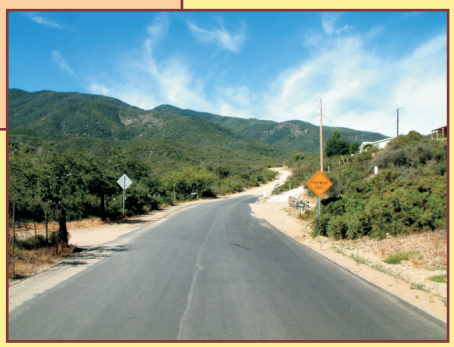
# GILA COUNTY

## SMALL AREA TRANSPORTATION STUDY

# EXECUTIVE SUMMARY



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# EXECUTIVE SUMMARY

This document presents an Executive Summary the Transportation Plan for Gila County as a result of the Small Area Transportation Study conducted between February 2005 and June 2006. The study was developed by Gila County cooperatively with the Arizona Department of Transportation (ADOT), Central Arizona Association of Governments, and the Tonto National Forest. In addition, area residents' and stakeholder input was solicited and incorporated in the study through public participation efforts. Complete documentation of the Study is provided in the Final Report.

## PURPOSE AND VISION

The purpose of the study has been to develop a 20-year transportation plan and implementation program to guide Gila County in meeting transportation needs into the future. Roadway and multimodal improvements were identified to address deficiencies and needs to improve mobility and safety in the County. The study also identified how and when these improvements should be implemented and funded. This long-range multimodal transportation plan is intended for use in day-to-day programming and funding of transportation improvements. In addition, transportation improvements have been prioritized to maximize project benefits within budget limitations. Funding strategies and sources have been included to aid the County in pursuing local, regional, state, and federal funding. The Study Area is shown in Figure 1.

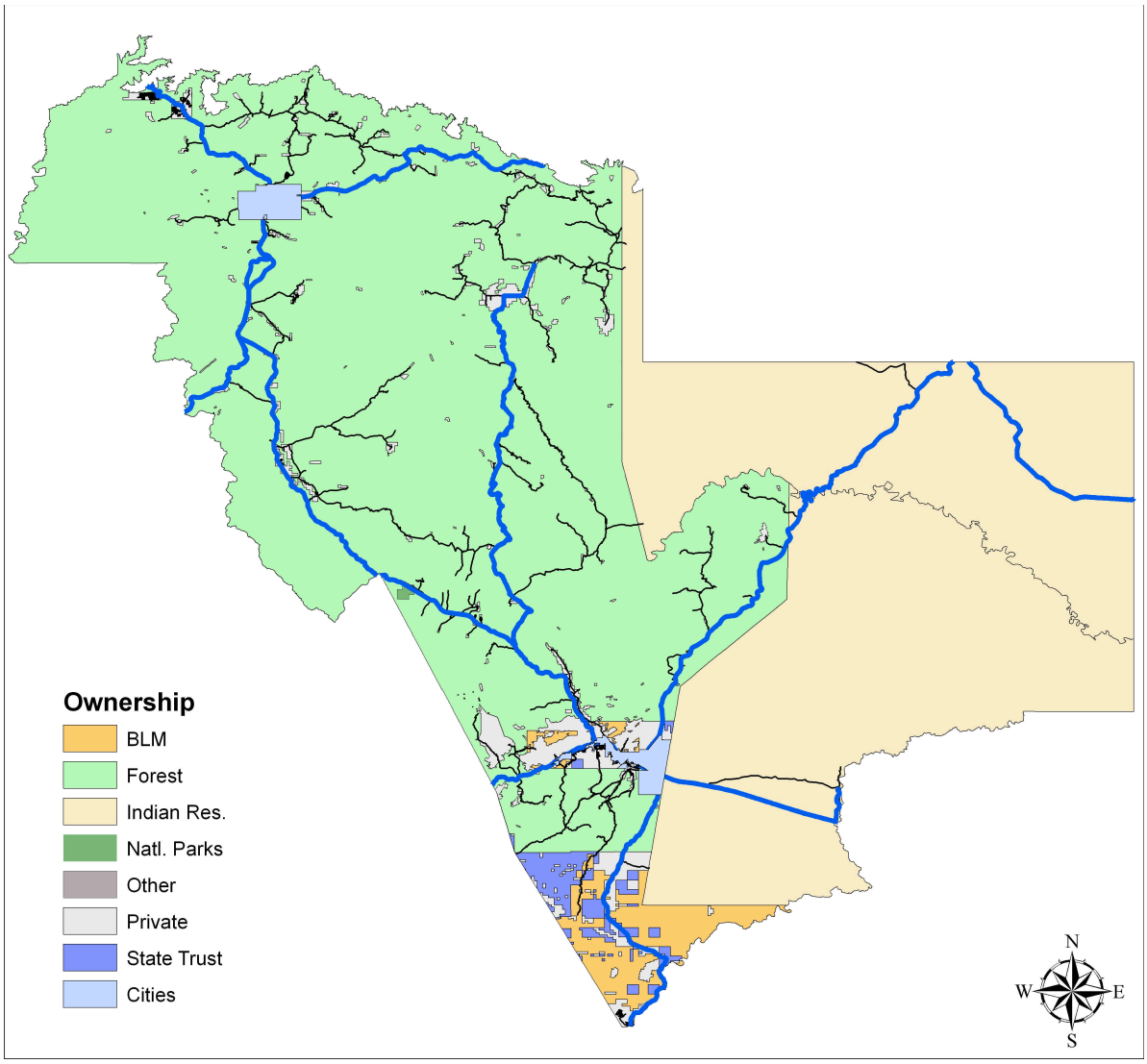
### Study Vision

The County's transportation system was developed in cooperation with Federal, State, Tribal, and Local Jurisdictions, together with County residents and businesses. It will be efficient and safe and will meet Gila County's current and future transportation needs. Gila County will be served by a system of roadways providing connectivity between communities and rural areas throughout the County. The system will incorporate multimodal components such as ride-sharing, transit, bicycle, pedestrian, and airport access in addition to the needs of motorists. As a result, closer coordination between land use and transportation improvements will support future development and ensure roadway capacity for long-term reduction of delays.

## BACKGROUND

Gila County is located in central Arizona east and northeast of the Phoenix metropolitan area. The County covers nearly 4,800 square miles with 55.5 percent of the land within the Tonto National Forest, 37 percent within the Fort Apache and San Carlos reservations, and the remaining 7.5 percent is owned by the Bureau of Land Management, by the State Lands, or privately. Gila County is rich in topographic variety, ranging from 2,000 to

**FIGURE 1. STUDY AREA**




7,000 feet in elevation; the lower regions are referred to as the Copper Region and the higher elevations as the Timber Region.

The primary road network includes two US routes and four State Routes. The County road system is comprised of 644.05 miles of roadways, of which 155.38 miles are currently paved and 488.67 are unpaved. These mileages include roadways in the unincorporated areas of Gila County as well as Forest Service roads for which the US Department of Agriculture has contracted with the County for maintenance.

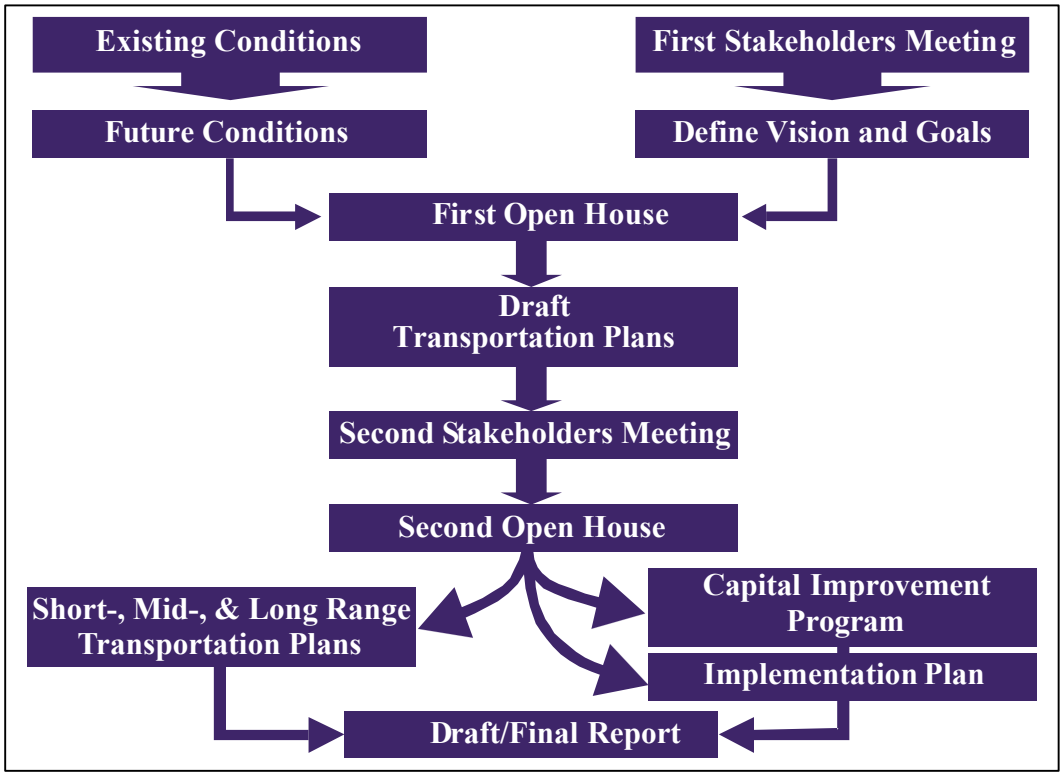
The majority of traffic in Gila County is concentrated on the US and State Routes. Transit service within Gila County is limited to dial-a-ride type programs. These programs, provided

by local communities or organizations, primarily serve the senior and disabled populations with access to medical facilities, senior programs, and other daily needs.

## STUDY PROCESS

The study process is illustrated in Figure 2. The study was guided by a Technical Advisory Committee comprised of representatives from the County, ADOT, Central Arizona Association of Governments (CAAG), and the Tonto National Forest. An intensive public participation process was undertaken, including two rounds of stakeholder meetings and open houses to identify issues, solicit comments, and receive feedback on the study process and recommendations.

**FIGURE 2. STUDY PROCESS**




The first step of the technical analysis was to analyze the existing conditions and Environmental Justice concerns. A first stakeholder workshop was held to identify issues and vision components for the transportation plan. Stakeholders included County Supervisors, County Public Works Department personnel, elected officials from the City of Globe and the Towns of Miami and Payson, city and town staffs, business community representatives, Tribal representatives, and citizens. An Open House was then held with the general public to present existing conditions, issues, and transportation vision.

The next major step in the technical process was to analyze alternative roadway improvements. County access management procedures were also analyzed. Best practices in rural transportation as followed by peer jurisdictions were researched and documented, including practices for analyzing low volume dirt roads, measuring performance of rural transportation systems, and activity-based budgeting.

A draft transportation plan was then developed including a transit element. A second stakeholder workshop was held to review the draft transportation plan and identify constraints to the plan. The draft transportation plan was then presented to a second Open House of the general public. Short- and long-range transportation projects were recommended, an implementation schedule was developed, and potential funding sources were documented.

## RECOMMENDATIONS

The consultant team recommends that Gila County:

- Program the recommended Phase I and Phase II transportation improvements into the Capital Program
- Establish a process to coordinate County land use and transportation decisions on a regular basis
- Designate a transportation coordinator
- Conduct a regional bus service study
- Conduct a San Carlos Airport upgrade study
- Coordinate with the Town of Miami, the City of Globe, and the Town of Payson on local transit studies
- Conduct a Miami-Globe-San Carlos excursion passenger rail study
- Initiate a County bicycle and pedestrian plan
- Implement the street functional classifications and roadway design guidelines for new development
- Ensure that County access management policies are adhered to by new developments
- Coordinate with ADOT and CAAG on a regular basis on multimodal transportation improvements
- Establish a process to coordinate transit services with private and public agencies
- Monitor and update transportation plan and transit element

## FUTURE SOCIOECONOMIC AND TRANSPORTATION CONDITIONS

This section summarizes the projected socioeconomic and transportation conditions and includes an explanation of the sketch planning model process used to forecast future traffic volumes on County roadways.

### Future Socioeconomic Conditions

Table 1 presents future population projections for Gila County and for communities within the County. The data was obtained from the DES.

**TABLE 1. POPULATION PROJECTIONS FOR GILA COUNTY COMMUNITIES**

| | 2005 | 2010 | 2015 | 2020 | 2025 | 2030 |
|---|---|---|---|---|---|---|
| ARIZONA | 5,553,849 | 6,145,108 | 6,744,754 | 7,363,604 | 7,993,039 | 8,621,114 |
| Gila County | 51,644 | 54,603 | 57,613 | 60,757 | 63,757 | 66,378 |
| **Local Communities** | | | | | | |
| Central Heights-Midland City CDP | 3,436 | 3,558 | 3,681 | 3,809 | 3,932 | 4,039 |
| Claypool CDP | 2,215 | 2,216 | 2,218 | 2,219 | 2,221 | 2,222 |
| Globe city | 7,841 | 8,107 | 8,378 | 8,661 | 8,931 | 9,167 |
| Hayden town | 911 | 912 | 912 | 913 | 914 | 914 |
| Miami town | 2,079 | 2,094 | 2,110 | 2,127 | 2,143 | 2,157 |
| Payson town | 15,565 | 17,427 | 19,320 | 21,297 | 23,184 | 24,833 |
| Peridot CDP | 1,541 | 1,784 | 2,027 | 2,248 | 2,450 | 2,634 |
| San Carlos CDP | 3,428 | 3,534 | 3,643 | 3,755 | 3,863 | 3,957 |
| Winkelman | 420 | 422 | 423 | 425 | 426 | 428 |

Source: Arizona Department of Economic Security, Population Statistics Unit

By 2030, the State of Arizona is projected to increase in population by 55.23 percent, from 5,553,849 to 8,621,114, while Gila County is projected to grow by 28.53 percent, from 51,644 to 66,378. However, the projected population growth rates vary widely among the communities within the County. The smaller mining communities such as Hayden, Miami, and Winkelman are forecast to experience minimal growth over the next 25 years. Other communities, such as Payson and Peridot, are expected to grow even faster than the state as a whole. Payson is projected to increase in size by over 59 percent, while Peridot is predicted to grow by over 70 percent.

**Future Transportation Conditions**

The consultant team developed forecasted traffic volumes for roadways within Gila County for the 2030 horizon year. Both "Base" conditions, which assume a rate of population growth based on Arizona Department of Economic Security population projections for the County, and "Accelerated Growth" conditions, which assume a faster rate of population growth, were evaluated. The Accelerated Growth approach will be discussed in the next section.

A Countywide sketch planning model was developed using TransCAD integrated GIS and travel demand model software. The product of this process is a representation of a transportation network depicting Year 2030 traffic volumes on network segments in Gila County.

For the development of the model, 72 Transportation Analysis Zones (TAZs) were defined to spatially represent the current land use and socioeconomic conditions for the communities including: Payson, Pine/Strawberry, Globe-Miami, and Young. Figure 3 shows the TAZ structure. Delineation of the zone boundaries was based on the alignments of principal roadways, together with topographical constraints that impact travel patterns such as watercourses, lakes and reservoirs, and mountain ranges. The extents of current urban areas and rural communities were also considered.

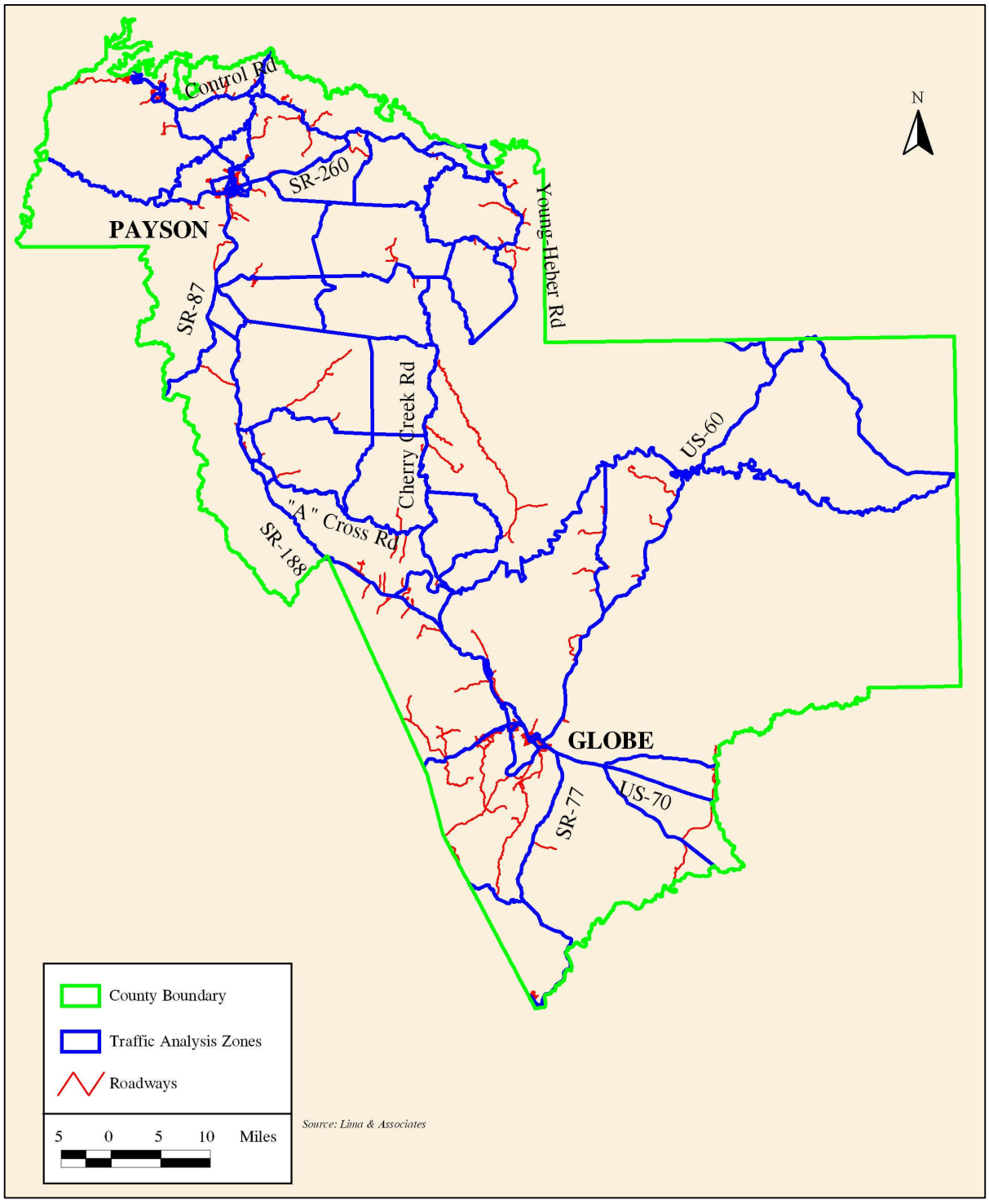
Land use data obtained from the County and Census 2000 data obtained from the US Census Bureau were used in the development of the 2030 projected socioeconomic data. In addition, socioeconomic projections from the most recent Payson and Globe-Miami area transportation studies were used. All data was apportioned to the respective TAZs.

The underlying GIS database includes US and State Highways and all the roads maintained by the County. However, the planning sketch model was developed based primarily on the state highways and selected major county and forest roads. Given the TAZ system and highway network, vehicle trips were estimated and assigned to the network. Trips generated by "External" origins or destinations—places outside of Gila County such as metropolitan Phoenix, Tucson, the White Mountains, Northern Arizona, and the upper Gila Valley—were important elements in the development of the model.

Figures presenting the forecasted levels of service derived from the sketch planning model for Gila County and for the Globe and Payson areas are included in the Final Report. The figures show that essentially all County roadways will remain at LOS "A" in the 2030 horizon year, due in large part to the moderate growth rates forecasted for most non-urban areas of the County. These forecasts suggest that issues such as safety, mobility, and air quality should be given precedence over capacity when improvements to the County roadways are planned or programmed.

However, the consultant believes that the County population will increase more rapidly than these base 2030 projections indicate. Hence, the recommended Transportation Plan is based on an Accelerated Growth Scenario.

## FIGURE 3. TRAFFIC ANALYSIS ZONES



## MULTIMODAL TRANSPORTATION PLAN

This section summarizes the Multimodal Transportation Plan for Gila County based upon the recommendations of previous plans and studies, consultant research and field views, input from the public involvement process, and additional input from County officials. First, the process of evaluating transportation system deficiencies and needs is summarized. Next, candidate short-term (Phase I) and long-term (Phase II) projects are presented. A summary of the second round of public involvement is presented, followed by an estimation of transit demand and a discussion of access management techniques.

### Evaluation of Deficiencies and Needs

During the conduct of the Small Area Transportation Study, deficiencies and needs were evaluated in the following seven general areas:

- Paving and Geometry Improvements
- Roadway Reconstruction
- Hazard Elimination and Safety
- Multimodal Studies
- Bridge Construction and Design
- Intersection Improvements
- Highway Rail Crossings

The consultant team made the following observations regarding existing deficiencies and needs in the County transportation system:

- With the exception of urban areas and State Highway segments, the assessment of which was outside the scope of this study, no significant traffic congestion or level of service issues exist on roadways within the County in 2006.
- The mobility of County residents is dependent upon the maintenance and improvement of the State Highways that traverse the County and function as "spines" that tie the County roadway network together.
- In many areas of the County, alternative routes are inconvenient or non-existent. This causes problems when the main route is closed due to a traffic crash or natural causes such as high water, floods, accumulated snow, or wildfires. Specific areas of concern are:
  - ✓ Alternative ingress or egress to summer homes and year-round residences in the areas south of Globe and north of Payson in case of wildfires
  - ✓ Low water crossings on Houston Mesa Road and in the East Verde Estates area
  - ✓ The need for a bridge across Tonto Creek above Roosevelt Lake
- The County Public Works Department is well-informed regarding the deficiencies and needs of the roadway system and programs maintenance, improvement, or reconstruction projects as funding permits.
- In accordance with the "Environmental Justice" provisions of Title VI, efforts are made to ensure that potential disruption of disadvantaged populations is avoided when

new construction, such as the proposed Pinal Creek Parkway, is contemplated in developed areas.

- All of the subgroups living within the County will benefit from the roadway projects already programmed by the County, as well as additional projects proposed in this Report.
- Continued levels of mobility for County residents and visitors are almost entirely dependent on private automobile travel, the maintenance of good roads, and the availability of affordable gasoline.
- Intersections on County roadways exist where motorists must make difficult turning movements or where sight-distances are limited.
- Highway-rail crossings in the Globe-Miami area appear to be in need of reconstruction. However, due to the low volume of both train traffic and motor vehicle traffic on the cross streets, few incidents have occurred at the crossings.
- The County is in the process of implementing a computerized pavement management system and a County-wide roadway geographic information system. Both of these will facilitate the efficient prioritization and management of roadway pavement and reconstruction projects.
- Intercity transit services provided by Greyhound Lines along the US 60/US 70 corridor through Globe Miami and by White Mountain Passenger Lines along the US 60 corridor have ceased. No alternative transportation is provided.
- No public transportation exists between Payson, the County's second largest urban area, and Globe, the County seat.
- Unmet needs for additional local transit service may exist in the Globe-Miami area. Unmet transit needs also exist in the Payson area.
- The potential may exist for excursion rail service in the Globe-Miami area. This will be examined in another report.

**The Potential for Accelerated Population Growth in Gila County**

A key factor affecting the future transportation related deficiencies in the County is the real possibility that population growth will occur at a much faster rate than anticipated. In the previous section of this Summary, the development and use of the Sketch Planning Model was explained and a 2030 Base Scenario based on DES projections was presented. Under this scenario, Gila County would grow from a 2000 population of 51,335 living in 20,140 dwelling units to a 2030 population of 70,284 living in 27,777 dwelling units—an increase in population of approximately 37 percent.

While the DES projections are based on historical trends, they may be unrealistically low given the demographic changes forecasted to take place elsewhere in Arizona. Within the same time frame, neighboring Pinal County is projected to grow from a 2000 population of 179,727 to over 1.9 million persons by 2030. The metropolitan Phoenix area is also expected

to add several million inhabitants by 2030. From a 2006 perspective, opportunities exist in Pinal and Maricopa Counties for additional freeways and/or the potential implementation of high-capacity transit services that do not appear feasible in Gila County given the mountainous topography that is present between Gila County urban areas and the Phoenix area. By 2030, however, alternative sources of power for motor vehicles may exist that will make commuting from Gila County more attractive, particularly if US 60 is completed as a four-lane roadway connecting metropolitan Phoenix with the Globe-Miami area.

One constraint in Gila County that may retard population growth compared with that of neighboring counties is the relative lack of developable acreage. Much of the undeveloped land in the County is owned by the National Forest, Native American Tribes, and other agencies and is unlikely to be developed. However, significant blocks of privately-owned acreage do exist, and an "Accelerated Growth" scenario was developed to examine the impact of development in these areas as follows:

- Locations of available deeded land parcels in the County were determined
- The proximity of these parcels to existing or planned communities was evaluated
- For every two acres of deeded land near existing or planned communities, a minimum of one dwelling unit was forecasted
- In deeded land parcels located near existing or planned communities, a minimum of one dwelling unit for every two acres was forecasted
- In deeded land parcels located in more remote areas of the County, a minimum of one dwelling unit for every 10 acres of deeded land was forecasted
- An occupancy rate of approximately 2.5 persons to each dwelling unit was assumed

Application of this Accelerated Growth Scenario to the traffic forecasting process results in a projected population of 95,880 living in 38,282 dwelling units. In the future, large undeveloped privately owned parcels (e.g. ranches) will be offset by densities significantly higher than one dwelling unit for every two acres near communities. Figures 4-A, 4-B, and 4-C depict the 2030 levels of service forecasted for the segments of the roadway network in the County as a result of modeling this scenario. Note that abrupt changes in level of service reflect changes in roadway functional classification as well as changes in forecasted traffic volumes.

The results of the traffic forecasting using both the 2030 Base Scenario and the 2030 Accelerated Growth Scenario were presented to County stakeholders and the general public during the second round of public involvement in March 2006.

**FIGURE 4-A. LEVEL OF SERVICE – GILA COUNTY ROADWAYS – 2030 ACCELERATED GROWTH SCENARIO**

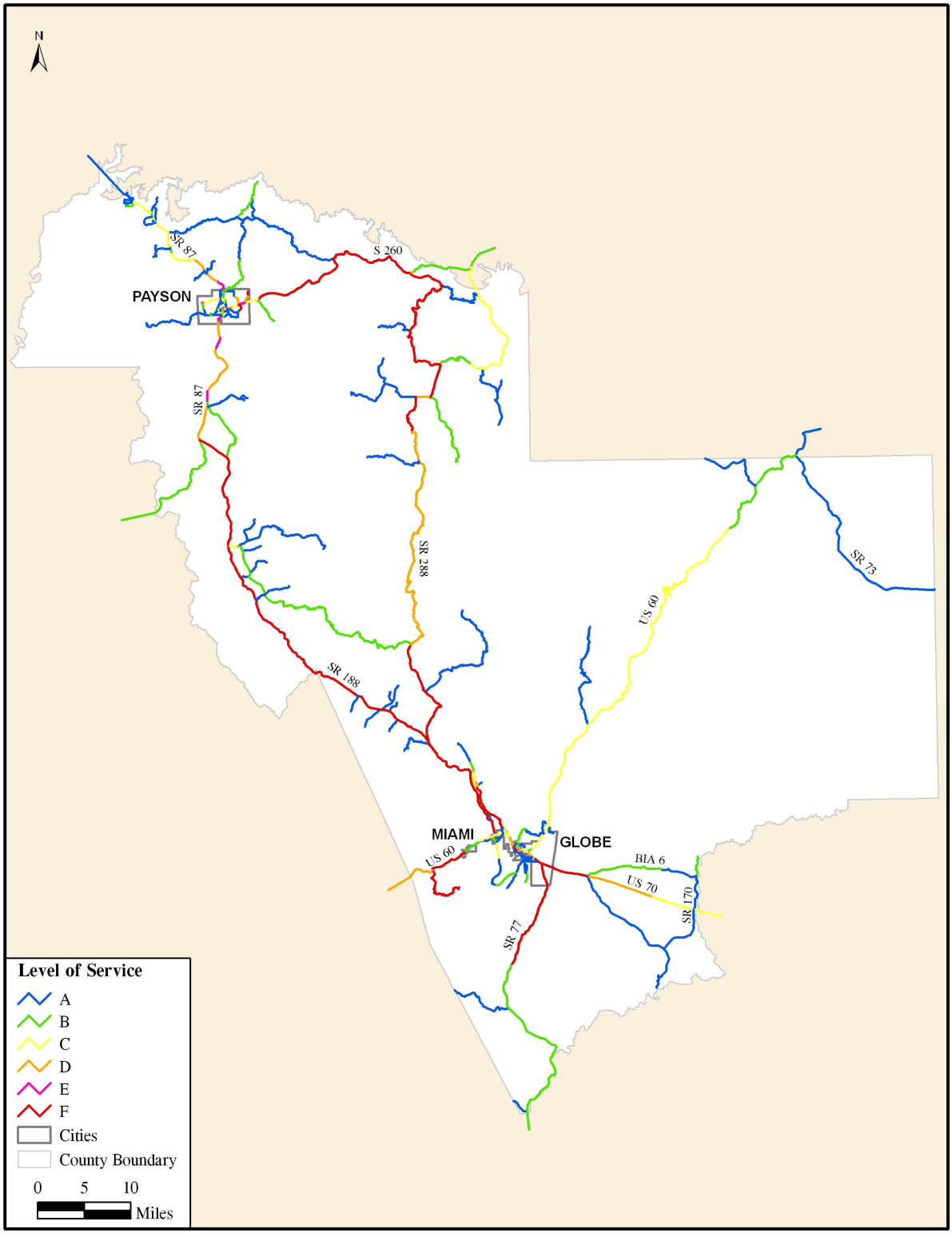


**FIGURE 4-B. LEVEL OF SERVICE – GILA COUNTY ROADWAYS – 2030 ACCELERATED GROWTH SCENARIO – GLOBE DETAIL**

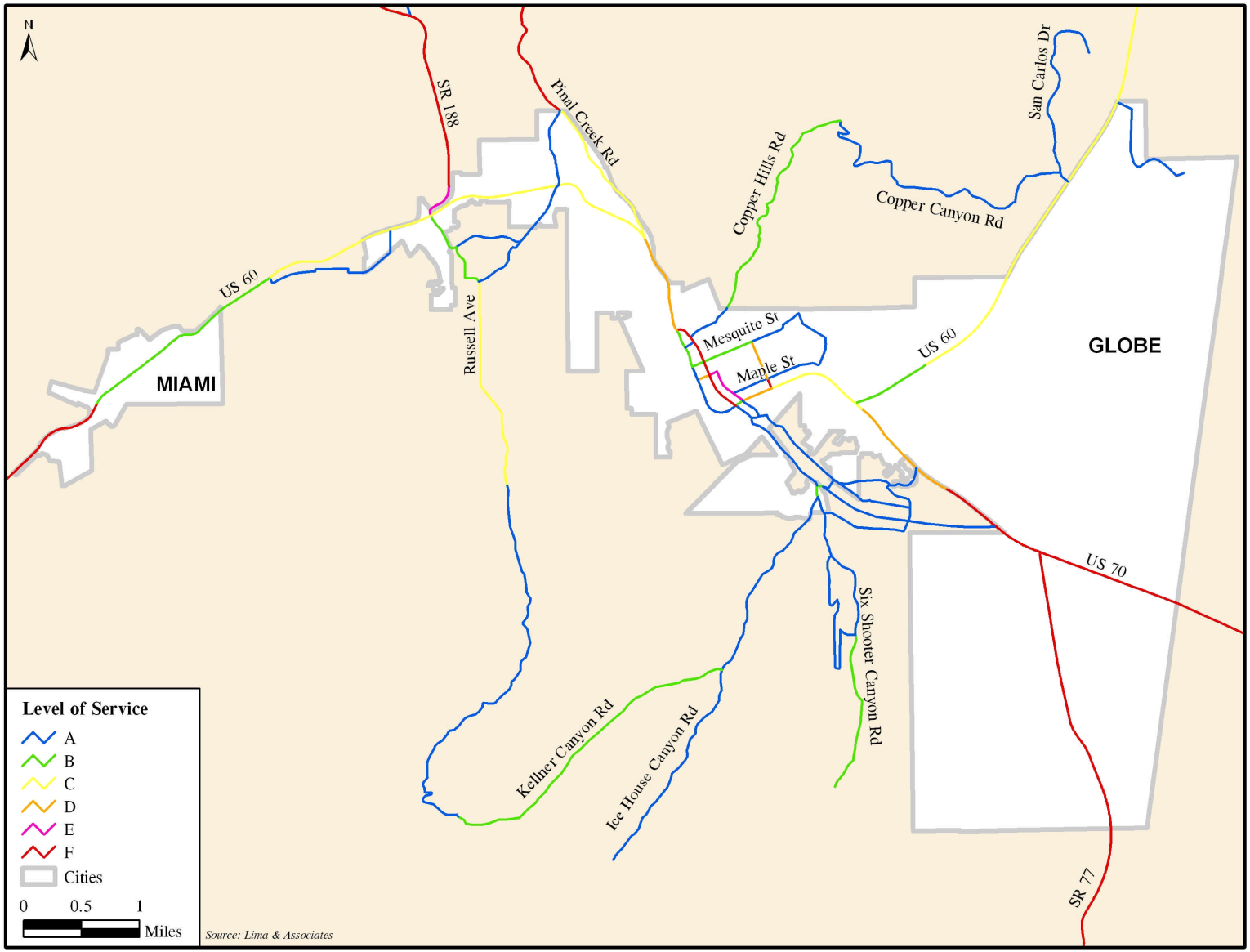
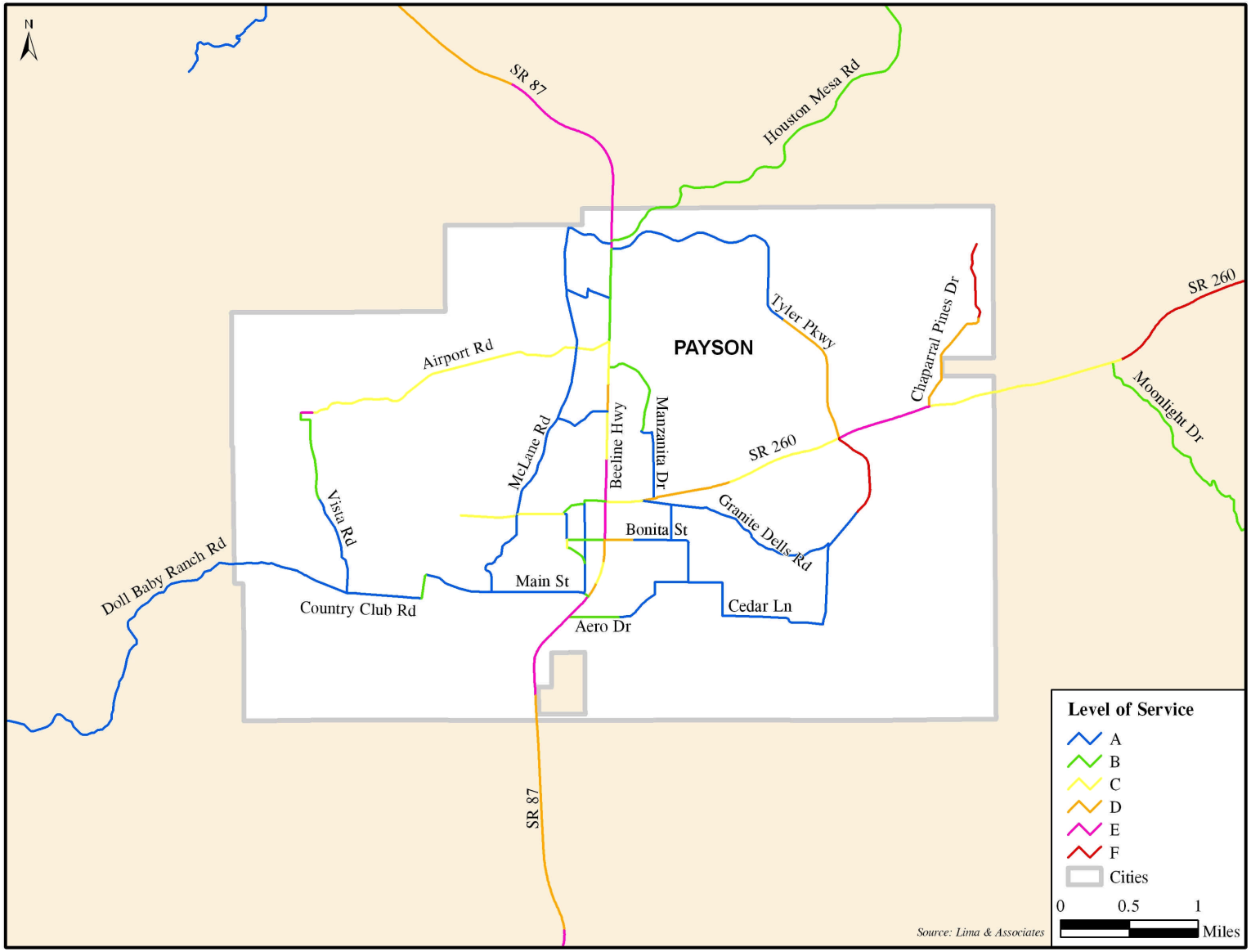


**FIGURE 4-C. LEVEL OF SERVICE – GILA COUNTY ROADWAYS – 2030 ACCELERATED GROWTH SCENARIO – PAYSON DETAIL**



## Prioritization of Transportation Projects

As soon as the study was initiated, the Consultant Team, the County Project Manager, and the Technical Advisory Committee began to identify candidate projects for inclusion in the short-term and long-term transportation programs. As has been pointed out, State Routes and US Highways form spines in the County's roadway network and perform an essential function of tying the County-maintained roadways together. Hence, it was necessary to evaluate the current and future performance of these roadways during the course of the project. However, the Project Team was given a clear directive to consider improvements to County roadways *only*, together with multimodal projects. In the short term, ADOT plans to study the State Highways within Gila County in the context of Regional Transportation Profiles that will identify deficiencies and recommend improvements.

### *Candidate Transportation Projects*

Candidate projects were identified by considering the need and the feasibility of implementation. The following criteria were evaluated:

***Need***

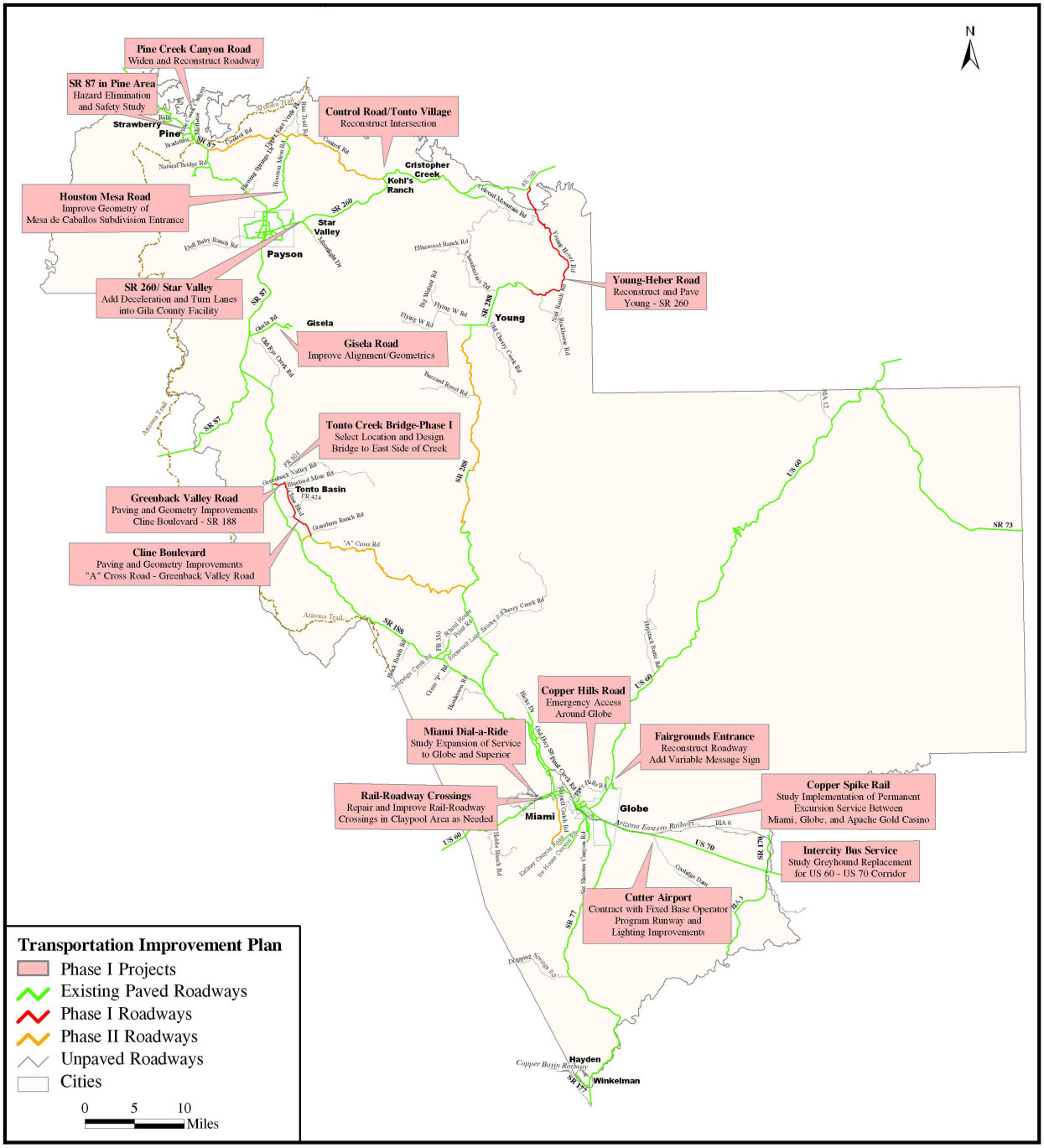
- Potential to address travel demand
- Potential to serve residents
- Potential to provide connectivity and/or improve mobility between places and major roads

***Feasibility***

- Environmental and physical impacts
- Topographical constraints
- Constructability

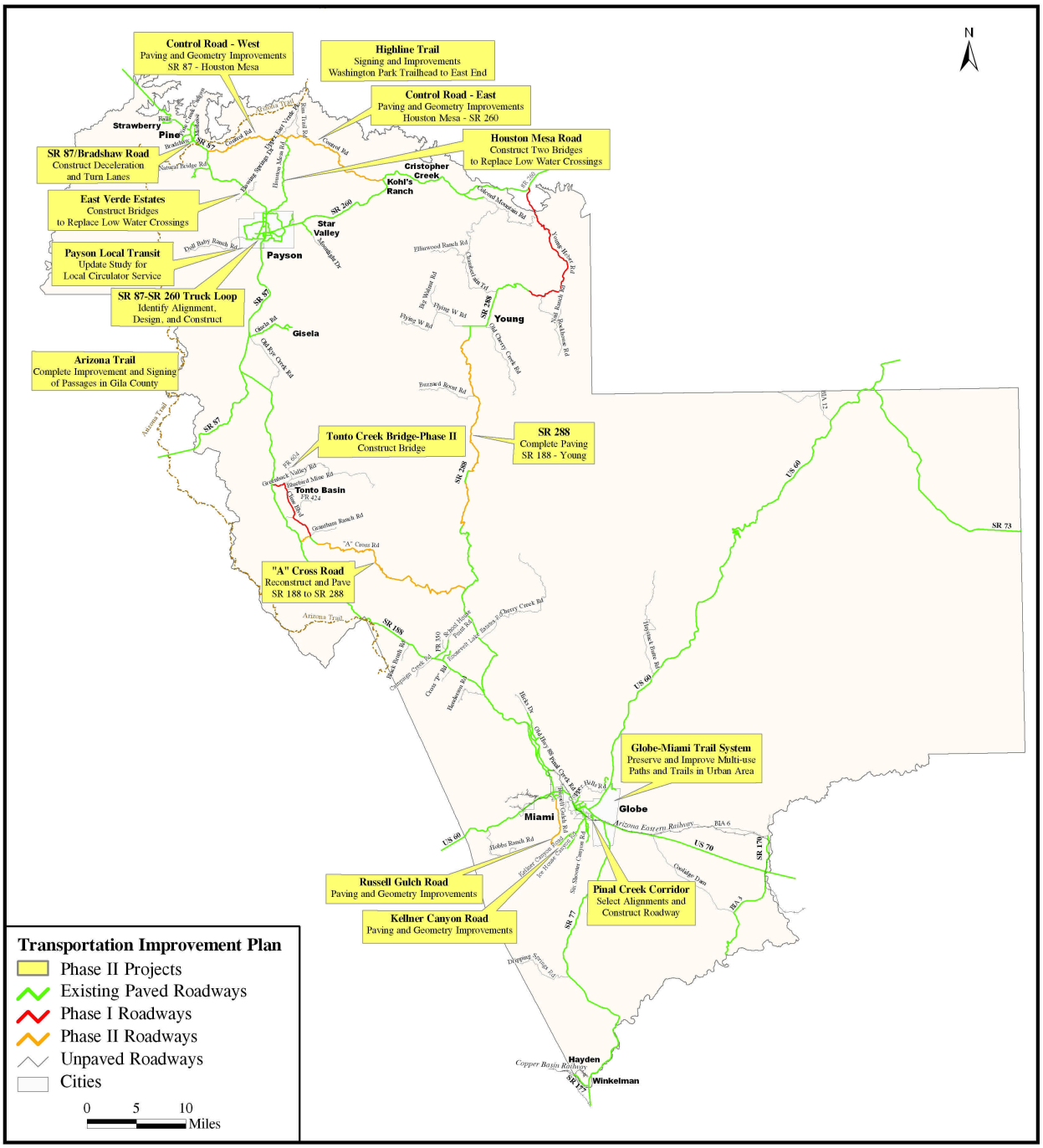
Concurrent with the first round of public involvement, the consultant conducted a field view of key candidate project sites identified by the County Project Manager. These include the area south of Globe and Miami, the Tonto Basin and Young areas, and portions of Control and Houston Mesa Roads. A draft transportation plan was developed, and candidate short-term and long-term projects were plotted and presented to the County Project Manager and the TAC. The draft plan was revised based on TAC input for presentation at the second round of public involvement. After the findings of the second round of public involvement had been summarized, the consultant team and the County Project Manager met to review the recommendations of the stakeholders and others who had participated in the public involvement sessions, together with the observations of the consultant team and the County Public Works Department itself. The selection of Phase I and Phase II transportation projects was refined for incorporation in this Report. Figure 5 presents the locations of the 17 proposed Phase I projects. Figure 6 presents the locations of the 17 proposed Phase II projects.

## FIGURE 5. PHASE I PROJECTS




Source: Lima & Associates, Inc.

## FIGURE 6. PHASE II PROJECTS




Source: Lima & Associates, Inc.

### *Discarded Candidate Projects*

Subsequent to the development of the draft transportation project map, based on the results of the traffic forecasting process, additional field views were made to compare field conditions with selected model forecasts. In particular, several rural roadways that traverse rugged and/or mountainous terrain had been recommended for upgrading and paving by the forecasting process, based solely on the projected future development of the land abutting these roadways. However, as a practical matter, roads such as Old Rye Creek Road and Chamberlain Trail may never be paved—at least not in their entirety or along their existing alignments. The output of the forecasting process with respect to such roadways can be properly interpreted as indicating that, when area development and population warrant, some sort of additional or improved roadway access into the area will be needed. Most likely, these will be roadways constructed on partially or completely new alignments. Hence, candidate projects appearing on the draft project map dealing with proposed paving or improvement to existing roadways with curves and grades severe enough to preclude cost-effective upgrading were eliminated.

### *Additional Projects*

At the suggestion of stakeholders, additional projects were added to the transportation plan that had not appeared on the draft map. These projects included a future truck route loop connecting SR 87 south of Payson with SR 260 east of Payson, as well as a future update of the Payson Public Transit Feasibility Study. Note that projects already included in the CAAG transportation plan are not shown on Figure 5, but are included on the list of projects presented in the following section. Where possible, the County should strive to preserve rights-of-way for future transportation corridors as these are identified.

### *Improvements to State Routes*

The scope of this project specified an emphasis on County owned or maintained roads only. However, during the conduct of the study it became clear that some of the most pressing future needs will exist on the State Routes that traverse the County. State Routes 188 and 260, in particular, will become increasingly congested.

## Transit and Non-Motorized Modes

The multimodal plan provides recommendations regarding transit and non-motorized modes of travel in Gila County, including types of transit and associated cost and funding mechanisms. The Plan also includes recommendations for incorporating bicycle and pedestrian travel into the Plan and supports ways to accommodate these modes as the circulation system of the County and local jurisdictions evolve.

*Transit Element*

This section suggests and describes potential services, facilities, and equipment and presents the findings of an estimation of 2030 demand for intercity transit. Some best practices for rural transit operation, together with Federal, State, and local sources of transit funding are summarized in detail in the Final Report.

Potential Services and Facilities - Options for area public transportation to be considered by the County are presented below. Two general forms of public transportation have been identified as being particularly suitable for meeting the local and regional needs of Gila County residents over the next twenty-five years: Transportation Demand Management (TDM) alternatives and four types of transit service.

Transportation Demand Management - consists of a wide range of programs and services that enable people to get around without driving alone. Included are alternative transportation modes such as carpooling, vanpooling, transit, bicycling, and walking, as well as programs that alleviate traffic and parking problems such as telecommuting, variable work hours, and parking management.

Transportation Demand Management can address the needs of those traveling long distances with rideshare options such as vanpools and carpools. These types of services are vital in moving people around large areas, whether for work or for traveling to regional centers that have special services, medical facilities, or retail stores.

Rideshare Matching Programs - provide service by identifying people who live and work close to each other and then facilitate carpooling and vanpooling. Matching services can pair full-time partners, or simply someone to call in an emergency. Rideshare matching can be done by individual employers or on a community-wide basis. In addition to commute trips, travelers can be matched with others participating in the same extracurricular school function, medical-related trip, shopping trip, or community activity.

Rideshare matching is typically done through a computerized system. A variety of vendors have created inexpensive, effective software that makes this process easy to use. Rideshare services can also be offered on-line.

Two common forms of ridesharing are carpools and vanpools. Carpool participation is higher than the national average in rural Arizona, suggesting that a potential for developing additional carpools in the area exists.

Arizona Rides - is a statewide effort to coordinate provision of human services transportation within counties or regions of counties to increase efficiency, limit service duplication and confusion, and save costs. Arizona Rides was initiated in response to the federal "United We Ride" program established in 2004. "Pinal Rides," a pilot project of the program, funded a study of the concept in Central Pinal County. The Final Report of the pilot project was published in December 2005. Recommendations included the establishment of a transit

coordinating council for the study area and the implementation of service along two regional corridors.

Types of Transit Vehicles - A number of roadway-based and fixed-guideway forms of transit service exist, including bus service, light rail, commuter rail, subways, and monorail. Four modes of transit have been identified as likely candidates for eventual implementation in Gila County:

- Dial-A-Ride and Paratransit Service
- Deviated Fixed Route Service
- Fixed Route Service including local, express, and limited stop services
- Scheduled or Excursion Rail Service

The specific features of the three types of bus services are detailed in the Final Report. The scheduled and excursion rail service issues will be evaluated and described in detail in a separate report.

### *Estimating Transit Demand*

Estimating demand for transit in Gila County provides a general idea of what type of services may be feasible and how many people may be expected to use a transit system. To estimate possible demand for transit service in the County, TCRP Report 3, *Workbook for Estimating Demand for Rural Passenger Transportation*, was utilized. This workbook provides a methodology for estimating transit demand for rural systems, using population data for the year of proposed service start-up and assumptions of service area size and route lengths.

The demand methodology in TCRP Report 3 included both base and alternative methods of demand estimation. The consultant conducted both procedures to compare the results from each. The base and alternative methods of transit demand estimation resulted in daily estimates of 126 and 282 trips, respectively. Given the distances involved and the low service frequencies used in the hypothetical example, the lower estimate of 126 trips per day is probably more accurate.

### *Non-motorized Modes*

The development of the transportation system within Gila County should, where practicable, accommodate bicycle, equestrian, and pedestrian travel as it grows. Incorporating multiuse paths and trails into roadway corridor plans and development plans ensures ongoing improvement in conditions for those who wish to bike, ride, or hike in this scenic county.

Bicycle - travel within the County can be accommodated through the inclusion of bike lanes, as roadways are paved or widened. The cross-sections for urban arterials and urban collectors in the *Gila County Roadway Design Standards Manual* all include six-foot bike lanes as a

standard feature. However, accommodating regional bicycle travel is important as well. Rising fuel prices may cause many persons to consider using bicycles for shorter trips, and consideration should be given to providing alternate rural arterial and collector cross-sections that provide for safe bicycle use as traffic volumes increase.

Equestrian Trails - Gila County is traversed by the Arizona Trail, which connects Mexico with Utah, and also has many local trails used for horseback riding, hiking, and mountain biking. Many of these trails are maintained by the U.S. Forest Service, with much of the day-to-day trail improvement and preservation conducted by volunteer groups and associations of trail users. These trails do cross County roadways, and, as roadways are paved, widened, or improved, the enjoyment and safety of trail users can be adversely affected. Horseback riding, hiking, and mountain biking are all popular ways to access the scenic beauty of the County, and preserving the utility of these trails is vital to County tourism. Safe trail crossings and, in high traffic volume areas, even grade separated crossings should be considered. Such crossings could also preserve wildlife corridors as roads are paved.

Pedestrians - To accommodate walking the urban arterial and collector street cross-sections in the *Gila County Roadway Design Standards Manual* include five-foot sidewalks as a standard feature. However, these sidewalks are not separated from the back of the curb. Separating the sidewalks from the back of the curb, would keep pedestrians a comfortable distance from auto traffic—particularly along higher speed or busier arterials, and encourage walking. In addition to the sidewalk network, The County and local jurisdictions should investigate opportunities for developing, improving, or preserving off-street paths or trails. These may be located in or along natural features like washes and could be an opportunity to connect neighborhoods, parks, and provide recreation.

### Rail Highway Crossings

As the population of the Globe-Miami area increases, the motor vehicle traffic on roadways that cross the Arizona Eastern Railway will likely increase. At the same time, increases in mining activity, the development of additional rail-served industries, and/or the possible implementation of future passenger excursion service could increase the number of daily train movements. These traffic increases should be monitored and warrant studies conducted to upgrade the crossings by the addition of signals, gates, or other devices as appropriate. As roadway segments are improved or widened, rebuilding the surfaces of the crossings themselves should be programmed.

## RECOMMENDATION AND IMPLEMENTATION STRATEGY

Working with the TAC and the County Project Manager, the consultant team developed cost estimates for both the 17 proposed Phase I and the 17 proposed Phase II transportation projects.

Phase I projects are recommended for completion during the short-term (2006 – 2010) time frame. In addition, CAAG has seven projects programmed for the same time frame, which are listed in Table 2, but not shown on Figure 5. The estimated costs of the 17 Phase II projects recommended for completion during the long-term (2011 – 2030) time frame are presented in Table 3.

The consultant recommends that the County program the projects for implementation following the action plan outlined in Table 4, provided that sufficient funding can be identified. Included in the following section are funding sources and revenue estimates. The following section also includes a cash flow analysis that projects a shortfall between the monies needed to complete the projects and the funds projected to be available during the time frame of each Phase.

## FUNDING AND REVENUE ESTIMATES

This section summarizes multimodal revenue sources and estimates that are applicable to Gila County, together with financial constraints and opportunities pertaining to needed roadway improvements. A number of funding mechanisms exist that could be used to fund multimodal improvements for Gila County. These include federal, state, regional, and local sources, as shown in Table 5.

Likely sources of funding include

- Surface Transportation Program (STP) funds
- Highway User Revenue Fund (HURF)
- Local Transportation Assistance Fund (LTAF I and LTAF II)
- Gila County Half-Cent Transportation Tax
- Potential Sources of Additional Funding

### Potential Sources of Additional Funding

In Gila County, the half-cent tax described above generates revenue for the County only. However, in Maricopa and Pinal Counties, the County half-cent transportation taxes are structured so that local jurisdictions within the counties receive distributions that can be used as local matching funds for transportation projects. When the tax is next up for renewal by the voters, the County may want to work with the local jurisdictions to develop an approach similar to that used in Maricopa and Pinal Counties. Alternatively, additional local taxes could be enacted to provide monies for Area Road Funds in the Globe-Miami and Payson urban areas.

## TABLE 2. TRANSPORTATION IMPROVEMENT PLAN PROJECT LIST - PHASE I

| Project Name | Location | Work Type | Comments | Estimated Cost |
|---|---|---|---|---|
| Adonis Avenue | Miami | | Included in CAAG 2006 TIP | $255,000 |
| McLane Road Phase IV* | Payson | | Included in CAAG 2006 TIP | $500,000 |
| Fossil Creek Road - Phase II* | Gila County –Globe area | | Included in CAAG 2007 TIP | $500,000 |
| S. St. Philips | Payson | | Included in CAAG 2007 TIP | $400,000 |
| Ice House Canyon Road | Gila Co. - Globe area | | Included in CAAG 2008 TIP | $500,000 |
| Broadway/Old Oak Road | Gila Co. - Globe area | | Included in CAAG 2010 TIP | $500,000 |
| E. Bonita Street - Phase I | Payson | | Included in CAAG 2010 TIP | $268,000 |
| Bradshaw/SR 87 | Pine | Deceleration and turn lanes* | | $135,000 |
| Cline Boulevard | A Cross - Greenback Valley | Paving / Geometry | | $1,532,000 |
| Control Road Tonto Village | Tonto Village | Reconstruct intersection | | $400,000 |
| Copper Hills Road | Connect to US 60 | Provide Connection | | $2,000,000 |
| Copper Spike Rail Study | Miami - Apache Gold | Study Permanent Service | | $26,160 |
| Fairground Road | Globe | reconstruct entrance, WMS | | $500,000 |
| Gisela Road | SR 87 - Gisela | Improve Alignment and Geometry | | $1,150,000 |
| Greenback Valley Road | Cline Blvd. - SR 188 | Paving / Geometry | | $624,000 |
| Houston Mesa Road | Mesa de Caballos | Improve Geometry | | 200,000 |
| Miami Dial-a-Ride Study | Superior - Globe | Study Service Expansion* | | $87,600 |
| Pine Creek Canyon Road | Pine | Widen and reconstruct roadway | | Not Available |
| Rail - Roadway Crossings | Claypool | Repair or Rebuild | | $750,000 |
| Regional Bus Service Study | US 60 - US - 70 corridor | Study Greyhound Replacement* | | $86,640 |
| San Carlos Airport Study | Cutter Airport | Study facility upgrade | | $95,760 |
| SR 260 | Star Valley | Deceleration and turn lanes* | | $135,000 |
| Tonto Creek Bridge I | TBD - Tonto Creek | Select Site and design Bridge | | $3,400,000 |
| Young - Heber Road | Young - SR 260 | Reconstruct and Pave | | $12,000,000 |
| Total Phase I Projects | | | | $23,100,160 |

*ADOT has ultimate responsibility for projects involving State Highways.

## TABLE 3. TRANSPORTATION IMPROVEMENT PLAN PROJECT LIST - PHASE II

| Project Name | Location | Work Type | Comments | Estimated Cost |
|---|---|---|---|---|
| A Cross Road | SR 188 - SR 288 | Reconstruct and Pave | | $18,430,000 |
| Arizona Trail | Gila County Passages | Signing / Improvements | | $575,000 |
| Control Road - East | Houston Mesa - SR 260 | Paving / Geometry | | $4,932,000 |
| Control Road - West | SR 87 - Houston Mesa | Reconstruct and Pave | | $16,940,400 |
| East Verde Estates Road | Low Water Crossing | Construct Bridge | | $540,000 |
| Globe - Miami Trail system | Globe - Miami area | Signing / Improvements | | $100,000 |
| Highline Trail | N. of Control Road | Improve | | $255,000 |
| Houston Mesa Road | Low Water Crossings | Construct Two Bridges | | $1,080,000 |
| Kellner Canyon Road | S. of Globe | Paving / Geometry | | $288,000 |
| Pinal Creek Corridor | SE Globe area | Design and Construct Roadway | | $5,300,000 |
| Russell Gulch Road | S. of Globe | Paving / Geometry | | $1,488,000 |
| SR 288 | Jct. SR 188 - Young | Complete Paving* | | $13,320,000 |
| Tonto Creek Bridge II | TBD - Tonto Creek | Construct Bridge | | $18,300,000 |
| Bradshaw/SR 87 | Pine | Deceleration and turn lanes* | | $135,000 |
| Payson Transit Study Update | Payson | Update Study of local system | | $100,000 |
| SR 87 - SR 260 Truck Loop | Payson area | Design and Construct Roadway* | | $30,000,000 |
| Total Phase II Projects | | | | $111,783,400 |

*ADOT has ultimate responsibility for projects involving State Highways.

## TABLE 4. IMPLEMENTATION ACTION PLAN

| Implementation Strategy | Responsible Entities |
|---|---|
| Adopt the Gila County Small Area Transportation Plan and Transit Element | County Board of Supervisors |
| Program the recommended Phase I and Phase II transportation improvements into the Capital Program | County Public Works Department |
| Establish a process to coordinate County land use and transportation decisions on a regular basis | County Public Works and Community Development Departments |
| Designate a Transportation Coordinator | County Board of Supervisors |
| Conduct a Regional Bus Service Study | County Public Works Department, CAAG, ADOT |
| Conduct a San Carlos Airport Upgrade Study | County Public Works, CAAG, San Carlos Apache Tribe, ADOT |
| Coordinate with the Town of Miami, the City of Globe, and the Town of Payson on local transit studies | County Public Works Department |
| Conduct a Miami-Globe-San Carlos excursion passenger rail feasibility study | ADOT, County Public Works Department |
| Initiate a County Bicycle and Pedestrian Plan | County Board of Supervisors |
| Implement the street functional classifications and roadway design guidelines for new development | County Public Works Department |
| Ensure that County access management policies are adhered to by new developments | County Planning and Zoning and Public Works Departments |
| Coordinate with ADOT and CAAG on a regular basis on multimodal transportation improvements | County Public Works Department |
| Establish a process to coordinate transit services with private and public agencies | County Public Works Department, CAAG, ADOT |
| Monitor and update Transportation Plan and Transit Element | County Public Works Department, CAAG, ADOT |

## TABLE 5. MATRIX OF FUNDING SOURCES

| Fund Name | Description | Eligible Uses | Application Process | Sample Project |
|---|---|---|---|---|
| **Federal** | | | | |
| STP | Federal funds, administered by FHWA and ADOT | Variety of capital projects including highways, bridges, transit and enhancement projects | Programmed and distributed through CAAG and ADOT District | Fairgrounds entrance, highway-rail crossings |
| Bridge Replacement and Rehabilitation | Federal funds, administered by FHWA and ADOT | Used for bridge replacement or rehabilitation for eligible bridges located on public roads | Programmed through ADOT | |
| FTA Section 5310 funds | Federal funds administered by ADOT | Local jurisdictions and private non-profit agencies | Programmed through ADOT Public Transportation Division | Mini-bus for Senior Center |
| FTA Section 5311 funds | Federal funds administered by ADOT | Used for rural transit services and communities of less than 50,000 population including Tribal communities | Programmed through ADOT Public Transportation Division | Dial-A-Ride Services |
| High Risk Rural Roads | Federal funds, administered by FHWA and ADOT | Correct safety problems on roadways classified as rural major collectors, rural minor collectors, and rural local roads | Programmed through ADOT | Correct safety problems on rural roads |
| Safe Routes to School Program | Federal funds, administered by FHWA and ADOT | sidewalk, traffic calming and speed reduction improvements, pedestrian and bicycle crossing improvements, traffic diversion improvements near schools | Programmed through ADOT | Traffic calming improvement in school zone |
| **State** | | | | |
| HURF | State funds, derived from fuel tax and VLT, administered by ADOT | Nearly any capital project related to roadway improvements | Funds allocated to jurisdiction as proportion of population | Improvements to County Road |
| LTAF | State funds derived from lottery sales | General transportation improvements | Funds allocated to jurisdiction as proportion of population | Extension of County Road |
| LTAF II | State funds derived from PowerBall lottery sales | Used as local matching funds for FTA transit funds | Funds allocated to jurisdiction as proportion of population | Match 5311 funds for provision of dial-a-ride service |

## TABLE 5. MATRIX OF FUNDING SOURCES (Continued)

| Fund Name | Description | Eligible Uses | Application Process | Sample Project |
|---|---|---|---|---|
| **County** | | | | |
| Gila County Transportation Tax | ½ cent sales tax dedicated to road improvements within Gila County | General transportation improvements | Funds allocated to jurisdiction by proportion of population | Gila County Roads |
| Impact Fees* | Fee imposed by local jurisdiction on development on per unit basis | Used to fund a variety of infrastructure needs including transportation | Locally administered | Gila County Roads |
| Development Stipulations* | Requirements that developers dedicate appropriate ROW and build streets adjacent to project | Benefits are derived by offsetting cost of acquiring ROW and building infrastructure | Locally administered | ROW dedication adjacent to new Tonto Basin developments |

*If Enacted

### *Impact Fees, Right-of-Way, Facilities In-Lieu*

Traffic impact fees, development impact fees, dedication of right-of-way, and/or construction of facilities in-lieu are additional local funding sources. As areas of Gila County with available deeded land develop, the improvement of County roads to and within these areas may require additional rights-of-way. In order to acquire additional rights-of-way in these areas, private developers should be required to incorporate potential rights-of-way into their plans. In addition, right-of-way exactions from developers should be sought through the coordination with planning and zoning authorities in local jurisdictions as areas are annexed or incorporated.

## Cash Flow Analysis

The consultant conducted a cash flow analysis comparing the estimated costs of the projects in Phases I and II with the funds likely to be available from the various sources during the time-frames of the phases. Table 6 presents the result for Phase I and Table 7 presents the result for Phase II. As mentioned in the previous chapter, a shortfall between the funds needed for the projects, together with on-going maintenance, and the funds available exists in both phases.

### *Methodology*

The cost of each of the projects was estimated by the consultant team, with input from the County Project Manager, based on the known costs of similar projects. Where available, dollar amounts from existing reports were used (e.g. the Pinal Creek Parkway).

Revenues were forecasted as follows:

- **HURF**: Arizona's share of the HURF appears to increase at a little over one percent annually, and Gila County's share of the Arizona HURF is approximately 1.67 percent. However, since 2006 dollars were used to estimate the project costs, a constant 2006 level HURF revenue figure of $3.9 million was used for consistency. The Phase I figure represents five years of revenue and the Phase II figure represents 20 years of revenue. In the cash flow analysis, monies received by the City of Globe and the Town of Payson were not used. However, these are significant amounts and are likely applied to segments of projects located within these jurisdictions.

- **Gila County ½ Cent Transportation Tax**: The County ½ Transportation Tax also increases at the rate of approximately one percent per year. However, for the sake of consistency with the project cost numbers, a constant 2006 level sales tax revenue figure of $2.8 million was used. Five years and 20 years of revenue were assumed for Phases I and II respectively.

## TABLE 6. CASH FLOW ANALYSIS – PHASE I

| | | |
|---|---|---|
| **Projects and Roadway Maintenance Costs** | | |
| Phase I Projects | $ 23,100,160 | |
| Five-year Maintenance Estimate | 23,300,000 | |
| **Estimated Costs** | | **$ 46,400,160** |
| **Five Year Revenue Projection - 2006 - 2010** | | |
| HURF | $ 19,500,000 | |
| Gila 1/2 Cent Tax | 14,000,000 | |
| | | $ 33,500,000 |
| **Matching Funds/Other** | | |
| Trans. Enhancement Funds - Fairground Road | $ 500,000 | |
| ADOT/FTA - Miami DAR Study | 70,080 | |
| ADOT/FHWA Sec. 130 - Grade Crossings | 750,000 | |
| ADOT/FTA - Regional Bus Service Study | 69,312 | |
| ADOT/FAA - San Carlos Airport Study | 76,608 | |
| ADOT match - Copper Spike Rail Study | 20,928 | |
| Tonto Creek Bridge I - Earmark | 3,400,000 | |
| | | $ 4,886,928 |
| **Total Revenue Projections** | | **$ 38,386,928** |
| **Shortfall** | | **$ 8,013,232** |

Source: Lima & Associates, Inc.

## TABLE 7. CASH FLOW ANALYSIS – PHASE II

| | | |
|---|---|---|
| **Projects and Roadway Maintenance Costs** | | |
| Phase II Projects | $ 111,783,400 | |
| 20-year Maintenance Estimate | 105,500,000 | |
| **Estimated Costs** | | **$ 217,283,400** |
| **Twenty Year Revenue Projection - 2011 - 2030** | | |
| HURF | $ 78,000,000 | |
| Gila 1/2 Cent Tax | 56,000,000 | |
| | | $ 134,000,000 |
| **Matching Funds/Other** | | |
| ADOT - SR 288 | $ 11,988,000 | |
| Tonto Creek Bridge II | 18,300,000 | |
| ADOT/FTA - Payson Transit Study Update | 80,000 | |
| ADOT - SR 87 - SR 260 Truck Loop | 27,000,000 | |
| | | $ 57,368,000 |
| **Total Revenue Projections** | | **$ 191,368,000** |
| **Shortfall** | | **$ 25,915,400** |

Source: Lima & Associates, Inc.

- **STP**: Transportation Enhancement Funds are shown for the Fairgrounds Road and Section 130 funds are shown for the highway-rail crossings in Phase I. During the draft exercise, it was not possible to estimate with certainty the amount of FLEX funds that could be counted on annually, hence FLEX funds were not counted. If Gila County's average share of these funds equals 1.67 percent of the State total, as is the case with the HURF funds, then the average annual revenue from STP FLEX funds would be approximately $2 million.
- The **Tonto Creek Bridge** was assumed to be funded by a separate Congressional earmark.
- The source of matching funds for the **multimodal studies** was not specified, although an 80-20 match ratio was assumed.
- Future levels of **LTAF** funds are difficult to predict. Hence, LTAF funds were not considered.
- The Maintenance Estimate was derived from the County's Road Maintenance and Repair Budget. Gila County's budget for this section also appears to be increasing at the rate of approximately one percent per year. In this instance, the one percent factor was applied. As projects in the Phases are completed, a greater percentage of the roadway miles for which the County is responsible will be paved, and paved roadways cost more per mile to maintain than unpaved ones.

The dollar amounts shown in Tables 6 and 7 are draft amounts for internal discussion only and are not intended to represent a definitive finding with regard to future monies that might be available to implement the recommended Phases of the project.

Funding devices such as impact fees, the use of which could become common in the future, were not considered. Other devices for funding or accelerating the completion of projects such as bonding, the passage of specific initiatives by the voters, or the use of the State Infrastructure Bank HELP funds were not considered. In reality, any or all of these devices will likely be employed at the time that the projects are actually programmed.

***Summary***

If STP FLEX funds can be used for projects such as the reconstruction and paving of the Young-Heber Road, then programming most or all of the projects recommended for Phase I may be feasible. If, on the other hand, HURF monies themselves are the only source of funds for the paving of SR 288 and the design and construction of the SR-87 – SR-260 truck loop in Phase II, then the shortfall for that Phase will be significantly higher.

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