as new demand for transportation alternatives within Yuma and between Yuma and outlying areas. The rising number of elderly residents, in particular, could create new demands for alternatives to driving in the years to come. In the fast-growing Foothills region, for example, 65 percent of all residents draw income from Social Security. In Yuma County as a whole, more than one out of three residents receive Social Security.[102]

The arrival of public transportation in Yuma in 1999 came just in time to begin addressing the area's growing transportation challenges. Yuma County Area Transit (YCAT) launched fixed-route bus service in 2000 and now provides service on seven routes, including several that serve Yuma itself, one that connects the city to the Cocopah Indian Tribe, and two long-distance routes connecting Yuma to San Luis as well as to the Foothills region and the outlying town of Wellton.[103] YCAT also provides dial-a-ride service for the disabled.

YCAT buses serve a wide variety of users, including shoppers going to the Yuma Palms Regional Center and students attending Arizona Western College. And YCAT buses have proven to be an increasingly popular transportation option. Ridership on YCAT increased by 16 percent for the period of January through August 2008, compared to the same period of the previous year. In August 2008, more than 26,000 rides were taken on YCAT buses – an all-time record for a single month.[104]

However, there is still room for transit service to grow in the Yuma area. Bus service, while fairly extensive, is also infrequent – most routes run only once an hour, while the route from Yuma to Wellton through the Foothills region runs only four times a day.[105] The main bus loops in downtown Yuma run in only one direction, with only one location for timed transfers between lines, meaning that YCAT is inconvenient for many trips.

With more resources and investment, Yuma could provide more frequent and flexible service on its existing bus lines, better amenities for would-be transit riders, and expanded service to outlying areas. More importantly, Yuma could begin to build the transit infrastructure that will be needed to meet the region's future transportation needs.

Improved Paratransit Service in Mesa and Elsewhere

For most Arizonans, investing in public transit is seen as a way to get cars off the road, ease congestion, provide new transportation options, and help the environment. For the elderly and disabled, however, transit is a critical lifeline – often the only way to get to medical appointments,

to go shopping, or to complete other necessary daily tasks.

Regularly scheduled buses and light rail service play a useful role in transporting the elderly and disabled, but for many, the act of walking to a bus stop or boarding a transit vehicle is difficult or impossible. As a result, Arizona transit agencies offer "dial-a-ride" paratransit service, through which an elderly or disabled resident can schedule door-to-door transportation.

In the Phoenix metropolitan area, each individual city is responsible for providing dial-a ride service. Some cities opt to provide the service themselves, while others have banded together to provide service on a regional level. East Valley Dial-a-Ride, for example, serves the communities of Mesa, Chandler, Gilbert, Scottsdale and Tempe. In fiscal year 2007, East Valley Dial-a-Ride accommodated nearly 230,000 trips.[106]

While dial-a-ride service in the East Valley is provided regionally, each city decides which residents are eligible to receive the service. The federal Americans with Disabilities Act (ADA) requires that paratransit service be provided to certain disabled individuals living within three-quarters of a mile of a transit line and that the service be available at all the times the transit service is in operation. Specifically, the ADA requires that service be provided to people with physical or mental disabilities who:

- Are unable to board a regular transit vehicle.
- Wish to take transit at a time when handicapped-accessible vehicles are unavailable over the entire route.
- Are unable to travel to or from a transit stop.[107]

Historically, most Phoenix-area municipalities have provided paratransit service to a broader swath of the public than just those certified as eligible for paratransit service under the ADA. In Phoenix, for example, dial-a-ride service is provided to ADA-eligible customers, as well as seniors over 65 and persons with disabilities who may not be eligible under the ADA.[108] Similar levels of service are available in several of the communities served by East Valley Dial-a-Ride.

In 2006, however, Mesa ended dial-a-ride service for elderly and disabled residents who were not certified as eligible under ADA as a way to cut costs. More recently, Mesa proposed eliminating service for ADA-certified customers who live beyond three-quarters of a mile from a transit line – a move that would have eliminated service for approximately six percent of the city's residents.[109]

Mesa does provide other programs that offer transportation options to the elderly in lieu of dial-a-ride service. Mesa is one of several communities participating in the Coupons for Cabs program, through which seniors with disabilities can receive vouchers for cab rides entitling them to a 75 percent discount on the fare.[110] Mesa also offers a mileage reimbursement program for friends and relatives who volunteer to drive seniors or persons with disabilities.[111]

While these programs help some elderly residents get where they need to go, the demand for dial-a-ride and similar services – among both the elderly and the disabled – is likely to only increase over time. Indeed, a 2008 study by Valley Metro found that the East Valley area had the greatest gap between potential demand and current ridership for dial-a-ride service.[112]

Providing adequate levels of service to seniors and the disabled is just one of the challenges facing dial-a-ride service in the Phoenix region. Another is the disjointed nature of dial-a-ride service in the region, which creates particular problems for people traveling from one service area to

another. Because dial-a-ride service can only operate within the communities in its service area (and sometimes a small buffer zone in neighboring communities) a traveler seeking to use dial-a-ride to get from one service area to another must transfer. A disabled person traveling from Mesa to Tucson, for example, must take an East Valley Dial-a-Ride van to a transfer location, disembark, and then wait for a Phoenix Dial-a-Ride van to complete her trip. Often, customers must wait for long periods of time for the transfer to occur – in Maricopa County, 60 percent of dial-a-ride transfers took more than 15 minutes, according to a 2008 report by Valley Metro and the Regional Public Transportation Authority, while 13 percent took more than an hour.[113] For disabled travelers, long waits, alone and far from home can be difficult. In a survey of East Valley Dial-a-Ride customers in Mesa, 24 percent reported that they were very dissatisfied with the transfer process.[114]

For Mesa and communities like it, providing citywide dial-a-ride service to those who need it – including not only those entitled to it under the ADA but also seniors and those with disabilities – is a critical part of ensuring that all residents of the community are able to lead full, healthy and productive lives. Other complementary services, such as taxi coupons and mileage reimbursement programs, are beneficial and may be a less-costly way to provide service to a segment of the population, but are unlikely to be a full substitute for paratransit service. While Mesa should avoid further cutbacks to its dial-a-ride service and restore service to seniors, all Phoenix-area cities should consider ways to work together to provide paratransit service that is better, more convenient and more cost-effective for all.

From Vision to Reality: A 21st Century Transit System for Arizona

Arizona must make sound investments in public transportation if it hopes to remain competitive in the 21st century – a time that looks increasingly likely to be one of volatile oil prices, heightened concern about global warming, and growing congestion problems. State officials must recognize public transit's central importance in addressing these issues. The state must develop forward-thinking plans to ensure that Arizona has rail and bus systems that not only serve current demand, but anticipate and guide future growth so that transit can serve the needs of a larger portion of Arizona's population.

To make this happen, Arizona's transit systems must have funding that they can rely on. More than that, however, the state needs a coordinated vision for the future of public transit in Arizona. The state should develop a long-range, strategic plan for transit investments in Arizona, identify the price tag of completing that plan, and then work to obtain the necessary resources to get the job done.

Many levels of government and other institutions have a role to play in achieving the goal of a 21st century transit system for Arizona.

State Policy

Arizona must expand public transportation options to meet growing demand and encourage Arizona residents to choose public transportation by ensuring the quality and efficiency of transit service. To make that happen, Arizona must ensure that existing transit services have the funding they need to serve Arizonans' transportation needs. In order to develop our transportation system intelligently and efficiently, Arizona must develop a statewide transportation plan which ensures that all levels of government are working together to meet Arizona's growing public transportation demands.

The projects described above are important not just for the people living directly around them, but as part of a larger, growing

system of public transportation which allows residents across the state to travel to more and farther flung destinations without needing to rely on cars. A statewide plan is necessary to ensure that Arizona's public transportation systems are maximizing opportunities to connect and increase Arizonans' options, as well as increasing integration between local, regional, and statewide transportation agencies.

Arizona's statewide transportation plan must also have a stable, long-term funding source so that our public transit systems are reliable and remain in a state of good repair. Currently, Arizona's transit systems are largely dependent on a sole source of funding: local option sales taxes. When the economy is in recession, sales tax revenues dip, leaving transit systems in a precarious situation. Ironically, recessions are precisely the times when public transportation is most valuable – providing a low-cost transportation option to Arizonans. Raising transit fares and cutting service only add to the pain Arizona families experience amid the economic downturn.

Arizona must find a stable source of funding for public transit that will ensure that the transportation system can always meet the growing demand. States across the country use a variety of funding sources for transit, ranging from levies on vehicles and fuels to toll revenue to general state funds and other dedicated sources. Some states encourage investment from private sector institutions that benefit from transit service or find ways to recapture some of the increase in property values that result when transit lines are extended to a community.

Regardless of the exact formula for transit funding that takes shape in Arizona, it should follow several principles:

- It should provide stable, predictable funding during times of both economic boom and recession.
- It should have the capacity to provide increasing revenue as population grows and demands for service increase.
- It should encourage behaviors that contribute to Arizona's quality of life and discourage those that do not.
- It should ensure that fares remain reasonable, thereby acting as an incentive for Arizonans to make the most of our investment in transit infrastructure.

When planning future investments in the state's transportation network, Arizona should prioritize investments in public transportation, with state and federal dollars used to finance transit improvements.

The state should align other public policies with a 21st century vision for transportation that is less dependent on automobiles and can take full advantage of improved public transit. Arizona should require that all proposed transportation investments be evaluated for their impact on oil dependence and global warming pollution. State government buildings should be located, to the extent possible, in areas with accessible transit service. And Arizona should encourage local governments to adopt land-use plans and zoning reforms that allow for and encourage compact development in and around transit stations.

Federal Government

The main federal transportation funding law – the Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users (SAFETEA-LU) – is due for reauthorization by Congress in 2009. It is possible that the coming reauthorization will be the most sweeping reform of federal transportation policy in nearly two

decades. The Congressional Budget Office projects that the portion of the federal highway trust fund that pays for highway projects will run out of money sometime during fiscal year 2009, with the public transit portion of the account scheduled to run out of money soon thereafter.[115] America's aging transportation network is increasingly in need of costly repairs. Meanwhile, amid fluctuating gasoline prices, Americans are now experiencing the downside of the highway-centered investment policies of the last few decades, which leave too many Americans with few transportation choices. In short, the status quo cannot continue.

Arizona officials should campaign for a new federal transportation funding law that makes a large investment in needed improvements to transit systems and intercity rail, while focusing federal highway investment on the need to maintain and repair existing infrastructure. Federal money should be used in a targeted and strategic way to encourage transportation investments that minimize oil dependence, congestion, pollution and sprawl, and encourage the development of compact, livable communities where driving is an option, not a requirement.

Such a dramatic shift would benefit Arizona by providing additional resources for needed transit projects – including some that have sat on the drawing board for decades. In addition to pushing for new federal transportation priorities, Arizona should also work aggressively through existing avenues to obtain federal funding for transit infrastructure projects.

Conclusion

Arizona has experienced enormous growth over the past few decades, and we are finally in the process of building a public transportation system to match our needs. The transit network we have built so far has already decreased congestion and saved consumers money. It has been increasingly valuable as gasoline prices fluctuate, economic pressures make transportation costs a growing burden for families, and concern deepens over the threat of global warming.

Arizona must develop a long-term vision for our transportation investments – especially in an era when high gasoline prices, increased concern about the environment and continuing congestion all argue for investment in clean, efficient transportation options. This long-term vision must go hand-in-hand with long-term, stable funding. However, obtaining money for transportation improvements is only half the battle – the state also needs a visionary, forward-looking plan for investing that money in ways that create and sustain a safe, affordable and extensive transportation system for the 21st century.

The projects listed in this report should make up the core of Arizona's transit "to-do" list over the coming years. Completing these projects, and developing a vision that takes us beyond them toward a coordinated statewide public transportation system, will allow us to meet the transportation challenges we face today, and put Arizona on the right track to meet the challenges of tomorrow.

Notes

1 Based on 1992-2007 vehicle-miles traveled estimates from U.S. Department of Transportation, Federal Highway Administration, *Highway Statistics* series of reports, Historical Summary to 1995 and annual reports from 1996 to 2006; 2007 vehicle-miles traveled estimates from U.S. Department of Transportation, Federal Highway Administration, *Traffic Volume Trends* series of reports, February 2007 to January 2008; 1990s population estimates from U.S. Census Bureau, *Time Series of Arizona Intercensal Population Estimates by County: April 1, 1990, to April 1, 2000*, 17 April 2002; 2000s population estimates from U.S. Census Bureau, *Annual Population Estimates, Estimated Components of Population Change and Rates of the Components of Population Change for the United States and States: April 1, 2000, to July 1, 2007*, 1 July 2007.

2 David Schrank and Tim Lomax, Texas Transportation Institute, *The 2007 Urban Mobility Report*, September 2007.

3 Ibid.

4 Ibid.

5 Robert Heavenrich, Advanced Technology Division, Office of Transportation and Air Quality, U.S. Environmental Protection Agency, *Light-Duty Automotive Technology and Fuel Economy Trends: 1975 Through 2006*, July 2006, downloaded from www.epa.gov/otaq/cert/mpg/fetrends/420r06011.pdf, 8 December 2008.

6 Based on state gasoline expenditure data for 1970 through 2006 from U.S. Department of Energy, Energy Information Administration, *State Energy Data 2006: Expenditures*, 28 November 2008, adjusted for inflation based on U.S. Department of Commerce, Bureau of Economic Analysis, *National Income and Product Accounts Table, Table 1.1.9: Implicit Price Deflators for Gross Domestic Product*, 29 May 2008.

7 Ibid.

8 U.S. Department of Transportation, Federal Highway Administration, *Highway Statistics* reports, years 1998 and 2006.

9 See note 5.

10 Estimate is in 2007 dollars, see note 6 for calculation methodology.

11 U.S. Environmental Protection Agency, *State CO_2 Emissions from Fossil Fuel Combustion*, 1990-2005, downloaded from www.epa.gov/climatechange/emissions/downloads/CO2FFC_2005.pdf, 25 January 2009.

12 U.S. Department of Transportation, Federal Transit Administration, *National Transit Database*, with data through 2007, downloaded from www.ndtprogram.gov/ntdprogram/data, 25 January 2009. Note: this figure includes only transit agencies that report to the National Transit Database. Figures for private transit providers were excluded, as was data for transit agencies whose reporting was inconsistent.

13 Ibid.

14 Ibid.

15 Ibid.

16 U.S. Department of Transportation, Federal Transit Administration, *National Transit Database: Monthly Module Adjusted Data Release*, downloaded from www.ndtprogram.gov/ntdprogram/data, 25 January 2009.

17 U.S. Department of Transportation, Federal Highway Administration, *Traffic Volume Trends* series of reports, February 2007 to September 2007 and February 2008 to September 2008.

18 U.S. Census Bureau, *2007 American Community Survey 1-Year Estimates: Means of Transportation to Work: Workers 16 Years and Over*, downloaded from www.census.gov, 25 January 2009.

19 Ibid.

20 U.S. Department of Transportation, Federal Transit Administration, *National Transit Database*: *Top Transit Cities*, downloaded from www.ntdprogram.com/ntdprogram/data.htm, 27 January 2009.

21 Arizona PIRG Education Fund, *A Better Way to Go: Meeting America's 21st Century Transportation Challenges with Modern Public Transit*, March 2008.

22 See note 2.

23 See note 21.

24 U.S. Environmental Protection Agency, "Greenhouse Gas Equivalencies Calculator," updated 17 February 2009. Available at www.epa.gov/cleanrgy/energy-resources/calculator.html.

25 Arizona Department of Transportation, *Arizona High Speed Rail Feasibility Study*, April 1998.

26 Population Statistics Unit, Arizona Department of Commerce, *Population Change – 2000 Census to July 1, 2008 Estimate, for Arizona, Counties and Incorporated Places*, 12 December 2008.

27 Population Statistics Unit, Arizona Department of Commerce, "July 1, 2008 Population Estimates For Arizona, Counties And Incorporated Places Ranked By Percent Change: 2000-2008," 12 December 2008.

28 Past growth: See note 27; projected growth: Surprise, Arizona Community Development Department, *General Plan 2030: One City, Many Choices*, Adopted by Mayor and Council on 24 July 2008.

29 America 2050, *Arizona Sun Corridor*, accessed 23 February 2009, www.america2050.org/arizona_sun_corridor.html.

30 Catherine Reagor, "Arizona's Population Projections Were Off Due to Housing Boom," *The Arizona Republic*, 25 June 2008.

31 Morrison Institute for Public Policy, Arizona State University, *Megapolitan: Arizona's Sun Corridor*, May 2008.

32 Arizona Department of Transportation, *Arizona High Speed Rail Feasibility Study*, April 1998.

33 Ibid.

34 Ibid.

35 MAG Management Committee, Maricopa Association of Governments, *Transportation Planning Update (powerpoint presentation)*, 9 April 2008.

36 Federal Railroad Administration, US Department of Transportation, *Capital Assistance to States – Intercity Passenger Rail Service Program*, September 2008.

37 Ibid.

38 Ibid.

39 Barber, D.A. "All Aboard? Talk About Commuter Train Between Tucson and Phoenix Gains New Life," *Tucson Weekly*, 20 February 2003.

40 Federal Railroad Administration, US Department of Transportation, *Capital Assistance to States – Intercity Passenger Rail Service Program*, September 2008.

41 "METRO Ridership Off to a Positive Start (press release)," *Valley Metro*, 18 February 2009.

42 Dianna M Nanez, "Light Rail Brings Renewed Vigor To Older Tempe Neighborhoods," *AZCentral.com*, 28 February 2009.

43 "Glendale Avenue and Loop 101 Corridor Facts" (fact sheet), *Glendale AZ*, downloaded from www.glendaleaz.com/planning/documents/101factsheet2-8-07.pdf, accessed 9 March 2009.

44 Maricopa Association of Governments, *2008 Annual Report on the Status of the Implementation of Proposition 400*, October 2008.

45 Maricopa Association of Governments, *Northwest Area Transportation Study: Final Report*, September 2003.

46 Valley Metro, *Glendale*, 2008, downloaded from www.valleymetro.org/metro_light_rail/future_extensions/glendale/.

47 Maricopa Association of Governments, *High-Capacity Transit Study: Final Report*, 30 June 2003.

48 Ibid.

49 Dianna M Nanez, "Light Rail Brings Renewed Vigor To Older Tempe Neighborhoods," *AZCentral.com*, 28 February 2009.

50 Rick Simonetta, "Light Rail Update (powerpoint presentation)," *Valley Metro*, 9 July 2008.

51 "Bottleneck Issues Addressed in New Regional Transportation Plan," *Maricopa Association of Governments*, 19 February 2004.

52 Valley Metro, *I-90 West Alternatives Analysis/Environmental Impact Statement Scoping Brochure*, downloaded from www.valleymetro.org/metro_light_rail/downloads/lr_publications/category/brochures/, 12 March 2009.

53 See note 50.

54 See note 47.

55 Valley Metro, *I-10 West Update* (fact sheet), downloaded from www.valleymetro.org/images/uploads/lightrail_future_ext_uploads/I-10_West_Update_English.pdf, September 2008.

56 See note 47.

57 Ibid.

58 Sean Holstege, "Light Rail May Come Early to West Valley," *AZ Republic*, 30 November 2006.

59 Introductory Urban Planning Studio, School of Planning, Arizona State University, *Phoenix Camelback Corridor: Transit-Oriented Development*, December 2007.

60 See note 21.

61 Mid-Region Council of Governments, *Rail Runner Mail*, Spring 2008.

62 Maricopa Association of Government, *Commuter Rail Strategic Plan*, March 2008.

63 See note 47.

64 See note 62.

65 See note 47.

66 City of Tempe, *Report on Neighborhood Circulator Program Expansion For Neighborhoods North of U.S. 60*, 28 June 2007.

67 City of Tempe, *Orbit Neighborhood Circulator Program: Implementation and Evaluation Report*, June 2008.

68 Ibid.

69 Ibid.

70 Ibid.

71 Valley Metro, *Tempe South*, downloaded from www.valleymetro.org/metro_light_rail/future_extensions/tempe/, 18 February 2009.

72 Old Pueblo Trolley, *OPT History*, downloaded from www.oldpueblotrolley.org/OPThist.htm, 12 February 2009.

73 Portland Office of Transportation and Portland Streetcar, Inc., *Portland Streetcar Development Oriented Transit*, April 2008.

74 HDR, S.R. Beard & Associates, *Tucson Urban Corridor: Environmental Assessment and Section 4(f) Evaluation: Final*, prepared for City of Tucson, August 2008.

75 Garry Duffy, "City to Get Just $25M of $75M Federal Grant it Expected for Streetcar," *Tucson Citizen*, 12 December 2008.

76 Ibid.

77 Associated Press, "Tucson Looks for Modern Streetcar Funding," *AZCentral.com*, 2 March 2009.

78 Cambridge Systematics, *Arizona Rural Transit Needs Study: Final Report*, prepared for the Arizona Department of Transportation, May 2008.

79 RAE Consultants, Inc., *Western Arizona Regional Transportation Coordination Plan*, prepared for the Western Arizona Council of Governments, April 2007.

80 See note 78.

81 City of Kingman, *Kingman Area Regional Transit* (PowerPoint presentation), downloaded from kart.cityofkingman.gov/docs/kart.pdf, 12 February 2009.

82 Ibid.

83 American Public Transportation Association, *APTA Transit Ridership Report: Third Quarter 2008*, downloaded from www.apta.com/research/stats/ridership/riderep/documents/08q3rep.pdf, 12 February 2009.

84 U.S. Census Bureau, *Population Finder: Mohave County, Arizona*, downloaded from factfinder.census.gov, 12 February 2009.

85 Parsons Brinckerhoff, *Statewide Transportation Planning Framework: Western Arizona Regional Framework Study, Working Paper #2: Existing and Future Conditions*, prepared for the Arizona Department of Transportation, April 2008.

86 Arizona Department of Transportation, *Mohave County – Estimated Population and Employment Density* (draft), 3 September 2008.

87 Diana Parker, "Report Finds Need for Tri-City Bus System," *Today's News Herald*, 8 January 2009.

88 Edward J. Christopher, "Flagstaff Metropolitan Planning Organization Case Study" (draft), *EdTheFed.com*, downloaded from www.edthefed.com/casestudies/flagstaff.pdf, accessed 8 March 2009.

89 "First-Rate Bus System Won't Happen on its Own," *Arizona Transit Association*, 19 May 2006.

90 Northern Arizona University, *Classified Staff Advisory Council General Meeting Minutes*, 10 September 2008.

91 Northern Arizona Intergovernmental Public Transportation Authority, *New Report Shows Mountain Links a Smart Move* (press release), 5 February 2009.

92 Federal Transit Administration, *Mountain Links BRT*, November 2007, accessed 2 March 2009, www.fta.dot.gov/documents/AZ_Flagstaff_Mountain_Links_BRT.doc.

93 Blaine Hubbard, "Public Transportation Irks Flagstaff Riders," *Jack Central*, 3 April 2008.

94 "Mountain Line in Line to Receive $6.2 Million Grant," *Arizona Transit Association*, 6 February 2008.

95 See note 92.

96 Northern Arizona University, Classified Staff Advisory Council General Meeting Minutes, 10 September 2008.

97 Arizona Department of Commerce, *San Luis Community Profile*, 2008.

98 Arizona Department of Commerce, *Yuma Community Profile*, 2008.

99 See note 97.

100 Arizona Department of Commerce, *Wellton Community Profile*, 2008.

101 Building a Quality Arizona, *Yuma County – Estimated Population and Employment Density*, 3 September 2008.

102 Andrew Fangman, Yuma *County Department of Development Services, Foothills Planning Area Background Study*, November 2006.

103 Parsons Brinckerhoff, *Statewide Transportation Planning Framework: Western Arizona Regional Framework Study, Working Paper #2: Existing and Future Conditions*, prepared for Arizona Department of Transportation, April 2008.

104 U.S. Department of Transportation, Federal Transit Administration, National Transit Database Monthly Module Adjusted Data Release, downloaded from 204.68.195.57/ntdprogram/pubs/MonthlyData/MONTHLY_ADJUSTED_DATA_10_6_2008.exe, 18 February 2009.

105 Yuma County Area Transit, *Schedule*, downloaded from www.ycat.org/SCHEDULE.html, 18 February 2009.

106 Valley Metro/Regional Public Transportation Authority, *Regional Paratransit Study Final Report*, 27 June 2008.

107 EG&G Dynatrend, *Draft Americans With Disabilities Act (ADA) Paratransit Eligibility Manual*, prepared for the Volpe National Transportation Systems Center, September 1993.

108 City of Phoenix, *Phoenix Dial-a-Ride*, downloaded form phoenix.gov/PUBLICTRANSIT/dialride.html, 6 March 2009.

109 Sonu Munshi, "Council to Hear Plan to Limit Dial-a-Ride Service," *East Valley Tribune*, 2 December 2008.

110 Valley Metro, *East Valley Ride Choice: Coupon for Cabs*, downloaded from www.valleymetro.org/valley_metro/dial_a_ride/coupons_for_cabs/, 6 March 2009.

111 Valley Metro, *East Valley Ride Choice: Mesa Mileage Reimbursement Program*, downloaded from www.valleymetro.org/valley_metro/dial_a_ride/mesa_mileage_reimbursement_program/, 6 March 2009.

112 See note 106.

113 Ibid.

114 Ibid.

115 William W. Millar, American Public Transportation Association, *On Public Transportation Funding for Fiscal Year 2009: Testimony Before the Subcommittee on Transportation and Housing and Urban Development, and Related Agencies of the U.S. House Committee On Appropriations*, 16 April 2008.