Final Working Paper No. 1

Review of Previous Plans, Studies, and Best Practices

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1. Introduction

The Regionally Significant Corridors (RSC) Study is a technical assessment of existing, planned, and proposed future major transportation corridors in the Pima Association of Governments (PAG) region. The RSC Study will recommend a network of regionally significant corridors. The regional objectives of the RSC network are to:

- Improve access to employment and commercial centers to promote economic competitiveness throughout the region
- Improve access to residential areas to improve commuter travel time
- Improve mobility for cross-town travel
- Increase connections between roadways and transit and rail centers to improve mobility of people and goods
- Focus on reducing congestion and travel time on major roadways and interstates
- Continue to enhance and expand transit operations and facilities throughout the region to provide greater mobility choices
- Continue to enhance and expand bicycle and pedestrian facilities throughout the region to provide greater mobility choices
- Minimize impacts to environmentally sensitive areas (riparian, drainage, cultural, hazardous materials, etc.)
- Reduce air pollution
- Decrease fuel costs and other vehicle operating costs

A focus of the RSC Study will be to functionally fill a gap between regionally significant limited access freeways and arterials. The RSC network may include State highways, State routes, major county roads, or major municipal arterials. Development of the RSC network will take into consideration planned and programmed projects such as I-11 and projects included in long-range plans and 5-year program. They may be retrofits and upgrades to existing corridors, corridor extensions, or entirely new routes.

The RSC network will serve as input to the PAG Regional Transportation Plan (RTP) process, whereby individual routes in the RSC network could become part of the RTP then could be programmed as projects to advance relative to available funding and regional priorities. RSC-related projects would be strategically implemented according to PAG policies and procedures, with strict oversight, public involvement, and a commitment to fiscal stewardship.

A key goal of the RSC Study is to receive broad support by PAG member jurisdictions. The RSC network will be developed in the RSC Study in close consultation with a Technical Advisory Committee consisting of PAG member jurisdictions and key regional stakeholders.

Working Paper No. 1 documents a limited review of relevant plans, studies, and best practices relating to regionally significant multi-modal transportation services and infrastructure. The Working Paper is organized by: a summary of previous plans and studies, a summary of national best practices, financial considerations, candidate corridors, and ADOT route transfer procedures.
Study Area
The RSC study area is located in eastern Pima County, including the PAG member-jurisdictions of Tucson, South Tucson, Marana, Oro Valley, Sahuarita, Pima County, the Tohono O’odham Nation, and the Pascua Yaqui Tribe. Since this RSC Study addresses connectivity to regional and statewide destinations, the study area includes parts of Pinal, Santa Cruz, and Cochise counties. Figure 1 on the following page illustrates the study area.
Figure 1 – RSC Study Area
2. Review of Previous Plans and Studies
The purpose of this section is to summarize previous statewide and regional plans and studies that impact the PAG region. A focus of this section is to document operational and design criteria used to functionally define RSCs and to identify existing, planned, and proposed corridors that could become candidate RSCs.

Regionally Significant Routes (RSR) Study

Prepared By: Entranco, Inc.
Sponsored By: Pima Association of Governments
Completed: May 2003

Purpose of the Study
The purpose of this study was to recommend and apply criteria for defining a new roadway classification system of RSRs in the PAG planning area. Access management policies were developed for the RSR system of roadways. The study had the following goals:

- Consider the importance of creating a RSR system of roadways that allows for the optimum balance of carrying capacity, mobility, and access.
- Define the key issues and criteria necessary to identify the most important routes within the PAG region. These criteria could then be used as a tool for jurisdictions to use in evaluating existing and future roadway corridors for consideration as RSRs.
- Outline methods to identify corridors that may potentially be designated as RSRs and identify comparison mechanisms to evaluate a corridor’s relative regional significance.
- Document the existing National Highway System (NHS), State Highway System (SHS), and State Route System (SRS), as well as proposed RSRs, in the PAG region.
- Complete and document preliminary corridor assessments.
- Conduct an analysis of typical costs associated with the turn-back of State Routes and Highways to local jurisdictional control.

The proposed routes in the study would serve regional transportation needs by providing access and mobility to and from areas outside the region, or to major service functions within the region. An access management policy was also developed to guide the functional and operational aspects of the designated RSRs.

Summary of Findings and Recommendations
The study identified the following criteria for evaluating RSRs.

- Access management potential – Does the corridor have design features, policies, or potential for future access management controls?
- Regional employment and economic linkages – Does the route have importance in servicing the region’s major economic infrastructure?
- Linkages crossing manmade or natural barriers – Does the route provide needed linkages across manmade or natural physical barriers such as limited access interstate corridors, mountain ranges, major rivers, and watercourses?
• Average daily traffic demand (future unconstrained) – Does the corridor have a high future regional demand for movement of people, goods, and services?
• Mass transit or multimodal emphasis – Does the corridor provide for major public transit and other multi-modal connections?
• Significant geographic linkages to destinations outside of the region – Does the corridor provide a unique regional or geographic function, providing linkages to major destinations that are important to the Tucson region?
• Regional network connectivity – Does the route provide for straight forward, continuous movement over a long distance?
• Commuter route emphasis – Does the route function as a major commuter route that serves a high volume of peak hour commuters?

Using the criteria above, sample evaluations of individual routes were conducted for the purpose of illustrating how the criteria should be used to evaluate roadways. The study did not recommend any RSRs.
Southeast Area Arterial Study

Prepared By: Kimley-Horn and Associates
Sponsored By: Pima Association of Governments
Completed: January 2006

Purpose of the Study
The purpose of this study was to recommend a Major Streets and Routes Plan to meet future arterial-level transportation needs within the study area defined by I-10 on the north and east, I-19 on the west, and the Santa Rita Mountains on the south. The objectives of the study included:

- A traffic circulation and access framework for future planning efforts in the study area.
- An opportunity for a future transportation network to be reflected in the PAG travel demand model.
- A basis for prioritizing and programming transportation infrastructure within the study area.
- A foundation for a public/private partnership in the funding of transportation infrastructure in the study area.

Summary of Findings and Recommendations
Travel demand models were prepared for 2030 and build-out conditions to provide the primary basis for corridor recommendations. The corridors were further refined using Geographic Information System (GIS) and input from stakeholders. As a result, the following guiding principles for the recommended roadway system were developed:

- Serve build-out travel demands
- Minimize impacts to environmentally sensitive areas (riparian, drainage, cultural, hazardous materials, etc.)
- Avoid impacts to the San Xavier District
- Connect to the regional roadway system
- Maintain acceptable freeway interchange spacing
- Serve existing activity centers
- Be consistent with other transportation study recommendations
- Allow for flexibility in land development patterns

Based on the above criteria developed through the travel demand model, GIS analysis, and stakeholder input, this study recommended approximately 190 miles of transportation corridors comprised of 20 miles of access controlled roadways (enhanced parkways or freeways), 48 miles of limited access controlled roadways (parkways), and 122 miles of arterial roadways.

1. Fully Access Controlled Roadways (Enhanced Parkways or Freeways)
Projected travel in the study area at build-out (year unspecified) warranted the development of a fully access controlled facility connecting I-19 and I-10. The connection points include a system interchange near El Toro Rd on I-19 and at Kolb Rd. on I-10. It was recommended that 300 feet of right-of-way be preserved along the Andradia Rd. alignment from Wilmot Rd. to I-10 in the vicinity of SR-83 to provide future opportunities for a fully access controlled roadway. It was
recommended that this alignment be coordinated with the proposed Rancho Maria development, which is planned west of I-19 in the vicinity of Sahuarita Rd. and El Toro Rd.

2. **Limited Access Controlled Roadways (Parkways)**
The following alignments were recommended for limited access controlled roadways.
- Valencia Rd. – Improve to a 6-lane parkway along the existing alignment to increase capacity of the roadway.
- Old Nogales Highway – Improve this roadway to a parkway along existing alignment and develop as a regional highway/rail corridor
- Alvernon Way/Swan Rd. – Improve to a parkway along the Alvernon Way alignment and shift to the Swan Rd. alignment near Los Reales Rd to accommodate the Tucson International Airport’s (TIA) planned improvements and north-south continuity from I-10 to the recommended freeway facility.
- Houghton Rd. – Improve this roadway as a parkway from I-10 to the recommended extension of Andrada Rd. This improvement is consistent with the recommendation in the ADOT Houghton Road Corridor Study.
- Andrada Rd. – Extend this roadway west to Wilmot Rd. and improve to a parkway and connect to I-10 near the existing SR-83 interchange. It was also recommended that 300 feet of right-of-way be preserved along this alignment to provide future opportunities for a fully access controlled roadway connecting with I-10 to the east.

3. **Arterial Roadways**
The following alignments were recommended as arterial roadways.
- Country Club Rd. – Extend this road from Old Vail Connection south to the recommended freeway or enhanced parkway facility to provide regional access to employment opportunities near TIA.
- Wilmot Rd. – Improve this roadway along the existing alignment from I-10 to the recommended extension of Dawn Rd.
- Rita Rd. – Extend this roadway from I-10 south to Sahuarita Rd. to provide additional access opportunities for the Pima County Southeast Regional Park. This alignment will also provide an indirection connection to I-10 via Old Vail Connection.
- Wentworth Rd. – Improve this roadway as an arterial along the existing alignment from I-10 to Sahuarita Rd.
- Sonoita Highway (SR-83) – Improve this roadway as an arterial along the existing alignment and provide indirect access to I-10 via a connection to the recommended Andrada Rd. extension.
- Old Vail Connection – Improve this roadway along the existing alignment to provide direct access to I-10 at the existing Rita Rd. interchange.
- Dawn Rd. – Extend this roadway from Old Nogales Highway to I-10 to provide direct access to I-10 via a new interchange between Houghton Rd. and Wentworth Rd. This is consistent with future plans of the Pima County Southeast Regional Park.
- Pima Mine Rd. – Improve this roadway along the existing alignment and extend from Old Nogales Highway east to Wentworth Rd.
- Sahuarita Rd. – Improve this roadway along the existing alignment from I-19 to SR-83.
• Camino Aurelia – Improve this roadway along the existing alignment and extend from Old Nogales Highway to Wilmot Rd. to provide access for development southeast of the Town of Sahuarita.

The following roadways exhibited the highest travel demand under 2030 conditions and were recommended for possible inclusion in the PAG RTP:

• Valencia Rd. between I-19 and I-10
• Old Vail Connection between Old Nogales Highway and I-10
• Sahuarita Rd. from I-19 to Wilmot/Kolb Rd.
• Old Nogales Highway from Valencia Rd. to Duval Mine Rd.
• Alvernon/Swan Rd. from Valencia Rd. to Old Vail Connection
• Wilmot Rd. from I-10 to Old Vail Connection
• Kolb Rd. from I-10 to Old Vail Connection
• Houghton Rd. from I-10 to Sahuarita Rd.

**Figure 2** illustrates the recommended corridors from this study.

**Implementation Status**

Studies, design, and construction are underway or completed for several of the routes recommended in this study.
Figure 2 – Map of Southeast Area Arterials Study Corridors
State Transportation System Mobility and Regional Circulation Needs
Feasibility Study (Loop Road Study)

Prepared By: Kimley-Horn and Associates
Sponsored By: Pima Association of Governments
Completed: 2006

Purpose of the Study
The purpose of this study was to evaluate the need for, and feasibility of, a system of high capacity, limited, controlled, and reduced access roadways in the PAG region to meeting travel demand beyond the 2030 Regional Transportation Plan (RTP). The study had the following goals:

- Identify transportation corridors beyond the 2030 horizon to meet future mobility and regional bypass needs in advance of land development.
- Preservation of corridors and establishment of land use controls in the emerging and fringe areas of the region.
- Extension of the functional and operational life-cycle of the existing roadway network by providing opportunities for diverting regional traffic onto regional routes.
- Identifying corridors in the 2030 RTP that can be transitioned to higher capacity facilities in the future.

Summary of Findings and Recommendations
The first step in the process of identifying corridors was to analyze routes based on a regional travel demand assessment. This assessment provided future roadway outputs that were used to identify candidate corridors based on the following criteria:

- Does the facility improve regional mobility and continuity?
- Does the facility attract sufficient volume for a major transportation facility (Do they ‘load’)?
- Does the corridor provide congestion relief to other transportation facilities and areas?

Corridors that met the above criteria then underwent a feasibility analysis using the following criteria:

- Physical Constructability Screen – physical features that might preclude the construction of the intended improvements were identified and itemized.
- Environmental Screen – Environmental features and regulatory requirements that might preclude the construction of the intended improvements were identified and evaluated. The following is a summary of the constraints found during the environmental screen.
  - Title VI potential impacts
  - Impacts multiple use management and riparian areas
  - Potential hazardous material impacts
  - Consideration of Class 1 airshed designation for Saguaro National Park
  - Impacts to special species management area
o Potential 4(f) impacts
o Potential impacts to ranch conservation districts
  o Potential cultural resources impacts
  • Land Use / Area Plan Compatibility Screen – compatibility with adopted transportation and land use plans.

Based on the assessments described above, the study found that there is a need for two freeway facilities; a Western Freeway Loop and a Southern Freeway Loop. Other facilities were identified as needed parkway facilities:

• Houghton/Golf Links Parkway
• Kolb/Orange Grove Parkway
• River/Alvernon/Swan Parkway
• La Cholla Corridor Parkway
• Barraza-Aviation Parkway

The following were the recommendations of the study.

1. **Integrate Loop Corridors into the RTP**
   The freeway and parkway corridors identified in this study are candidate regionally significant routes and should be considered for inclusion in the RTP. The study results show that there is a demand for these corridors and that they are feasible, based on preliminary assessment.

2. **Incorporate Loop Corridors into a Major Streets and Routes Plan (MSR)**
   MSR plans are used by both Pima County and Tucson as a primary tool for corridor preservation. Once the Loop Corridors are included in the RTP, they should be incorporated into MSR plans.

3. **Integrate Loop Corridors with Adopted Land Use Plans**
   The general and comprehensive plans of municipalities and counties have land use and circulation components. Elements that are included in the Plans get carried forward into capital improvement programs (CIP). Therefore it is important to include Loop Corridors into local jurisdiction’s plans and CIPs.

4. **Consider Development of a Dedicated Funding Source for Future Funding of Loop Corridors and Develop Funding Strategies**
   The estimated implementation costs include $1.1 billion for right-of-way and $6.6 billion for construction (at the time of the study). The Corridors are not included in any plans and therefore no money is earmarked for them. Potential funding options fall into three general categories, public, private, and public/private. Funding sources with the highest potential for these Corridors include toll roads, regional impact fees, state or federal funding via route transfer, and commitment of a 20-year RTA ½ cent sales tax. One or all of these funding sources can be used strategically.
5. **Implementation Strategies**

   Implementation of any of these Corridors requires a long lead time of approximately 30-50 years to plan, fund, design, and build. One implementation strategy would be to identify an appropriate steward for implementing the Corridors, such as PAG, the RTA, and ADOT.

   Another implementation strategy would be to institute a project programming continuum that links all of the phases of Corridor development from concept to construction. Under this concept, a long term master plan clearly integrates and programs distinct phases that are otherwise separated.

   **Figure 3** illustrates the recommended corridors from this study.

**Implementation Status**

   Implementation of these routes recommended from this study will require further studies that will take into account environmental, political, and public factors. As presented in this study, these corridors are conceptual and their alignments are not final.
Figure 3 – Map of Loop Study Corridors
Pima County Southwest Infrastructure Plan
Prepared By: Stantec and Curtis Lueck and Associates
Sponsored By: Pima County
Completed: November 2007

Purpose of the Study
The southwest area of Pima County has been identified as a growth area. The southwest area is bounded by Tucson Mountain Park to the north, Mission Road to the east, Tohono O’odham Nation-San Xavier District and Pascua Yaqui Pueblo to the south, and Sandario Road to the west. The purpose of this study is to inform infrastructure decisions as they relate to development. This study quantified the nature, phasing, financial impacts, and funding possibilities for flood control, parks and recreation, transportation, wastewater, and other improvements necessary to service future growth in the southwestern area.

Summary of Findings and Recommendations
The Plan proposed a land development concept that factored in the physical challenges of the area and existing development. The purpose was to identify areas with the greatest potential for implementing new urban development. The areas identified as having the potential for new urban development was along Ajo Highway between San Joaquin Road and Sandario Road, as well as the southwest corner of the study area. The eastern and northwestern portions of the study area were de-emphasized, which are characterized by existing developments of varying densities, flooding issues, and increased difficulty to serve wastewater utilities.

Another important concept that was considered was creating development that complemented transit and rail transportation corridors. This resulted in the creation of areas with higher concentrations of employment and housing density in the form of mixed-use community activity centers. The development concept accommodated more than 44,000 new homes and 120,000 new residents over the next 45-50 years.

To accommodate the expected growth, infrastructure needs were studied and itemized as to their extent and probable cost. The infrastructure needed to support the proposed growth included:

- 247 new lane miles of arterial roadway capacity
- 25 additional bus vehicles
- 2 new bridges
- 2,020 new acres of parks
- 8 million gallons per day of new wastewater treatment capacity and supporting conveyances
- 40 new drainage structures of various size
- 6 new regional retention/detention basins
- 2-3 new schools
- 2 new fire stations
- 2 new libraries
- 1 new sheriff sub-station

In terms of probable cost, it was estimated that it would cost approximately $25,000-26,000 per dwelling unit.
Southern Pinal / Northern Pima Corridors Definition Study

Prepared By: Kimley-Horn and Associates
Sponsored By: Arizona Department of Transportation
Completed: April 2008

Purpose of the Study
The purpose of this study was to determine the need for and feasibility of new high-capacity transportation corridors in Southern Pinal County and Northern Pima County. The study recommendations do not identify the exact location of new roads, but identify broad corridor definitions for potential new high-capacity facilities. The objectives of this study were as follows:

- Determination of the need for new corridors using performance-based evaluation techniques.
- Definition of planning-level corridor definition alternatives based on regional freeways planning principles, existing and future corridor conditions, and input from affected jurisdictions and stakeholders.
- Evaluation of the engineering, environmental, and land use compatibility characteristics of alternative corridor definitions through a technical assessment of performance criteria, impact criteria, and implementation criteria.
- Development of preferred corridor definitions on the basis of the technical evaluation.
- Documentation of planning-level corridor development costs, funding options, and the extent to which affected jurisdictional and stakeholders support the preferred corridor definitions.

Summary of Findings and Recommendations
Criteria for developing new corridor concepts were based on existing conditions, travel demand modeling analysis, and input from the Technical Advisory Committee and individual stakeholder meetings. The criteria used to establish the “need” for new corridors included:

- Attract trips that are principally regional in nature
- Divert traffic from congested routes and state highways
- Serve as a state or regional freeway
- Reflect jurisdiction and agency visions
- Address local travel demand
- Consider build-out needs (some corridors may be needed beyond 2030, but not necessarily by 2030)

Following a needs assessment using the above criteria, a feasibility analysis was performed using the following criteria:

- Physical and engineering criteria – Is the physical location of the new corridor feasible?
- Social and environmental criteria – Are there any major environmental concerns that will result from the building of the new corridor?
- Land use compatibility – Is the new corridor compatible with the jurisdictional developments and local land use plans?
- Jurisdictional, stakeholder, and public perspectives – How does the corridor influence other corridors and major transportation infrastructure?

Based on the assessment of needs and feasibility criteria, the following six corridors were identified in the southern Pinal / northern Pima area:

- North-South Corridor
- Florence / Red Rock / Avra Valley Corridor
- Western I-10 Parallel Corridor
- Oracle Junction to Florence (SR 79) Corridor
- SR 77 Reliever Route
- Oro Valley / Marana Corridor

Figure 4 illustrates the recommended corridors from this study.

Implementation Status

A study to identify and evaluate route alternatives and prepare an Environmental Impact Statement and Design Concept Report for the North–South Corridor is currently underway.
Figure 4 – Map of Southern Pinal / Northern Pima Proposed Corridors
Regionally Significant Routes for Safety and Mobility

Prepared By: Lima and Associations, Kittleson and Associates, and Kimley-Horn and Associates

Sponsored By: Pinal County

Completed: December 2008

Purpose of the Study

The purpose of this study was to provide a guide for the County and other stakeholders to implement and fund regionally significant routes in the County. The study was developed to ensure transportation mobility and safety throughout the County with partnerships with federal, state, county, local, tribal, and private stakeholders.

The reasons for developing regionally significant routes in Pinal County were as follows:

- Unprecedented growth that is expected to continue
- A significant increase in congestion throughout Pinal County
- Impact on safety as congestion levels increase
- The existing roadway system has limited capacity and lack continuity and connectivity

Summary of Findings and Recommendations

Regionally significant routes (RSR) were identified through a process involving initial identification as a candidate RSR, and then those routes went through two screening processes before being recommended as an RSR corridor.

Candidate RSRs were identified by the 2006 Pinal County Small Area Transportation Study. These candidate routes were then evaluated using GIS based on the following factors:

- Topography constraints
- Alignment constraints
- Connectivity consideration
- Development constraints
- Presence of public lands

A second level of screening was then performed, which consisted of:

- Estimating probably cost of an RSR
- Review of available right-of-way
- Comments from local, County, and tribal stakeholders, as well as the general public about the need for and location of RSR corridors.
- Consideration of socioeconomic/land use impacts
- Consideration of community perspectives based on input from County, local, tribal, and public stakeholders.

Figure 5 illustrates the functional classification of the recommended RSRs. Figure 6 illustrates the recommended RSRs based on implementation priority.
Figure 5 – Map of Pinal County RSRSM Proposed RSRs – Functional Classification
Figure 6 – Map of Pinal County RSRSM Proposed RSRs – Implementation Priority
Statewide Transportation Planning Framework (Building a Quality Arizona)
Prepared By: AECOM and Five Regional Framework Consultants
Sponsored By: ADOT Multimodal Planning Division
Completed: 2010

Purpose of the Study
The 2010 Statewide Transportation Planning Framework was a statewide study focusing on not only transportation, but also sustainability, Smart Growth, the environment, economic development, and safety and security. It was the first effort by ADOT Multimodal Planning Division (MPD) to establish a long-range (forty-year) vision for transportation in Arizona. Long-range transportation planning studies typically look ahead 20 years. In this case, ADOT developed a vision for 2050, with 2030 as an intermediate planning horizon.

Summary of Findings and Recommendations
The recommended framework aims to preserve capacity on the transportation system through efficient operation and management of facilities, effective use of technology and information, and closer coordination between land use and transportation decision-making. In addition, the framework study will strive to mitigate traffic congestion while creating a system that takes into consideration all modes of mobility and is accessible to all users. The recommended transportation network is presented in Figure 7 on the following two pages. The transportation network consists of roadway facilities, transit facilities, and rail facilities.
Figure 7 – Recommended Statewide 2050 Transportation Framework Scenario

Roadway Facility Type
- Freeway
- State Highway
- AZ Parkway
- Principal Arterial
- High Occupancy Vehicle (HOV) Lane

Transit Network
- Express Bus
- Intercity Bus
- Local Transit Service
- Major Transit Center
- Minor Transit Center
Figure 7 – Recommended Statewide 2050 Transportation Framework Scenario (continued)

Passenger Rail Network

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- Passenger Rail
- Tourist Railroad

Potential Southwest Interstate High-Speed Rail Corridor
2040 Regional Transportation Plan (RTP)
Prepared By: Pima Association of Governments
Sponsored By: Pima Association of Governments
Completed: Adopted July 1, 2010; Update Adopted March 29, 2012

Purpose of the Study
The purpose of the RTP is to address transportation needs in the Pima Association of Governments (PAG) region. The RTP identifies transportation projects throughout the region that work towards improving mobility, increasing transportation options, work towards improving air quality, and support the economy. The RTP includes roadway, transit, and bicycle and pedestrian projects throughout the PAG region.

Summary of Findings and Recommendations
Roadway Projects
The RTP identifies eight regional corridors. These corridors are anticipated to provide high capacity vehicular travel throughout the region. These eight corridors are as follows:

- I-10 East Corridor – widen to 10 lanes from I-19 to east Pima County line
- I-10 West Corridor – widen to 8 lanes from I-19 to north Pima County line
- I-19 Corridor – widen to 6-8 lanes from I-10 to southern Pima County line
- SR 210 Barraza-Aviation Extension – extend parkway to I-10 from Palo Verde Road and widen to 6 lanes
- SR 77 Oracle Road Corridor – widen to 6-8 lanes from Miracle Mile to Pima County line
- SR 86/Ajo Way Corridor – widen to a 4-6 lane parkway from Three Points to I-10
- Valencia Corridor – widen to a 4-8 lane parkway from Ajo Way to Old Spanish Trail
- Sahuarita Road Corridor – widen to a 4-6 lane divided arterial from La Canada Drive to SR 83

The RTP defines parkways as, “roads that are connected to arterials and have divided medians. There may be a few grade separated intersections at major routes to help ease congestion. Access points are kept to a minimum for higher travel speeds. The normal posted speed limit is 45-55 mph.”

Transit and Rail Projects
Transit projects in the 2040 RTP are intended to improve and maintain the quality of existing transit services. Regional transit services consist of Sun Tran, which is the primary fixed route bus system and includes 27 routes and 13 express routes; Sun Van, Tucson’s paratransit service; Sun Shuttle, neighborhood transit service in Marana, Oro Valley, Catalina, Sahuarita, Green Valley, and western Pima County; Pima Transit Special Needs, a door-to-door paratransit service; Oro Valley’s Coyote run, a door-to-door paratransit service; and University of Arizona’s Cat Tran, which is a fixed route circulator shuttle system that serves the Main Campus and the University Medical Campus.

Improvements to the transit and rail network in the PAG region consists of new Bus Rapid Transit routes, circulator routes, express bus routes, the Modern Streetcar, commuter/intercity rail, and new rail lines.

Figure 8 illustrates the 2040 RTP roadway, transit, and rail projects.
Figure 8 – 2040 RTP Roadway, Transit, and Rail Projects
ADOT Passenger Rail Corridor Study, Tucson to Phoenix  
**Prepared By:** Parsons Brinckerhoff, URS, HDR Engineering, Inc., AECOM, and Jacobs  
**Sponsored By:** ADOT MPD  
**Completed:** Currently in progress

**Purpose of the Study**

The purpose of this study is to evaluate alternative routes and options for passenger rail service between the Cities of Tucson and Phoenix. The need for a commuter rail between the two cities was identified in the Arizona Department of Transportation’s Statewide Transportation Planning Framework Study, which was completed in March 2010. That Framework Study found that future congestion issues could not be resolved by relying exclusively on roadways, and that high capacity alternatives, such as rail could be an attractive form of transportation. The purpose of the rail corridor between Tucson and Phoenix will be to increase mobility between the two cities, provide commuter options between the cities and their respective suburban communities, and provide commuter mobility between activity centers in both cities and surrounding areas. The new rail corridor may also provide a multitude of other benefits such as environmental preservation, managing growth to reduce sprawl, encourage energy independence, relieve traffic congestion, and reduce air pollution.

**Summary of Findings and Recommendations**

This Study is currently underway. The Study will evaluate environmental considerations, multimodal connections at stops and termini, will evaluate a number of corridor alternatives and a cost-benefit analysis will be performed to compare the alternatives. To date, public involvement initiatives have been undertaken in the form of presentations to multiple agencies, 12 scoping events held in jurisdictions affected by the rail corridor, and two rounds of Corridor Support Team meetings that were held in Pima, Pinal, and Maricopa Counties. The purpose of these meetings is to maintain frequent communication with local agencies, organizations, and elected officials throughout the study process.  

*Figure 9* on the following page illustrates the different corridor options currently being evaluated.

**Implementation Status**

This Study is scheduled to be complete in 2014.
Figure 9 – Map of Potential Rail Corridors Being Evaluated
Sonoran Desert Conservation Plan
Prepared By: Pima County
Sponsored By: Pima County
Completed: Currently in progress

Purpose of the Study
The Sonoran Desert Conservation Plan (SDCP) was initiated in 1998 with the goal of creating a conservation plan based on biology and science-based planning. The SDCP was also created to comply with federal regulations that protection of endangered species be addressed through a multiple species conservation plan. The planning process was extensive, with over 400 public meetings, numerous workshops and information sessions, and input from over 150 scientists. The SDCP is continuously implemented, guiding land use decisions in the County and acquiring land for conservation.

Summary of Findings and Recommendations
The SDCP studied five elements, Critical Habitat and Biological Corridors, Riparian Restoration, Mountain Parks, Historical and Cultural Preservation, and Ranch Conservation.

Critical Habitat and Biological Corridors
The SDCP focuses on maintaining the full spectrum of native biodiversity rather than focusing on conserving the habitats of individual species. As a result, 11 priority habitats and corridors were selected:

- Altar Valley
- Baboquivari Mountains
- Cienega Creek
- Eastern Tucson Riparian Complex
- Organ Pipe/Goldwater Complex
- Sabino Canyon
- San Pedro River
- Santa Rita Mountains
- Silverbell Mountains
- Tortolita Mountains
- Tucson Mountains

Conservation strategies for critical habitats and biological corridors including focusing new growth close to areas where development already exists. Future development should not fracture habitats or corridors. The use of Open Space Acquisition funds and other private/public partnerships will enable acquisition of lands, development rights, or conservation easements.

Riparian Restoration
Priority for riparian protection was placed on the substitution of renewable water supplies for groundwater and surface water in areas where high-quality aquatic and riparian ecosystems still exist and where the diversion of water stresses those systems. Eight priority riparian resources were selected:

- Rincon Creek,
- Cienega Creek
- Arivaca Creek
- Brown Canyon
- Wakefield
- Sutherland
- Happy Valley
- Portions of the San Pedro River

Additionally, there are opportunities to add new riparian acquisitions to a larger landscape with existing uplands, including Davidson Canyon, Gardner Canyon, Madera Canyon, Agua Verde Wash, and Sopori/Papalote Wash. The SDCP also calls for the protection of the sonoran cottonwood-willow forests. The SDCP includes guidelines to conserve 95% of the riparian areas that will be affected by development.

**Mountain Parks and Natural Preserves**

Mountain parks and natural preserves in Pima County are often threatened by new development. Protection of these resources requires long-term, region-wide planning. The following strategies should be employed to preserve the mountain parks and natural preserve areas:

- Expand Las Cienegas National Conservation Area
- Expand Tortolita Mountain Park, Colossal Cave Mountain Park, and Catalina State Park
- Establish Santa Rita Mountain Park
- Establish Davidson Canyon and Buehman-Bingham Reserve as natural reserves
- Continue the partnership between Pima County and the Bureau of Land Management

**Cultural Resources**

Cultural resources in Pima County include archaeological sites, historic buildings and places, historic communities, cultural locations, ghost towns, and historic trails. Selected cultural resource priorities include:

- Ancient Native American villages
- Mission church, San Xavier del Bac
- Mexican and U.S. Territorial era ranches (i.e. Canoa Ranch in Green Valley)
- 19th century ruins of Fort Lowell
- Old mines
- Churches, schools, commercial establishments, bridges, and other features since 1912
- Several parks created in 1929 and developed by the Civilian Conservation Corps

Conservation strategies for the cultural resources include:

- Work with federal, state, and local governments
- Develop regional management strategy that is centered on adaptive management concepts
- Purchase land containing high value cultural resources
- Create an incentive program to encourage private land owners to voluntarily protect cultural resources on their land, or compensate them for giving up the right to develop on areas of their land with cultural resources
- Include consideration of cultural resources as part of the development review approval process
- Inform and educate the public on the importance of protecting cultural resources

**Ranch Conservation**

Ranches in Pima County provide natural, unfragmented open space, but are often threatened by encroaching development. Priorities for ranch conservation in Pima County include:

- Altar Valley, Empire-Cienega Valley, Upper Santa Cruz Valley, San Pedro Valley, and Ironwood Forest National Monument areas. Ranches in these areas have the best potential to define the urban boundary
Mechanisms to conserve ranches include voluntary donation or sale of conservation easements. However, it is highly encouraged for ranchers to remain on their lands to continue economic activity and utilizing the best grazing practices.

The following maps depict the Critical Habitat and Biological Corridors, Riparian Restoration, Mountain Parks, Historical and Cultural Preservation, and Ranch Conservation areas.
Figure 10 – Biological Corridors and Critical Habitat Map

SONORAN DESERT
CONSERVATION PLAN

BIOLOGICAL CORRIDORS
AND CRITICAL HABITAT

The work on the biological corridors and critical habitat element of the Sonoran Desert Conservation Plan revealed that biology is the basis for all other elements. The strong interconnections of all five elements is critical in forming a viable land management plan that ensures continuing biodiversity for Pima County.

LEGEND

- Important Riparian Areas
- Biological Core Areas
- Multiple Use Areas
- Wildlife Corridors

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Figure 11 – Riparian Resources Map

SONORAN DESERT CONSERVATION PLAN

RIPARIAN RESOURCES

Riparian areas in a desert environment are vital places. Although sixty to seventy-five percent of all species in Arizona rely on a riparian environment at some point during their life cycle, a number of streams and springs in and near Tucson have ceased to flow year-round or are affected by a lower water table. Our streams and springs need protection as well as restoration.

**LEGEND**
- Riparian Restoration/Rehabilitation
- Effluent-Based Riparian Projects
- Springs
- Other Projects or Studies
- Watershed Boundary

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Figure 12 – Mountain Parks and Natural Preserves Map

SONORAN DESERT CONSERVATION PLAN

MOUNTAIN PARKS AND NATURAL PRESERVES

Pima County’s establishment of Tucson Mountain Park in 1929 marked the beginning of an unparalleled conservation ethic. Two other parks and a natural preserve followed: Ironwood Forest National Monument and Las Cienegas National Conservation Area were established in 2000. Even so, we have not yet assembled a system that protects groups of plants and animals. We must expand our efforts at creating mountain parks to sustain biological diversity in the Sonoran Desert and provide recreation for our citizens.

LEGEND

- Proposed Mountain Park Expansion
- Proposed Natural Preserve
- Proposed New Mountain Park
- Las Cienegas Planning District
- Existing Preserves

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Figure 13 – Cultural Resources Map

SONORAN DESERT CONSERVATION PLAN

CULTURAL RESOURCES

Pima County is rich in history, culture, regional character, and diversity, all of which contribute greatly to our collective heritage and community identity. Cultural and historical resources are those places that are created by and reflect upon the people who have lived for thousands of years in what is today Pima County. The citizens of Pima County have long recognized the value of preserving their cultural resources.

LEGEND

- Priority Archaeological Sites
- Priority Archaeological Site Complexes
- Priority Historic Sites
- Archaeological Sensitivity Zone
- National Register Properties

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Figure 14 – Ranch Conservation Map

SONORAN DESERT CONSERVATION

RANCH CONSERVATION

Historically, ranching has probably been the single greatest determinant of a definable urban boundary in eastern Pima County. While over half of our 2.4 million acre region appears to be open, unused land, virtually all of this open space is used in ranching, an extensive but low-intensity land use. Through the conservation of working ranches that surround the Tucson metropolitan area, vast landscapes of open space are preserved, natural connectivity is maintained, and the rural heritage and culture of the Southwest are preserved.

LEGEND

* Ranch Lands
* Existing Reserves
* Incorporated Jurisdictions
* Ranch Conservation District Boundary

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3. National Best Practices
The following are techniques and processes used by jurisdictions across the country to plan and manage RSCs. This section will examine the selection process and criteria used for RSCs and coordination and education components that help communicate the RSC concepts. The following sections describe each practice.

Selection of Regionally Significant Corridors
The process for selecting RSCs varies throughout the nation based on what is appropriate for that region or jurisdiction. The following summarizes how different jurisdictions have handled the process of identifying RSCs.

Contra Costa County, California
In 1988 and again in 2008, the County of Contra Costa passed a sales tax that provided funding for transportation projects and programs. The tax measures included a Growth Management Program (GMP) to encourage local jurisdictions to participate in a multi-jurisdictional planning process and establish transportation service standards for Routes of Regional Significance. The County consists of five regional subareas. Under the GMP, these subareas are to develop their own Action Plans for Routes of Regional Significance, giving local jurisdictions the opportunity to collaboratively plan and make decisions both locally and regionally.

The Action Plans identified Routes of Regional Significance in that subarea. Roadways were considered a Route of Regional Significance if it met one or more of the following criteria:

- Connects two or more subareas
- Crosses county boundaries
- Carries a significant amount of through traffic
- Provides access to a regional highway or transit facility

The purpose of these routes is to provide regional mobility and connect multiple jurisdictions. Even though the five subareas differed on which roads they determined to have regional significance, all freeways and state highways were considered Routes of Regional Significance. The designation of principal arterials differed between the subareas.

In addition to the above criteria, the Action Plans are to include quantifiable performance measures that can be met or maintained within a specific timeframe. These performance measures provide a way for the subareas to define the quality of service that is desired on their Routes of Regional Significance. The performance measures include peak hour travel speed, delay index, duration of congestion, intersection levels of service, maximum wait times for drivers on side streets, and maximum load factor for peak period on BART service. Actions are then identified to meet these performance measures.

North Front Range Metropolitan Planning Organization, Colorado
The concept of regionally significant corridors (RSC) was first part of the 2025 Regional Transportation Plan to focus limited transportation funds to projects that would produce the most benefit for the region. The North Front Range MPO created a Technical Advisory Committee (TAC) to lead a study to identify RSRs in the region. The TAC was comprised of jurisdiction representatives, including Colorado DOT. The TAC makes recommendations to the North Front Range Planning Council, which is responsible for formal adoption of the RSC study. However,
the findings in the study may be included in future RTPs. There were four steps in the process for identifying RSCs and they are as follows:

- Define “regionally significant”
- Create definition criteria
- Group the corridors
- Tier the corridors within the groups

The North Front Range MPO defined “regionally significant” as, “An important link in a multi-modal, regional network comprised of existing or new transportation corridors that connect communities and/or activity centers by facilitating the timely and safe movement of people, goods, information, and services.”

Three criteria were then used to define RSCs and they are listed below. Bike and pedestrian regional corridors were identified from the Colorado Front Range Trail Corridor Plan. These corridors were identified because of their connections across the region.

- Includes all State Highways – Colorado DOT requires a corridor vision be developed for all state highways as part of regional transportation plans.
- Functional Classification – roadways must have a functional classification of arterial or higher as defined by the appropriate jurisdiction. Higher classification usually means that the roadway is connected to more than one community.
- Connectivity – the corridor must go through, or plan to go through, more than one governmental jurisdiction and connect activity centers.

Once the RSCs were identified they were grouped into north/south and east/west groupings to recognize that parallel transportation corridors can impact and relieve each other and serve a similar travel demand. The RSCs were then tiered in order of importance based on safety, congestion, accessibility, freight, and public opinion.

**Regionally Significant Routes for Safety and Mobility, Pinal County, Arizona**

Pinal County underwent a process for identifying Regionally Significant Routes (RSR) to improve safety and mobility throughout the region. The Plan provides a guide for County and local jurisdictions for implementing and funding RSRs.

The Plan process included formation of a Technical Advisory Committee comprised of representatives from affected jurisdictions and tribal communities. The process also included an extensive public process including workshops, study sessions, public open forums, and presentations to CAAG Management Committee and Regional Council. The extensive public involvement process was used to solicit public input but also to educate the public on the different components of the study.

The process for identifying RSRs included two screening processes, one to determine whether the route served critical needs and the other was to determine feasibility. The critical needs analysis used GIS to evaluate the routes. Evaluation criteria included topography constraints, alignment constraints (existing developments, environmental constraints, and industrial and mining operations), connectivity considerations, development constraints, and impacts to public lands. This screening was done at a high planning level to determine what the barriers are for each route. Further engineering studies would have to be conducted to determine alignments.
The second phase of analysis, the feasibility analysis, consisted of the following steps:

- Estimation of probable cost of an RSR
- Review of available right-of-way
- Comments from county, local governments and tribal communities, and the general public on the need for and location of RSRs
- Socioeconomic and land use impacts

Vision, policies, and route classification and access management guidelines were also part of the Plan. The vision statement identifies key elements for the planning and implementation of RSRs. Route classifications and associated access management guidelines were developed to guide design standards throughout the County.

Coordination and Education

Coordination is a key component to successfully identifying and analyzing RSCs. Since RSCs are regional, they impact multiple jurisdictions and stakeholders that need to be brought to the table to have open discussions about how RSCs will impact their municipality, business, etc. It is important to note that while these are practices that have been used in other Regionally Significant Corridor studies, they are not necessarily appropriate for this study. This RSC study will focus primarily on the technical components of selecting RSCs and much of the public coordination will come later, when parts of this study are implemented by individual municipalities. These coordination practices are included in this Working Paper for future reference. The following are common practices used to solicit input from stakeholders and the public.

- Technical Advisory Committee – the TAC is usually comprised of representatives from all municipalities and agencies within Pinal County. The TAC can also include business owners, environmental agency representatives, economic developers, and land developers. The role of the TAC is usually to provide guidance throughout the study, pertinent information to the study team, review documents and draft plans, and comment on potential routes, policies and procedures.

- Stakeholder Workshops – workshops provide a platform for stakeholders and project staff to focus on specific issues and talk openly about those issues throughout different stages of the project. As part of the Pinal County’s Regionally Significant Routes Plan for Safety and Mobility (2008) (RSRSM), multiple workshops were held that focused on different aspects of the project, including policies and legal issues, identification of potential routes and review of constraints, and the plan in its entirety was presented at the Pinal Regional Summit. At this summit, the study purpose, process, coordination, and products were presented to elected officials, senior management, federal, state and local governments, Native American communities, and private business owners. Each participant received a copy of the presentation on a portable drive and the summit information was post on the Pinal County Public Works website.

- Open Houses – open houses are open to the public and can be announced using a variety of methods including newspaper press releases, radio and television ads, posted on the project website, posted on fliers in strategic locations, etc. Like workshops, the focus at open houses can vary. Typically, however, the first phase of open houses presents existing conditions, issues, and identified potential corridors. The second phase presents the revised corridors and obtains additional feedback from the public.

- Resolutions of Support – at the conclusion of the study, the study can be presented to local governments and agencies to have them pass a resolution of support. This resolution does not
mean that these agencies adopt any part of the plan, but rather signifies that they support the components of the plan.

- Social Media – the use of social media such as twitter and Facebook. These mediums allow the public and stakeholders to continuously post comments and pictures, thus providing constant feedback. In addition, staff leading the project can post project information, such as upcoming meetings, updates on the project, links to documents, etc. However, it would require someone on the project staff to manage the account and to process the information posted from the public and stakeholders.

- Public Surveys – surveys are usually a quick way of obtaining feedback from the public and stakeholders about specific issues. One of the most recent trends has been to move away from mailed surveys and to use web-based survey sites. Web-based surveys are easy to create, distribute to the public and stakeholders, and process responses.

As part of each of the above coordination practices, there are opportunities for education. Education is a necessary component of many studies since there are new concepts, terminology, and issues that need to be properly understood. Educational material for studies typically consists of boards, presentations, brochures, and information posted on study websites.

Coordination processes that are more open and allow for frequent interaction typically result in a study that better reflects the needs of all of the communities involved. Open and frequent interaction allows all parties to listen to each other’s needs and visions and compromises can be reached. However, open and frequent coordination requires a lot of time to prepare for before meetings and time afterwards to process the information. This addition of time to prepare and process information and feedback can be costly. Therefore, it is important to decide what level of coordination and interaction is appropriate.

**Access Management and Functional Classification**

While basic functional classification is similar in most regions and jurisdictions throughout the country, the characteristics of specific types of roadways vary. The following sections describe some of the design standards and access management practices used in roadway classification by other agencies. Because the focus of this research is to develop standards for Regionally Significant Corridors in the PAG region, criteria and characteristics of lower mobility/higher access roadways (i.e. collectors, local streets) were omitted.

**Public Road Standards, County of San Diego Department of Public Works**

The County’s standards were updated in March 2012 to include a “mobility element” for the design of public roads. Mobility Element roads are considered to provide vehicular movement and serve as the regional backbone in the area. Non-Mobility Element roads feed into Mobility Element roads while also providing access to neighborhoods, commercial, and industrial areas. Mobility Element roads include expressways, prime arterials, major roads, and boulevards, among others. **Table 1** presents some of the design standards these four types of roadways, which are most likely to be regionally significant. Note that the Major Road and Boulevard classifications “with turn lanes” can represent a roadway that includes turn lanes, but does not include a raised median.
The standards also include a discussion of potential bicycle and pedestrian treatments, but the inclusion of such elements is based more on the adjacent development than the roadway itself. For example, sidewalks can be provided in commercial, industrial, or specified residential areas, and where provided, should be 5 feet wide. Where residential lots are larger, 5-foot wide decomposed granite paths may be included. Bicycle lanes may be included on the roadway as a paved shoulder or in addition to the paved shoulder. Separate pathways may also be constructed.

Table 1 – County of San Diego Department of Public Works Classification Criteria

<table>
<thead>
<tr>
<th>Design Standards</th>
<th>Planning Capacity</th>
<th>Number of Lanes</th>
<th>Minimum Design Speed</th>
<th>Right of Way Width</th>
<th>Median Width</th>
<th>Paved Shoulder Width</th>
</tr>
</thead>
<tbody>
<tr>
<td>Expressway</td>
<td>108,000</td>
<td>6</td>
<td>65 mph</td>
<td>146'</td>
<td>34'</td>
<td>10'</td>
</tr>
<tr>
<td>Prime Arterial</td>
<td>57,000</td>
<td>6</td>
<td>65 mph</td>
<td>122'</td>
<td>14'</td>
<td>8'</td>
</tr>
<tr>
<td>Major Road</td>
<td>37,000</td>
<td>4</td>
<td>55 mph</td>
<td>98'</td>
<td>14'</td>
<td>8'</td>
</tr>
<tr>
<td>Boulevards</td>
<td>34,200</td>
<td>4</td>
<td>55 mph</td>
<td>84'–98'</td>
<td>--</td>
<td>6'</td>
</tr>
<tr>
<td>RSR Parkway</td>
<td>30,000</td>
<td>4</td>
<td>40 mph</td>
<td>106'</td>
<td>14'</td>
<td>--</td>
</tr>
<tr>
<td>RSR Principal Arterial</td>
<td>28,000</td>
<td>4</td>
<td>40 mph</td>
<td>92'–106'</td>
<td>--</td>
<td>--</td>
</tr>
</tbody>
</table>

Driveway Access: Not allowed from individual properties, signalized access ok to serve a development

Cross-Road Access: Only at full grade separated interchanges

<table>
<thead>
<tr>
<th>Access Control</th>
<th>Design Standards</th>
</tr>
</thead>
<tbody>
<tr>
<td>Driveway Access</td>
<td>Not allowed from individual properties, signalized access ok to serve a development</td>
</tr>
<tr>
<td>Cross-Road Access</td>
<td>Non-Mobility Element roads entering a Mobility Element road should be separated by at least 300'; Mobility Element roads crossing other Mobility Element Roads should be separated by at least 600'.</td>
</tr>
</tbody>
</table>

Regionally Significant Routes for Safety and Mobility, Pinal County, Arizona

As previously discussed, Pinal County developed a process for identifying Regionally Significant Routes (RSR) to improve safety and mobility throughout the region. In the accompanying report (finalized in 2008), criteria for RSR parkways and RSR principal arterials were developed.

For Pinal County, the RSR Parkway was identified as the “Arizona Parkway,” which is a non-freeway, restricted access facility able to offer greater capacity than a typical arterial. Arizona Parkways do not provide grade-separated intersections, but instead use indirect left turns to improve signal capacity while accommodating turning movements elsewhere.

RSR principal arterials were identified as major roadways that promote high mobility and low access to adjacent land. Access management strategies are intended to increase capacity and safety and may include prohibiting left turns or consolidating driveways. Table 2 summarizes the criteria included in the report.
Table 2 – Pinal County Classification Criteria

<table>
<thead>
<tr>
<th></th>
<th>Parkway</th>
<th>Principal Arterial</th>
</tr>
</thead>
<tbody>
<tr>
<td>Planning Capacity</td>
<td>88,000 veh/day</td>
<td>50,000 veh/day</td>
</tr>
<tr>
<td>Number of Lanes</td>
<td>6</td>
<td>6</td>
</tr>
<tr>
<td>Posted Speed</td>
<td>50-65 mph</td>
<td>35-50 mph</td>
</tr>
<tr>
<td>Right of Way Width</td>
<td>200'</td>
<td>130’-150’</td>
</tr>
<tr>
<td>Median Type</td>
<td>Raised or depressed, typical width of 74’</td>
<td>Divided with median openings at 1/4 mile spacing</td>
</tr>
<tr>
<td>Lane Width</td>
<td>12’ recommended, 11’ where restrictions exist</td>
<td>12’-14’</td>
</tr>
<tr>
<td>Left Turn Lanes</td>
<td>Left turns are prohibited at major intersections and are discouraged at side streets and driveways, but can be accommodated at u-turn locations. U-turn directional crossovers are restricted to eight per mile.</td>
<td>At all locations where left turns are permitted</td>
</tr>
<tr>
<td>Right Turn Lanes</td>
<td>Not specified, but intersection design promotes right turns</td>
<td>At all locations where right turns are permitted and volumes warrant</td>
</tr>
<tr>
<td>Full Median Openings/Signalized Intersections</td>
<td>Only at intersections with arterials or major collectors, recommended 1 mile spacing, with minimum of 1/2 mile</td>
<td>1/4 to 1/2 mile, unsignalied full access driveway should be 660’ from a signal</td>
</tr>
<tr>
<td>Partial Access Driveway from Signal</td>
<td>165’ for low-volume driveway, 330’ for high-volume driveway</td>
<td>330’</td>
</tr>
<tr>
<td>On-Street Parking</td>
<td>Prohibited</td>
<td>Prohibited</td>
</tr>
<tr>
<td>Transit Accommodations</td>
<td>Pull-outs and queue jumper lanes where warranted</td>
<td>Pull-outs and queue jumper lanes where warranted</td>
</tr>
<tr>
<td>Pedestrian Accommodations</td>
<td>Sidewalks and grade-separated crossings where warranted</td>
<td>Sidewalks and grade-separated crossings where warranted</td>
</tr>
<tr>
<td>Bicycle Accommodations</td>
<td>Bike lanes and grade-separated crossings where warranted</td>
<td>Bike lanes and grade-separated crossings where warranted</td>
</tr>
</tbody>
</table>

Design Manual, Washington State Department of Transportation

The Washington State Design Manual, most recently updated in 2012, covers all aspects of roadway design including access control, transit facilities, and pedestrian and bicycle facilities. Table 3 summarizes some of the design criteria for classes 1-4 of managed access roadways included in the manual. Class 5 roadways provide moderate mobility for shorter distances, and are typically not considered to be significant regional roadways.

In addition to design standards and access control guidelines, the manual also includes some discussion about transit, pedestrian, and bicycle accommodations. Although design standards for alternate modes are not specified, the manual outlines the idea that regionally significant roadways should not only provide mobility for vehicles, but for all modes of travel.
Table 3 – Washington DOT Classification Criteria

<table>
<thead>
<tr>
<th>Design Standards</th>
<th>Class 1 - Mobility is primary function</th>
<th>Class 2 - Mobility is favored over access</th>
<th>Class 3 - Balance between mobility and access in areas with less than maximum build-out</th>
<th>Class 4 - Balance between mobility and access in areas with more intensive roadside development</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of Lanes</td>
<td>4+</td>
<td>4 or 6</td>
<td>2 to 6</td>
<td>2 to 6</td>
</tr>
<tr>
<td>Posted Speed</td>
<td>50-65 mph</td>
<td>35-50 mph (urban)</td>
<td>30-40 mph (urban)</td>
<td>30-35 mph (urban)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>45-55 mph (rural)</td>
<td>45-55 mph (rural)</td>
<td>35-45 mph (rural)</td>
</tr>
<tr>
<td>Median Type</td>
<td>Restrictive</td>
<td>Restrictive, but TWLTL can be used in special conditions with ADT &lt; 20,000 veh/day</td>
<td>Restrictive, but TWLTL can be used where justified with ADT &lt; 25,000 veh/day</td>
<td>Nonrestrictive medians, but restrictive medians can be used to mitigate unfavorable conditions</td>
</tr>
<tr>
<td>Lane Width</td>
<td>12'</td>
<td>12'</td>
<td>12'</td>
<td>12'</td>
</tr>
<tr>
<td>Shoulders</td>
<td>10' right, 4' left for 4 lanes</td>
<td>10' right, 4'-12' left</td>
<td>10' right, 4'-10' left</td>
<td>10' right, 4'-10' left</td>
</tr>
<tr>
<td>Signal Spacing</td>
<td>1 mile</td>
<td>1/2 mile</td>
<td>1/2 mile</td>
<td>1/2 mile</td>
</tr>
<tr>
<td>Access Spacing</td>
<td>1320 ft</td>
<td>660 ft</td>
<td>330 ft</td>
<td>250 ft</td>
</tr>
<tr>
<td>Transit Accommodations</td>
<td>Bus stops not allowed</td>
<td>Bus stops only at pullouts or designated loading zone</td>
<td>Bus stops only at pullouts or designated loading zone</td>
<td>Bus stops only at pullouts or designated loading zone</td>
</tr>
<tr>
<td>Pedestrian Accommodations</td>
<td>Sidewalk or path</td>
<td>Sidewalk or path</td>
<td>Sidewalk or path</td>
<td>Sidewalk or path</td>
</tr>
<tr>
<td>Bicycle Accommodations</td>
<td>Paved shoulder or path</td>
<td>Paved shoulder or path</td>
<td>Paved shoulder or path</td>
<td>Paved shoulder or path</td>
</tr>
<tr>
<td>Access Control</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pedestrian</td>
<td>Sidewalk or path</td>
<td>Sidewalk or path</td>
<td>Sidewalk or path</td>
<td>Sidewalk or path</td>
</tr>
<tr>
<td>Bicycle</td>
<td>Paved shoulder or path</td>
<td>Paved shoulder or path</td>
<td>Paved shoulder or path</td>
<td>Paved shoulder or path</td>
</tr>
</tbody>
</table>

State Highway Access Management Manual, Ohio Department of Transportation

Issued in 2001, the State Highway Access Management Manual establishes standards for the state highway system. As with the State of Washington, this Ohio manual includes five categories of roadways. Category I, II, and III highways range from freeways to arterials, while roadways in categories IV and V are lower-mobility roadways which are not likely to be regionally significant. Table 4 lists some of the criteria and characteristics of higher-mobility roadways.

Table 4 – Ohio DOT Classification Criteria

<table>
<thead>
<tr>
<th>Category I - Interstates and Freeways</th>
<th>Category II - Principal Arterials and Major Expressways</th>
<th>Category III - Arterials</th>
</tr>
</thead>
<tbody>
<tr>
<td>Design Standards</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Posted Speed</td>
<td>55 mph</td>
<td>45-50 mph</td>
</tr>
<tr>
<td>Median Type</td>
<td>Restrictive</td>
<td>Restrictive</td>
</tr>
<tr>
<td>Intersection Type</td>
<td>Grade separated interchange</td>
<td>Grade separated or at-grade</td>
</tr>
<tr>
<td>Driveway Access</td>
<td>Not Allowed</td>
<td>Not allowed unless other reasonable access is not available</td>
</tr>
<tr>
<td>Signal Spacing</td>
<td>--</td>
<td>1 mile (1/2 mile if needed)</td>
</tr>
</tbody>
</table>
Clark County Code, Clark County, Washington

The Clark County Code, most recently updated in 2012, includes classifications of both urban and rural roadways. There is no interstate or freeway classification; instead, the highest classification of roadway is a parkway arterial. Urban roads can also be classified as principal arterials, minor arterials, collectors, or minor streets. Parkway and principal arterials are the major elements of the county’s road system and are most likely to be regionally significant. Some of the characteristics of the parkway and principal arterials are included in Table 5. Note that Clark County includes standards widths for pedestrian and bicycle facilities.

Table 5 – Clark County (Washington) Classification Criteria

<table>
<thead>
<tr>
<th></th>
<th>Parkway Arterial</th>
<th>Principal Arterial</th>
</tr>
</thead>
<tbody>
<tr>
<td>Planning Capacity</td>
<td>24,000 veh/day</td>
<td>24,000 veh/day</td>
</tr>
<tr>
<td>Number of Lanes</td>
<td>4</td>
<td>4</td>
</tr>
<tr>
<td>Design Speed</td>
<td>50 mph</td>
<td>50 mph</td>
</tr>
<tr>
<td>Median Type</td>
<td>Raised</td>
<td>Raised</td>
</tr>
<tr>
<td>Lane Width</td>
<td>12'</td>
<td>11-12'</td>
</tr>
<tr>
<td>Right-of-Way Width</td>
<td>120'</td>
<td>100'</td>
</tr>
<tr>
<td>Left Turn Lanes</td>
<td>As needed</td>
<td>As needed</td>
</tr>
<tr>
<td>Right Turn Lanes</td>
<td>As needed</td>
<td>As needed</td>
</tr>
<tr>
<td>Driveway Access</td>
<td>Prohibited</td>
<td>Minimal</td>
</tr>
<tr>
<td>Driveway Spacing</td>
<td>--</td>
<td>230' for 45 mph and over</td>
</tr>
<tr>
<td>Pedestrian Accommodations</td>
<td>12' trail</td>
<td>6' sidewalk</td>
</tr>
<tr>
<td>Bicycle Accommodations</td>
<td>8' paved shoulders</td>
<td>6' bike lanes</td>
</tr>
</tbody>
</table>

NCHRP Synthesis 404, State of the Practice in Highway Access Management, FHWA

This 2010 report discusses how various agencies have developed various components of access management programs, and also includes a discussion of obstacles that have been faced and methods which may improve the implementation of access management strategies. Of particular interest was the North Carolina Department of Transportation facility types comparison chart, which includes design and access control standards for each of the four roadway types (freeways, expressways, boulevards, and thoroughfares). Thoroughfares are collector-type roadways, and are therefore not included in Table 6, which presents a partial reproduction of the North Carolina practices.
Table 6 – North Carolina Classification Criteria

<table>
<thead>
<tr>
<th>Design Standards</th>
<th>Freeways</th>
<th>Expressways</th>
<th>Boulevards</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Functional purpose</strong></td>
<td>High mobility, low access (interstate or freeway)</td>
<td>High mobility, low to moderate access (arterial)</td>
<td>Moderate mobility, low to moderate access (arterial or collector)</td>
</tr>
<tr>
<td><strong>Number of Lanes</strong></td>
<td>4+ with median</td>
<td>4+ with median</td>
<td>2+ with median</td>
</tr>
<tr>
<td><strong>Posted Speed</strong></td>
<td>55 mph or greater</td>
<td>45-60 mph</td>
<td>30-55 mph</td>
</tr>
<tr>
<td><strong>Traffic Signals</strong></td>
<td>Not allowed</td>
<td>Limited, consolidation recommended, restrict to right-in/right-out</td>
<td>Limited, consolidation recommended, restrict to right-in/right-out</td>
</tr>
<tr>
<td><strong>Driveways</strong></td>
<td>Not allowed</td>
<td>Limited, consolidation recommended, restrict to right-in/right-out</td>
<td>Limited, consolidation recommended, restrict to right-in/right-out</td>
</tr>
<tr>
<td><strong>Intersection type</strong></td>
<td>Grade separated interchange</td>
<td>Grade separated for major cross streets, at grade for minor cross streets (acceleration and deceleration lanes should be used at-grade)</td>
<td>At-grade, occasionally grade separated. Acceleration and deceleration lanes should be used.</td>
</tr>
<tr>
<td><strong>Median Openings</strong></td>
<td>--</td>
<td>Full access spacing is 2000' for 45 mph or greater, 1200' for &lt; 45 mph. Alternatives to all-motion crossovers should be used.</td>
<td>Full access spacing is 2000' for 45 mph or greater, 1200' for &lt; 45 mph</td>
</tr>
</tbody>
</table>

Access Management System and Standards, Nevada Department of Transportation

This 1999 document includes detailed information about each of the eight roadway categories established for the state of Nevada. Roadways in categories 1 (freeways), 2 (expressways), 3 (regional highways), and 5 (principal arterials) can be regionally significant roadways. Because category 4 roadways (rural highways) have similar characteristics of regional highways, they are not listed separately in the following table. However, one notable difference between category 4 and category 5 roadways is that the standards specifically mention the potential for roundabouts on category 4 roadways.

Roadways in categories 6 (minor arterials), 7 (collectors), and 8 (frontage or service roads) deal mainly with local traffic and access, and are therefore not included in Table 7. As shown in the table, access control varies by the location of the roadway (i.e. urban versus rural) as well as the posted speed limit of the facility. In addition, while driveway access is typically limited to right-in right-out only for expressways and regional highways, provisions are included for atypical situations. For example, a full access driveway may be allowed on a regional highway if certain criteria are met, but if the volumes at that driveway meet or are within 25% of meeting at least one of the MUTCD signal warrants, the driveway must be converted to right-in right-out only.
As seen throughout the research, each jurisdiction classifies roadways differently, but certain elements are similar throughout. For example, high roadway classes (i.e. freeways) typically have higher speeds, grade separated interchanges, and more access restrictions than lower roadway classes (i.e. arterials). The characteristics and criteria for roadway classifications used in different jurisdictions throughout the country are summarized in Table 8. Note that the major intersection types listed for access-controlled facilities will be further discussed in the following section.
Table 8 – Summary of Classification Criteria

<table>
<thead>
<tr>
<th>Attribute</th>
<th>Limited-Access Facilities (Freeway, Interstate, Expressway)</th>
<th>Controlled-Access Facilities (Parkway, Expressway, Regional Highway, Prime Arterial)</th>
<th>Arterials (Arterial, Principal Arterial, Major Road, Boulevard)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Design Standards</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Level of Access Control</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Signal Spacing</strong></td>
<td>1 mi where allowed</td>
<td>1/4 mi to 1 mi</td>
<td>1/4 mi to 1 mi</td>
</tr>
<tr>
<td><strong>Median Opening Spacing</strong></td>
<td>1/2 mi where allowed</td>
<td>1,000 ft to 1/2 mi</td>
<td>600 ft to 1/2 mi</td>
</tr>
<tr>
<td><strong>Driveway Spacing</strong></td>
<td>N/A</td>
<td>Grade separated or at grade (indirect left turns, CFI, PFI, super-street median crossover, conventional)</td>
<td>At grade (indirect left turns, CFI, PFI, conventional)</td>
</tr>
<tr>
<td><strong>Major Intersections</strong></td>
<td>Grade separated</td>
<td>Full median openings allowed, but if volumes at access meet or are within 25% of volume for MUTCD traffic signal warrant, access should be restricted to right-in-right-out only, consolidation of private driveways is recommended</td>
<td></td>
</tr>
<tr>
<td><strong>Minor Intersections/Driveways</strong></td>
<td>N/A</td>
<td>Right-in Right-out only, left turn permitted if signalization is not a possibility or if out-of-direction travel would be more than two miles, consolidation of private driveways is recommended</td>
<td></td>
</tr>
<tr>
<td><strong>On-Street Parking</strong></td>
<td>Prohibited</td>
<td>Prohibited</td>
<td>Prohibited</td>
</tr>
<tr>
<td><strong>Alternate Modes</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Transit Accomodations</strong></td>
<td>Provide for BRT or LRT in median/inside travel lane, bus stops not allowed</td>
<td>Provide for BRT or LRT in median/inside travel lane, bus pullouts, designated loading zones</td>
<td>Bus pullouts, queue jumper lanes, designated loading zones</td>
</tr>
<tr>
<td><strong>Pedestrian Accomodations</strong></td>
<td>Sidewalks/paths</td>
<td>Sidewalks/paths, grade separated crossings where warranted</td>
<td>Sidewalks/paths, grade separated crossings where warranted</td>
</tr>
<tr>
<td><strong>Bicycle Accomodations</strong></td>
<td>Bike lanes/paths</td>
<td>Bike lanes/paths, grade separated crossings where warranted</td>
<td>Bike lanes/paths, grade separated crossings where warranted</td>
</tr>
</tbody>
</table>

*Additional right-of-way may be required at intersections or interchanges to provide additional turning lanes and pedestrian refuge space.

**Widths were specified in some documents, but not in others. However, most indicate at least that outside shoulders/multi-use lanes should be provided and should be paved.
Major Intersection Types for Access-Controlled Facilities (Parkways)
As seen in the previous section, a number of intersection treatments can be employed on access-controlled facilities aside from typical signalized intersections. Along any roadway facility, signalized intersections are where the roadway’s capacity is limited. Therefore, on a parkway facility which aims to provide high mobility and limited access, it is critical to provide efficient intersection operations. The following are alternative intersection designs that can be employed on parkways or other access-controlled facilities:

**Continuous Green T Intersection**

A Continuous Green T intersection, also known as a Florida T intersection, is only able to be used for three-leg intersections. The design allows one direction of major roadway traffic to flow continuously without having to stop for traffic entering from the cross street, reducing the overall delay at the intersection. Left turns onto the cross street are signal controlled, as well as the opposing major road through movement and the cross street traffic. Dual left turn lanes can be accommodated on the major roadway and on the cross street if needed. Figure 15 shows an example of a Continuous Green T intersection with dual left turn lanes from the major roadway.

![Figure 15 – Continuous Green T Intersection](Source: YourValleyVoice.com, McAllen, TX)

**Indirect Left Turn Intersection**

Indirect Left Turn intersections involve the elimination of direct left turns at an intersection from the major and/or minor street approaches. Drivers wishing to turn left from the major street onto the cross street will first travel through the intersection, then will make a u-turn at a downstream median opening which may or may not be signalized. These drivers then turn right at the main intersection to complete the movement. Removing the left turns from the main intersection reduces the number of phases needed at the signal, which can help improve intersection operations and capacity. Figure 16 shows an example of an Indirect Left Turn intersection.
Superstreet Median Crossover Intersection

The Superstreet Median Crossover intersection (also called the Restricted Crossing U-Turn intersection) is similar to the Indirect Left Turn intersection, but the design includes a break in cross street traffic that allows each direction of the major roadway to be signalized separately. Traffic on the cross street must turn right regardless of which direction they wish to travel, but all movements are allowed from the major street, including left turns. If a vehicle on the cross street wishes to turn left or travel through the intersection, that vehicle can then make a u-turn at a median crossover, and either turn right or travel through the original intersection. Because the two directions of travel are signalized separately, progression along a corridor can be improved, which can reduce delay and improve the overall operations of the corridor. Figure 17 shows the movements at a Superstreet Median Crossover intersection. This design can also be applied to three-leg intersections (Figure 18) or offset intersections (Figure 19).
Quadrant Roadway Intersection

A Quadrant Roadway intersection reroutes all four left-turn movements at an intersection to a connector roadway located in one quadrant. The main intersection then only serves through and right turn traffic, and the signal can operate with two phases, which is more efficient than the typical four-phase operation used at a major intersection with left turn phases in all directions. **Figure 20** shows the left turn movements at a Quadrant Roadway intersection. The intersections of the collector/quadrant roadway with the major street and the cross street are typically signalized.
Continuous Flow Intersection

At a Continuous Flow intersection (also called a Displaced Left Turn intersection), left turns are laterally displaced as they approach the main intersection. Left turning traffic crosses the opposing through movement at a signalized intersection typically several hundred feet upstream of the intersection, then travels on the outside (to the left) of the opposing through vehicles. When the left turn vehicles reach the main intersection, they can proceed onto the cross street without conflict while the opposing through movement also traverses the intersection. By allowing the left turn and through vehicles in two directions to travel through the intersection at the same time, the number of phases at the signal is reduced, which leads to reduced delays and improved operations. Figure 21 shows an example of a Continuous Flow intersection. Although the figure shows displaced left turns in all directions, the displaced left turns can be used on just one of the two roadways at an intersection. In addition, single or dual left turn lanes can be provided.

Figure 20 – Quadrant Roadway Intersection
Parallel Flow (or Paraflow) Intersection

Parallel Flow intersections are a variation of a Continuous Flow intersection. As seen in Figure 22, the turning traffic crosses the opposing traffic after the left turn movement is made at the main intersection. Recall that with the Continuous Flow intersection, the crossing movement is made first, followed by the left turn movement.
Figure 22 – Parallel Flow Intersection
(Source: Quadrant Engineering, LLC)
4. Financial Considerations

Funding Implementation of the RSC Network

Funding for transportation improvement is universally challenging during the Great Recession. New projects compete with system maintenance in the same funding pool. As a result both new improvements and maintenance investments are compromised. As we come out of the recession, growth will rebound with a concomitant increase in travel demand and a need to catch up on deferred maintenance. The following discussion describes some of the more prevalent funding sources that are expected to be available for RSC implementation through the PAG and RTA processes. Numerous additional funding opportunities will be discussed in later sections of the RSC study.

HURF

Our region relies primarily on major public funding sources and relies most heavily mostly on Arizona’s Highway User Revenue Fund (HURF). This fund, which is only for roadway uses, is collected by the State, and then allocated to counties and municipalities by formula. The State retains more than half the fund, some of which is provided to Phoenix and Tucson areas for limited access corridors. Similar to federal funds, the region has little influence over the formula-based allocations.

The State of Arizona taxes motor vehicle fuels and collects a variety of fees for registration and operation of motor vehicles. These collections include gasoline and “use fuel” (i.e., diesel) taxes, motor carrier taxes, vehicle license taxes, motor vehicle registration fees, and other miscellaneous fees. Revenues are deposited in the Arizona Highway User Revenue Fund (HURF) and are then distributed to the cities, towns and counties and to the State Highway Fund. These taxes represent a primary source of revenues available to the state for highway construction, improvements and other related expenses. Prior analysis by CLA and other shows that buying power of HURF has declined appreciably due to inflation and the Legislature’s refusal to increase the state gas tax, among other reasons. The chart below shows that in

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1 Article 9, Section 14 of the Arizona Constitution
normalized dollars, the fund generates about $88 per capita now compared to about $108 in 2007. This is an 18% decline in purchasing power.

Over the past several years, the Arizona legislature diverted some HURF revenue to the Arizona Department of Public Safety, and thus reducing the amount allocated to counties and municipalities. The recent trends in HURF distribution to PAG jurisdictions are shown below, using FY 2006/07 as the benchmark. HURF was increasing prior to the benchmark year, but afterwards it declines due in part to diminishing income, but mostly due to revenue diversion. This revenue decline has obvious implications on transportation projects at the local level, including maintenance projects.

**HURF Bonds and Outstanding Debt Service by Jurisdiction**

Bonds, sold to investors in a public market, are the chief mechanism used by municipalities to finance capital facilities. Such bonds are often called “municipal” bonds even though many are issued by state governments and special purpose districts. Through the State Transportation Board, counties and cities are authorized to issue HURF bonding if approved at a local election. In November 1997, a $350 million HURF bond authorization was approved by Pima County voters, and this was applied to several capital improvements within Pima County, including some in the incorporated areas. Other communities and counties in the state have also pursued HURF bonding, and as a result are repaying the associated debt. Table 9 shows the current HURF debt services by jurisdictions in the state.
Table 9 – Arizona HURF Diversion Analysis FY 2006/07 Benchmark (Pima County)

<table>
<thead>
<tr>
<th>FY</th>
<th>Pima County</th>
<th>Marana</th>
<th>Oro Valley</th>
<th>South Tucson</th>
<th>Tucson</th>
<th>Sahuarita</th>
<th>Total</th>
<th>Cumulative Loss</th>
</tr>
</thead>
<tbody>
<tr>
<td>2002/03</td>
<td>$37,716,916</td>
<td>$1,043,282</td>
<td>$2,283,594</td>
<td>$422,000</td>
<td>$44,383,949</td>
<td>$249,135</td>
<td>$86,098,874</td>
<td></td>
</tr>
<tr>
<td>2003/04</td>
<td>$39,829,979</td>
<td>$1,092,521</td>
<td>$2,560,691</td>
<td>$442,282</td>
<td>$46,712,006</td>
<td>$261,322</td>
<td>$90,898,801</td>
<td></td>
</tr>
<tr>
<td>2004/05</td>
<td>$41,755,890</td>
<td>$1,141,523</td>
<td>$2,688,528</td>
<td>$461,892</td>
<td>$48,864,152</td>
<td>$273,124</td>
<td>$95,185,109</td>
<td></td>
</tr>
<tr>
<td>2005/06</td>
<td>$43,291,930</td>
<td>$1,254,679</td>
<td>$2,798,398</td>
<td>$473,220</td>
<td>$50,527,993</td>
<td>$351,596</td>
<td>$98,697,815</td>
<td></td>
</tr>
<tr>
<td>2006/07</td>
<td>$44,565,617</td>
<td>$2,067,895</td>
<td>$3,031,223</td>
<td>$432,071</td>
<td>$49,548,012</td>
<td>$1,088,363</td>
<td>$100,733,180</td>
<td>(Benchmark)</td>
</tr>
<tr>
<td>2007/08</td>
<td>$44,060,131</td>
<td>$2,035,849</td>
<td>$3,002,828</td>
<td>$429,747</td>
<td>$48,966,864</td>
<td>$1,067,285</td>
<td>$99,562,705</td>
<td>($1,170,475)</td>
</tr>
<tr>
<td>2008/09</td>
<td>$41,209,550</td>
<td>$1,936,369</td>
<td>$2,855,668</td>
<td>$408,550</td>
<td>$45,965,674</td>
<td>$1,014,642</td>
<td>$93,390,453</td>
<td>($7,342,727)</td>
</tr>
<tr>
<td>2009/10</td>
<td>$38,739,414</td>
<td>$1,808,963</td>
<td>$2,667,797</td>
<td>$381,679</td>
<td>$43,086,356</td>
<td>$947,901</td>
<td>$87,632,109</td>
<td>($13,101,071)</td>
</tr>
<tr>
<td>2010/11</td>
<td>$38,973,544</td>
<td>$1,869,483</td>
<td>$2,693,145</td>
<td>$384,046</td>
<td>$43,300,823</td>
<td>$1,021,736</td>
<td>$88,242,777</td>
<td>($12,490,403)</td>
</tr>
</tbody>
</table>

Cumulative Decline Since FY 2006/07 ($34,104,676)

Source: Office of Pima County Administrator
Local Funds

In contrast to federal and state funding, local funds are under the total control of local governments and the electorate. One of the major advantages is that all of the money stays in the region; it is not shared with the State or Federal government. The types of funding available are mainly restricted to sales taxes and primary and secondary property taxes, although many other options could be available if authorized by the Legislature.

Local agencies cannot impose fuel taxes, sales tax on fuel, and myriad other taxes and fees available in other parts of the country. This section describes taxes and fees currently authorized by statute; however, many options are available if the State Legislature would pass implementing legislation.

Local funds dedicated to transportation in the PAG region include the RTA’s ½¢ sales tax and road impact fees collected by all jurisdictions except South Tucson and Sahuarita.

Regional Transportation Authority (RTA) Plan

In 2006, the Regional Transportation Authority (RTA) plan was approved by voters to fund $2.1 billion in roadway, transit, safety and environmental improvements through the year 2026. This plan is funded through a ½¢ sales tax and additional impact fees, federal funds and local transportation funding sources. As of April 2012, PAG has reported that over 460 RTA project have been completed – most of these (299) have been safety improvements. Eight major roadway projects had been completed as of April 2012. Construction of the largest project in the RTA plan, the Tucson Modern Streetcar, is underway -- the RTA is funding $75 million of this $197 million project.

Although this plan will sunset in 2026, the hope is that it will be extended by the voting public beyond this horizon. In fact, the revenue projections for the 2040 PAG Regional Transportation Plan (RTP) include this funding extension as a reasonably expected source for funding a portion of the RTP plan.

Development Impact Fees, Exactions, and “In Lieu” Fees

Development impact fees have become a common source of revenue for local governments, notably for transportation capital improvements. Impact fees are charged against new development, usually both residential and non-residential, to offset the costs of new travel demand generated by the development. These fees are paid by developers at the time of building permit issuance, and are typically passed along to the owners and tenants. The fees cannot be used to cure existing deficiencies or for non-capital expenditures. In Arizona, jurisdictions that impose impact fees must prepare annual reports that simplify tracking the revenue. Impact fees for roads range from a few hundred dollars to $10,000 per new house. The fees for non-residential uses also vary widely. Impact fees must be demonstrably proportionate to the actual cost of accommodating travel demand due to the development.

Property development may also generate transportation revenue in the form of private contributions, such as exactions and other conditions of rezoning, developer contributions (typically of right-of-way for public improvements), and direct developer construction of improvements or payments “in lieu” of construction. Contributions may be either in cash or in kind.

Recent developments in the State of Arizona have changed how impact fees are assessed in municipalities. On April 26, 2011, Governor Brewer signed Senate Bill 1525 (Chapter 243, First Regular Session, 2011), which significantly alters the structure of development fee programs for Arizona municipalities. In essence, SB 1525 completely rewrote A.R.S. §9-463.05, the statute that enabled municipalities to assess, collect and use development fees. Under the new requirements, any new
development fee adopted after the January 1, 2012 effective date must comply with §9-463.05 as amended.

Pursuant to §9-463.05(K), a municipality may continue to assess any development fee it adopted prior to January 1, 2012 until August 1, 2014, but the municipality must replace the existing fee with one consistent with the new law on or before that deadline. This section, however, limits the continuation of existing development fees past January 1, 2012 and until August 1, 2014 to development fees that “will be used to provide a necessary public service for which development fees can be assessed pursuant to this section.”

SB 1525 has been described as “essentially a complete rewrite of Arizona’s development fee statute.” It amended all but two subparagraphs and added “some 14 pages of statutory language” to the existing statute. Summarizing the impacts of changes that are so sweeping is not easy, but for the purposes of this report, the major changes can be categorized as substantive and procedural. One of the stated goals of the legislature was to reaffirm the nexus between the development impacts and the fees assessed to offset the impacts, and to create a more consistent program across the state of Arizona.

**Pima County Property Tax for Road Purposes**
The County has existing authority to levy a countywide property tax for road purposes under ARS §28-6712.

28-6712. **Tax levies for county roads**
A. For road purposes the board of supervisors may levy a real and personal property tax of not more than twenty-five cents per one hundred dollars of property in the county as valued for tax purposes. The board of supervisors shall levy and collect the tax at the same time and in the same manner as other primary property taxes are levied and collected.
B. The monies shall be paid into the county treasury for the benefit of the highways in the county and shall be spent by the board with other monies received for purposes of improvement of county roads.
C. Notwithstanding any other law, in counties with an assessed valuation of two hundred million dollars or more, an amount of not more than twenty-five cents per one hundred dollars assessed valuation may be budgeted, levied, collected and spent for road purposes independently of and in addition to any other amounts lawfully available for road purposes. This levy is in lieu of the levy permitted under subsection A.

According to a report by the County Administrator,² “This requires a majority vote of the Board to implement. The tax rate cannot exceed 25 cents per $100 of assessed valuation. At the maximum rate, about $19 million would be collected per year countywide. This property tax levy would substantially increase available road funding. Since the levy would be countywide, the tax levy should be returned to the jurisdictions within Pima County in accordance with their contributions. [The table below]...shows an example of such jurisdictional distribution whereby the portion of jurisdictional assessed value in proportion to total assessed value of the County is used to determine jurisdictional allocations. The table also shows the amounts that would be received by each jurisdiction based on the maximum property tax levy. The Board could also select other funding distribution options such as by lane miles in each jurisdiction or by population, which is shown in the bar chart figure below. If adopted at the maximum

amount, approximately $21 million per year would be generated by a property tax levy. The Board of Supervisors has not adopted any such strategy for immediate implementation at this time.

<table>
<thead>
<tr>
<th>Jurisdiction</th>
<th>Percent of Assessed Value</th>
<th>Distribution of Maximum Property Tax Levy Based on Assessed Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tucson</td>
<td>41.29%</td>
<td>$8,578,122</td>
</tr>
<tr>
<td>South Tucson</td>
<td>0.29%</td>
<td>$60,248</td>
</tr>
<tr>
<td>Oro Valley</td>
<td>7.39%</td>
<td>$1,535,295</td>
</tr>
<tr>
<td>Marana</td>
<td>5.38%</td>
<td>$1,117,711</td>
</tr>
<tr>
<td>Sahuarita</td>
<td>2.44%</td>
<td>$506,917</td>
</tr>
<tr>
<td>Unincorporated Area</td>
<td>43.21%</td>
<td>$8,977,007</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>100.00%</strong></td>
<td><strong>$20,775,301</strong></td>
</tr>
</tbody>
</table>

Calculations based on Table 7 in "Board of Supervisors Memorandum, April 10, 2012: Need for Increased Investment in Transportation and Highway Maintenance"
County 1/2 cent Sales Tax

<table>
<thead>
<tr>
<th>42-6103. County general excise tax; authority to levy; rate; distribution; use of proceeds</th>
</tr>
</thead>
<tbody>
<tr>
<td>A. A county having a population of less than one million five hundred thousand persons, according to the most recent United States decennial census, on a unanimous vote of the board of supervisors, may levy and, if levied, the department shall collect a county general excise tax on each person engaging or continuing in the county in a business taxed under chapter 5, article 1 of this title and section 42-5352, subsection A.</td>
</tr>
<tr>
<td>B. The excise tax levied pursuant to subsection A of this section shall be at a rate applied as a percentage of the rates prescribed by section 42-5010, subsection A on each class of business subject to the tax imposed by chapter 5, article 1 of this title and section 42-5352, subsection A, not to exceed ten per cent.</td>
</tr>
<tr>
<td>C. At the end of each month the state treasurer shall transmit the net revenues collected pursuant to this section to the treasurer of the county levying the tax. The county shall use these revenues to support and enhance countywide services.</td>
</tr>
</tbody>
</table>

This includes a levy up to a half-cent countywide sales tax under ARS 42-6103. This requires a unanimous vote of the Board to implement. Although the statute allows up to a 1/2 cent, a rate of only 1/8 cent would generate up to $15 million per year and could be discontinued at any time the Board chooses. All counties in Arizona except Maricopa County are authorized to levy this tax. Pima County is the only authorized county that does not levy such a tax. Because of the requirement of a unanimous vote, as well as past imposition of sales tax increases only after voter approval, this option has not been adopted by the Board for Supervisors.

5. Existing Potential Candidate Corridors
The RSC Study will develop and recommend a network of corridors with regional significance that promote increased mobility and access to and from employment centers, residential areas, urban areas, suburban areas, and developing areas. The first step in the process is to identify candidate RSCs within the PAG region using criteria that reflects the regional objectives. As a starting point, established functional roadway systems have been identified with potential regional significance. Criteria will be applied to the systems described below to create RSC candidates.

National Highway System
The National Highway System (NHS) is comprised of roadways that are important to the Nation’s economy, defense, and overall mobility. According to the Code of Federal Regulations, Title 23, Part 470, Subpart A (23 CFR 470 A), the NHS is supposed to serve major population centers, international border crossings, ports and airports, meet national defense requirements, and serve interstate and interregional travel. The NHS includes other roadways such as, Interstates, the Strategic Highway Network, Major Strategic Highway Network Connectors, and Intermodal Connectors. The NHS is not to exceed 178,250 miles.

National Interstate System
The Dwight D. Eisenhower National System of Interstate and Defense Highways (interstate system) consists of routes with the highest importance to the Nation. They are built with uniform geometric and construction standards with the purpose of connecting metropolitan areas, cities, industrial centers, and urbanized areas. Interstates also serve national defense purposes and connect international border points.
State Highway System

According to the Arizona Revised Statute 28-101, in Arizona, state highways are defined as a state route or portion of a state route that is accepted and designated by the State Transportation Board as a state highway and that is maintained by the state.

State Routes

State routes are right-of-way, whether it is actually used as a highway or not, that is designated by the State Transportation Board as a location for the construction of a state highway. Some state routes are designated over existing city streets or county roads but are not yet state highways because they do not meet state highway specifications. A road must first be designated as a state route before it can become a state highway under Arizona law (Arizona Revised Statute 28-7041).

Aerospace Defense Corridors

In a memo dated February 25, 2011, Pima County outlined plans for investment in infrastructure that would support the aerospace and defense industries in the region. Investments will mainly be in the form of transportation enhancements dubbed Defense Corridors. These corridors will connect major job centers, such as the University of Arizona Science and Technology Park, Tucson International Airport, the University of Arizona, and Raytheon. The purpose of these defense corridors will be to move equipment, personnel, and materials to these facilities.

Strategic Highway Network (STRAHNET)

STRAHNET is a network of highways that are important to the United States strategic defense policy and which provide defense access, continuity, and emergency capabilities for the movement of personnel, materials, and equipment.

Local Arterial System

According to the Tucson Major Streets and Routes Plan and the Pima County Major Streets and Routes Plan, arterials carry high levels of traffic, serving over 12,000 vehicles per day and land uses that generate high traffic volumes. Arterials connect to bridges, freeway interchanges, and other arterials to provide continuity throughout the City. They vary in their design, meaning they can have four lanes or eight lanes, and can either have medians or be without medians.

Transit Network

The main transit system in the PAG region with fixed route service is provided by Sun Tran. Sun Tran operates 40 fixed routes, servicing approximately 20 million passenger trips. The system also features express routes that connect park-and-ride lots throughout the region with the transit centers in downtown, the UA, Aero Park, and other popular destinations throughout the PAG region. Other features that make up the system are Sun Van, a paratransit service; Sun Express, a weekday rush hour service; Sun Shuttle, provides neighborhood transit service; Ajo Community Circulator Service, provides easy travel around the Ajo area and connects to other transit systems; Downtown Loop, free transit service in the downtown area; Sun Link, modern street car linking the downtown and UA campus; Sun RideShare, program for carpooling and vanpooling for commuters; Neighbors Care Alliance, volunteer program that provides transportation services for seniors and younger disabled individuals.
Figure 23 – Map of the National Highway System

Legend
- National Highway
- Other Roads
- Local Roads
- Tribal Communities
Figure 24 – Map of the State Highway and the National Interstate System
Figure 25 – Map of the State Routes
Figure 26 – Map of the Aerospace Defense Corridors and Strategic Highway Network
Figure 27 – Map of the Local Arterial System
Figure 28 – Map of Transit and Rail Networks
6. ADOT Route Transfer Procedures

In December 2011, a Draft Route Transfer Handbook was completed for ADOT to guide ADOT and local and tribal agencies through the process of transfer roads either into the State Highway System or from the State Highway System to local or tribal jurisdiction. The study does not identify routes that may be candidates for transfer, but rather identifies the process involved to transfer a road. The Draft Handbook is summarized in this report for the purpose of understanding the potential processes necessary should a route transfer be a consideration of identifying candidate RSCs.

The study evaluated existing Arizona statutes and State transportation policies and recommended changes to enhance the policies and statutes to support a cooperative route transfer process. In addition, route transfer processes from other states were examined to compile a list of best practices to be incorporated into the Handbook.

Figures 29, 30, and 31 respectively depict the process for transfers from the State Highway System to local or tribal governments, from a local or tribal government to the State Highway System, and temporary transfer to and from a local jurisdiction to the State Highway System.
Figure 29 – Process to Transfer from a State Highway System to Local or Tribal Governments

Decision Making Process for Cooperative Permanent Route Transfer from State Highway System to a Local or Tribal Government

ADOT or local/tribal government identifies a route transfer candidate segment and prepares preliminary criteria elements, measures, and information pertinent to the transfer.

Do not proceed

Process ends

Agreement not reached on scope, responsibilities and decision making process

Process ends

Initial Meeting between ADOT and local or tribal government to determine if Route Transfer Analysis should proceed

ADOT drafts Memorandum of Intent for Route Transfer Analysis, responsibilities and decision making process

Preliminary Data Collection

Preliminary Route Transfer Feasibility Evaluation conducted based on criteria, measures and thresholds

Sufficient criteria met to consider transfer of some or all responsibilities

Process ends

Detailed Data Collection and Route Transfer Report

Initial Negotiations for jurisdictional and cost responsibilities

Public Involvement activities are planned and implemented at appropriate stages as identified in consultation with the participating agency

Tentative agreement reached on transfer of some or all responsibilities

Modifications made to tentative agreement based on STB direction

Tentative agreement discussed with State Transportation Board (STB)

Final Negotiations for jurisdictional and cost responsibilities

Local or tribal government approves or requests modifications to IGA

ADOT develops draft Inter-Governmental Agreement (IGA)

IGA executed and final STB approval of transfer of jurisdictional responsibilities through Resolution of Abandonment

Implement provisions of IGA

Process complete
Figure 30 – Process to Transfer from a Local or Tribal Governments to a State Highway System

Decision Making Process for Cooperative Permanent Route Transfer from a Local or Tribal Government to the State Highway System

Sponsoring local or tribal government identifies a route transfer segment and prepares preliminary criteria elements, measures, and information pertinent to the transfer

Do not proceed

Process ends

Agreement not reached on scope, responsibilities and decision making process

Process ends

Initial meeting between ADOT and local or tribal government to determine if Route Transfer Analysis should proceed

Requesting agency drafts MEMORANDUM OF INTENT for Route Transfer Analysis responsibilities and decision making process

Preliminary Data Collection

Preliminary Route Transfer Feasibility Evaluation conducted, based on criteria, measures and thresholds

Sufficient criteria met to consider transfer of some or all road responsibilities

Detailed Data Collection and Route Transfer Report

Initial Negotiations for jurisdictional and cost responsibilities

Public involvement activities are planned and implemented at appropriate stages as identified in consultation with the participating agency

Tentative agreement reached on transfer of some or all responsibilities

Tentative agreement discussed with State Transportation Board (STB)

Final Negotiations for jurisdictional and cost responsibilities

Final agreement reached with STB

Local or tribal government approves or requests modifications to IGA

ADOT develops draft INTERGOVERNMENTAL AGREEMENT (IGA)

IGA executed and final STB approval of transfer of jurisdictional responsibilities through Resolution of Abandonment +

Implement provisions of IGA

Process complete

Legend: Key Decision Points
Figure 31 – Process for Temporary Transfer to and from a Local Jurisdiction to the State Highway System
Before a route can be transferred it must first be evaluated to determine which government agency is better served through the route transfer. The evaluation will also identify flaws that may prevent a route transfer. The two following tables are from the Handbook that specifies things to consider when evaluating a route transfer and the potential data needs for the evaluation, respectively.

**Table 10 – Route Transfer Considerations**

<table>
<thead>
<tr>
<th>Category</th>
<th>Transfer Considerations</th>
<th>Considerations for Transfer to Local or Tribal Government</th>
<th>Considerations for Transfer to State Jurisdiction</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Transfer Objective</strong></td>
<td>What is the main objective or goal that is anticipated through completion of the proposed transfer?</td>
<td>A local or tribal government desires increased control of improvements, maintenance, access decisions, and financial responsibility.</td>
<td>ADOT desires to gain or maintain control and/or financial responsibility.</td>
</tr>
<tr>
<td><strong>Right-of-Way</strong></td>
<td>Does ADOT or the local or tribal government have full title rights to the candidate roadway?</td>
<td>Route transfer evaluation and negotiations require that all roadway owners (e.g. federal, state, tribal, easement) are participants in the process.</td>
<td>Route transfer evaluation and negotiations require that all roadway owners (e.g. federal, state, tribal, easement) are participants in the process.</td>
</tr>
<tr>
<td><strong>Trip character</strong></td>
<td></td>
<td>Route primarily serves local travel needs. Vehicle trips are primarily local in nature, for shopping, local business, and recreation.</td>
<td>Route primarily serves regional or statewide travel needs; vehicle trips are mostly regional or statewide in nature.</td>
</tr>
<tr>
<td>Trip purpose</td>
<td>Does the road or highway serve statewide, regional, or local travel needs?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Multimodal transportation</td>
<td>Do alternate modes of travel (bicycles, pedestrians, public transit, and school buses) that primarily serve local trips, significantly or detrimentally impact the function of the roadway?</td>
<td>Trips made by local transit, bicycles, and pedestrians have a significant impact on the function of the route. This does not pertain to regionally-oriented transit such as Express Bus or other high-capacity transit.</td>
<td>Local transit, bicycles, and pedestrians do not have a significant impact on the function of the route. This does not pertain to regionally-oriented transit such as Express Bus or other high-capacity transit.</td>
</tr>
<tr>
<td>Is there a desire by the local or tribal government for significant investment in multimodal facilities, such as sidewalks, shared use paths, crosswalks/pedestrian signals?</td>
<td>Significant multimodal infrastructure is needed to accommodate frequent users of the roadway, including bicyclists, pedestrians, and transit users.</td>
<td>There is not a desire or need for significant multimodal infrastructure.</td>
<td></td>
</tr>
<tr>
<td>Does the route connect to regional multimodal facilities, such as airports or rail stations?</td>
<td>Route does not connect to significant regional multimodal facilities.</td>
<td>Route connects to significant regional multimodal transportation facilities.</td>
<td></td>
</tr>
</tbody>
</table>
Table 10 – Route Transfer Considerations (continued)

<table>
<thead>
<tr>
<th>Category</th>
<th>Transfer Considerations</th>
<th>Considerations for Transfer to Local or Tribal Government</th>
<th>Considerations for Transfer to State Jurisdiction</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Highway Function</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Is the route needed for statewide or regional system connectivity?</td>
<td>Route is not needed to maintain regional continuity.</td>
<td>Route is needed to maintain regional continuity.</td>
</tr>
<tr>
<td></td>
<td>Is this route a high-capacity connecting route needed to form an efficient network?</td>
<td>Route is not needed to maintain continuity in the State Highway System.</td>
<td>Route is needed to maintain continuity in the State Highway System.</td>
</tr>
<tr>
<td></td>
<td>Does this route form a convenient or necessary link for connecting sections of state highways or state routes through cities or towns?</td>
<td>Route does not form a necessary link for carrying state highways through cities or towns.</td>
<td>Route forms a necessary link for carrying state highways through cities or towns.</td>
</tr>
<tr>
<td></td>
<td>Does the route or route segment connect two interstate freeways?</td>
<td>Route does not connect two interstates.</td>
<td>Route connects two interstates.</td>
</tr>
<tr>
<td></td>
<td>Does the route connect two state highways?</td>
<td>Route does not connect two state highways.</td>
<td>Route connects two or more state highways.</td>
</tr>
<tr>
<td></td>
<td>Does the route connect a state highway to an interstate?</td>
<td>Route does not connect a state highway to an interstate.</td>
<td>Route connects a state highway to an interstate.</td>
</tr>
<tr>
<td></td>
<td>Does the highway interconnect with those of other states?</td>
<td>Route does not connect to state highways in another state.</td>
<td>Route connects to state highways in another state.</td>
</tr>
<tr>
<td></td>
<td>Does the route serve as a by-pass for interstate, regional, or local routes?</td>
<td>Route serves as an alternative bypass to local routes.</td>
<td>Route serves as an alternative bypass to regional and interstate routes.</td>
</tr>
<tr>
<td></td>
<td>Does this route connect Arizona’s population centers?</td>
<td>The route is not essential to connecting Arizona’s population centers.</td>
<td>The route is essential to connecting Arizona’s population centers.</td>
</tr>
<tr>
<td></td>
<td>Is this route primarily designed to carry through traffic?</td>
<td>Route is designed primarily to serve local land uses.</td>
<td>Route is designed primarily to support through traffic.</td>
</tr>
<tr>
<td><strong>State Highway System</strong></td>
<td>Is the route important to the functionality of the statewide highway system?</td>
<td>Route is not critical to the functionality of the State Highway System.</td>
<td>Route is critical to the functionality of the State Highway System.</td>
</tr>
<tr>
<td></td>
<td>Will the changes in maintenance, access management, or other standards resulting from a transfer negatively impact the function of other nearby state facilities?</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Does the transfer of a segment affect the functionality of the whole highway? For example, will significant delay be caused for through traffic?</td>
<td>Transfer of route segment to local entity would not impair the functionality of the whole highway.</td>
<td>Transfer of route segment to local entity would impair the functionality of the whole highway.</td>
</tr>
</tbody>
</table>
### Table 10 – Route Transfer Considerations (continued)

<table>
<thead>
<tr>
<th>Category</th>
<th>Transfer Considerations</th>
<th>Considerations for Transfer to Local or Tribal Government</th>
<th>Considerations for Transfer to State Jurisdiction</th>
</tr>
</thead>
<tbody>
<tr>
<td>State Highway System functionality (continued)</td>
<td>Does this route provide statewide and regional movement of people and goods?</td>
<td>Route primarily provides for local land access; provides minimal support for regional or statewide movement of people or goods.</td>
<td>Route primarily provides for the statewide movement of people and goods.</td>
</tr>
<tr>
<td></td>
<td>Does this route provide statewide and regional movement of people and goods?</td>
<td>Route primarily provides for local land access; provides minimal support for regional or statewide movement of people or goods.</td>
<td>Route primarily provides for the statewide movement of people and goods.</td>
</tr>
<tr>
<td>Frontage roads</td>
<td>Is the route a frontage road to a major state facility that is needed to complement or be a detour for the mainline facility?</td>
<td>The frontage road primarily accommodates local access.</td>
<td>Frontage road serves emergency purposes, accommodates wide loads, and relieves congestion.</td>
</tr>
<tr>
<td>Parallel routes</td>
<td>Is the route a parallel route to a state highway? (identify actual distance from state route)</td>
<td>Route parallels and duplicates the function and purpose of the parallel state highway facility.</td>
<td>Route is parallel to another state highway facility, but is essential to serve emergency purposes and to relieve congestion.</td>
</tr>
<tr>
<td>New or major reconstruction</td>
<td>Is the route affected by a new state highway that bypasses or duplicates the route?</td>
<td>• The route is now served by a new state highway that bypasses the city or town; the route is no longer needed as part of the state system.</td>
<td>The route is not served by a new state highway facility; the route is needed as part of the State Highway System.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• The route changed as part of a highway realignment that left a portion of the old highway useful only for local access purposes.</td>
<td></td>
</tr>
</tbody>
</table>

### Land Use

<table>
<thead>
<tr>
<th>Land Use</th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Local land use plans</td>
<td>Do local or regional plans treat the highway as a local road favoring accessibility, or as a statewide facility favoring mobility, as determined by highway classification and access management?</td>
<td>Local and regional plans treat the route as a local road favoring accessibility.</td>
<td>Local and regional plans treat the route as a statewide facility favoring mobility, as evidenced by roadway classification and access management.</td>
</tr>
<tr>
<td>Category</td>
<td>Transfer Considerations</td>
<td>Considerations for Transfer to Local or Tribal Government</td>
<td>Considerations for Transfer to State Jurisdiction</td>
</tr>
<tr>
<td>--------------------------------</td>
<td>-----------------------------------------------------------------------------------------</td>
<td>-----------------------------------------------------------</td>
<td>---------------------------------------------------</td>
</tr>
<tr>
<td>Local land use plans</td>
<td>Recognizing that land use decisions are made by local and tribal governments, should consolidation of government decisions for land use and access management decisions provide greater efficiency and community responsiveness?</td>
<td>Consolidation of government decisions for land use and access management decisions would provide greater efficiency, economic development potential, and community responsiveness.</td>
<td>Local and tribal agencies effectively collaborate with ADOT in making land use decisions which influence access management.</td>
</tr>
<tr>
<td>Access Management</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Driveways/access points</td>
<td>How does existing access management (number of driveways, access points, intersection geometrics, intersection spacing) affect mobility, capacity, and safety?</td>
<td>• Existing access points impact the integrity of the corridor. • Non-compliance for access (not permitted or not in compliance to DOT standards / requirements) and local jurisdictions will not support actions to correct. • Past actions determined that the local agency and / or business community is not supportive of access management implementation.</td>
<td>Access management is sufficient.</td>
</tr>
<tr>
<td>Access management features</td>
<td>Does the route include access management features (medians, right in / right out, islands)?</td>
<td>Route includes minimal or no access management features.</td>
<td>Route is controlled or limited access, route includes significant access management.</td>
</tr>
<tr>
<td>Intersection/interchange</td>
<td>Does the route cross an Interstate or state highway where state ownership of the highway is required to protect the access management of the interchange, off-ramp or highway?</td>
<td>Route segment does not cross an interstate or state highway where ownership is required to protect access management.</td>
<td>Route segment crosses an interstate or state highway where ownership is required to protect access management.</td>
</tr>
<tr>
<td>Frontage road</td>
<td>Is the frontage road being considered for transfer needed to support the limited access of an interstate, freeway, interchange, or potential freeway?</td>
<td>The route is a frontage road that is intended primarily for local access; route is not needed to support limited access.</td>
<td>The route is a frontage road that is needed to support a limited access state highway.</td>
</tr>
<tr>
<td>Category</td>
<td>Transfer Considerations</td>
<td>Considerations for Transfer to Local or Tribal Government</td>
<td>Considerations for Transfer to State Jurisdiction</td>
</tr>
<tr>
<td>----------------------------------</td>
<td>-----------------------------------------------------------------------------------------</td>
<td>--------------------------------------------------------------------------------------------------------------------------</td>
<td>--------------------------------------------------</td>
</tr>
<tr>
<td><strong>Future Needs</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Plans</td>
<td>Does a Regional Plan or planning study say that the route will be needed on the state system to accommodate population growth or a change in the economy?</td>
<td>Route will not be needed on the State Highway System to accommodate future growth.</td>
<td>Route will be needed on the State Highway System to accommodate future growth.</td>
</tr>
<tr>
<td><strong>Jurisdictional Interest</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Local or Tribal Government Interest</td>
<td>Has a local or tribal government expressed interested in assuming ownership of the route?</td>
<td>A local or tribal government has expressed interest in assuming ownership of the route.</td>
<td>The state has expressed interest to maintain or assume control of the route.</td>
</tr>
<tr>
<td>Service Expectations</td>
<td>Is there a desire by local government for a different standard of service (e.g. permit accesses, maintenance)?</td>
<td>There is a desire by a local or tribal government for a different standard of service, which state ownership is not prepared to provide.</td>
<td>State ownership is able to provide the standard of service desired by local or tribal jurisdictions.</td>
</tr>
<tr>
<td><strong>Other Non-Statewide Routes</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>State and National points of interest</td>
<td>Does this route meet criteria for “non-statewide routes” serving points of state and national or international interest?</td>
<td>The route does not serve as a primary route to federal public lands and destinations.</td>
<td>The route serves as a primary route to federal public lands and destinations.</td>
</tr>
<tr>
<td>Special designations</td>
<td>Does this route meet criteria for “other major facilities” including:</td>
<td>Route does not have special designations.</td>
<td>Route has special designations as listed.</td>
</tr>
<tr>
<td></td>
<td>• Rural routes with more than 5,000 ADT.</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Connecting rural National Highway System (NHS) routes with more than 1,500 ADT.</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Key freight routes (more than 1,000 articulated trucks per day).</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• A regional evacuation route.</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Scenic Byway or Scenic Corridor.</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Or others as identified.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
### Table 10 – Route Transfer Considerations (continued)

<table>
<thead>
<tr>
<th>Category</th>
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<th>Considerations for Transfer to Local or Tribal Government</th>
<th>Considerations for Transfer to State Jurisdiction</th>
</tr>
</thead>
<tbody>
<tr>
<td>Maintenance and Operations</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>State highway segmentation</td>
<td>Will the transfer result in a state highway being broken into segments owned by different jurisdictions?</td>
<td>Transfer will not result in state highway being broken into segments owned and operated by different jurisdictions.</td>
<td>Transfer will result in state highway being broken into segments owned and operated by different jurisdictions.</td>
</tr>
<tr>
<td>Maintenance resources</td>
<td>Does the receiving agency have the ability to maintain and operate the roadway?</td>
<td>Local or tribal government has the resources to maintain and operate the roadway.</td>
<td>Local or tribal government does not have the resources to maintain and operate the roadway.</td>
</tr>
<tr>
<td>Maintenance requirements</td>
<td>Are maintenance requirements, materials and/or equipment more appropriate or efficient at the state or local level (signal power and maintenance, plowing, sanding/de-icing, other maintenance work)</td>
<td>Route maintenance requirements are more efficiently provided at the local or tribal level.</td>
<td>Route maintenance requirements are more efficiently provided by the state.</td>
</tr>
</tbody>
</table>
Table 11 – List of Route Transfer Potential Data Collection Needs

<table>
<thead>
<tr>
<th>Category</th>
<th>Data Needs</th>
<th>Potential Data Sources</th>
</tr>
</thead>
<tbody>
<tr>
<td>Goal of the Transfer</td>
<td>• Formal agreements: IGAs / JPAs</td>
<td>• District office, ADOT central office</td>
</tr>
<tr>
<td></td>
<td>• Informal agreements: Memorandum of Understanding (MOUs), Memoranda of Agreement (MOAs), Memoranda of Intent (MOIs)</td>
<td>• Local or tribal government/jurisdiction</td>
</tr>
<tr>
<td>Trip Character</td>
<td>• Average daily traffic volumes</td>
<td>• Traffic studies (origin-destination)</td>
</tr>
<tr>
<td></td>
<td>• Average trip lengths</td>
<td>• ADOT traffic volume databases</td>
</tr>
<tr>
<td></td>
<td>• Projected average daily traffic volumes</td>
<td>• MPO / COG traffic data</td>
</tr>
<tr>
<td></td>
<td>• Percentage of through traffic</td>
<td></td>
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<tr>
<td></td>
<td>• Percentage of truck traffic</td>
<td></td>
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<tr>
<td>Highway Function</td>
<td>• Connecting routes (interstates, other state highways)</td>
<td>• ADOT materials reports for specified projects</td>
</tr>
<tr>
<td></td>
<td>• Design exceptions</td>
<td>• As-buils</td>
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<td></td>
<td>• Design speed / posted speed</td>
<td>• Crash reports (ADOT MPD, local police / tribal police)</td>
</tr>
<tr>
<td></td>
<td>• Right-of-way width and ownership</td>
<td>• ROW plans</td>
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<tr>
<td></td>
<td>• Permits and Encumbrances</td>
<td>• Speed studies</td>
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<tr>
<td></td>
<td>• Funding sources (was highway acquired with federal funds)</td>
<td>• State Highway System maps</td>
</tr>
<tr>
<td></td>
<td>• Typical section of roadway (number and width of travel lanes, shoulders, and turn lane(s))</td>
<td>• Permits</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Records of encumbrances</td>
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<tr>
<td>Land Use</td>
<td>• Land uses</td>
<td>• Land use plan of affected jurisdiction</td>
</tr>
<tr>
<td></td>
<td>• Pending and planned developments</td>
<td>• Pending development plans (local agencies / tribal governments, economic development offices)</td>
</tr>
<tr>
<td>Access Management</td>
<td>• Access management features (medians, right in / right out, islands, etc.)</td>
<td>• Accident report(s) based on locations of each driveway / access point</td>
</tr>
<tr>
<td></td>
<td>• Existing permits, encumbrances and agreements, access spacing, intersection geometrics / type of intersection control</td>
<td>• District permit inventory listing</td>
</tr>
<tr>
<td></td>
<td>• Number of permitted driveways / number of non-permitted driveways</td>
<td>• Intersection analysis; ownership of intersecting roads, who maintains JPAs / Intergovernmental Agreements (IGAs) for intersection control maintenance (signals / roadway lighting)</td>
</tr>
<tr>
<td></td>
<td>• Pedestrian crosswalks</td>
<td></td>
</tr>
</tbody>
</table>
Table 11 – List of Route Transfer Potential Data Collection Needs (continued)

<table>
<thead>
<tr>
<th>Category</th>
<th>Data Needs</th>
<th>Data Sources</th>
</tr>
</thead>
<tbody>
<tr>
<td>Future Needs</td>
<td>• Future planned projects&lt;br&gt; • Future projects programmed&lt;br&gt; • History of projects planned (not programmed) and programmed (funded) projects within the route</td>
<td>• Asset management report, Dollar value for the route&lt;br&gt; • Local / state / private planned projects in and around route&lt;br&gt; • Local / state / private programmed projects in and around the route</td>
</tr>
<tr>
<td>Other non-statewide routes</td>
<td>• Access to federal lands&lt;br&gt; • Right-of-way ownership&lt;br&gt; • Special use / considerations ((Home Owners Association (HOA), adopted landscaping, grazing, etc.)</td>
<td>• Mandatory or restricted access to federal lands / properties&lt;br&gt; • Underlying fee (mineral rights, federal land easements, etc.)</td>
</tr>
<tr>
<td>Maintenance and Operations</td>
<td>• Bridge and roadway weight limit postings and restrictions and studies&lt;br&gt; • Americans with Disabilities Act (ADA) compliance&lt;br&gt; • Adopted highway (litter pickup or sponsored)&lt;br&gt; • Construction plans&lt;br&gt; • Cultural properties / sensitive properties&lt;br&gt; • Drainage&lt;br&gt; • Flooding / wetlands&lt;br&gt; • Hazardous – contaminated sites&lt;br&gt; • Historical properties (state / national register)&lt;br&gt; • History overview of route life cycle&lt;br&gt; • IGAs / MOUs in place for maintenance / operations&lt;br&gt; • Intersection control / equipment&lt;br&gt; • Landscaping and roadside features&lt;br&gt; • Lighting inventory&lt;br&gt; • Maintenance agreements&lt;br&gt; • Maintenance annual cost by feature (road, shoulder, signal(s), signs, etc.)&lt;br&gt; • Outdoor advertising&lt;br&gt; • Pavement type, thickness, and condition&lt;br&gt; • Railroad crossings&lt;br&gt; • Signing inventory&lt;br&gt; • Storm water management (ponds, BMPs)&lt;br&gt; • Utility information&lt;br&gt; • Emergency response incidents</td>
<td>• ADOT ADA inventory&lt;br&gt; • ADOT sign inventory , type of signs / sign structures&lt;br&gt; • As-Built plans&lt;br&gt; • As-built plans identifying fence, guardrail, end treatments&lt;br&gt; • IGAs (e.g., for emergency vehicle preemption)&lt;br&gt; • IGAs / MOUs from District and Central offices&lt;br&gt; • Local agency report on cost for their annual maintenance on route&lt;br&gt; • PECOS report for route identifying the costs for manpower, materials and equipment&lt;br&gt; • Responses to incidents on route (accident reports, maintenance reports / diaries)&lt;br&gt; • Traffic engineering documentation</td>
</tr>
</tbody>
</table>