

# MAG GRAND AVENUE

## COMMUTER RAIL CORRIDOR DEVELOPMENT PLAN

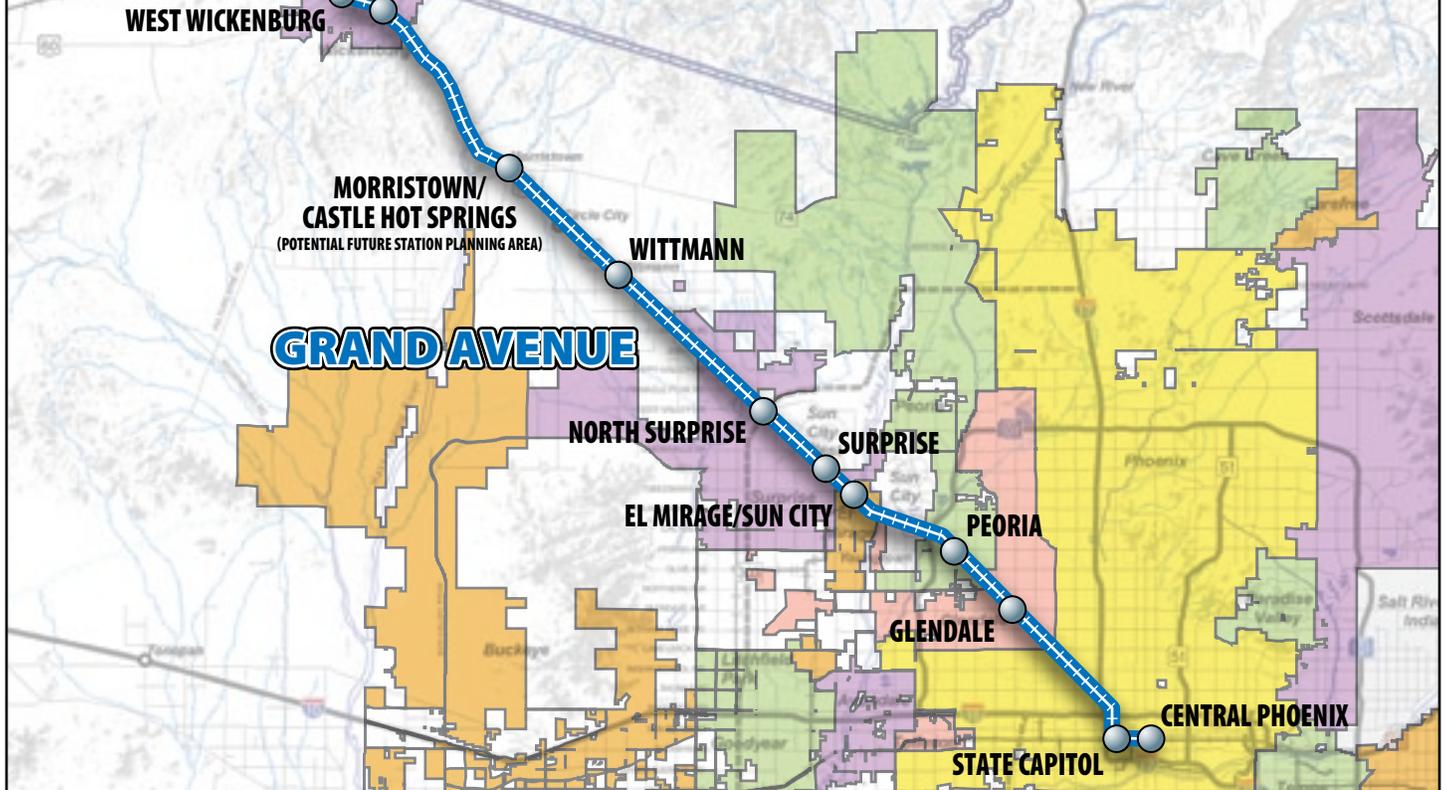
EXECUTIVE SUMMARY 2010

### COMMUTER RAIL CORRIDOR DEVELOPMENT PLAN OVERVIEW

Maricopa County has experienced unprecedented population growth over the last several decades, impacting all aspects of community development, land use, public service delivery, and particularly the demand on the region's transportation system. The Grand Avenue Corridor Development Plan explores the feasibility of commuter rail to enhance mobility in the northwestern metropolitan region. As envisioned, commuter rail would share existing right-of-way with the Burlington Northern Santa Fe (BNSF) Railway that parallels Grand Avenue.

By 2030, the Grand Avenue Corridor is expected to experience a 41 percent increase in population and a 52 percent increase in employment. As a result of this growth, and even with planned roadway improvements and transit service programmed within MAG's Regional Transportation Plan (RTP), congestion in the Grand Avenue Corridor is expected to worsen. Levels of automobile congestion are forecasted to range from moderate to severe throughout the length of the project corridor and motorists will experience increases in travel time to reach their destinations, especially during peak commuter times.

Commuter rail service would provide an opportunity to improve mobility, particularly for peak period trips, by reducing travel time and providing a convenient alternative to automobile travel in a congested roadway corridor.



Source: URS Corp., 2009

## WHAT IS COMMUTER RAIL?

Commuter rail trains typically provide service between suburbs to urban centers for the purpose of reaching activity centers, such as employment nodes, special events, and intermodal connections. Commuter rail trains are typically optimized for maximum passenger capacity and are equipped with comfortable seating and minimal luggage capacity. Service typically occurs at a lower frequency than light rail, serving primarily peak travel needs for commuters. Travel distance between a rail line's termini may range between 30 and 50 miles. Station spacing is typically 5 to 10 miles apart.



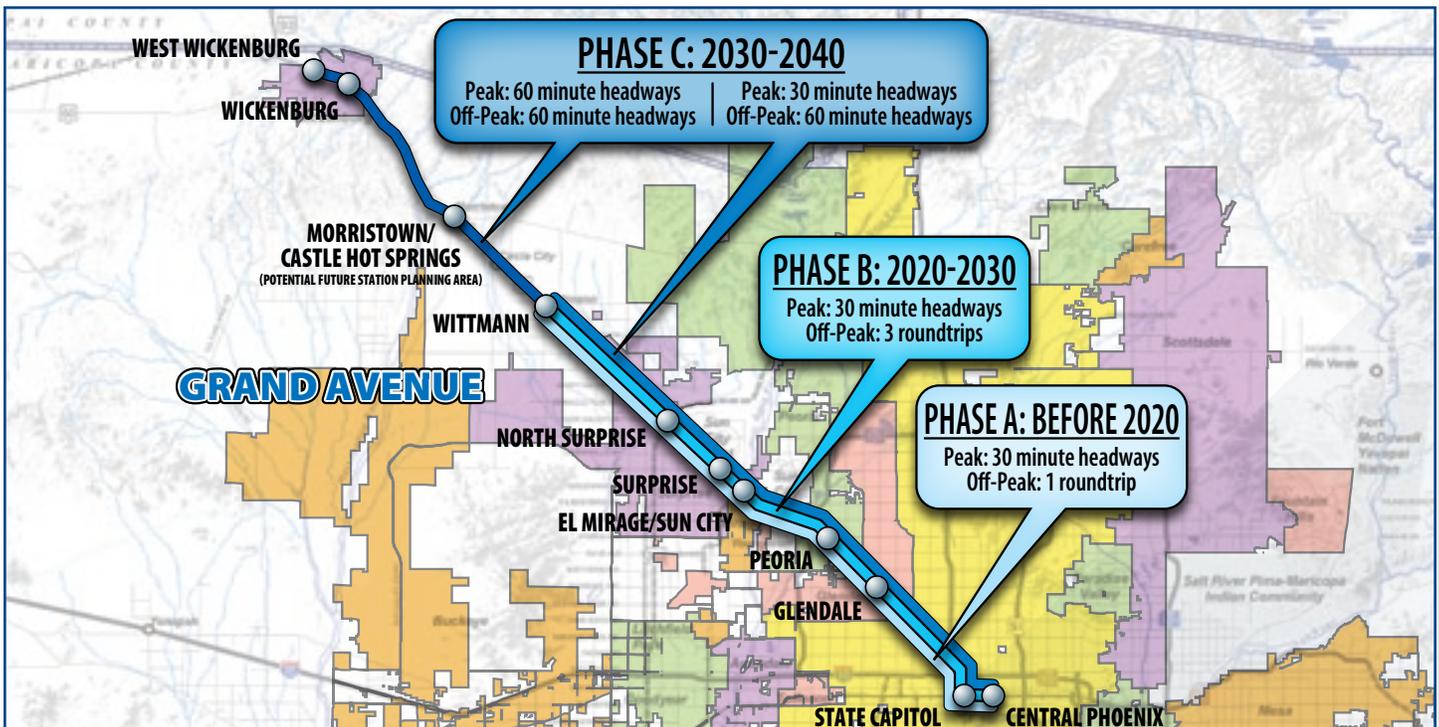
Rail Runner Express Commuter Train; Albuquerque, NM  
Source: MRCOG/HDR.



Sounder Commuter Train; Seattle, WA  
Source: MAG.

## HOW WOULD COMMUTER RAIL SERVICE BE OPERATED?

The MAG Study Team developed three potential service levels as operating phases consisting of Phases A, B and C. Each phase increases levels of service as ridership would grow by increasing the frequency of trains (or headway) and/or expanding service areas, as shown below.



Source: URS Corp., 2009

### Stakeholder Involvement during the Planning Process

The stakeholder involvement component of the planning process for this Corridor Development Plan was extensive. Throughout the study process, several groups met regularly to review project information and provide feedback. These groups included:

*Project Management Team (PMT):* The PMT included representatives from MAG, the Regional Public Transportation Authority (RPTA), Valley Metro Rail, Inc. (METRO), and the Arizona Department of Transportation (ADOT). The PMT met monthly to review study information and coordinate ongoing planning activities.

*Project Review Team (PRT):* The PRT included representatives from the local jurisdictions throughout the Grand Avenue Corridor. This group met quarterly throughout the year-long study process and provided feedback on study information and updated MAG's Study Team on ongoing planning efforts in their communities.

*Stakeholders Meetings:* Stakeholders meetings were conducted quarterly to review and provide input into the planning process. This group had the broadest representation, as it included representatives of jurisdictions from throughout the MAG region, state agencies, and interest groups.

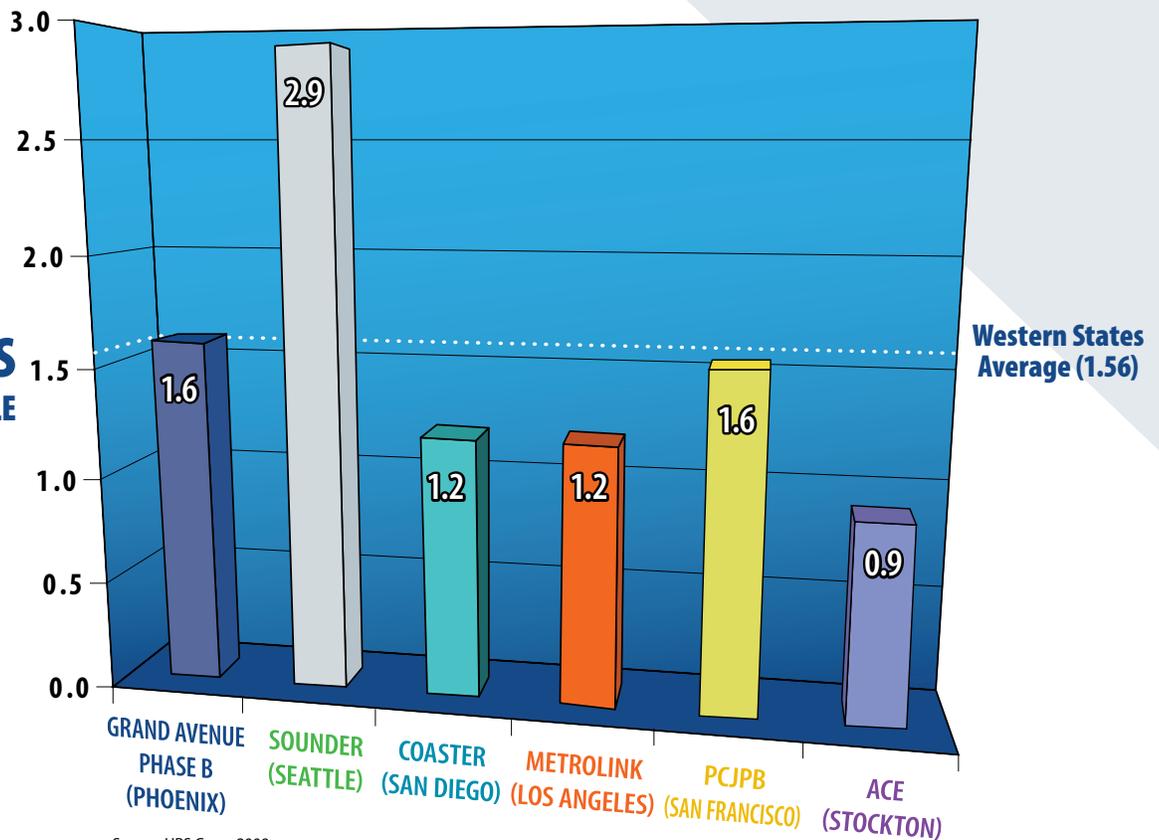
### WHAT RIDERSHIP COULD BE EXPECTED ON COMMUTER RAIL?

Ridership modeling was conducted to evaluate the feasibility of commuter rail along the Grand Avenue Corridor. Ridership forecasting results showed strong destinations and attractions along the length of the corridor – including downtown Glendale, Peoria, El Mirage, and Surprise as well as downtown Phoenix.

GRAND AVENUE CORRIDOR PHASES	GRAND AVENUE CORRIDOR DAILY BOARDINGS
Phase A: Phoenix – Wittmann (Before 2020)	2,400
Phase B: Phoenix – Wittmann (2020 – 2030)	2,800
Phase C: Phoenix – West Wickenburg (2030 – 2040)	5,000

Projected ridership was compared to the experiences in other cities with commuter rail. With approximately 2,800 daily boardings forecast for Phase B between 2020 and 2030, the Grand Avenue Corridor would have approximately 1.6 daily boardings per revenue mile. This forecasted ridership is slightly above the average of 1.56 daily boardings per revenue mile for commuter rail systems in Western states.

## DAILY BOARDINGS PER REVENUE MILE



Source: URS Corp., 2009

### GRAND AVENUE CORRIDOR AS PART OF A LARGER COMMUTER RAIL SYSTEM

In a multi-corridor scenario, the Grand Avenue Corridor would be connected to one or more commuter rail corridors to create one continuous route that provides a one-seat ride between corridors. Multi-corridor scenarios were considered as part of the MAG Commuter Rail System Study. Overall, combining corridors provides the opportunity to increase overall ridership and reduce per-rider costs. The recommendations that emerged from MAG's System Study included the Grand Avenue Corridor as part of the most productive and effective overall regional system. For more information, refer to the System Study Final Report or Executive Summary.

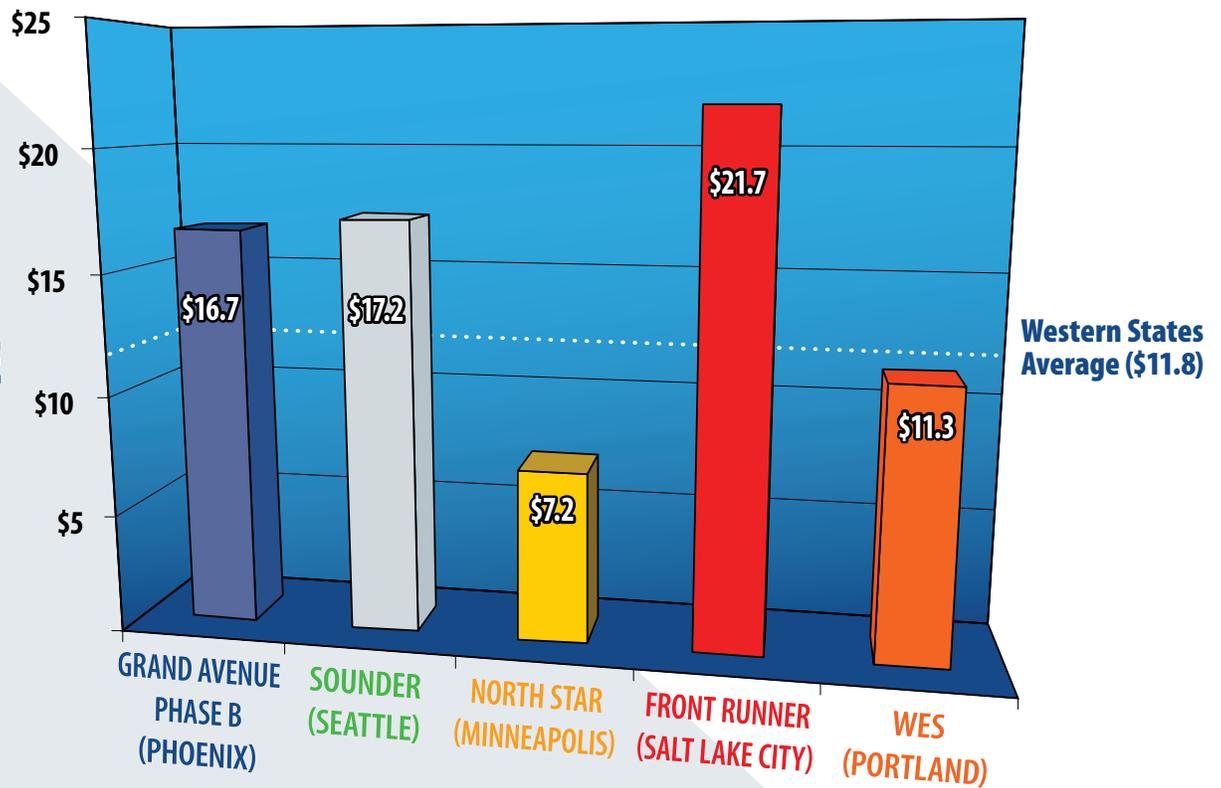
### WHAT WOULD COMMUTER RAIL COST IN THE GRAND AVENUE CORRIDOR?

Preliminary cost estimates were prepared for the Grand Avenue Corridor by phase. These are considered to be conservative estimates, and would be expected to change as negotiations with the railroad progress and specific, needed improvements are confirmed.

COST CATEGORY	PHASE A (MILLIONS)	PHASE B (MILLIONS)	PHASE C (MILLIONS)
Total Estimated Capital Cost*	\$434.3	\$599.6	\$700.9
Estimated Annual O&M Costs*	\$7.4	\$10.8	\$49.6

\* Cost in 2009 US dollars.

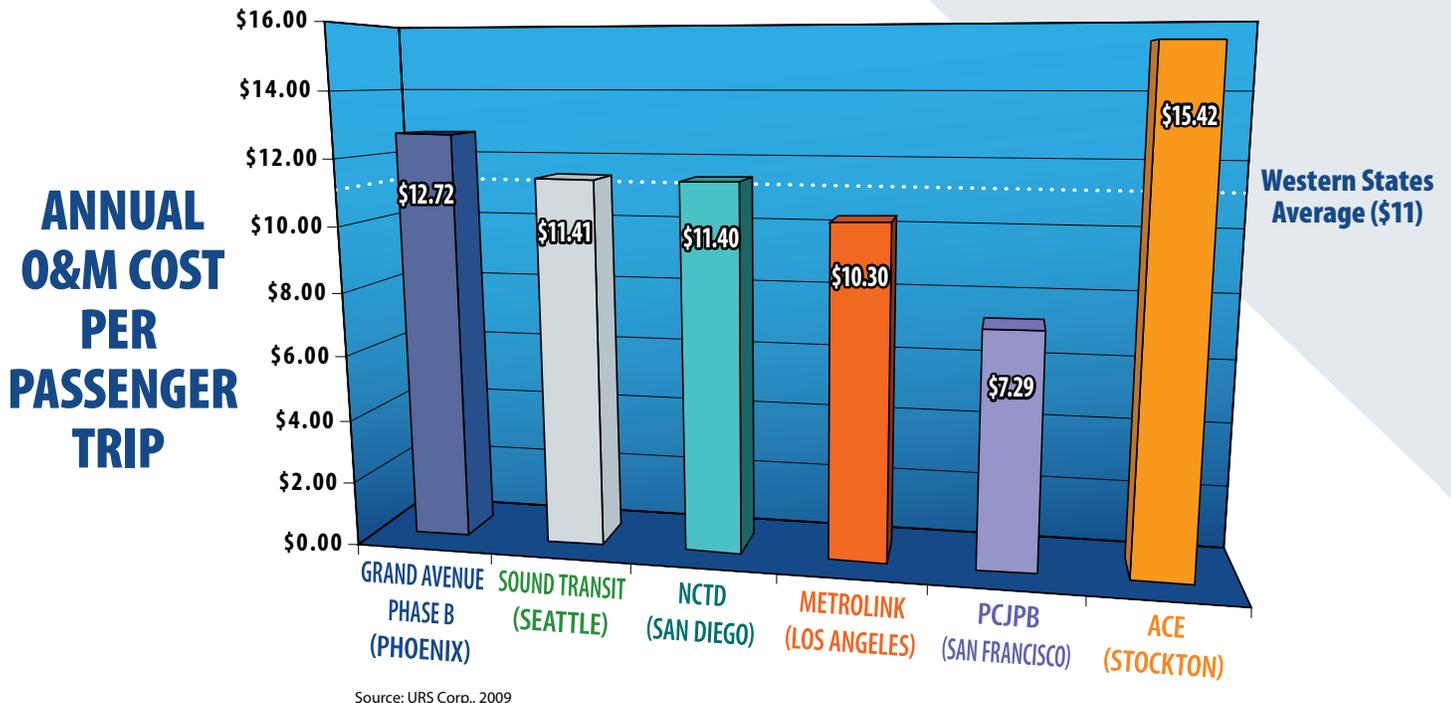
## CAPITAL COST PER MILE (MILLIONS)



Source: URS Corp., 2009

According to initial cost estimates, the Grand Avenue Corridor would be slightly more expensive to build and operate than peer city commuter rail systems, but is still comparable and within the range of what most industry experts would consider reasonable. Major observations related to cost include:

- The modestly higher capital cost of the Grand Avenue Corridor compared to peer city commuter rail systems can be attributed to the infrastructure improvements required to operate commuter rail service in an active and congested freight rail corridor with several freight facilities and numerous grade crossings.
- Cost-sharing of freight rail facility improvements with the BNSF Railway may reduce the capital costs for implementation of commuter rail service in the Grand Avenue Corridor.
- The annual operation and maintenance (O&M) costs of the Grand Avenue Corridor are comparable to peer city commuter rail systems.



## HOW CAN COMMUTER RAIL BE IMPLEMENTED?

### POTENTIAL GOVERNANCE STRUCTURES

One of the most significant issues to be resolved for the implementation of commuter rail in the MAG region is the question of who will be the responsible party for managing, designing, constructing and operating the system. Implementation of a commuter rail system will require a governance structure that reflects the financial, political, and representational patterns of the areas served by commuter rail.

The existing structure of transit service providers in the Phoenix metropolitan region is a complex mix of historical operations such as the City of Phoenix transit system, the Regional Public Transportation Authority or RPTA (commonly known as Valley Metro) and Valley Metro Rail Inc. (METRO), a nonprofit, public corporation charged with the design, construction, and operation of the Valley's light rail system. In addition, ADOT is exploring intercity rail opportunities within the state. Defining appropriate governance structures for a commuter rail system would depend upon opportunities that arise for cooperation and use of railroad right-of-way. This could be for one commuter rail project or a series of projects. Each agency would have to participate in the process to define the appropriate structure.

Generally, the institutional arrangements for regional or commuter rail service throughout the country range from state-run regional rail operations to large single-purpose regional rail authorities that extend service into multiple political jurisdictions, to regional transit authorities that are responsible for multimodal services, to sub-regional agreements between cities to contribute to the management of a rail service in a common corridor. Based on the decisions regarding governance made in the most recent commuter rail projects, two key factors are likely to determine the success of a new governance structure. These factors include the ability of the institutional arrangement to (1) balance local control with the need for regional system performance; and (2) provide stable funding opportunities.

The options for an appropriate institutional structure for regional commuter rail, based on both the national experience and the local situation, are summarized below.

**Regional Transit Authority/District (Multi-Modal):** Should MAG consider this model in the implementation of commuter rail, it would likely entail a restructuring of RPTA, which was authorized in 1985 by the State legislature.

**Regional Rail Authority/District (Single-Purpose):** A newly formed regional rail authority with the sole purpose of implementing commuter rail in the region would likely involve membership by Maricopa County, and potentially Pinal County if service is expanded. This new authority would be similar to METRO.

**Joint Powers Authority (JPA):** In the MAG region, a JPA would be formed by aggregating authorities from constituent districts. For example, METRO could enter into an agreement with the cities to be served by commuter rail to form a JPA responsible for the design, construction and operation of commuter rail service.

**Division of State Department of Transportation:** While this model is primarily found in smaller states with a single metropolitan area, it may have an application in the MAG region, particularly in conjunction with a state-sponsored intercity rail connection between Tucson and Phoenix and a statewide passenger rail system.

**Division of Metropolitan Planning Organization:** This governance model would require expanding the charter of MAG to include the operation of commuter rail.

## FUNDING OPTIONS

The initial step to develop a funding implementation strategy is to gauge possible or probable funding options from governments at the federal, state and local levels, as shown in the following tables.

### FEDERAL, STATE, LOCAL AND PRIVATE FUNDING SOURCES

FEDERAL FUNDING		
FUND SOURCE	CAPITAL AND/OR OPERATIONS	VIABILITY
Federal Transit Administration Section 5307	Supports transportation capital costs including preventive maintenance	Low. The MAG region's allocation is currently programmed to support a host of other transit projects; future funds could be allocated to commuter rail. This is an annual programming allocated by formula; if and when commuter rail is added to the region, its data would enter into the formula calculation.
Federal Transit Administration Section 5309 New Starts	Supports transportation capital uses only	Moderate. The application of Section 5309 is feasible, but the New Starts alternatives analysis planning requirements will require a significant evaluation and time. However, New Starts regulations have been relaxed recently and additional funding will likely be provided nationwide in the next authorization bill.

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## EXECUTIVE SUMMARY 2010

FEDERAL FUNDING		
Federal Railroad Administration Section 130	Supports transportation capital uses only, primarily for the use of improving grade crossings	Low. The State's allocation of Section 130 funding is relatively small and may likely only support a portion of a safety improvement project.
Congestion Mitigation and Air Quality (CMAQ) Funds	Supports transportation capital uses only	Low. A commuter rail project application will contend with many other capital projects in the MAG region.
Surface Transportation Program (STP) Funds	Supports transportation capital uses only	Low. A commuter rail project application will contend with many other capital projects in the MAG region.
Federal Railroad Administration High Speed and Passenger Rail Program	Supports transportation capital uses only	Low. May only address some intercity components of commuter rail or related rail projects.

STATE FUNDING		
FUND SOURCE	CAPITAL AND/OR OPERATIONS	VIABILITY
Highway User Revenue Fund (HURF)	Supports transportation capital uses only	Low. Funding is driven by fuel taxes and vehicle license taxes, which may not be sustainable sources in the future. In order to use HURF, State statute changes would be required.
Vehicle License Tax (VLT)	Supports transportation capital and/or operations	Low. The MAG region's allocation is currently programmed. The revenue generated from the tax may not be a sustainable source of funding in the future.
Statewide Transportation Acceleration Needs (STAN) Account	Supports transportation capital and/or operations	Low. The STAN account was a potential source of transit funding in the recent past, however it is not considered to be a reliable funding source in the future.
New Dedicated Statewide Transportation Funding (e.g. statewide tax)	Supports transportation capital and/or operations	Low. Unclear if new tax would be considered viable in the future.



LOCAL OR REGIONAL FUNDING		
FUND SOURCE	CAPITAL AND/OR OPERATIONS	VIABILITY
Maricopa County Transportation Excise Tax (Sales Tax)	Supports capital and/or operations	Moderate. Although the revenue generated from the current tax (Proposition 400) is programmed, future propositions are expected to occur.
Vehicle Miles Travelled (VMT) Tax	Supports capital and/or operations	Moderate. Typically used for roadway maintenance. Commonly unpopular with voters because of perceived invasion of privacy. Would be considered to be a more consistent funding alternative to a gas tax.
Payroll Tax	Potentially support capital and/or operations	Low. Existing State, and potentially Federal, tax codes must be modified to support these uses.
Motor Vehicle Sales Tax	Potentially support capital and/or operations	Low. The MAG region's allocation programmed. The revenue generated from the tax may not be a sustainable source of funding in the future.
Vehicle Rental Tax	Supports capital and/or operations	Low. Special uses for the surcharges collected for this tax will require County, and possibly State, law modification for the purpose of commuter rail.
Local Gas Tax	Potentially supports capital and/or operations	Low. The MAG region's allocation is currently programmed. The revenue generated from the tax may not be a sustainable source of funding in the future. State tax codes will likely require modification to authorize uses.
Vehicle License Tax by District	Supports capital and/or operations	Moderate. The VLT by district concept would require significant political support since it has not been implemented. State and/or County tax codes will likely require modification to authorize districts and uses.

PRIVATE FUNDING		
FUND SOURCE	CAPITAL AND/OR OPERATIONS	VIABILITY
Public Value Capture: Benefits Assessment Districts	Potentially support capital and/or operating uses	Low. Setting up the finance mechanism for such a public investment will require State and County statute or code modification.
Public Value Capture: Tax Increment Financing	Potentially support capital and/or operating uses	Low. The authorization of such a mechanism will require political support and State law modification.
Public-Private Partnerships (PPP)	Potentially support capital and/or operating uses	Moderate. ADOT is investigating new PPP opportunities. This approach is being used sparingly in other cities given uncertain nature of financial markets, but may be more viable in the future.

## COORDINATION OF INFRASTRUCTURE IMPROVEMENTS

A successful commuter rail project will require a collaboration of all participants – primarily the local governments as the development regulator and financial partner, the transit agency as the transit infrastructure builder, and the BNSF Railway Company as the railroad right-of-way owner.

The BNSF Railway is planning a number of freight rail infrastructure improvements that would reduce freight activity into downtown Phoenix and thereby free up space on the rail mainline for commuter rail. Similarly, ADOT is planning for extensive roadway upgrades along US 60/Grand Avenue. These infrastructure upgrades will likely improve the operations of commuter rail service in conjunction with freight operations and in conjunction with the surrounding roadway network.

Planned roadway projects to upgrade safety and automobile travel efficiency in the Grand Avenue Corridor could also serve to jointly improve the highway system, freight operations and the development of commuter rail service. Currently, the frequency and complexity of the at-grade highway/railroad crossings between Phoenix and Glendale pose a potential safety hazard, a source of increased traffic delay, and reduced rail train speeds due to congestion. Near-term capital improvement projects that would minimize auto/train conflicts would help to advance the implementation of a commuter rail system in the Grand Avenue Corridor. MAG has identified multiple roadway improvements for Grand Avenue from SR 303 to McDowell Road in the 2007 Regional Transportation Plan (RTP) Update. The RTP improvements include the addition of general purpose lanes, grade separations, and other improvements that will be implemented throughout the planning period for the RTP.

These planned improvements will grade separate three crossings that have a high rate of train/automobile accidents and will thereby significantly reduce the BNSF Railway's exposure to accident risks and help improve the Grand Avenue transportation corridor as a whole. Implementation of these and other improvements would indirectly benefit commuter rail by improving safety conditions in the corridor.

Prior to securing project financing, local governments within the corridor can take steps to lay the foundation for commuter rail implementation. The following is a list of such actions:

- ➔ Control regulatory actions within station areas, including the planning, zoning, and development permitting process, to facilitate the development of commuter rail stations.
- ➔ Use other implementation tools such as infrastructure construction (for example, streets and utilities), land purchase and assembly, and creation of urban design guidelines to facilitate transit-supportive development.



The City of Surprise installed a new BNSF Railway Quiet Zone at Grand Avenue and 163<sup>rd</sup> Avenue in 2009  
Source: MAG.

## NEAR-TERM IMPLEMENTATION STEPS

Near-term implementation steps to advance this corridor development plan within the next five years are shown below.

ITEM	RESPONSIBLE PARTY	PARTNERS	TIMEFRAME
Periodic Ridership Forecasting Updates	MAG	Local jurisdictions	Ongoing
Coordinate with BNSF Railway Company → Maintain point of contact and communication protocols → Develop partnership to investigate options	ADOT MAG BNSF Railway Company	Local jurisdictions METRO RPTA	Ongoing
Address Enabling Legislation (Liability and Indemnification)	ADOT (as a statewide issue)	MAG BNSF	2010-2013
Identify Funding Commitments	MAG ADOT Legislature	Local jurisdictions	2010-2015
Develop and Implement Governance Plan	MAG ADOT	METRO RPTA Local jurisdictions	Following identifications of local funding commitments
Preserve Future Options	Commuter Rail Authority or JPA	Local jurisdictions BNSF Railway Company MAG CAAG ADOT	Ongoing
Local Planning Efforts	Local jurisdictions	MAG ADOT	Ongoing

## LONG-TERM IMPLEMENTATION STEPS

The identification of funding commitments and determination of the appropriate governance structure for commuter rail, which are likely to influence each other, will set the stage for moving into the next level of investment in commuter rail within the MAG region. Recommended long-term implementation steps include:

- Formalize a partnership with the railroad
- Secure sources of funding, including federal, state, regional, and local public funding as well as private sector participation
- Design, construct, and operate an initial commuter rail system
- Conduct further planning to develop a seamless transportation system and meet regional sustainability goals

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**CONCEPTUAL PHOTO SIMULATION OF MAG REGION COMMUTER RAIL SYSTEM.**