CAMBRIDGE SYSTEMATICS

Arizona Rural Transit Needs Study

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Final Report

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prepared by

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Executive Summary

The State of Arizona Rural Transit Needs Study provides regionally-based solutions to rural public transportation in Arizona. The Study is intended to serve as an objective, analytical basis for establishing Arizona's long-term strategic direction of rural transit service provision. The Arizona Department of Transportation, Public Transportation Division (ADOT-PTD) worked in close partnership with regional planning organizations and Councils of Governments (COG) throughout the State to prepare this Study. The primary Study tasks focused on a 10-year planning horizon including:

- Collection and analysis of relevant data, including population, employment, income levels, automobile ownership, and travel patterns;
- Identification of national trends in addressing rural transit needs;
- Obtaining key stakeholder input on current gaps in transit service;
- Developing projections for future transit demand;
- Identification and quantification of potential solutions; and
- Development of a plan for future new services and service improvements.

Four previous interim reports were completed that documented the methodology, findings, and recommendations of the above tasks of the Study. The transit demand and need analysis estimates that year 2007 ridership of existing rural transit services in Arizona will be about 1.4 million, relative to a total demand for rural transit services of 7.8 million. This indicates that only about 18 percent of existing transit demand are currently being met with appropriate transit services in rural Arizona (i.e., the unmet need is about 82 percent). If no changes to existing services are made, the percentage of unmet need will increase from 82 percent in the year 2007 to 87 percent in 2016.

This Executive Summary first contains the key findings from the previously completed interim reports. The Executive Summary then provides a description of specific service solutions, supporting policies and practices, and suggested next steps to enhance rural public transportation throughout Arizona.

STUDY BASELINE REPORT

The Study team developed 2005 baseline conditions in rural Arizona, including population, employment, auto ownership, income levels, and travel patterns. Rural Arizona is defined as all areas of the State that are not within one of the five existing urbanized areas in Arizona (Phoenix, Tucson, Yuma, Flagstaff, and Prescott). Table ES-1 shows the main characteristics of rural Arizona compared to the State's urbanized areas.

Table ES-1 Comparison of Rural and Urban Arizona, Year 2005

	Rural Arizona		Urban Arizona	
	Number	Percent of State Total	Number	Percent of State Total
Total Population	1,501,243	24.8%	4,543,742	75.2%
Elderly Population (ages 60 and over)	348,533	31.7%	749,488	68.3%
Low-Income Population	230,800	32.3%	483,090	67.7%
Employment	554,317	20.5%	2,155,772	79.5%

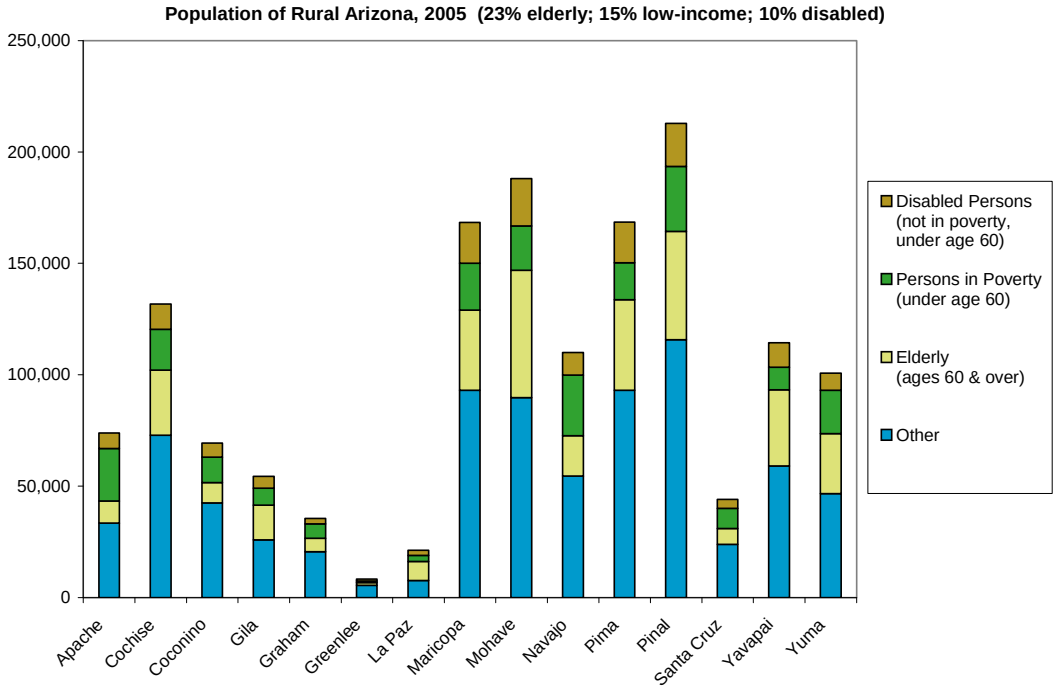
Source: Cambridge Systematics, based on U.S. Census and Arizona DES.

The key findings of this baseline conditions analysis include the following:

- The 2005 population of rural Arizona is estimated at 1.5 million, or 24.8 percent of the total state's population. The counties with the most rural residents are Pinal (about 213,000); Mohave (188,000); Pima (169,000); and Maricopa (168,000). Over the past 5 years, the most rapidly growing counties in rural population are Pinal (43.9 percent), Yuma (22.1 percent), and Mohave (21.3 percent).
- The 2005 elderly population ages 60 and over of rural Arizona is estimated at 348,533, or 31.7 percent of the total state's elderly population. The percentage of persons who are elderly in rural Arizona is higher than the urbanized areas of the State (23.2 percent compared to 16.5 percent). Counties with the highest percentage of elderly persons are La Paz (40 percent), Mohave (30.4 percent), and Yavapai (29.8 percent).
- The 2005 low-income population (i.e., persons with household incomes below the poverty line) is estimated at 230,800, or 32.3 percent of the total state's low-income population. The poverty rate in rural Arizona is significantly higher than in urbanized areas (18.1 percent poverty rate in rural Arizona compared to 12.5 percent in urban Arizona). The counties with the highest poverty rates are Apache (37.8 percent), Navajo (29.5 percent), and Santa Cruz (24.5 percent).
- While rural Arizona has about 24.8 percent of the State's total population, the share of the State's total employment in rural Arizona is smaller at about 20.5 percent.
- The largest county-to-county commuter travel flows are between Pinal and Maricopa and between Mohave and out-of-state (i.e., Nevada).

Figure ES.1 shows the 2005 population characteristics of rural Arizona by county. Elderly, disabled, and low-income population estimates in each county are broken out separately. About 23 percent of rural Arizona residents are elderly, 15 percent are persons of low income (nonelderly), and 10 percent are disabled persons (nonelderly).

Figure ES.1 Population Characteristics of Rural Arizona, Year 2005



Source: Arizona DES, 2005 and U.S. Census, 2000.

FUTURE TREND ANALYSIS

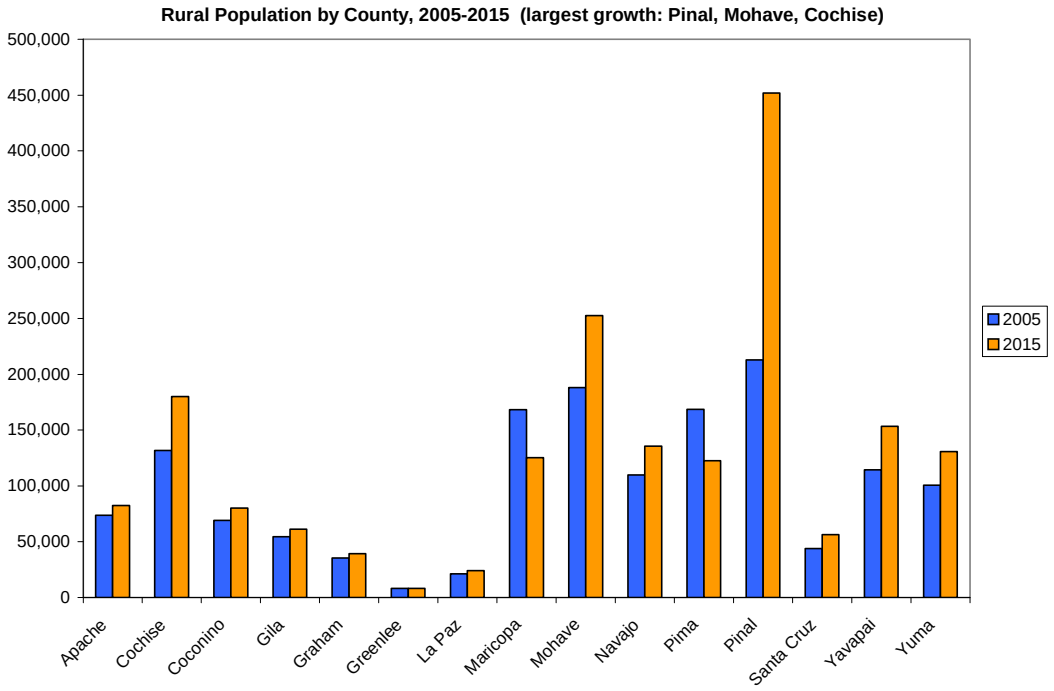
The Study team prepared future demographic trends in rural Arizona to the year 2015. The key findings of the future trend analysis include:

- The percentage of the State's population living in rural areas is projected to decline from 24.8 percent in 2005 to 20.2 percent in 2015, due to the designation of two new urbanized areas (Lake Havasu City-Kingman and Sierra Vista-Douglas), as well as the continued geographic expansion of the Phoenix and Tucson urbanized areas.
- In order to provide consistency in measuring transit demand over time, the populations of the projected new urbanized areas in Cochise and Mohave Counties, following the 2010 U.S. Census, are included with rural Arizona for this analysis.
- The 2015 population of rural Arizona is estimated at 1.9 million, including currently rural areas projected to become urbanized following the 2010 U.S. Census. The counties projected to have the most rural residents are Pinal (about 452,000); Mohave (253,000); Cochise (180,000); and Yavapai (153,000). The most rapidly growing counties in rural population are projected to be Pinal (112.3 percent), Cochise (36.6 percent), Mohave (34.4 percent), and Yavapai (34.1 percent).

- The percentage of persons in rural Arizona who are elderly is projected to increase from 23.2 percent in 2005 to 27.7 percent in 2015.

Figure ES.2 shows the projected population change of rural Arizona from 2005 to 2015 by county.

Figure ES.2 Population in Rural Arizona by County, 2005 to 2015



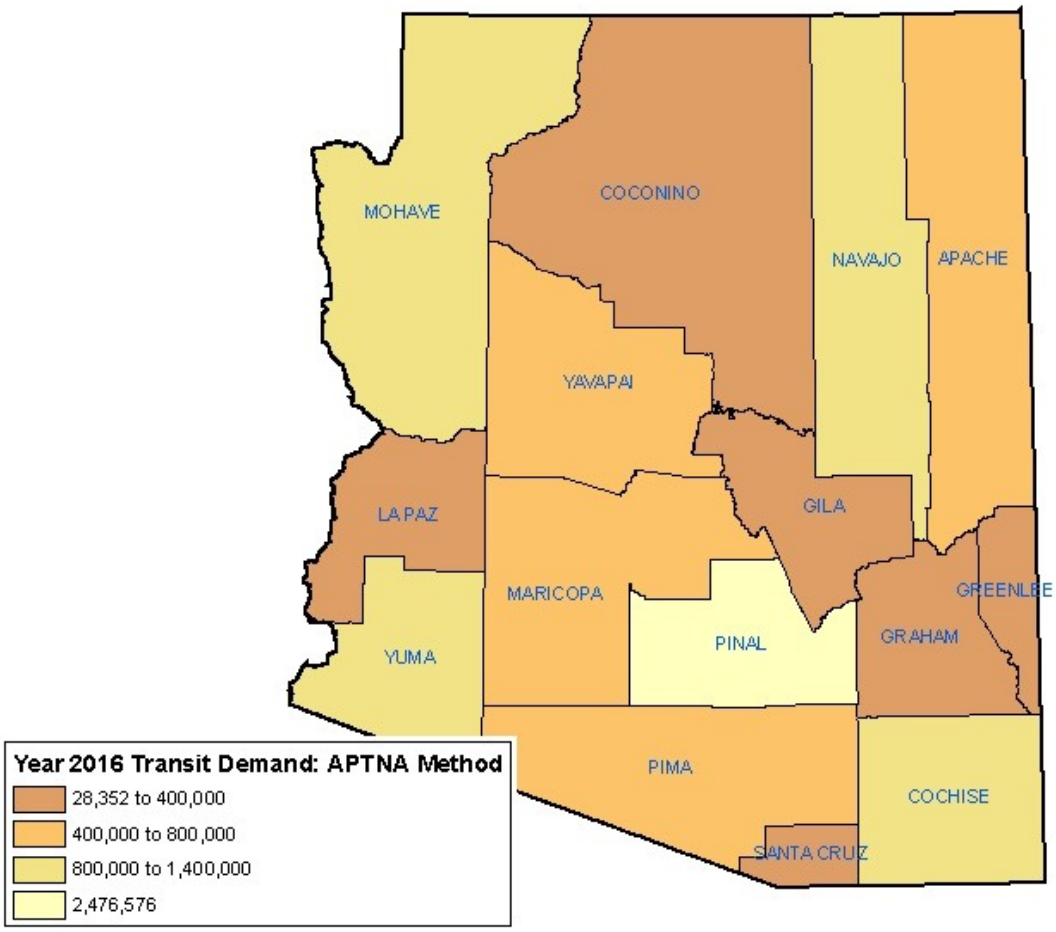
Source: Cambridge Systematics based on various data sources. Includes population of projected new urbanized areas in Cochise and Mohave counties.

TRANSIT DEMAND AND NEED

The Study team reviewed five analytical methods to assess their applicability in estimating transit demand and need in rural Arizona. The results from one method were recommended and carried forward to represent rural transit needs and gaps in the State:

- Transit demand in rural Arizona is projected to grow from 7.8 million passenger trips in 2007 to 10.5 million in 2016, an increase of 34 percent. This includes demand in currently rural areas that are projected to become urbanized by 2010 (according to the U.S. Census).
- The counties with the highest projected levels of rural transit demand in 2016 are Pinal (2.5 million trips), Mohave (1.3 million), Navajo (1.0 million), and Cochise (0.9 million). This is shown in Figure ES.3.

Figure ES.3 Projected Transit Demand in Rural Arizona, Year 2016



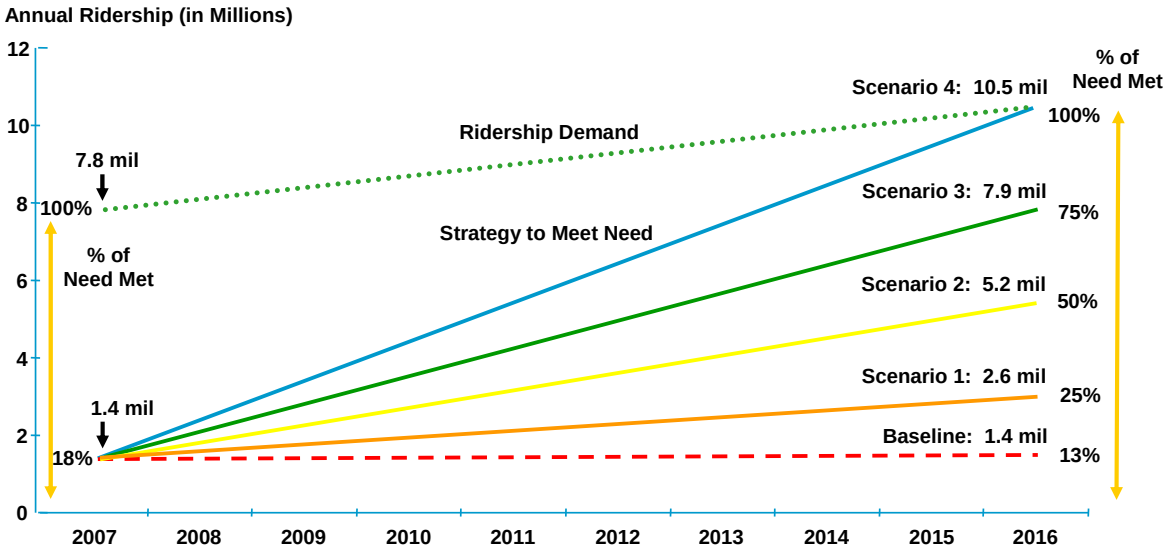
Source: Cambridge Systematics, Inc.; and TranSystems.

Annual ridership in 2007 carried by existing rural transit services in Arizona is estimated at 1.4 million. This indicates that only about 18 percent of existing transit demand are currently being met with appropriate transit services in rural Arizona. Existing rural transit services are projected to meet only 13 percent of total ridership need in 2016, if no additional services are introduced. This is a result of continued population growth throughout the State during the next 10 years.

Four scenarios were proposed to gradually improve and increase rural transit service provision over time in Arizona (Figure ES.4) including:

- Scenario #1 was designed to increase service provision to meet 25 percent of the projected rural transit need by 2016. With this scenario, rural transit ridership is projected to increase from the current level of about 1.4 million annual passenger trips in 2007 to 2.6 million annual trips in 2016.
- Scenario #2 was designed to increase service provision to meet 50 percent of rural transit need by 2016. With this scenario, annual rural transit ridership is projected to increase from 1.4 million in 2007 to 5.2 million in 2016.
- Scenario #3 was designed to increase service provision to meet 75 percent of rural transit need by 2016. With this scenario, annual rural transit ridership is projected to increase from 1.4 million in 2007 to 7.9 million in 2016.
- Scenario #4 was designed to increase service provision to fully meet the projected rural transit need by 2016. With this scenario, annual rural transit ridership is projected to increase from 1.4 million in 2007 to 10.5 million in 2016.

Figure ES.4 Total Annual Rural Transit Ridership Estimates by Scenario, 2007 to 2016



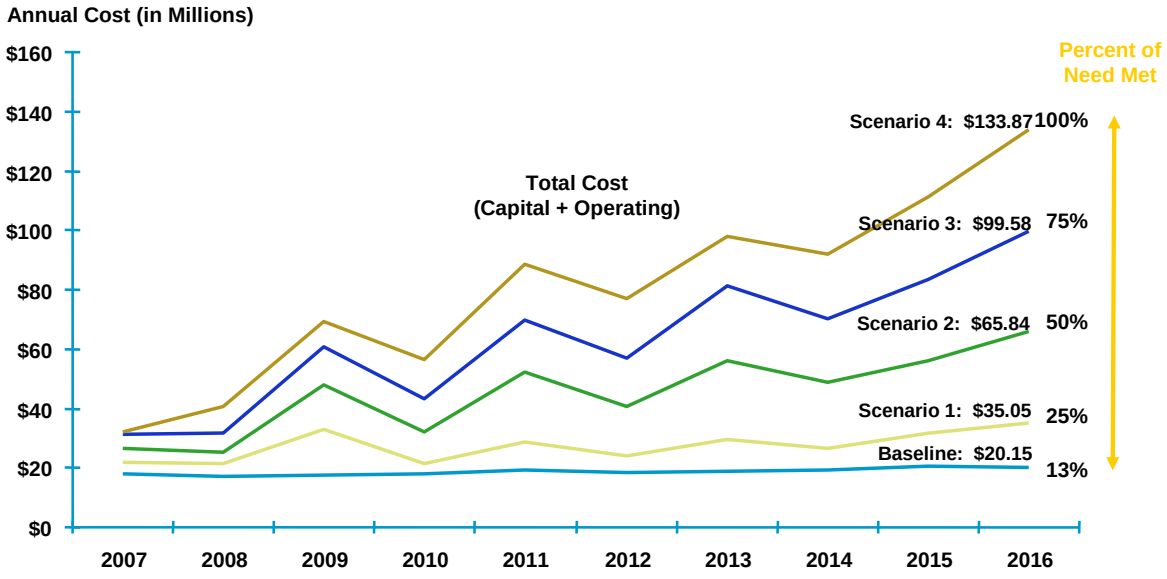
Source: Cambridge Systematics and TranSystems.

Based on Scenario #4, which fully meets projected transit need by the year 2016, the projected total capital and net operating cost per year for rural transit services statewide would increase from about $32.0 million in 2007 to about $133.9 million in 2016 (Figure ES.5). In addition:

- Net operating costs would increase from the current level of about $12.1 million in 2007 to $97.3 million in 2016. Capital costs, including vehicle and facility expenses, would increase from about $19.9 million in 2007 to $36.5 million in 2016. The total net operating and capital costs represents the cost estimate associated with a potential 10-year capital expansion plan.
- The total size of the vehicle fleet in rural Arizona would need to increase from the current level of about 397 vehicles in 2007 to 1,751 vehicles in 2016. In addition to the 1,354 vehicles that would be purchased for fleet expansion, another 1,892 vehicles would need to be purchased for fleet replacement.

The other scenarios represent lower levels of investment, with lower operating and capital costs. The 2016 costs are about $20.1 million for the baseline, $35.0 million for Scenario #1, $65.8 million for Scenario #2, and $99.6 million for Scenario #3.

Figure ES.5 Total Annual Rural Transit Cost Estimates by Scenario, 2007 to 2016



Source: Cambridge Systematics and TranSystems.

With each scenario, year 2016 is the target year for achieving the specified ridership target (i.e., percent of need met). Table ES-2 shows a summary of year 2016 costs and ridership for each scenario:

- The baseline scenario (no change to existing services) has a year 2016 cost of about $20.1 million and a year 2016 ridership of about 1.4 million.
- Scenario #1 (25 percent of need met) has a year 2016 cost of about $35.0 million and a year 2016 ridership of about 2.6 million.
- Scenario #2 (50 percent of need met) has a year 2016 cost of about $65.8 million and a year 2016 ridership of about 5.2 million.
- Scenario #3 (75 percent of need met) has a year 2016 cost of about $99.6 million and a year 2016 ridership of about 7.9 million.
- Scenario #4 (100 percent of need met) has a year 2016 cost of about $133.9 million and a year 2016 ridership of about 10.5 million.

Table ES-2 Summary of Year 2016 Cost and Ridership by Scenario

	Percent of Need Met in 2016				
	13%: Baseline, No Change to Existing Services	Scenario #1: 25%	Scenario #2: 50%	Scenario #3: 75%	Scenario #4: 100%, Fully Meet Demand
Year 2016 Capital Cost	$4,900,000	$10,441,000	$17,183,000	$26,593,000	$36,548,000
Year 2016 Net Operating Cost	$15,247,000	$24,608,000	$48,660,000	$72,990,000	$97,319,000
Year 2016 Total Cost	$20,147,000	$35,048,000	$65,842,000	$99,583,000	$133,867,000
Year 2016 Ridership	1,370,000	2,625,000	5,241,000	7,857,000	10,472,000

Source: Cambridge Systematics and TranSystems.

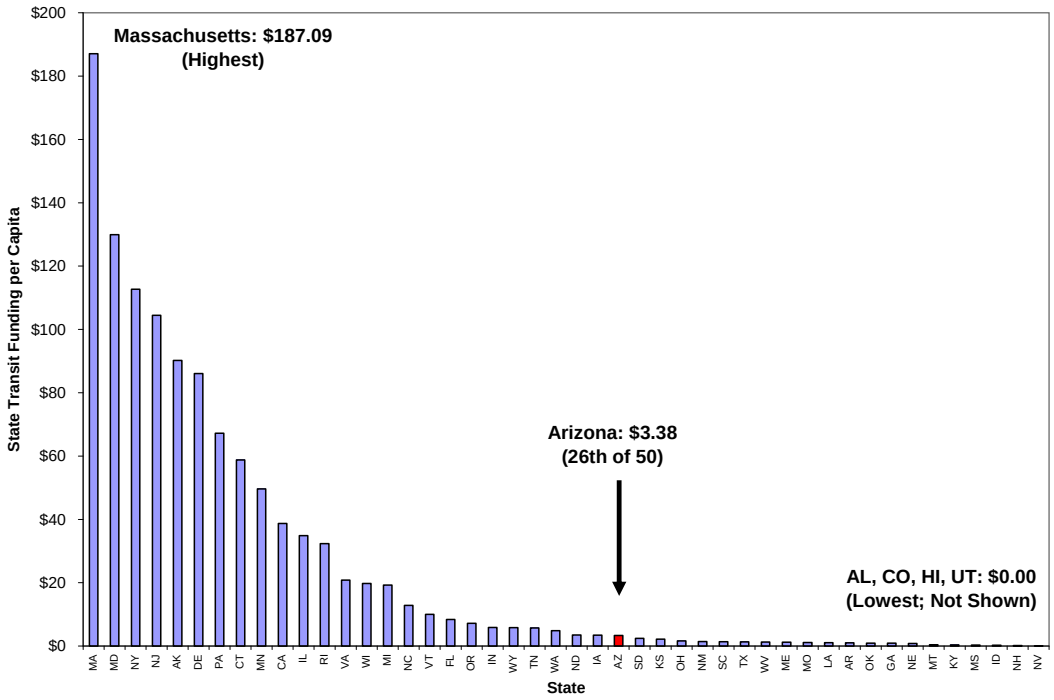
FUNDING ISSUES AND SOLUTIONS

Of the Federal transit funding that is apportioned to Arizona, only 6.2 percent were apportioned to rural transit programs in Fiscal Year (FY) 2006. This is significantly lower than the estimated 24.8 percent of Arizona residents who live in rural areas. Going forward, Federal funding will continue to be important for rural transit services in Arizona, but will be insufficient to address all of the State's current and projected 2016 rural transit needs.

More funding for transit, particularly rural transit, will be needed at the state and local levels in order to significantly expand service provision statewide:

- Arizona ranks 26th among the 50 states in overall state-level transit funding per capita, at $3.38 per capita (Figure ES.6):
  - States with lower per capita funding include New Mexico ($1.47), Texas ($1.30), Oklahoma ($0.92), Nevada ($0.04), Colorado ($0), and Utah ($0).
  - States with higher per capita funding include Minnesota ($49.59), California ($38.74), North Carolina ($12.87), Oregon ($7.18), Washington State ($4.84), and Iowa ($3.42).

Figure ES.6 Per Capita State-Level Transit Funding, Year 2005



Source: *Survey of State Funding for Public Transportation, 2005*, Table 3-3, page 3-6, Bureau of Transportation Statistics, May 2006. Includes transit funding for both rural and urban areas.

- Existing transit ridership in rural Arizona is estimated at about 0.9 annual trips per capita. As a basis of comparison, annual rural transit ridership per capita in four states generally regarded as having made noteworthy invest-

ments in rural transportation are as follows – Iowa: 6.0; Washington State: 5.5; Minnesota: 2.9; North Carolina: 2.6. Anecdotally, none of these four states, despite their high regard, believe that rural transportation needs in their state are being fully satisfied.[1]

- Several strategies were proposed and evaluated in order to provide additional state-level funding for rural transit in Arizona. These strategies included increasing motor fuel taxes, vehicle license taxes, motor carrier fees, registration fees, and retail sales taxes.
- It will also be important for local entities, including regional governments, counties, local municipalities, and Tribal governments, to increase their funding for rural transit services in order to meet projected rural transit service needs. The primary sources of funding used for transit services at the local level are sales taxes, property taxes, and fare revenue. Other potential funding sources for rural transit include financial contributions from community foundations or faith-based organizations.

VISION, GOALS, AND OBJECTIVES

In this Final Report, the Study team outlines the long-term strategic direction for rural transit service provision in Arizona, starting by defining a vision, goals, and objectives. These are summarized below.

- **Vision.** There are numerous unmet needs for rural transit services in Arizona. Presently, only 18 percent of estimated demand for rural transit services are currently being met. Existing rural transit services are projected to meet only 13 percent of total ridership need in 2016 if no additional services are introduced.

  The following proposed vision statement describes the desired future for rural transit in Arizona:

  > "Rural transit service provision in Arizona should be expanded significantly through the year 2016 to address the rapidly growing transportation demands and needs of rural residents statewide."

- **Goals.** Key findings include:
  - Additional rural transit services are needed in multiple cities, towns, Tribal Reservations, and intercity corridors throughout the State.
  - The key market segments for rural transit services should be elderly persons, persons with disabilities, and persons of low income.

[1] Source: TranSystems.

- The trip purposes of those who use rural transit services are varied and include medical appointments, shopping, work, education and job training, personal business, and recreation.

The goals for Arizona rural transit service provision represent the intended beneficial outcomes associated with accomplishing the above vision. Three goals are defined for the Final Report:

- #1: Provide services in multiple geographic areas;
- #2: Address needs of particular market segments; and
- #3: Serve a variety of trip purposes.

- **Objectives.** Tailoring services to particular geographic areas and market segments, improving service coordination among multiple providers, and monitoring and improving service costs are important criteria with respect to rural transit service provision.

  The objectives for Arizona rural transit service provision represent the primary areas of focus needed to accomplish the above goals. Three objectives are presented as part of the Final Report:

  - #1: Tailor service delivery;
  - #2: Improve service effectiveness; and
  - #3: Enhance service coordination.

SERVICE ALTERNATIVES AND SOLUTIONS

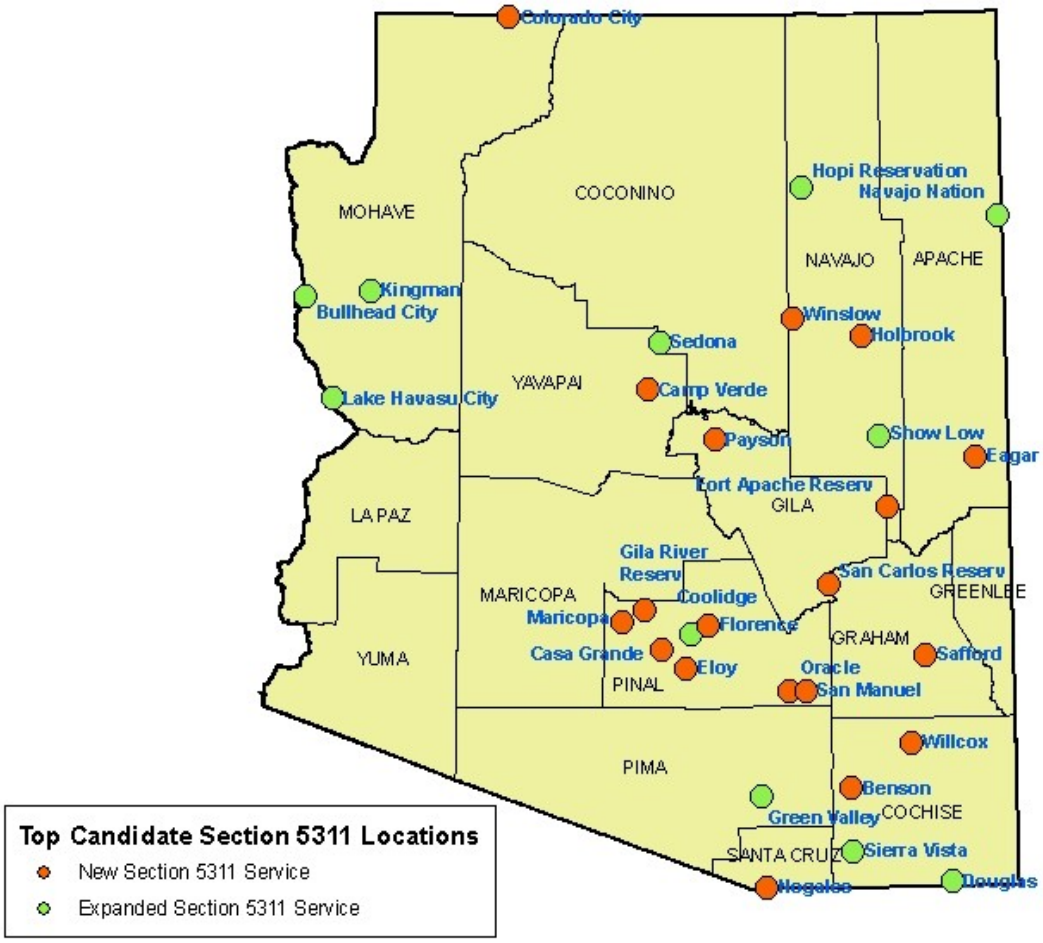
Building on the findings from the previous four interim reports and a statewide stakeholder involvement process, a number of specific Section 5311: Nonurbanized Area general public rural transit service alternatives were defined and recommended as top candidates. Figure ES.7 shows the top locations for new or expanded 5311 program services that operate within rural communities:

- **New Section 5311 Local Services.** New 5311 program services were identified for communities in Pinal County (Casa Grande, Eloy, City of Maricopa, Florence, Oracle, San Manuel); Santa Cruz County (Nogales); Gila County (Payson); Yavapai County (Camp Verde); Graham County (Safford/ Thatcher); Navajo County (Winslow, Holbrook); Apache County (Eagar/ Springerville); Cochise County (Willcox, Benson); and Mohave County (Colorado City). New 5311 program services were also identified for Tribal Reservations: Gila River Reservation (in Maricopa and Pinal Counties); Fort Apache Reservation (in Apache, Gila, and Navajo Counties); and the San Carlos Reservation (in Gila, Graham, and Pinal Counties).
- **Expanded Section 5311 Local Services.** Expanded 5311 program services were identified for Navajo Transit System (in Apache, Coconino, and Navajo Counties, as well as portions of New Mexico and Utah); Catholic Community

Services in Douglas (Cochise County); Pima County Rural Transit; Lake Havasu City Transit Services (Mohave County); Bullhead Area Transit System (Mohave County); Cotton Express in Coolidge (Pinal County); Hopi Senom Transit System (in Coconino and Navajo Counties); City of Sierra Vista Public Transit System (Cochise County); Kingman Area Regional Transit (Mohave County); the City of Sedona (Yavapai County), and the City of Show Low/Pinetop (Navajo County).

Figure ES.8 shows the top potential corridor locations for new Section 5311 general public intercity transit services that connect rural communities with each other or with urbanized areas. These corridors are located in Pinal County (Casa Grande-Arizona City-Eloy-Coolidge); Pinal-Maricopa Counties (Coolidge/ Florence-Phoenix, Maricopa-Tempe); Mohave County (Bullhead City-Kingman-Lake Havasu City); Yavapai-Coconino Counties (Cottonwood-Prescott-Camp Verde-Sedona); Navajo County (Fort Apache Reservation-Show Low-Snowflake/Taylor-Holbrook); Gila-Maricopa Counties (Miami-Superior-East Mesa; Payson-East Mesa); Graham-Greenlee Counties (Safford/Thatcher-Clifton/Morenci); and Navajo-Coconino Counties (Page-Tuba City-Kayenta-Flagstaff).

Figure ES.7 Top Candidates for New or Expanded Local and Tribal Section 5311 Program Service



Source: Arizona Department of Transportation; and Cambridge Systematics, Inc.

Note: Tribal Reservations are shown as a single location that represents a larger geographic area. Green Valley is shown as the most significant expansion opportunity for Pima County Rural Transit.

Figure ES.8 Top Candidates for New Intercity Section 5311 Program Service

Source: Arizona Department of Transportation, and Cambridge Systematics, Inc.

In addition, there are a number of other potential opportunities for new or expanded Section 5310: Elderly and Persons with Disabilities rural transit services statewide (both local and intercity), as well as the potential to improve service coordination between existing Section 5310 services and other rural transit services.

Examples of best practices from other locations with respect to rural transit service provision pertain to topics, including flexible services, coordination, and technology. Many of these practices revolve around building support at the local level, working closely with stakeholders to effectively understand and meet their rural transit needs, and operating high-quality service in a cost-effective manner.

SUPPORTING POLICIES AND PRACTICES

The recommended roles, responsibilities, and next steps for implementing the rural transit service alternatives and solutions are as follows.

- **State:**
  - **Federal funding.** Work with transit operators in Arizona to claim and obligate all available Federal funds;
  - **Capital program.** Develop a master statewide rural transit program for facility expenses and vehicle purchases, and identify new Federal funding sources; and
  - **Operating funding.** Consider performance-based criteria for operators to receive Federal and state funds.
- **Councils of Government:**
  - **Regional planning.** Oversee detailed service planning and cost estimates for new and expanded services;
  - **Data collection.** Collect ridership and cost data for Section 5310 and other social service agency operations;
  - **Service coordination.** Identify public transportation services within the region that promote the efficiency of general public, elderly, and disabled service by supporting the streamlining and coordination of existing public transportation programs;
  - **Regional funding support.** Act on behalf of region to garner support for regional funding collaboration to support public transportation within region; and
  - **Regional coordination.** Act on behalf of region to facilitate communication to other levels of government to ensure regional public transportation needs are identified and action is taken to support identified needs.

  The State and COGs should work closely with local and Tribal governments and social service agencies to pool funding resources by region, encourage efficiency, improve service coordination, and consolidate services, if applicable.
- **Local and Tribal governments:**
  - **Support.** Generate support for rural transit among local residents;
  - **Monitor demographics.** Actively monitor demographic changes in jurisdiction that may impact existing or new services;
  - **Service coordination.** Identify public transportation services within city/town or Tribal Reservation that promote the efficiency of general public, elderly, and disabled service by supporting the streamlining and coordination of existing public transportation programs; and
  - **Planning.** Ensure proper planning and development of operations is provided to meet the needs of the city/town or Tribal Reservation.

- **Transit operators:**
  - **Quality service.** Provide high-quality operations tailored to rider needs; and
  - **Data collection.** Monitor service performance on an ongoing basis.

All levels of government should secure additional funding for rural transit services, in cooperation with the private sector and not-for-profit agencies.

A target should be established to plan and cost out specific rural transit service candidates, secure funding, and begin operations of these top candidates within the next five years.

SUMMARY

Rural public transportation plays an important role in Arizona's transportation system. The development of mobility options, connecting rural communities to urbanized areas, and properly addressing rural growth factors must all occur to ensure public transportation service needs are met in rural Arizona over the next decade. The further development and improvement of rural public transportation service in Arizona is critical in addressing the anticipated substantial growth of the State's population. Given only 18 percent of rural Arizona's public transportation needs are being met today, it is clear that significant improvement is necessary. Existing rural public transportation services are projected to meet only 13 percent of total ridership need in 2016 if the current investment strategy continues, as a result of continued population growth throughout the State during the next 10 years. These substantial unmet needs in rural Arizona are in addition to unmet needs in Arizona's urbanized areas, which are also significant and growing.

Next steps to ensure further development and improvement of service should include the use of regionally-based strategies outlined within this Final Report to address the State's unmet rural public transportation needs. Strategies include adding rural public transportation service in cities, towns, and Tribal Reservations to ensure general public and elderly and disabled service needs are met. Increasing local, regional, state, and Federal funding to support these services is critical to ensure service options are provided. Connecting rural and urban communities also represents a growing Arizona need. Establishing roles and responsibilities between the State, COGs, local governments, Tribal Governments, and transit operators will facilitate the development of public transportation service in rural Arizona.

The strategies outlined within the Final Report are important tools to be used in the development of Arizona's rural public transportation services. It is through the use of these strategies and the establishment of critical public transportation services that Arizona can meet the challenge of the rural mobility needs and the State's growing rural population today and for years to come.

1.0 Introduction

This Final Report recommends the long-term strategic direction for rural transit service provision in Arizona based on results from four previously completed interim reports, a statewide stakeholder involvement process, and ongoing input and guidance from the Study's Technical Advisory Committee. This is done for a 10-year planning horizon. The remainder of this Final Report is organized by the following sections:

- **Section 2.0: Vision, Goals, and Objectives.** This section establishes the vision, goals, and objectives for rural transit service provision in Arizona. The vision statement describes the desired future for rural transit in Arizona. The goals represent the intended beneficial outcomes associated with accomplishing the above vision. The objectives represent the primary areas of focus needed to accomplish the above goals.
- **Section 3.0: Key Findings.** This section presents a summary of the key findings from the four previously submitted interim reports for the study:
  - **Working Paper #1: Study Baseline Report** presents year 2005 baseline demographic and transit service characteristics in rural Arizona. This includes a description of existing conditions (i.e., population, employment, auto ownership, income levels, travel patterns); identification of geographic study areas with an overview of existing rural transit services within each area; a literature review of plans and studies relevant to rural transit; and a peer review of rural transit programs in three other states (Colorado, Nevada, Utah).
  - **Working Paper #2: Future Trend Analysis** builds on Working Paper #1 and contains an analysis of future demographic trends expected in rural Arizona through 2015, including population, employment, and travel patterns.
  - **Working Paper #3: Transit Demand and Need** has two main parts. The first part presents five methods for estimating the demand for rural transit in Arizona in terms of annual riders through 2016, and recommends one method to use in supporting this study including the resulting demand estimates. The second part uses the demand projections from the recommended method and calculates the costs (both capital and operating expenses) required to meet the estimated need.
  - **Working Paper #4: Funding Issues and Solutions** was prepared to determine the status and availability of rural transit funding from both existing and potential revenue sources, and recommends options to increase funding for rural transit services statewide. This includes funding options at the Federal, state, and local levels.

- **Section 4.0: Service Alternatives and Solutions.** This section identifies and describes transit service alternatives and solutions in rural Arizona that address both local and intercity needs. These recommendations are based on the results from the Study's stakeholder input process, a review of previously completed rural transit plans and studies, and the transit demand analysis results at the local level. Thirty top general public service candidates are identified, including proposed new services and the expansion of existing services. The locations, unmet need projections, and a discussion of relevant factors to consider are provided for each service candidate.
- **Section 5.0: Supporting Policies and Practices.** This section presents a discussion of supporting policies and practices that are relevant to planning for new and expanded rural transit services in Arizona. This includes background of existing rural transit funding sources, a policy discussion on potential performance-based criteria for rural transit operators to receive Federal and state funding, and a review of best practices relevant to rural transit with respect to flexible services, coordination, and technology.
- **Section 6.0: Summary and Next Steps.** This section presents a summary of the recommended rural transit service solutions, and proposes next step relevant to implementation. The suggested roles, responsibilities, and next steps for agencies in Arizona pertaining to implementation of these service recommendations are also provided.

This Final Report also contains four appendices:

- **Appendix A. Definitions** identifies the terminology used in the report and how these terms are defined.
- **Appendix B. Case Studies** provides information on case studies in other states or regional areas nationwide pertaining to the application of best practices in rural transportation.
- **Appendix C. Federal Funding Levels for Arizona** provides estimated FY 2005, FY 2006, and FY 2007 Federal funding levels for Arizona through the Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users (SAFETEA-LU).
- **Appendix D. FY 2006 Section 5311 Financial and Performance Criteria** shows results from applying five suggested criteria for receiving Federal and state operating funding for Section 5311 program services to existing operators based on FY 2006 data. While definitive conclusions should not be drawn from a single year of data, this provides a starting point for future discussion.

2.0 Vision, Goals, and Objectives

This section establishes the vision, goals, and objectives for transit service provision in rural Arizona. These elements were designed to provide the State's long-term strategic direction for rural transit. This material was developed from several sources, including eight stakeholder workshops held throughout the State, telephone interviews held with identified key stakeholders, an on-line survey with nearly 400 respondents, the Tribal Forum conducted by ADOT on May 8, input and guidance from the Study's Technical Advisory Committee, a review of demographic characteristics and trends, and an analysis of transit demand and need.

2.1 VISION

There are numerous unmet needs for rural transit services in Arizona. Presently, only 18 percent of estimated rural transit demand are currently being met. Existing rural transit services are projected to meet only 13 percent of total ridership need in 2016, if no additional services are introduced.

A vision statement that describes the desired future for rural transit in Arizona follows:

> "Rural transit service provision in Arizona should be expanded significantly through the year 2016 to address the rapidly growing transportation demands and needs of rural residents statewide."

2.2 GOALS

Key findings include:

- Additional rural transit services are needed in multiple cities, towns, Tribal Reservations, and intercity corridors throughout the State;
- The key market segments for rural transit services should be elderly persons, persons with disabilities, and persons of low income; and
- The trip purposes of those who use rural transit services are varied and include medical appointments, shopping, work, education and job training, personal business, and recreation.

The goals for Arizona rural transit service provision represent the intended beneficial outcomes associated with accomplishing the above vision. The proposed goals are as follows:

- **Goal #1: Provide services in multiple geographic areas**, including transit services that operate within designated rural areas, services that connect

rural areas with each other, and services that connect rural areas with urbanized areas;

- **Goal #2: Address needs of particular market segments** that use rural transit services, including but not limited to the elderly, persons with disabilities, and persons of low income; and
- **Goal #3: Serve a variety of trip purposes** for rural Arizona residents, including employment, medical, shopping, and personal business needs.

2.3 OBJECTIVES

Tailoring services to particular geographic areas and market segments, improving service coordination among multiple providers, and monitoring and improving service costs are important criteria with respect to rural transit service provision.

The objectives for Arizona rural transit service provision represent the primary areas of focus needed to accomplish the above goals. The proposed objectives include:

- **Objective #1: Tailor service delivery** for particular rural transit services, which is essential, given the wide range of traveler demographic characteristics and trip purposes that exist in rural Arizona. Delivery of a particular rural transit service should be tailored to the specific needs of the travelers in a particular community or intercity corridor.
- **Objective #2: Improve service effectiveness** of rural transit services, which is necessary, given the constraints on funding relative to the magnitude of need. As a result of these constraints, it is important to direct rural transit funding to those services that provide the most benefit, as measured primarily by ridership, relative to the cost of service provision.
- **Objective #3: Enhance service coordination** of rural transit services, which was repeatedly mentioned by stakeholders during the course of the study as being of key importance, given the high number of existing transit service providers in rural Arizona. Improvements to service coordination are expected to result in a more efficient provision of transit service and improved service quality.

The service alternatives and solutions described in Section 4.0 below and the supporting policies and practices presented in Section 5.0 were developed in accordance with meeting the vision, goals, and objectives for rural transit service provision in Arizona.

3.0 Key Findings

3.1 OVERVIEW

The key findings from four interim reports prepared for the Study (#1: Study Baseline Report, #2: Future Trend Analysis, #3: Transit Demand and Need, and #4: Funding Issues and Solutions) are presented in this section in the following sequence:

- **Study Areas and Existing Services.** Identifies the geographic regions that define rural Arizona and the existing transit services within each region;
- **Demographic Changes.** Summarizes existing demographic characteristics of rural Arizona and projected future trends;
- **Transit Demand and Need.** Provides results from an analysis of demand and need for transit services in rural Arizona; and
- **Strategy and Cost to Meet Need.** Proposes a strategy for addressing unmet transit need in rural Arizona and the associated cost estimates.

3.2 STUDY AREAS AND EXISTING SERVICES

Nine rural transit study areas were defined for this Study. The study areas excluded the five existing urbanized areas in the State (Phoenix, Tucson, Flagstaff, Prescott, and Yuma). Figure 3.1 shows the nine study areas.

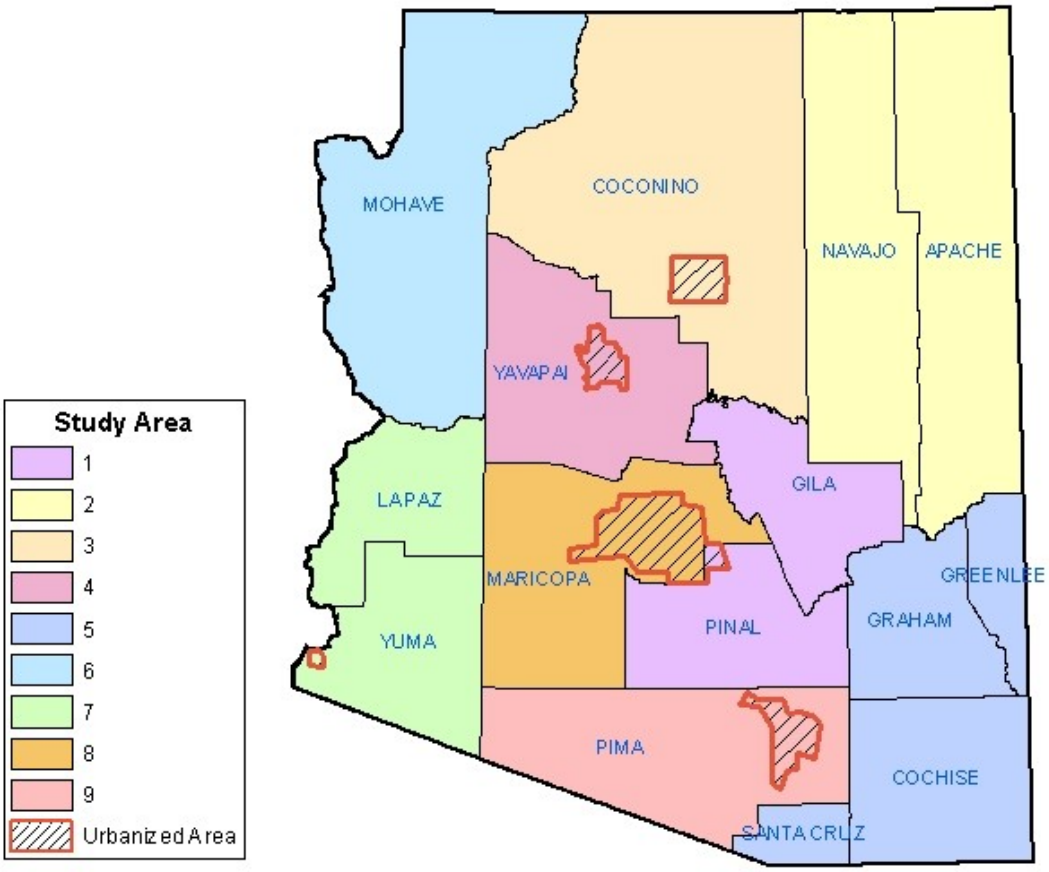
Designation of these study areas was used to define rural Arizona and implement the stakeholder involvement process. In this report, service alternatives and solutions are referred to by county (instead of by study area), since the county distinction is more easily recognized and provides a practical reference for purposes of long-term strategy implementation.

Two new urbanized areas are projected to form following the 2010 U.S. Census:

1. Lake Havasu City-Bullhead City-Kingman in Mohave County; and
2. Sierra Vista-Bisbee-Douglas in Cochise County.

These designations will have implications on transit funding, as described in Working Paper #4: Funding Issues and Solutions. For purposes of this report, service alternatives for these transitioning areas are included because these areas are currently rural.

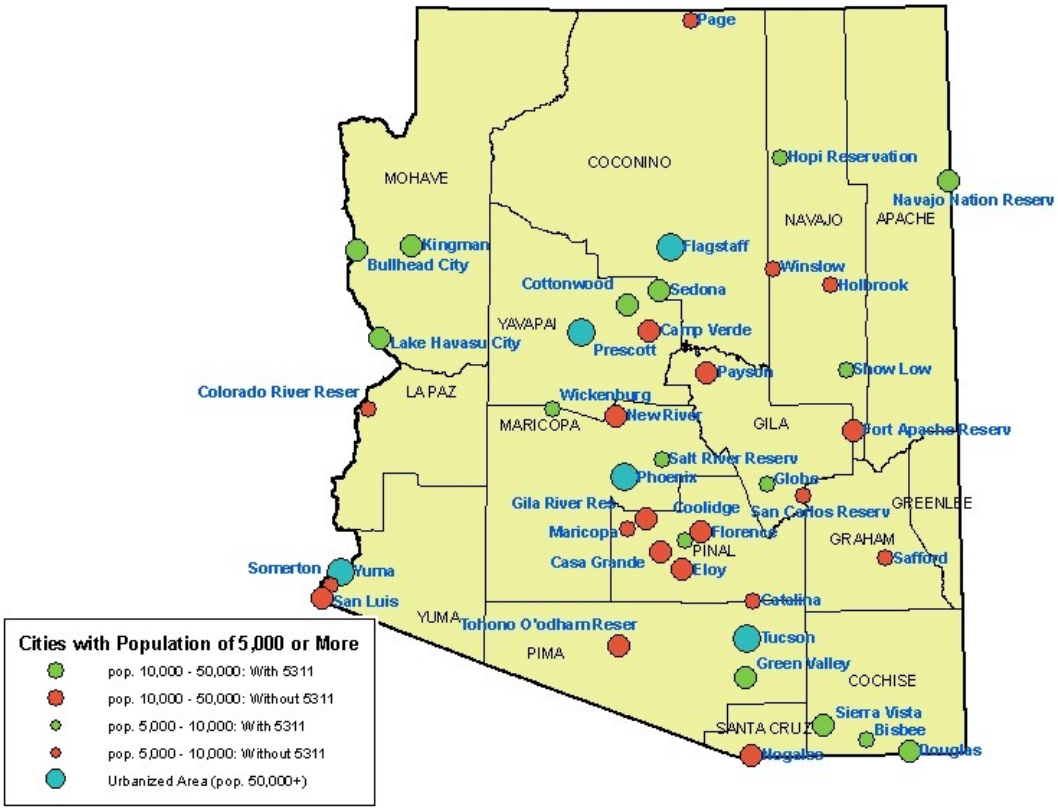
Figure 3.1 Rural Transit Study Areas



Source: Cambridge Systematics (Working Paper #1, Figure 3.1).

Figure 3.2 shows the cities/towns and Tribal Reservations in Arizona with an estimated 2005 population of over 5,000. Those that are currently served by an existing Section 5311 Nonurbanized Area general public rural transit system are shown in green. Those without Section 5311 program service are shown in red. The five existing urbanized areas are shown in blue. As shown in red on Figure 3.2, there are a number of cities/towns and Tribal Reservations of over 5,000 in population throughout the State that do not currently have Section 5311 program service. These locations are likely candidates for new Section 5311 service.

Figure 3.2 Rural Cities and Tribal Reservations Over 5,000 in Population With and Without Section 5311 Service



Source: Cambridge Systematics, Inc., based on information provided by the Arizona Department of Transportation and the Arizona Department of Economic Security.

Note: Places of over 5,000 with Section 5311 service not shown in the figure: Tucson Estates (Pima County). Places of over 5,000 without Section 5311 service not shown: Three Points (Pima County), Arizona City (Pinal County), San Manuel (Pinal County), and Fortuna Foothills (Yuma County). Somerton and San Luis in Yuma County have Section 5307 urbanized area service, but not local Section 5311 service.

Figure 3.3 shows the locations in rural Arizona that are currently served by one or more public or nonprofit agencies. These agencies are previous recipients of Section 5310 program, Elderly and Persons with Disabilities transit funding. In total, there are an estimated 102 Section 5310 program services in rural Arizona providing service in 56 cities/towns. Among these 56 cities/towns, 23 have more than one Section 5310 program provider.

Figure 3.3 Existing Section 5310 Elderly and Disabled Rural Transit Services

Source: Arizona Department of Transportation.

Note: Not shown: Globe (Gila County) and Mojave Valley (Mohave County).

Figure 3.4 shows the existing coverage of Greyhound and Amtrak services in Arizona, the primary intercity public transportation services in the State. The locations of the Greyhound and Amtrak stations/stops in rural Arizona (excluding the urbanized areas) include:

- **Greyhound.** Benson, Willcox (Cochise County); Quartzsite (La Paz County); Gila Bend (Maricopa County); Bullhead City, Kingman (Mohave County); Holbrook, Winslow (Navajo County); Casa Grande (Pinal County); and Nogales (Santa Cruz County).
- **Amtrak.** Benson (Cochise County); Williams (Coconino County); Kingman (Mohave County); Winslow (Navajo County); and Maricopa (Pinal County).

Figure 3.4 Amtrak and Greyhound Services in Arizona

Source: Cambridge Systematics, Inc., based on information from the Greyhound and Amtrak web sites. Greyhound service includes trips operated by Crucero USA, a Greyhound-affiliated carrier.

Other intercity public transportation providers in Arizona include Tufesa (Phoenix-Tucson), several airport shuttle services, and tourist-oriented services primarily in Grand Canyon National Park.

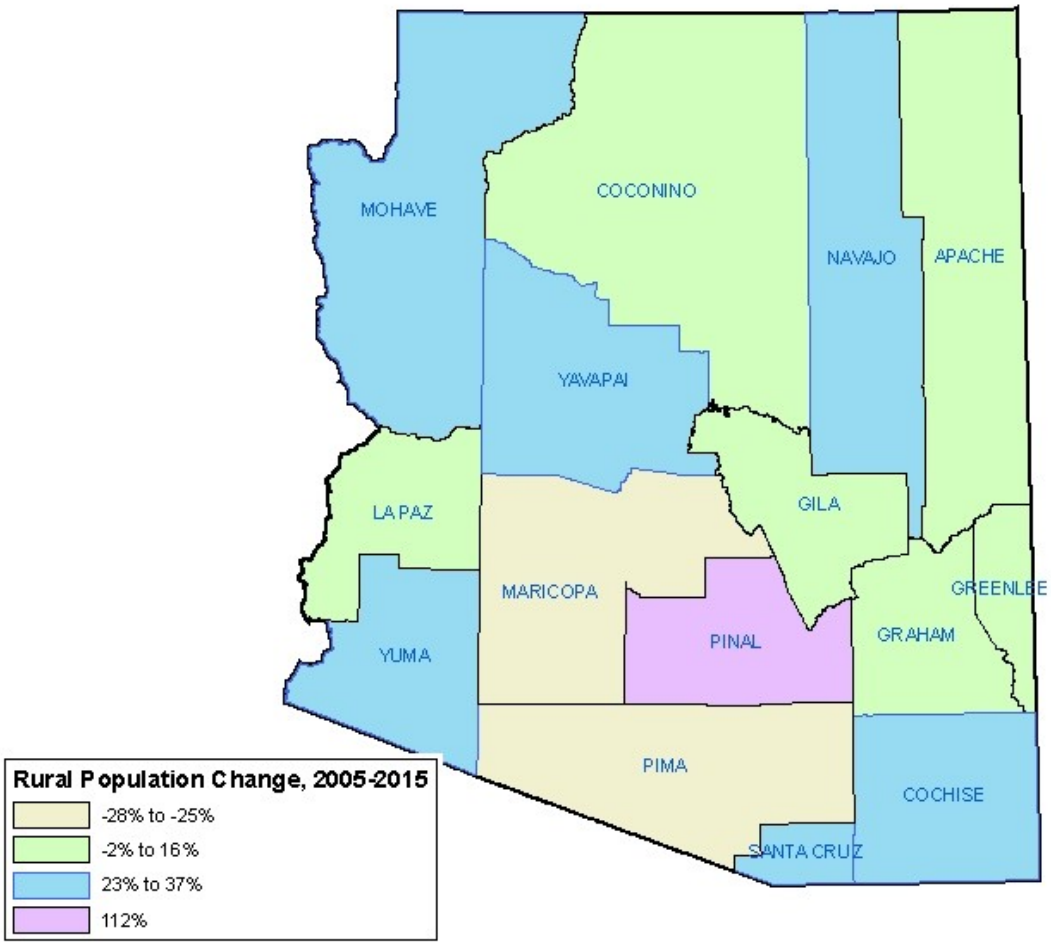
3.3 DEMOGRAPHIC CHANGES

Figure 3.5 shows the projected population change in rural Arizona by county from 2005 through 2015.

By 2015, rural Arizona population projections include the following:

- Cochise, Maricopa, Mohave, and Pima Counties are projected to show declines in rural population due to continued urbanization. This takes into account two projected new urbanized areas by 2010, including Lake Havasu City-Kingman-Bullhead City (in Mohave County) and Sierra Vista-Bisbee-Douglas (in Cochise County).

Figure 3.5 Population Growth in Rural Arizona by County, 2005 to 2015



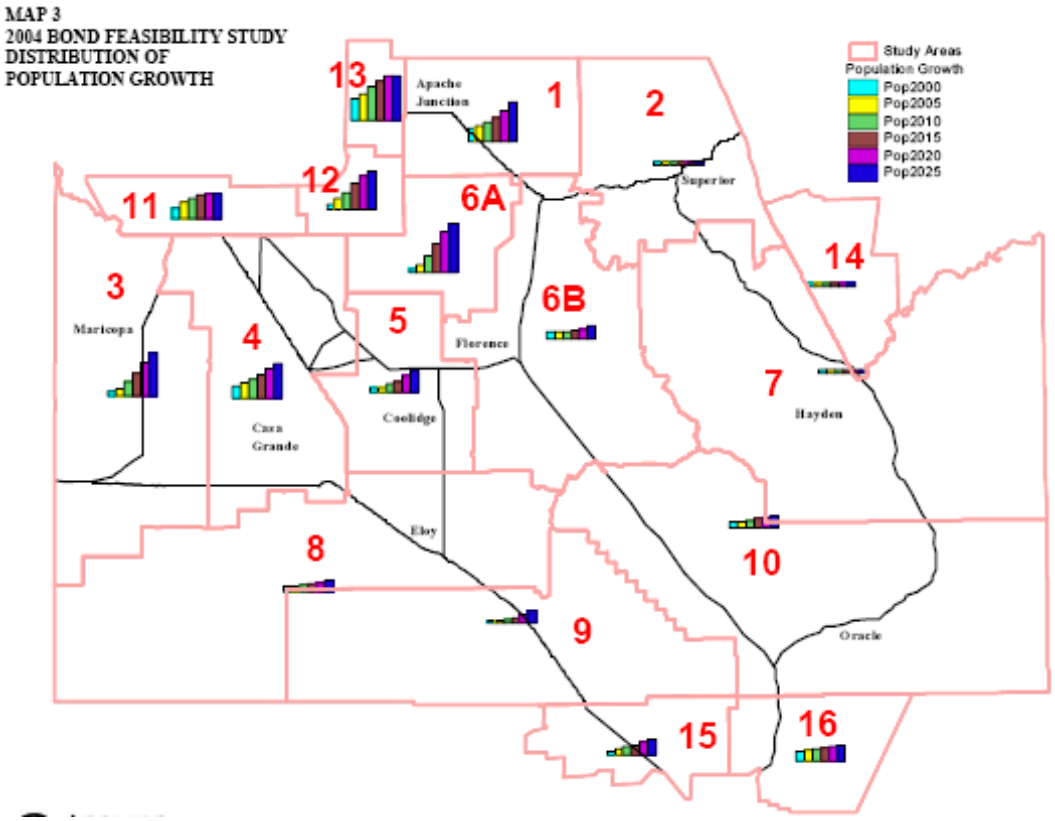
Source: Cambridge Systematics, Inc., based on various data sources. Includes population of projected new urbanized areas in Cochise and Mohave Counties.

- The implications of the projected two new urbanized areas are that about 80 percent of Mohave County's population and about 60 percent of Cochise County's population would transition from rural to urban. Federal transit funding for those areas would transition from rural to small urban programs.
- The counties with the highest increase in rural population from 2005 to 2015 are projected to be Pinal (112.3 percent), Cochise (36.6 percent), Mohave (34.4 percent), and Yavapai (34.1 percent). The counties projected to have the most rural residents are Pinal (about 452,000); Mohave (253,000); Cochise (180,000); and Yavapai (153,000).

The tremendous population growth in Pinal County will have a significant impact on the need for additional rural transit services in the County. Figure 3.6 shows projected county population growth on a subregional level. High-projected population growth is expected not just in the incorporated Cities of Apache Junction (Study Area 1), Maricopa (Study Area 3), and Casa Grande (Study Area 4), but also in currently unincorporated San Tan area (Study

Area 6A). Study Areas 11, 12, and 13 are in Maricopa County adjacent to Pinal County, and are also projected to grow rapidly in population.

Figure 3.6 Population Change in Pinal County, 2000 to 2025



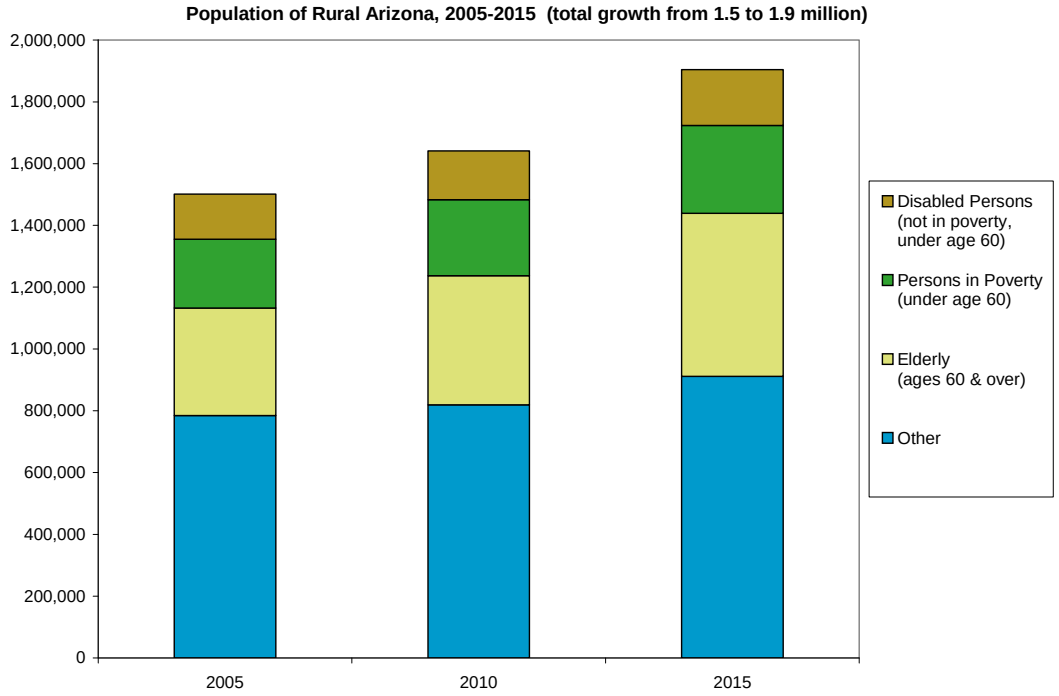
Source: Central Arizona College Bond Feasibility Study Demographic Analysis, Final Draft Report, Map 3, page 23, Applied Economics, May 2004.

Most likely after the 2020 Census (but possible after the 2010 Census), portions of Pinal County will transition from being classified as rural areas to becoming urbanized areas. Federal transit funding for those areas would then transition from rural to small urban programs.

For purposes of consistency in measuring transit demand over time, the populations of the projected two new urbanized areas were included with that of rural areas for the remainder of the analysis. Based on applying that definition, Figure 3.7 shows the population change of rural Arizona from 2005 to 2015:

- Total population is projected to grow from about 1.5 million to 1.9 million, an increase of 26.9 percent.
- Elderly population is projected to grow from about 349,000 to 527,000, an increase of 51.3 percent.

Figure 3.7 Total Population Change of Rural Arizona, 2005 to 2015



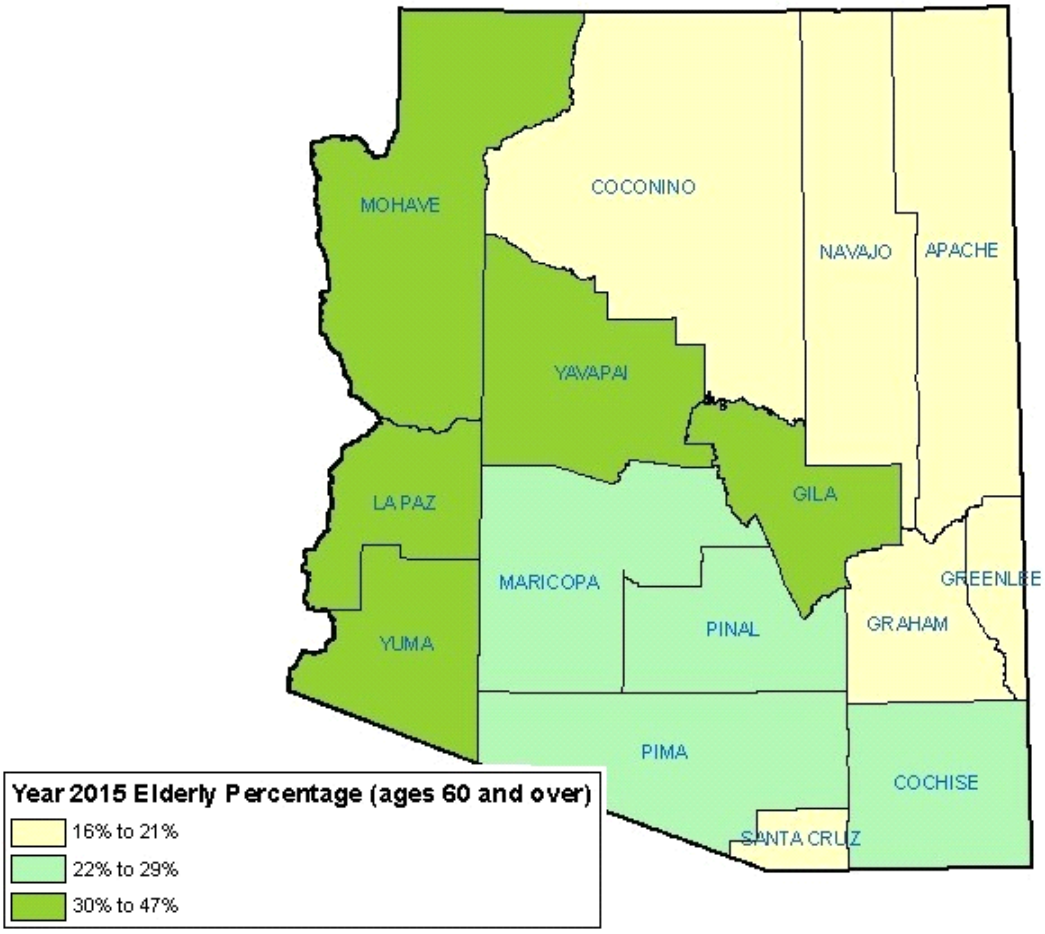
Source: Cambridge Systematics, Inc., based on various data sources. Includes population of projected new urbanized areas in Cochise and Mohave counties.

Figure 3.8 shows the projected percentage of elderly persons (ages 60 and over) by county in rural Arizona.

By 2015, elderly population projections in rural Arizona include the following:

- The percentage of the rural population who are elderly is projected to increase from 23.2 percent in 2006 to 27.7 percent in 2015, an increase of 4.5 percent. In 2015, rural Arizona will continue to have a higher percentage of elderly residents (27.7 percent) than urban Arizona (20.1 percent).
- In 2015, counties with the highest percentages of elderly persons in rural areas are expected to be La Paz (47.0 percent), Yavapai (35.0 percent), Gila (33.9 percent), Mohave (33.8 percent), and Yuma (30.5 percent).

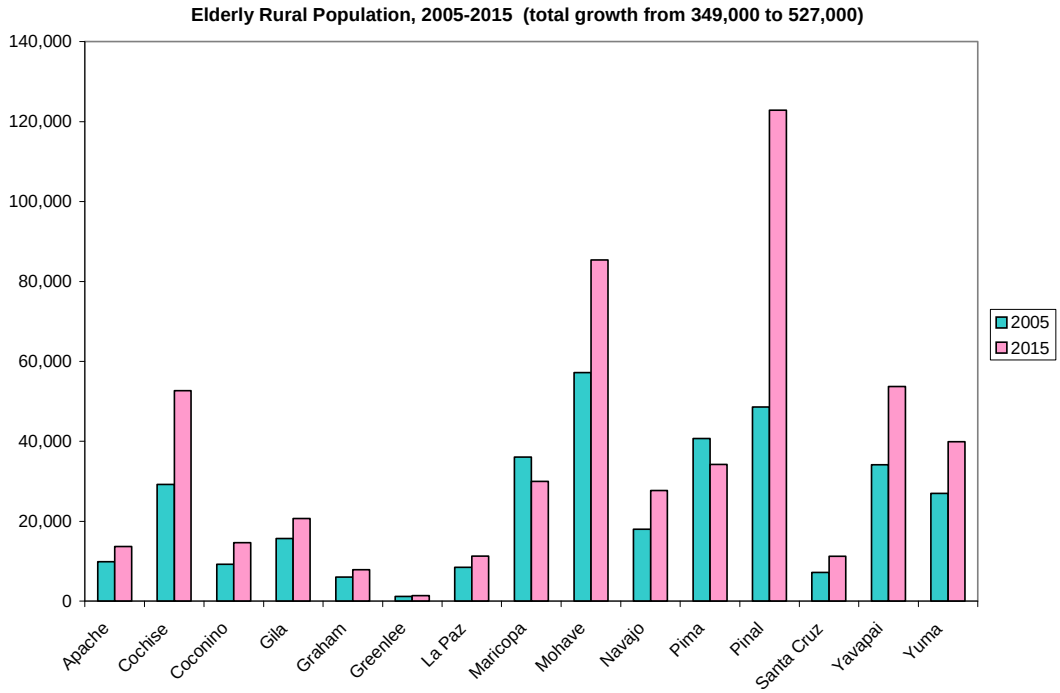
Figure 3.8 Percentage of Elderly Persons in Rural Arizona by County, Year 2015



Source: Cambridge Systematics (Working Paper #2, Figure 2.2).

Figure 3.9 shows the projected change in elderly population in rural Arizona by county from 2005 to 2015. The counties with the highest number of elderly persons in the year 2015 are Pinal (about 123,000); Mohave (85,000); Yavapai (54,000); and Cochise (53,000).

Figure 3.9 Change in Elderly Population in Rural Arizona by County, 2005 to 2015



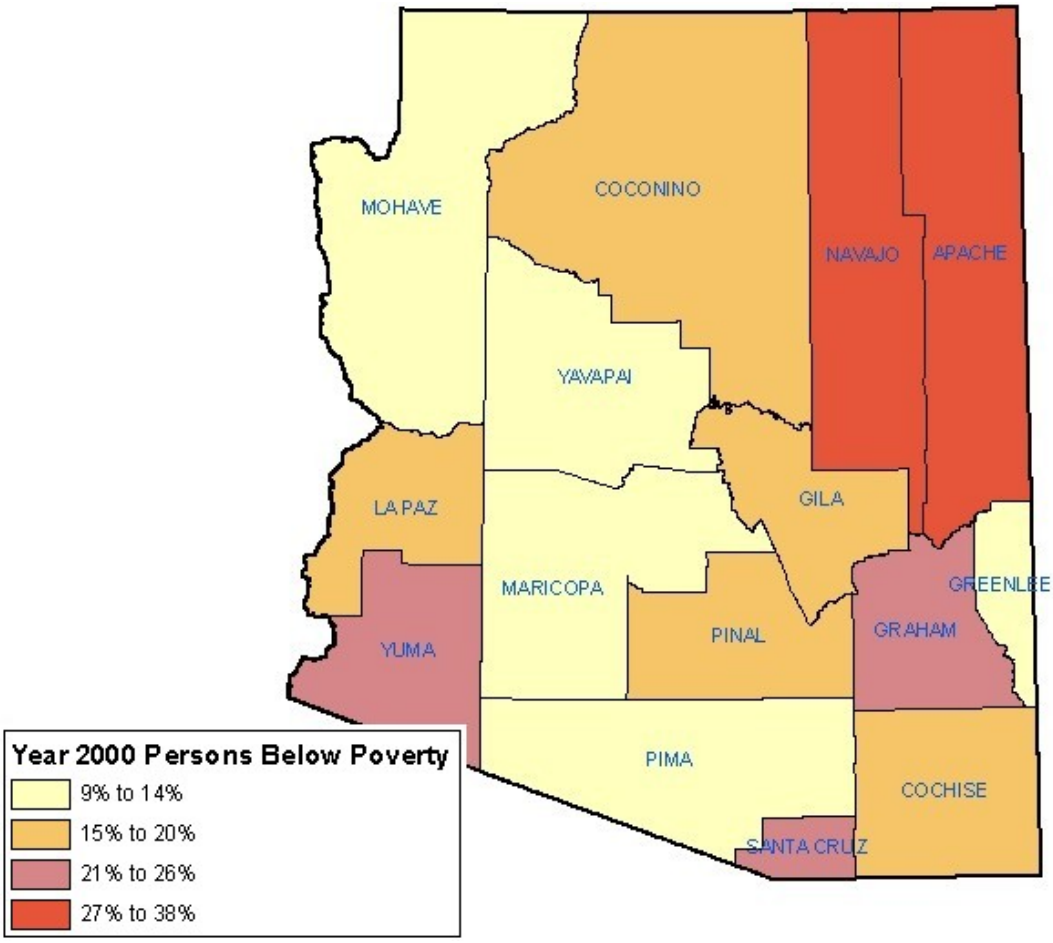
Source: Cambridge Systematics, Inc., based on various data sources. Includes population of projected new urbanized areas in Cochise and Mohave Counties.

Figure 3.10 presents the low-income population (i.e., persons below the poverty line) in rural Arizona, based on Census 2000 Demographic Profile data. No data source was identified that provided reliable 2015 projections of persons living in poverty. A reasonable assumption used in this analysis is that these percentages will remain roughly the same over time.

By 2015, persons below poverty characteristics in rural Arizona include the following:

- The percentage of persons below poverty is significantly higher in rural Arizona (18.0 percent) than in urban Arizona (12.5 percent).
- Rural counties with the highest percentage of persons living in poverty are Apache (37.8 percent), Navajo (29.5 percent), Santa Cruz (24.5 percent), Yuma (23.5 percent), and Graham (23.0 percent).

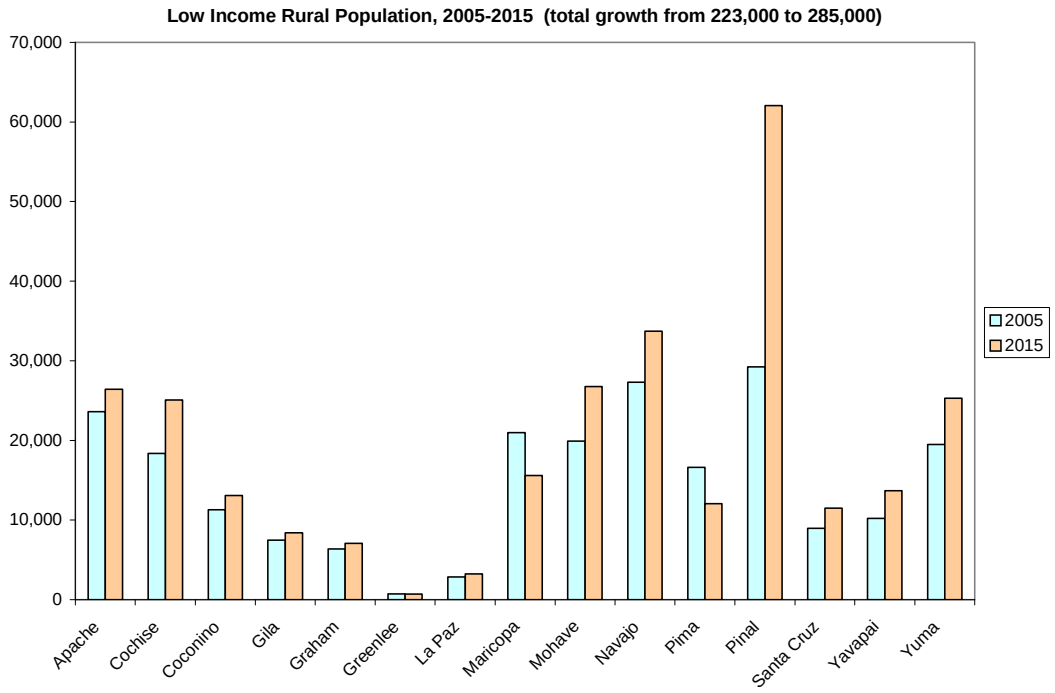
Figure 3.10 Percentage of Persons Below Poverty in Rural Arizona by County, Year 2000



Source: Cambridge Systematics, Inc. (Working Paper #1, Figure 2.7).

Figure 3.11 shows the projected change in low income population in rural Arizona by county from 2005 to 2015. The counties with the highest number of low income persons in 2015 are Pinal (about 62,000), Navajo (34,000), Mohave (27,000), and Apache (26,000).

Figure 3.11 Change in Low Income Population in Rural Arizona by County, 2005 to 2015



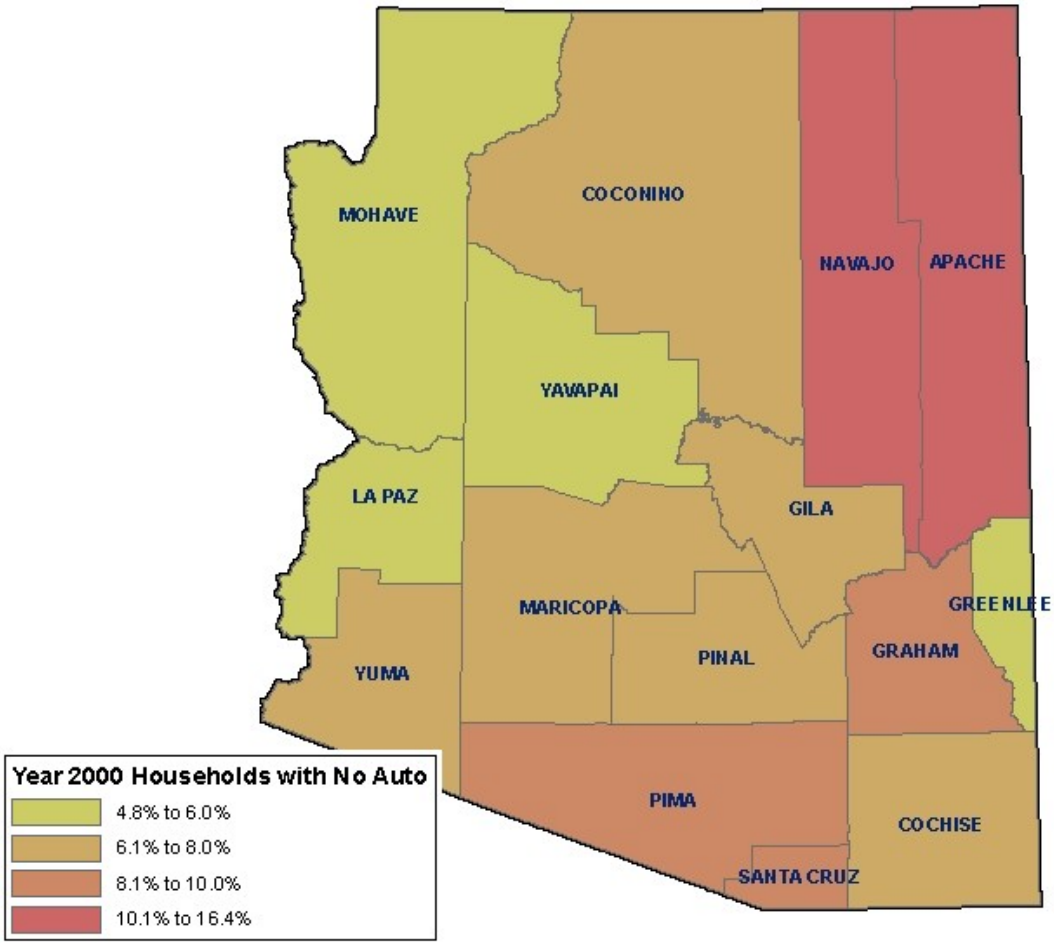
Source: Cambridge Systematics, Inc., based on various data sources. Includes population of projected new urbanized areas in Cochise and Mohave Counties.

Figure 3.12 shows the percentage of Arizona households that do not have a personal vehicle available, based on Census 2000 Demographic Profile data. This analysis was conducted at a county level only, as opposed to providing a rural versus urbanized area comparison. As with persons below poverty, no data source was identified that provided reliable year 2015 projections of auto ownership; therefore, this data was used to forecast auto ownership to 2015.

By 2015, auto ownership in Arizona will include:

- Overall statewide, 7.4 percent of households in Arizona do not have access to a personal vehicle (i.e., zero-vehicle households).
- Counties with the highest percentage of zero-vehicle households are Apache (16.4 percent), Navajo (12.9 percent), Pima (9.0 percent), Graham (8.5 percent), and Santa Cruz (8.4 percent).

Figure 3.12 Persons With No Vehicle Available in Arizona by County, Year 2000



Source: Cambridge Systematics, Inc. (Working Paper #1, Figure 2.8).

3.4 TRANSIT DEMAND AND NEED

Transit demand in rural Arizona was estimated using two methodologies:

1. The **Arkansas Public Transportation Needs Assessment (APTNA)** method represents the demand for transit service by applying trip rates to three population groups: elderly persons ages 60 and over, persons with disabilities under age 60, and persons living in poverty under age 60.
2. The **Mobility Gap** method measures the mobility difference between households with a vehicle(s) and households without a vehicle(s). The concept assumes that the difference in travel between the two groups is the demand for transit among households without a vehicle.

The APTNA method was found to produce results more consistent with current experience in Arizona, and was logical with both a modal split comparison and a

comparison with peer states. Therefore, the APNTA method was recommended for use in this study to quantify rural transit demand in Arizona. Table 3.1 provides the 2007 and 2016 rural Arizona population by county for the three key demographic groups that the APTNA method demand estimates were based on. For purposes of consistency in measuring transit demand over time, populations of the two projected new urbanized areas following the year 2010 Census (Lake Havasu City-Kingman in Mohave County and Sierra Vista-Douglas in Cochise County) were included in this analysis.

Table 3.1 Population Groups in APTNA Method by County, 2007 and 2016

County	Elderly (60+)		Disabled (<60)		Poverty (<60)	
	2007	2016	2007	2016	2007	2016
Apache	10,307	14,066	6,970	7,686	24,177	26,662
Cochise*	31,978	49,648	12,170	15,755	19,629	25,410
Coconino (Rural)	8,920	14,039	6,602	7,482	11,654	13,207
Gila	16,401	21,268	5,551	6,150	7,666	8,494
Graham	6,253	8,145	2,469	2,703	6,521	7,138
Greenlee	1,216	1,473	940	931	697	691
La Paz	8,929	11,616	2,276	2,547	2,905	3,251
Maricopa	22,977	23,557	15,707	13,940	17,940	15,922
Mohave	62,250	91,716	22,650	29,139	21,263	27,354
Navajo	19,343	28,762	10,542	12,630	28,601	34,266
Pima (Rural)	31,630	29,455	17,190	13,465	15,666	12,272
Pinal	61,737	140,322	22,127	42,871	33,519	64,941
Santa Cruz	7,741	11,713	4,297	5,325	9,448	11,710
Yavapai (Rural)	37,977	56,840	11,758	15,078	10,892	13,968
Yuma (Rural)	26,471	37,994	8,077	10,105	20,618	25,793
Rural Total	354,133	540,614	149,326	185,806	231,198	291,079

Source: Cambridge Systematics and TranSystems (Working Paper #3, Table 3).

*Includes areas to become urban during the study period.

Table 3.2 presents the 2007 and 2016 annual rural Arizona transit demand projections by county. These were projected using the following trip rates (i.e., one-way passenger trips per year): elderly persons age 60 and over: 6.79; persons with disabilities under age 60: 4.49; and persons living in poverty under age 60: 20.50.

Table 3.2 Estimated Annual Rural Transit Demand from APTNA Method by County, 2007 and 2016

	Elderly (60+)		Disabled (<60)		Poverty (<60)		Annual Total	
County	2007	2016	2007	2016	2007	2016	2007	2016
Apache	69,986	95,509	31,295	34,512	495,625	546,567	596,906	676,587
Cochise*	217,129	337,107	54,644	70,738	402,392	520,905	674,165	928,749
Cononino (Rural)	60,568	95,323	29,644	33,593	238,912	270,742	329,124	399,658
Gila	111,365	144,412	24,923	27,614	157,161	174,127	293,450	346,153
Graham	42,458	55,306	11,087	12,136	133,681	146,321	187,226	213,764
Greenlee	8,254	10,003	4,219	4,181	14,299	14,168	26,772	28,352
La Paz	60,630	78,870	10,218	11,435	59,558	66,653	130,406	156,958
Maricopa (Rural)	156,014	159,949	70,524	62,591	367,768	326,400	594,305	548,940
Mohave	422,681	622,753	101,701	130,833	435,897	560,759	960,279	1,314,345
Navajo	131,339	195,297	47,333	56,707	586,326	702,447	764,997	954,451
Pima (Rural)	214,771	199,996	77,182	60,458	321,162	251,570	613,116	512,024
Pinal (Rural)	419,194	952,786	99,351	192,489	687,134	1,331,301	1,205,678	2,476,576
Santa Cruz	52,564	79,533	19,293	23,911	193,693	240,064	265,550	343,509
Yavapai (Rural)	257,866	385,942	52,792	67,700	223,285	286,340	533,943	739,982
Yuma (Rural)	179,940	257,980	36,267	45,370	422,665	528,756	638,671	832,106
Rural Total	2,404,759	3,670,766	670,473	834,268	4,741,565 4,738,558	5,969,136 5,967,120	7,814,588	10,472,154

Source: Cambridge Systematics and TranSystems (Working Paper #3, Table 6).

*Includes areas to become urban during the study period.

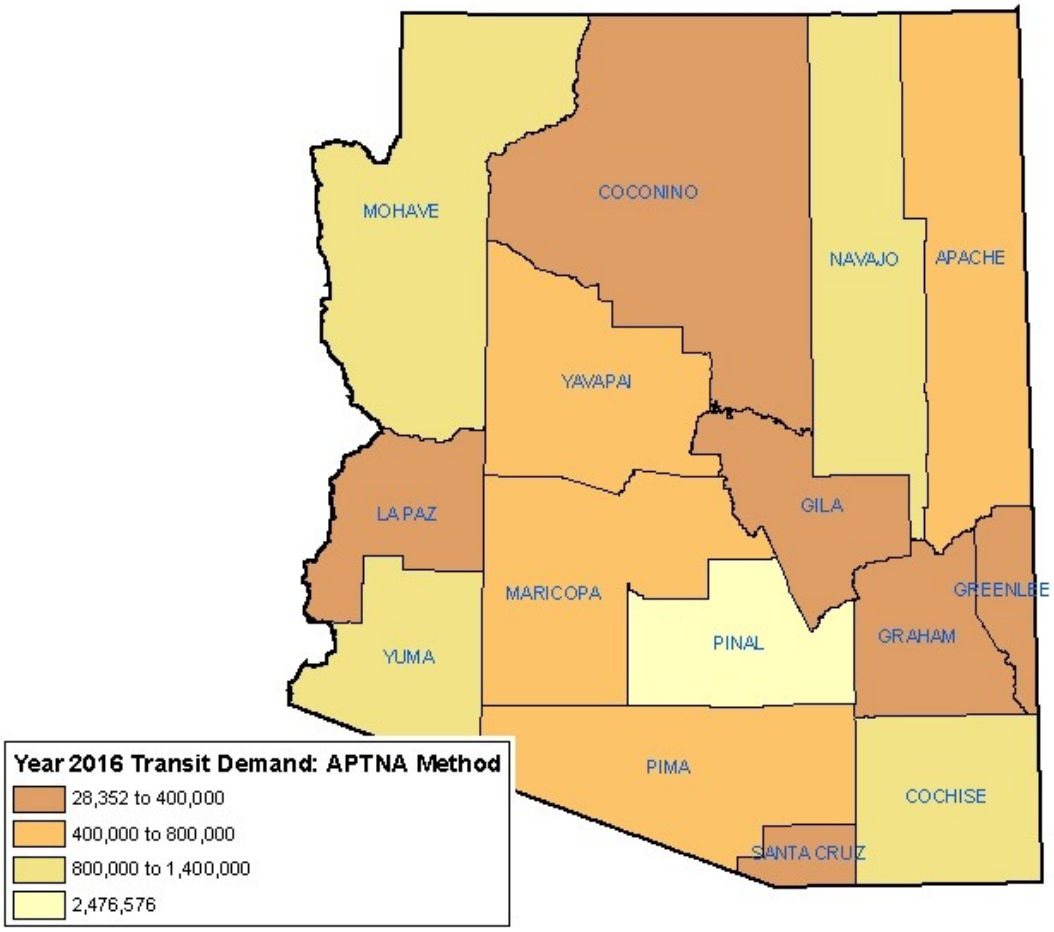
The primary findings of projected rural transit demand in Arizona include:

- The annual transit demand projections are 7.81 million trips for 2007 and 10.47 million trips by 2016. The most significant growth will be in Pinal County, where transit demand is projected to more than double from 1.21 million trips in 2007 to 2.48 million trips in 2016.
- In 2007, 30.8 percent of the rural transit demand are derived from elderly persons, 8.6 percent are from disabled persons, and 60.7 percent are from persons living in poverty.
- By 2016, 35.1 percent of demand will be from elderly persons, 8.0 percent from disabled persons, and 57.0 percent from persons living in poverty. This percentage change from 2007 is reflective of the growing percentage of elderly persons living in rural Arizona.
- Existing rural transit ridership in Arizona is estimated at 1.37 million passenger trips. This indicates that only 18 percent of rural Arizona's public transportation needs are being met today. Existing rural transit services are

projected to meet only 13 percent of total ridership need in 2016 if no additional services are introduced.

Figure 3.13 shows the rural transit demand projections in Table 3.2 graphically, on a per county basis.

Figure 3.13 Projected Transit Demand in Rural Arizona, Year 2016



Source: Cambridge Systematics, Inc.; and TranSystems (Working Paper #3, Table 6).

The primary findings of the county-level comparison of projected rural transit demand in Arizona include:

- Pinal County, as the most populated county in rural Arizona, has the largest projected 2016 rural transit demand at 2.48 million trips. This represents 23.6 percent of the total 2016 rural transit demand.
- The counties with the next highest rural transit demand projections in 2016 are Mohave (1.31 million, 12.6 percent), Navajo (0.95 million, 9.1 percent), Cochise (0.93 million, 8.9 percent), and Yuma (0.83 million, 7.9 percent).

- The transit demand projections for Mohave and Cochise include currently rural areas that are expected to become designated as urbanized areas following the 2010 Census.

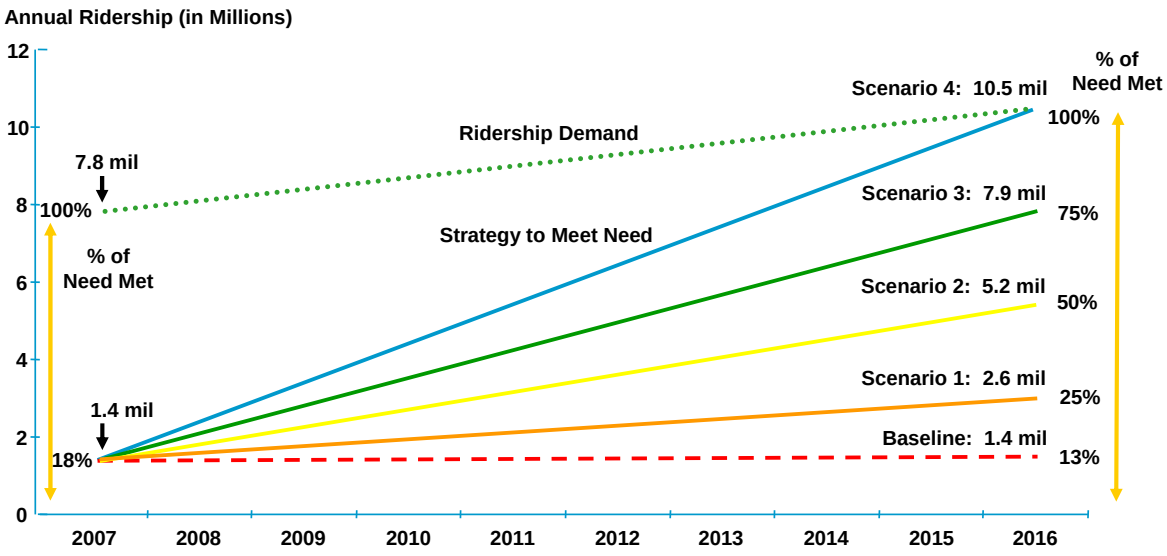
3.5 STRATEGY AND COSTS TO MEET NEED

Annual ridership in 2007 carried by existing rural transit services in Arizona is estimated at 1.4 million. This indicates that only about 18 percent of existing transit demand are currently being met with appropriate transit services in rural Arizona. Existing rural transit services are projected to meet only 13 percent of total ridership need in 2016, if no additional services are introduced. This is a result of continued population growth throughout the State during the next 10 years.

Four scenarios were proposed to gradually improve and increase rural transit service provision over time in Arizona (Figure 3.14) including:

- Scenario #1 was designed to increase service provision to meet 25 percent of the projected rural transit need by 2016. With this scenario, rural transit ridership is projected to increase from the current level of about 1.4 million annual passenger trips in 2007 to 2.6 million annual trips in 2016.
- Scenario #2 was designed to increase service provision to meet 50 percent of rural transit need by 2016. With this scenario, annual rural transit ridership is projected to increase from 1.4 million in 2007 to 5.2 million in 2016.
- Scenario #3 was designed to increase service provision to meet 75 percent of rural transit need by 2016. With this scenario, annual rural transit ridership is projected to increase from 1.4 million in 2007 to 7.9 million in 2016.
- Scenario #4 was designed to increase service provision to fully meet the projected rural transit need by 2016. With this scenario, annual rural transit ridership is projected to increase from 1.4 million in 2007 to 10.5 million in 2016.

Figure 3.14 Total Annual Rural Transit Ridership Estimates by Scenario, 2007 to 2016



Source: Cambridge Systematics, Inc.; and TranSystems (Working Paper #3, Figure 8).

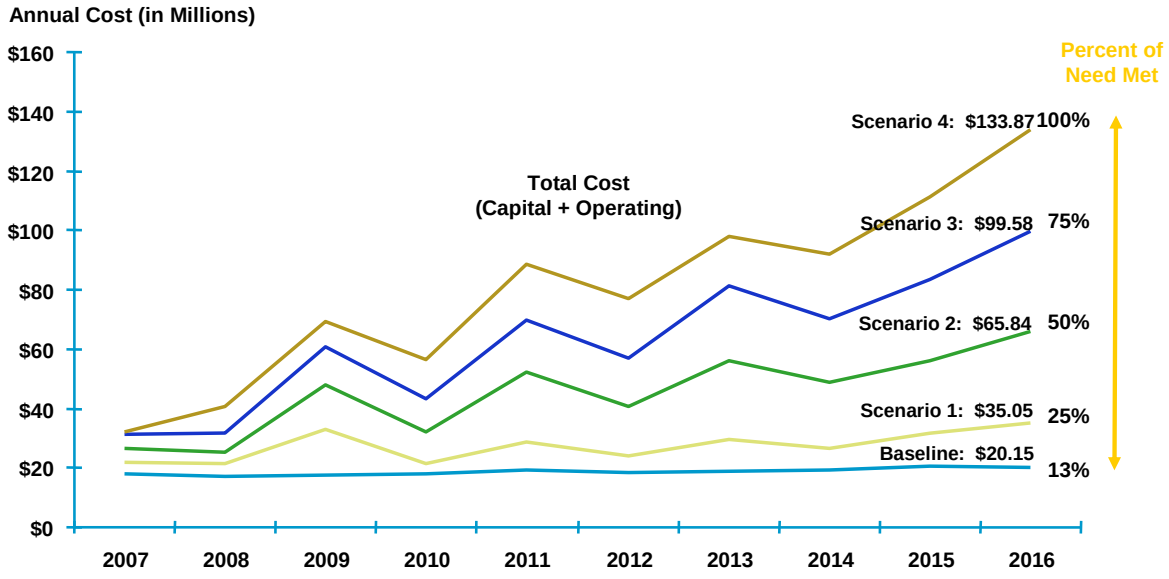
The rationale for gradually increasing operating and capital spending over a 10-year period is to provide a more realistic implementation plan as opposed to trying to meet unmet needs all at once (which would involve substantial upfront capital expenses and planning). Transit net operating costs (operating costs minus fare revenue) were projected based on reported data from 2006 Section 5311 program rural National Transit Database (NTD) reports. Capital costs were projected using parameters pertaining to vehicle utilization, vehicle replacement, and facility expenses.

Based on Scenario #4, which fully meets projected transit need by the year 2016, the projected total capital and net operating cost per year for rural transit services statewide would increase from about $32.0 million in 2007 to about $133.9 million in 2016 (Figure 3.15). In addition:

- Net operating costs would increase from the current level of about $12.1 million in 2007 to $97.3 million in 2016. Capital costs, including vehicle and facility expenses, would increase from about $19.9 million in 2007 to $36.5 million in 2016. The total net operating and capital costs represents the cost estimate associated with a potential 10-year capital expansion plan.
- The total size of the vehicle fleet in rural Arizona would need to increase from the current level of about 397 vehicles in 2007 to 1,751 vehicles in 2016. In addition to the 1,354 vehicles that would be purchased for fleet expansion, another 1,892 vehicles would need to be purchased for fleet replacement.

The other scenarios represent lower levels of investment, with lower operating and capital costs. The 2016 costs are about $20.1 million for the baseline, $35.0 million for Scenario #1, $65.8 million for Scenario #2, and $99.6 million for Scenario #3.

Figure 3.15 Total Annual Rural Transit Costs Estimates by Scenario, 2007 to 2016



Source: Cambridge Systematics and TranSystems (Working Paper #3, Figure 2).

With each scenario, year 2016 is the target year for achieving the specified ridership target (i.e., percent of need met). Table 3.3 shows a summary of year 2016 costs and ridership for each scenario:

- The baseline scenario (no change to existing services) has a year 2016 cost of about $20.1 million and a year 2016 ridership of about 1.4 million.
- Scenario #1 (25 percent of need met) has a year 2016 cost of about $35.0 million and a year 2016 ridership of about 2.6 million.
- Scenario #2 (50 percent of need met) has a year 2016 cost of about $65.8 million and a year 2016 ridership of about 5.2 million.
- Scenario #3 (75 percent of need met) has a year 2016 cost of about $99.6 million and a year 2016 ridership of about 7.9 million.
- Scenario #4 (100 percent of need met) has a year 2016 cost of about $133.9 million and a year 2016 ridership of about 10.5 million.

Table 3.3 Summary of Year 2016 Cost and Ridership by Scenario

	Percent of Need Met in 2016				
	13%: Baseline, No Change to Existing Services	Scenario #1: 25%	Scenario #2: 50%	Scenario #3: 75%	Scenario #4: 100%, Fully Meet Demand
Year 2016 Capital Cost	$4,900,000	$10,441,000	$17,183,000	$26,593,000	$36,548,000
Year 2016 Net Operating Cost	$15,247,000	$24,608,000	$48,660,000	$72,990,000	$97,319,000
Year 2016 Total Cost	$20,147,000	$35,048,000	$65,842,000	$99,583,000	$133,867,000
Year 2016 Ridership	1,370,000	2,625,000	5,241,000	7,857,000	10,472,000

Source: Cambridge Systematics and TranSystems.

4.0 Service Alternatives and Solutions

4.1 OVERVIEW

The purpose of this section is to define more specific service alternatives and recommend service solutions for rural transit operations throughout the State. These recommendations are based on the results from the study's stakeholder input process, a review of previously completed rural transit plans and studies, and the transit demand analysis results at the local level. The remainder of this section is organized as follows.

- **Summary of Stakeholder Input.** Provides a summary of stakeholder comments received on rural transit services obtained from telephone interviews, workshops held throughout the State, and an on-line survey.
- **Section 5311 Local Service Alternatives.** Contains results from a local-level transit need analysis, and describes candidate alternatives for rural transit services that primarily operate within local cities/towns. This includes new Section 5311 program general public nonurbanized area services and expansion of existing Section 5311 program services.
- **Section 5311 Intercity Service Alternatives.** Contains results from an intercity transit need analysis, and describes candidate alternatives for longer distance Section 5311 transit services that connect rural cities/towns with each other or with urbanized areas.
- **Section 5310, 5316, and 5317 Service Alternatives.** Describes options for new or expanded Section 5310 program services for elderly and disabled persons, Section 5316 program services for employment related trips, and Section 5317 program services to improve service and facility needs.
- **Vanpooling and Ridesharing.** Discusses options for increased vanpooling and ridesharing.

4.2 SUMMARY OF STAKEHOLDER INPUT

Telephone Interviews

Councils of Government and Transit Operators. In October and November 2006, telephone interviews were conducted with 15 representatives from the Arizona Transit Association, Metropolitan Planning Organizations (MPO), COGs, and selected transit operators to obtain input for the rural transit needs

study. The common themes that emerged from these stakeholder interviews were as follows.

- While there are numerous existing transit service providers in rural Arizona, there still continues be significant unmet needs. These needs include local transit services within rural communities, as well as intercity services that connect rural and urbanized areas. Top market segments for rural transit should be elderly, disabled, and low-income riders.
- Funding for rural transit services is limited. In addition to Section 5310 and 5311 program funds, Local Transportation Assistance Fund (LTAF) II lottery funds and city general funds serve as the primary funding sources. The amount of available LTAF II funding varies significantly from year to year, which creates difficulty in terms of planning for potential future services.
- Stakeholder support varies considerably across the State. Stakeholders who do support rural transit can encounter difficulty in making the case to others for funding additional services.
- Other key concerns include coordination of existing services, coordination with other ongoing plans and studies, and how to effectively serve large geographic regions.

Tribal Governments. In January and February 2007, the Intrinsic/Jacobs Consortium conducted telephone interviews with representatives from Tribal governments. Common themes that emerged from this input process included:

- Tribal government representatives expressed similar concerns as COGs, with respect to the amount of unmet needs, insufficient funding, varying stakeholder support, and importance of coordination; and
- In addition, other concerns expressed by Tribal governments included lack of roads or poor quality roads, worn-out transit vehicles, and need for Internet access, vehicle maintenance facilities, office space for dispatch, and marketing materials.

Stakeholder Workshops

Eight rural transit stakeholder input workshops were held throughout the State in January and February 2007 at the following locations: Phoenix, Tucson, Benson, Yuma, Kingman, Holbrook, Sedona, and Globe. In addition, input for the rural transit needs study was obtained at the January 18, 2007, Rural Transportation Summit held in Casa Grande.

Stakeholders expressed numerous needs for additional rural transit service throughout the State. Some of the rural communities mentioned as having the need for additional service from each workshop included:

- **Study Area 1: Gila and Pinal Counties.** Globe, Miami, Payson, San Carlos Reservation, Gila River Reservation, Show Low, Pinetop-Lakeside, Safford, Florence, Casa Grande, and Eloy.

- **Study Area 2: Apache and Navajo Counties.** Holbrook, Winslow, Show Low, Navajo Nation Reservation (including Chinle, Kayenta, Sanders, Sunrise, Tuba City, Window Rock), Hopi Reservation, Whiteriver, Snowflake-Taylor, Concho, Springerville, Eagar, Pinetop-Lakeside, Heber, Payson, Globe, St. Johns, and Page.
- **Study Areas 3 and 4: Coconino and Yavapai Counties.** Cottonwood, Sedona, Camp Verde, Page, Navajo Nation Reservation (including Kayenta, Tuba City), Hopi Reservation, Winslow, Ashfork, Seligman, Paulden, Yarnell, Black Canyon City, Williams, Clarkdale, Oak Creek, and Lake Montezuma.
- **Study Area 5: Cochise, Graham, Greenlee, and Santa Cruz Counties.** Willcox, Nogales, Tubac, Rio Rico, Benson, Huachuca City, Sierra Vista, Bisbee, Douglas, Green Valley, Tombstone, Patagonia, Ft. Huachuca, Naco, Safford, and Florence.
- **Study Area 6: Mohave County.** Lake Havasu City, Kingman, Bullhead City, Laughlin (Nevada), Colorado City, Peach Springs, Page, Fredonia, Dolan Springs, Parker, Quartzsite, Golden Shores, Mohave Valley, Fort Mohave, Valle Vista, Grand Canyon West, and Littlefield.
- **Study Area 7: La Paz and Yuma Counties.** Somerton, San Luis, Fortuna Foothills, Wellton, Cocopah Reservation, Parker, Quartzsite, and Gila Bend.
- **Study Area 8: Maricopa County.** New River, Anthem, Johnson Ranch, Hayden, Camp Verde, Black Canyon City, City of Maricopa, Casa Grande, and Wickenburg.
- **Study Area 9: Pima County.** Catalina, Picture Rocks, Three Points, Green Valley, Nogales, San Xavier, Sells, Ajo, Gila Bend, Casa Grande, Benson, Saddlebrook, and Vail.
- **Rural Transportation Summit.** Sedona, Cottonwood, Verde Valley, Oak Creek, Ak-Chin, Maricopa (Ak-Chin) Reservation, Gila River Reservation, Salt River Reservation, White Mountain Apache Reservation, Whiteriver, Show Low, Fort Apache Reservation, Ft. Huachuca, Fortuna Foothills, Holbrook, St. Johns, City of Maricopa, Pinetop-Lakeside, Globe-Miami, Benson, Mayer, and Snowflake-Taylor.

On-Line Survey

A rural transit needs study on-line survey was posted on the ADOT web site from January to March 2007. A total of 435 survey responses were received, of which 41 percent of the respondents use public transit; 22 percent were frequent riders (i.e., use public transit four days or more per week); 32 percent were 55 and older, and 30 percent do not have a household vehicle available. The main findings from the survey included:

- **Service Availability.** When asked if public transit service was available in their communities, 35 percent stated that service were very available, 28 percent stated service were moderately available, and 37 percent responded service were not available.

- **Service Quality.** Those who use public transit in rural areas are generally pleased with service quality, with 56 percent rating their service as very good. The major concerns expressed were lack of sufficient geographic coverage and limited service days, hours and frequency.
- **Service Importance.** Public transit service is very important to 85 percent of those who use public transit. The reasons given include sustaining mobility for elderly persons; only way to get to medical appointments; and no vehicle available for the household (i.e., high cost of owning and operating an automobile).

4.3 SECTION 5311 LOCAL SERVICE ALTERNATIVES

The Section 5311 nonurbanized area formula program provides funding for public transportation services in nonurbanized areas. This section presents recommended service alternatives for Arizona rural transit services that operate primarily within local cities/towns. This section is organized according to the following subsections:

- **New Section 5311 Program Services.** Presents results from applying the APTNA transit demand methodology to individual cities/towns that do not currently have Section 5311 program nonurbanized area general public services. Identifies a list of top locations for new Section 5311 program services based on these results, and provides a discussion of more specific service alternatives.
- **Expansion of Existing Section 5311 Program Services.** Presents results from applying the APTNA transit demand methodology to cities/towns that do have existing Section 5311 program services. Identifies a list of top locations for expansion of existing Section 5311 program services based on these results and a performance analysis of the existing services. Provides a discussion of specific service alternatives for the top locations.

New Section 5311 Program Services

Transit Demand Projections

New Section 5311 program services should be considered for the rural cities/towns in Arizona where the projected demand for such services is highest. For smaller cities/towns where the demand is lower, Section 5310 program services should be considered instead.

Transit Demand and Need provided results of the APTNA methodology at a county level. The same methodology can also be applied to individual cities/towns in rural Arizona. Table 4.1 shows the results of the APTNA 2005 demand forecast for the 48 rural cities/towns (including unincorporated places) and Native American Tribes with an estimated population of 2,500 or more in 2005 that do not currently have Section 5311 program service. The cities are ranked in terms of estimated demand.

Table 4.1 APTNA Demand Forecast for Rural Cities/Towns With No Section 5311 Program Service

City or Tribe	Year 2005 Population	Percent Without Auto	Percent Elderly (Ages 60+)	Percent in Poverty (Under Age 60)	Percent Disabled (Under Age 60, Not In Poverty)	Year 2005 APTNA Population	Year 2005 Unmet Need	County Population Growth to Year 2016	Year 2016 Unmet Need	Rank
Apache County										
Eagar	4,435	2.5%	13.7%	6.0%	1.5%	939	9,900	12.9%	12,300	45
Saint Johns	3,865	5.1%	16.7%	12.8%	3.7%	1,284	15,200	12.9%	18,100	40
Cochise County										
Benson	4,740	10.5%	36.9%	9.1%	3.2%	2,330	21,400	38.4%	31,100	31
Willcox	3,885	13.2%	19.7%	21.7%	8.9%	1,953	24,000	38.4%	34,400	29
Coconino County										
Kachina Village*	3,114	1.7%	4.2%	8.2%	2.2%	458	6,500	17.0%	8,400	47
Page	7,110	4.9%	9.7%	12.9%	1.4%	1,709	24,000	17.0%	29,900	32
Williams	3,145	10.0%	14.5%	10.8%	1.3%	837	10,300	17.0%	12,900	44
Gila County										
Payson	15,430	4.7%	34.5%	7.5%	2.3%	6,856	61,700	13.5%	74,000	13
Graham County										
Safford	9,360	10.0%	21.0%	14.4%	3.0%	3,599	42,300	11.9%	49,700	17
Thatcher	4,550	1.9%	13.7%	18.6%	1.9%	1,552	21,900	11.9%	25,600	33
Greenlee County										
Clifton	2,495	6.9%	13.9%	9.8%	1.7%	632	7,500	-1.3%	8,000	48
La Paz County										
Parker	3,280	6.6%	13.0%	12.6%	3.4%	953	11,900	14.9%	14,500	42
Quartzsite	3,600	3.8%	66.5%	5.7%	2.4%	2,685	20,800	14.9%	24,800	34

City or Tribe	Year 2005 Population	Percent Without Auto	Percent Elderly (Ages 60+)	Percent in Poverty (Under Age 60)	Percent Disabled (Under Age 60, Not In Poverty)	Year 2005 APTNA Population	Year 2005 Unmet Need	County Population Growth to Year 2016	Year 2016 Unmet Need	Rank
Maricopa County										
New River*	12,755	1.1%	13.9%	5.0%	1.1%	2,537	25,600	29.3%	36,800	26
Wickenburg	6,590	9.2%	34.5%	8.7%	2.6%	3,014	27,900	29.3%	38,000	25
Mohave County										
Colorado City	4,080	6.3%	2.2%	31.0%	3.0%	1,480	27,100	37.3%	38,500	24
Navajo County										
Heber-Overgaard*	2,897	5.4%	31.3%	12.8%	2.2%	1,341	14,000	25.4%	18,400	39
Holbrook	5,425	8.8%	12.4%	18.6%	3.8%	1,886	26,100	25.4%	34,300	30
Snowflake	4,935	3.6%	13.9%	12.7%	1.6%	1,392	17,800	25.4%	23,700	35
Taylor	4,100	8.7%	12.4%	13.2%	2.5%	1,153	15,000	25.4%	20,000	36
Winslow	9,835	11.7%	12.5%	18.3%	4.8%	3,509	47,500	25.4%	62,300	15
Pima County										
Catalina*	8,152	4.0%	20.1%	8.2%	2.7%	2,525	25,800	25.3%	34,600	28
Sells*	3,302	26.7%	6.6%	42.1%	13.3%	2,045	31,900	25.3%	40,900	22
Three Points*	5,956	4.3%	11.1%	19.9%	4.7%	2,126	30,000	25.3%	39,300	23
Pinal County										
Arizona City*	5,731	1.3%	30.5%	4.1%	1.7%	2,078	17,100	130.3%	42,300	21
Casa Grande	32,470	8.7%	16.7%	13.5%	2.8%	10,708	130,900	130.3%	318,200	1
Eloy	11,125	12.4%	7.9%	29.2%	4.7%	4,654	74,900	130.3%	178,200	6
Florence	20,530	6.9%	12.4%	5.0%	1.9%	3,959	40,200	130.3%	103,200	11
City of Maricopa	9,790	9.7%	9.0%	23.2%	3.6%	3,504	54,100	130.3%	129,600	9
Oracle*	4,825	6.9%	16.9%	8.9%	1.0%	1,298	14,600	130.3%	36,100	27
San Manuel*	6,003	5.5%	15.2%	11.1%	1.3%	1,661	20,200	130.3%	49,600	18
Superior	3,170	12.4%	25.7%	22.0%	4.4%	1,650	20,500	130.3%	48,800	19

City or Tribe	Year 2005 Population	Percent Without Auto	Percent Elderly (Ages 60+)	Percent in Poverty (Under Age 60)	Percent Disabled (Under Age 60, Not In Poverty)	Year 2005 APTNA Population	Year 2005 Unmet Need	County Population Growth to Year 2016	Year 2016 Unmet Need	Rank
Santa Cruz County										
Nogales	21,830	13.2%	14.1%	28.5%	4.3%	10,239	152,600	30.8%	206,000	4
Rio Rico NE*	3,414	2.4%	13.9%	5.3%	1.0%	691	7,100	30.8%	10,300	46
Rio Rico NW*	3,374	0.0%	5.2%	14.9%	2.4%	757	11,800	30.8%	16,400	41
Rio Rico SW*	3,179	3.3%	5.8%	11.7%	2.1%	623	9,200	30.8%	13,000	43
Yavapai County										
Black Canyon City*	3,308	7.3%	30.9%	9.3%	2.1%	1,398	13,600	36.9%	19,600	38
Camp Verde	10,730	4.1%	26.0%	11.4%	3.3%	4,364	45,500	36.9%	65,600	14
Lake Montezuma*	3,872	3.3%	26.3%	8.1%	0.9%	1,365	13,500	36.9%	19,700	37
Yuma County										
Fortuna Foothills*	24,247	2.5%	55.7%	5.9%	1.4%	15,283	122,700	32.5%	169,800	7
San Luis	22,930	10.5%	6.4%	32.3%	3.9%	9,789	166,000	32.5%	226,800	2
Somerton	9,750	11.9%	9.5%	23.6%	2.9%	3,513	54,700	32.5%	75,400	12
Tribal Reservations										
Colorado River	8,026	7.1%	20.2%	17.9%	4.0%	3,379	41,900	14.9%	50,200	16
Fort Apache	14,020	25.0%	6.2%	45.0%	11.2%	8,748	142,300	25.4%	182,400	5
Gila River	15,445	24.1%	6.5%	48.2%	7.9%	9,668	164,900	29.3%	217,700	3
Pasqua Yaqui	3,763	16.8%	5.1%	40.8%	6.8%	1,983	33,900	25.3%	43,500	20
San Carlos	9,957	26.8%	7.3%	46.6%	6.9%	6,054	103,100	13.5%	119,600	10
Tohono O'odham	12,243	30.1%	10.4%	40.2%	10.9%	7,530	115,500	25.3%	148,200	8

Source: Cambridge Systematics, Inc., based on data from Arizona Department of Economic Security, 2005; U.S. Census, 2000; U.S. Census American Community Survey, 2005; the Maricopa Association of Governments; the Pima Association of Governments; the Central Arizona College Bond Feasibility Study; the Southeast Arizona Regional Transportation Profile; and the APTNA methodology described in Working Paper #3.

*Indicates community is an unincorporated city or town.

Table 4.2 provides the list of cities/towns that are the top candidates for new Section 5311 program service based on the results from Table 4.1 and results from stakeholder involvement. A discussion of these top candidates for new Section 5311 program service recommendations follows.

Table 4.2 List of Top Candidates for New Section 5311 Program Service

County	City/Town or Tribe	Year 2005 Population	Year 2005 APTNA Population	Year 2005 Unmet Need	Year 2016 Unmet Need
Pinal	Casa Grande	32,470	10,708	130,900	318,200
Maricopa*	Gila River Reserv.	15,445	9,668	164,900	217,700
Santa Cruz	Nogales	21,830	10,239	152,600	206,000
Navajo*	Ft. Apache Reserv.	14,020	8,748	142,300	182,400
Pinal	Eloy	11,125	4,654	74,900	178,200
Pinal	City of Maricopa	9,790	3,504	54,100	129,600
Gila*	San Carlos Reserv.	9,957	6,054	103,100	119,600
Pinal	Florence	20,530	3,959	40,200	103,200
Graham	Safford/Thatcher	13,910	5,151	64,200	75,300
Gila	Payson	15,430	6,856	61,700	74,000
Yavapai	Camp Verde	10,730	4,364	45,500	65,600
Navajo	Winslow	9,835	3,509	47,500	62,300
Pinal	San Manuel	6,003	1,661	20,200	49,600
Mohave	Colorado City	4,080	1,480	27,100	38,500
Pinal	Oracle	4,825	1,298	14,600	36,100
Cochise	Willcox	3,885	1,953	24,000	34,400
Navajo	Holbrook	5,425	1,886	26,100	34,300
Cochise	Benson	4,740	2,330	21,400	31,100
Apache	Eagar/Springerville	6,500	1,730	19,700	23,900

Source: Cambridge Systematics, Inc. Unmet need numbers are rounded to the nearest hundred.

* Includes multiple counties (Gila River Reservation: Maricopa and Pinal; Fort Apache Reservation: Apache, Gila, and Navajo; San Carlos Reservation: Gila, Graham, and Pinal).

Note: Fortuna Foothills, San Luis, and Somerton are not included in Table 4.1, because they are within the jurisdiction of the Yuma MPO. The Tohono O'odham Tribal Reservation is not included, because it has existing Section 5311 service through Pima County Rural Transit.

Discussion of Pinal County Section 5311 Program New Service Alternatives

Six of the top candidates for new Section 5311 program services (Casa Grande, Eloy, City of Maricopa, Florence, San Manuel, and Oracle) shown in Table 4.2 are in Pinal County. This suggests the possibility of establishing a regional Section 5311 program operator in Pinal County, with operations in these cities as well as in Coolidge (which has an existing Section 5311 program operator). The key advantage of having a single transit operator would be improved service coordination from a scheduling and an operations perspective, with the potential for higher cost effectiveness.

The tremendous population and employment growth occurring in Pinal County through 2016 suggests that a regional Pinal County transit service will generate the underlying transit demand to be successful in the long term. This would include long-haul, fixed-route bus services that connects the cities with each other (to be discussed later in the intercity services section), as well as local route deviation and dial-a-ride services that operate within individual cities. Previous work has indicated that:[2]

- Service duplication, when examined closely, was found to be less of an issue than the lack of available transportation service; and
- Major service gaps included general public transportation service county-wide, nonemergency medical transportation within the county and to Phoenix and Tucson, transportation to work and work-related activities, and transportation for shopping trips.

Furthermore, demographic characteristics do differ between the various Pinal County cities that may have implications on service planning, including:

- Eloy and Maricopa have relatively high poverty rates at 29.2 percent and 23.2 percent, respectively (persons under age 60). Journey-to-work services and trips to/from employment training resources may be most important in these Cities.
- By contrast, Casa Grande and Florence have higher elderly percentages (persons age 60 and higher) at 16.7 percent and 12.4 percent, respectively. Transit services for the elderly may be most important in these Cities.

[2] Source: *Pinal Transportation Coordination Demonstration Project, Final Report*, page 3; RAE Consultants, Inc., December 2005.

Discussion of Other Section 5311 Program New Service Alternatives

Comments on other top candidates are provided to follow:

- **Gila River Reservation.** The Gila River Tribal Reservation in Maricopa and Pinal Counties has an estimated 2005 population of about 15,000, of which an estimated 48.2 percent are persons below poverty under age 60. The relative proximity of the Reservation to the Phoenix urbanized area (about 20 to 50 miles, depending on the specific location) suggests that route deviation services to/from the Phoenix urbanized area (connections with Valley Metro) could be appropriate, with supplemental medical appointment trips. Lessons could be drawn from the Salt River Transit System, an existing Section 5311 program operator.
- **Nogales.** For Nogales in Santa Cruz County, having a Section 5311 program service is clearly a major need given its population (21,830 in 2005), a high poverty rate (28.5 percent), an appreciable elderly population (14.1 percent), and a significant amount of visitors in need of transit options from Nogales and Sonora, Mexico. A recent transit planning study for Nogales recommended a total of five fixed routes operating on major arterials with a designated central transfer point, with a supplemental paratransit service.[3]
- **Fort Apache Reservation and San Carlos Reservation.** As with the Navajo Nation Reservation, but on a smaller scale, the Fort Apache and San Carlos Reservations together encompass a high population (about 24,000 in 2005 between the two reservations) spread out over a large geographic area (portions of five counties: Apache, Gila, Graham, Navajo, and Pinal). The poverty rates in the Reservations are relatively high at 45.0 percent and 46.6 percent, respectively. Following the example of the Navajo Transit System, it likely makes sense to begin transit service in these reservations with long-haul fixed routes that provide connectivity with adjacent cities (i.e., Show Low and Miami/Globe). Circulator services within the reservation are a longer-term possibility.
- **Safford/Thatcher.** The recently completed *Graham County Transit Feasibility Review* identified a new route deviation service as a viable and preferred service alternative for the three cities of Safford, Thatcher, and Pima.[4] Safford has a relatively higher percentage of elderly persons (21.0 percent), while Thatcher has a relatively higher percentage of low-income persons (18.6 percent).

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[3] Source: *Nogales Transit Feasibility Review and Implementation Plan, Final Report*, pages 13 to 24, Nelson\Nygaard Consulting Associates, November 2006.

[4] Source: *Graham County Transit Feasibility Review, Final Report*, Ostrander Consulting, May 2007.

- **Payson.** Payson in Gila County is most notable for its relatively high population (15,430 in 2005) and an extremely high percentage of elderly persons ages 60 and above (34.5 percent). Given this, a route deviation or demand response service open to the general public may make the most sense for initial service. The year 2004 *Payson Area Transit Feasibility Study* identified two deviated fixed routes as a viable and preferred service alternative.[5]
- **Camp Verde.** Camp Verde in Yavapai County has a modest population (10,730 in 2005) and a high percentage of elderly persons (26.0 percent). The relative proximity of Camp Verde to Cottonwood (distance of about 12 miles) suggests that the Cottonwood Area Transportation System could potentially operate service in Camp Verde instead of a new Section 5311 program operator. Camp Verde could be readily provided with intercity service to/from both Phoenix and Flagstaff if Greyhound were to locate a stop there for select Phoenix-Flagstaff trips.

The list of top candidates for new Section 5311 program service shown previously in Table 4.2 represent the locations that are projected to have the highest demand for such services and are believed to be the best opportunities. However, the list is not inclusive of all cities where new Section 5311 program local services would be feasible.

Expansion of Existing Section 5311 Program Services

Transit Demand Projections

The APTNA analysis was also used to estimate demand for rural cities/towns that currently have Section 5311 program service. Table 4.3 shows the results from this analysis. Using this approach, unmet need indicates the difference between estimated demand and existing Section 5311 program ridership.

[5] Source: *Payson Area Transit Feasibility Study, Final Report*, Lima & Associates, December 2004.

Table 4.3 APTNA Demand Forecast for Rural Cities/Towns With Section 5311 Program Service

City or Tribe	Year 2005 Population	Percent Without Auto	Percent Elderly (Ages 60+)	Percent in Poverty (Under Age 60)	Percent Disabled (Under Age 60, Not in Poverty)	Year 2005 APTNA Population	Year 2005 APTNA Index	FY 2006 Ridership	Year 2005 Unmet Need	County Population Growth to Year 2016	Year 2016 Unmet Need
Cochise County											
Bisbee	6,570	8.1%	26.3%	14.2%	4.3%	2,939	32,100	30,302	1,800	38.4%	16,200
Douglas	17,195	15.6%	17.0%	31.2%	5.3%	9,207	134,000	n/a	134,000	38.4%	190,800
Sierra Vista	43,690	5.8%	16.1%	9.3%	2.0%	11,985	135,400	115,782	19,600	38.4%	85,200
Gila County											
Globe	7,495	9.9%	20.8%	9.3%	2.4%	2,432	25,700	9,957	15,700	13.5%	21,100
Miami	1,955	14.0%	20.7%	18.7%	3.6%	841	10,600	4,267	6,300	13.5%	8,300
Mohave County											
Bullhead City	38,210	8.3%	25.7%	12.3%	3.2%	15,741	168,300	113,993	54,300	38.4%	130,800
Kingman	25,860	5.9%	22.1%	9.5%	2.6%	8,835	92,000	66,194	25,800	38.4%	69,200
Lake Havasu City	53,435	4.2%	33.4%	7.0%	1.6%	22,506	202,400	136,817	65,600	38.4%	159,900
Navajo County											
Pinetop-Lakeside	4,165	3.8%	21.8%	8.1%	2.1%	1,334	13,500	31,346	-17,800	25.4%	-13,200
Show Low	9,885	3.8%	20.4%	12.8%	2.4%	3,519	40,700	73,140	-32,400	25.4%	-19,300
Pima County											
Ajo*	4,222	9.7%	39.3%	16.3%	4.4%	2,536	26,200	39,714	-13,500	25.3%	-5,700
Green Valley*	19,616	5.4%	84.2%	0.5%	0.2%	16,657	114,500	1,933	112,600	25.3%	147,000
Tucson Estates*	11,072	4.2%	36.6%	5.2%	1.2%	4,756	39,800	14,801	25,000	25.3%	38,200
Pinal County											
Coolidge	8,180	10.2%	16.6%	20.6%	5.5%	3,492	45,800	21,962	23,800	130.3%	87,700

City or Tribe	Year 2005 Population	Percent Without Auto	Percent Elderly (Ages 60+)	Percent in Poverty (Under Age 60)	Percent Disabled (Under Age 60, Not in Poverty)	Year 2005 APTNA Population	Year 2005 APTNA Index	FY 2006 Ridership	Year 2005 Unmet Need	County Population Growth to Year 2016	Year 2016 Unmet Need
Yavapai County											
Clarkdale	3,680	4.2%	29.2%	7.7%	1.6%	1,418	13,400	11,382	2,000	36.9%	8,100
Cottonwood	10,860	11.3%	28.4%	9.8%	1.8%	4,347	43,700	34,146	9,600	36.9%	29,000
Sedona	10,935	3.3%	33.8%	7.3%	1.5%	4,667	42,300	n/a	42,300	36.9%	61,300
Tribal Reservations											
Hopi-Senom	7,835	24.0%	14.2%	35.4%	4.7%	4,254	66,100	5,025	61,100	25.4%	80,100
Navajo Nation	111,153	18.3%	9.9%	37.3%	7.8%	61,134	963,600	35,700	927,900	12.9%	1,080,300
Salt River	7,609	13.1%	16.5%	26.3%	5.5%	3,675	51,400	17,754	33,600	29.3%	50,900

Source: Cambridge Systematics, Inc., based on data from Arizona Department of Economic Security, 2005; U.S. Census, 2000; U.S. Census American Community Survey, 2005; the Maricopa Association of Governments; the Pima Association of Governments; the Central Arizona College Bond Feasibility Study; the Southeast Arizona Regional Transportation Profile; and the APTNA methodology described in Working Paper #3.

*Indicates community is an unincorporated city or town.

Table 4.4 provides the list of cities/towns that are the top candidates for future expansion of existing Section 5311 program service based on the results in Table 4.3.

Table 4.4 List of Top Candidates for Expanded Section 5311 Program Service

County	Section 5311 Operator	Year 2005 Population	Year 2005 APTNA Population	Year 2005 Unmet Need	Year 2016 Unmet Need
Apache*	Navajo Transit System	111,153	61,134	927,900	1,080,300
Cochise	Catholic Community Services in Douglas	17,195	9,207	134,000	190,800
Pima	Pima County Rural Transit	34,910	23,948	124,100	179,500
Mohave	Lake Havasu City Transit Services	53,435	22,506	65,600	159,900
Mohave	Bullhead Area Transit System	38,210	15,741	54,300	130,800
Pinal	Cotton Express in Coolidge	8,180	3,492	23,800	87,700
Navajo*	Hopi Senom Transit System	7,835	4,254	61,100	80,100
Cochise	Sierra Vista Public Transit System	43,690	11,985	19,600	85,200
Mohave	Kingman Area Regional Transit	25,860	8,835	25,800	69,200
Yavapai	City of Sedona	10,935	4,667	42,300	61,300

Source: Cambridge Systematics, Inc. Unmet need numbers are rounded to the nearest hundred.

* Includes multiple counties (Navajo Transit: Apache, Coconino, and Navajo Counties, as well as portions of New Mexico and Utah; Hopi Senom Transit System: Coconino and Navajo).

Note: Current ridership data for Catholic Community Services in Douglas and the City of Sedona are not available, as these services have recently begun operation.

Performance Measures for Existing Operations

For rural cities/towns that currently have Section 5311 program service, another consideration is the performance of existing operations. Table 4.5 shows three relevant performance measures for these operators, including the following:

1. **Cost efficiency.** Operating cost per vehicle hour (i.e., cost per unit of service provision);
2. **Cost effectiveness.** Operating cost per passenger trip (i.e., cost per unit of service consumption); and
3. **Service effectiveness.** Passenger trips per vehicle hour (i.e., service consumption per unit of service provision).

Table 4.5 Section 5311 Program Service Performance Measures

County	Section 5311 Operator	Operating Expenses	Vehicle Hours	Passenger Trips	Operating Cost Per Vehicle Hour	Operating Cost Per Passenger Trip	Passenger Trips Per Vehicle Hour
Apache	Navajo Transit System	$633,291	5,989	35,700	$105.74	$17.74	5.96
Cochise	Bisbee Bus System	$179,683	3,388	30,302	$53.04	$5.93	8.94
Cochise	Sierra Vista Public Transit System	$748,282	15,459	115,782	$48.40	$6.46	7.49
Gila	Cobre Valley Community Transit	$154,305	4,040	14,224	$38.19	$10.85	3.52
Maricopa	Valley Metro Rural Transit	$338,486	6,425	2,842	$52.68	$119.10	0.44
Maricopa	Salt River Pima-Maricopa Indian Community	$326,978	10,934	17,754	$29.90	$18.42	1.62
Mohave	Bullhead Area Transit System	$796,811	16,037	113,993	$49.69	$6.99	7.11
Mohave	Kingman Area Regional Transit	$506,493	10,172	66,194	$49.79	$7.65	6.51
Mohave	Lake Havasu City Transit Services	$1,678,830	44,827	136,817	$37.45	$12.27	3.05
Navajo	Hopi Senom Transit System	$70,991	2,577	5,025	$27.55	$14.13	1.95
Navajo	Four Seasons Connection in Show Low/Pinetop	$298,579	7,456	104,486	$40.05	$2.86	14.01
Pima	Pima County Rural Transit	$663,831	17,069	100,446	$38.89	$6.61	5.88
Pinal	Cotton Express in Coolidge	$219,736	5,172	21,962	$42.49	$10.01	4.25
Yavapai	Cottonwood Area Transportation System	$526,291	14,787	45,528	$35.59	$11.56	3.08
Total		**$7,142,587**	**164,332**	**811,055**	**$43.46**	**$8.81**	**4.94**

Source: Cambridge Systematics, Inc., based on FY 2006 National Transit Database rural data reporting.

Note: Performance data for Catholic Community Services in Douglas and the City of Sedona are not available, as these services have recently begun operation.

Clearly, the Section 5311 program operators serve different functions and have different ridership characteristics. Furthermore, the measures are based only on a single year of service operation. As such, while no definitive conclusions can be drawn from these results, the data does suggest differing levels of performance among existing operators.

For purposes of assessing service expansion potential, the service productivity measure (i.e., passenger trips per vehicle hour) is the most relevant. Based on reported FY 2006 data, the Section 5311 program operators can be grouped into the following categories:

- **High-service effectiveness.** Four Seasons Connection (14.01), Bisbee Bus System (8.94), Sierra Vista Public Transit System (7.49), Bullhead Area Transit System (7.11), and Kingman Area Regional Transit (6.51);
- **Medium-service effectiveness.** Navajo Transit System (5.96), Pima County Rural Transit (5.88), Cotton Express (4.25), Cobre Valley Community Transit (3.52), Cottonwood Area Transit System (3.08), and Lake Havasu City Transit Services (3.05); and
- **Low-service effectiveness.** Hopi-Senom Transit System (1.95), Salt River Pima-Maricopa Indian Community (1.62), and Valley Metro Rural Transit (0.44).

Of the top 10 candidates for expanded Section 5311 program service shown previously in Table 4.4, only one of the opportunities (Hopi-Senom Transit System) falls in the low-service productivity category. The implication of this is that Hopi-Senom Transit System should focus on improving the performance of its existing service first before adding additional service. For Catholic Community Services in Douglas and the City of Sedona, no performance data is available for FY 2006, but the same principle would apply going forward.

Discussion of Section 5311 Program Expanded Service Alternatives

There is generally a stronger basis on which to define specific service characteristics for existing Section 5311 program services relative to new Section 5311 program services, given the availability of current performance measures and recently completed three-year transit plans. Nevertheless, the discussion provided to follow is not meant to substitute for the three-year transit planning process, which is a more in-depth investigation of community/service profiles and transit needs within each respective area.

The following bullets provide comments on each of the top Section 5311 program service expansion candidates shown above in Table 4.5:

- **Navajo Transit System.** Expansion of Navajo Transit System services for the Navajo Nation Reservation (2005 population of about 110,000) clearly represents one of the most significant rural transit opportunities in the State. The expansion alternatives identified in the most recent three-year transit plan,

most notably having two new routes into Utah (expressed by Navajo Transit System management as the most pressing need) and having service to/from additional communities in Arizona and New Mexico (particularly a Tuba City-Flagstaff service) should be given serious consideration. Navajo Transit System performance in FY 2006 indicated an operating cost per vehicle hour (i.e., cost efficiency) of $105.74, which was nearly twice that of any other Section 5311 operator. Before Navajo Transit System service is expanded, a more thorough investigation of methods for improving Navajo Transit System cost efficiency should be undertaken. This could very well include using smaller vehicles and organizing vanpools in select corridors. Small vehicle services could connect currently unserved areas with the existing major trunk routes.

- **Catholic Community Services in Douglas.** Douglas in Cochise County (2005 population: 17,195) and the surrounding area is expected to continue to grow rapidly by 2016. Catholic Community Services just recently began service, including three local routes within the City of Douglas, as well as an intercity commuter service between Douglas, Bisbee, and Sierra Vista; and did not report NTD data in FY 2006. Catholic Community Services performance of both the local routes and the intercity service should be monitored over time as the primary basis for determining specific expansion needs over time. The likely options would be increased service frequency on each route and a longer span of service on weekday evenings.
- **Pima County Rural Transit.** The projected unmet needs in the Pima County Rural Transit service area is being driven primarily by the unincorporated area of Green Valley (2005 population of about 20,000), which has an extremely high elderly population of 84.2 percent. Pima County Rural Transit currently serves Green Valley with both a local route deviation service (estimated FY 2006 ridership of 1,933) and a Regional Transit Connector pilot service, which began in February 2006. The recent Pima County Rural Transit three-year transit plan, completed in November 2006, focuses more on expansion for services in Ajo, Marana, San Xavier, and Tucson Estates, which may all be worthy needs, but having added service levels for Green Valley residents should also be on the table. Based on stakeholder input received, a new route connecting Catalina and Oro Valley with Tucson also may be a good option.
- **Lake Havasu City Transit Services.** City Transit Services, serving Lake Havasu City in Mohave County (2005 population: 53,435), just recently in October 2006 transitioned its operations from a purely demand response service to a "hub-and-spoke" route deviation and demand response service. City Transit Services performance should be closely monitored over time to determine what the outcomes of the service transition are, as the primary basis for assessing more specific service expansion needs over time. It is likely that additional service provision will be needed as the City continues to grow.

- **Bullhead Area Transit System.** Bullhead Area Transit System, serving Bullhead City in Mohave County (2005 population: 38,210), demonstrated high performance in service productivity and cost effectiveness in FY 2006. Projected growth in the Bullhead City region suggests that Bullhead Area Transit System will need to continue to expand its service provision going forward. Potential service improvement candidates include increasing Red Line frequency from 120 minutes to 90 or 60 minutes, and examining the need for additional routes. Further discussion of intercity needs with Laughlin is discussed in Section 5.5.
- **Cotton Express in Coolidge.** The relevant discussion pertaining to service expansion of the Cotton Express, serving Coolidge in Pinal County (2005 population: 8,180), is provided previously in the discussion of Pinal County Section 5311 program new service alternatives. Essentially, the service expansion needs of Cotton Express should be considered in the broader context of a potential new regional Section 5311 program operation encompassing other cities in Pinal County (Casa Grande, Eloy, Florence, and Maricopa).
- **Hopi-Senom Transit System.** The best opportunities for expansion of Hopi-Senom Transit System services in the Hopi Reservation (2005 population of about 8,000) would appear to be shorter local routes that connect currently unserved Hopi communities with Kykotsmovi, timed to allow for transfers to/from existing routes. As mentioned previously, improving the service productivity of existing Hopi-Senom Transit System services is believed to be a more significant concern at the present time than adding additional service.
- **Sierra Vista Public Transit System.** Public Transit System, serving Sierra Vista in Cochise County (2005 population: 43,690), had strong FY 2006 performance in service productivity and cost effectiveness. Plans currently are underway to change existing routes to locally-oriented circulators, with transfers possible at a designated Transfer Center. Other Public Transit System service improvements would include extending weekday service hours from 5:00 p.m. to perhaps 7:00 p.m. or 8:00 p.m., adding additional Saturday service, and extending curbside pick-ups to elderly patrons between the ages of 60 and 64. A discussion of intercity service needs for Sierra Vista is discussed to follow in Section 5.5: Intercity Transit Service Alternatives.
- **Kingman Area Regional Transit.** Kingman Area Regional Transit, serving Kingman in Mohave County (2005 population: 25,860), had above average performance among existing operators in service productivity and cost effectiveness. The most pressing needs for service expansion are likely to be those described in the most recent three-year plan: express bus or carpool/vanpool service for the airport area and adding service for the outlying areas of Golden Valley and Valle Vista.
- **City of Sedona.** The daily circulator route in Sedona, paratransit service, and Sedona Roadrunner commuter service recently began service in October

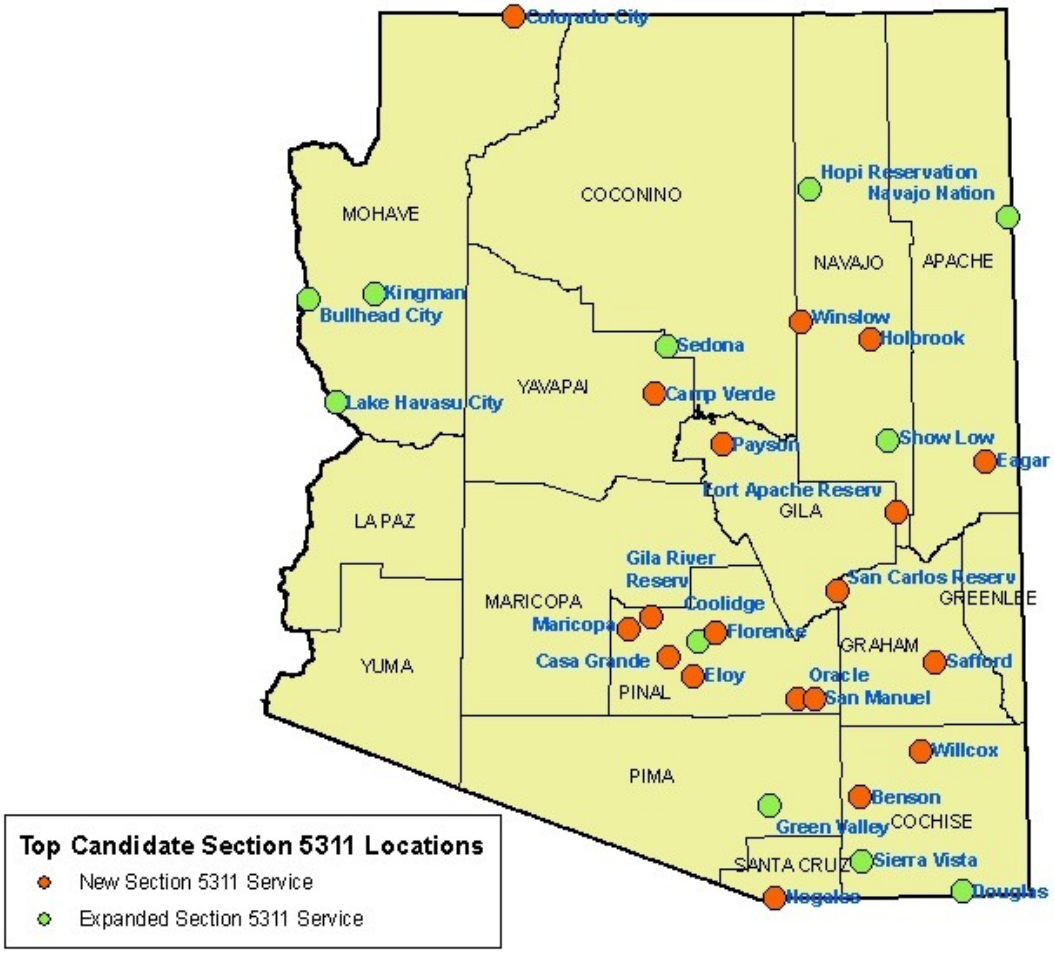
2006. Performance of these services should be monitored for at least one year before more specific expansion options are defined.

In addition, expansion of the City of Show Low/Pinetop service (Four Seasons Connection) is recommended to provide integration with the new service proposed for the White Mountain Apache Tribe in the Fort Apache Reservation.

Map of Top Section 5311 Program Service Candidates

Figure 4.1 summarizes the preceding information by showing the top section 5311 program candidates, including both the introduction of new service (in red) and the expansion of existing service (in green).

Figure 4.1 Top Candidates for New or Expanded Local and Tribal Section 5311 Program Service



Source: Arizona Department of Transportation; and Cambridge Systematics, Inc.

Note: Tribal Reservations are shown as a single location that represents a larger geographic area. Green Valley is shown as the most significant expansion opportunity for Pima County Rural Transit.

The summary of Section 5311 program service candidates includes:

- **New Section 5311 Local Services.** New 5311 program services were identified for communities in Pinal County (Casa Grande, Eloy, City of Maricopa, Florence, Oracle, and San Manuel); Santa Cruz County (Nogales); Gila County (Payson); Yavapai County (Camp Verde); Graham County (Safford/ Thatcher); Navajo County (Winslow and Holbrook); Apache County (Eagar/ Springerville); Cochise County (Willcox and Benson); and Mohave County (Colorado City). New 5311 program services were also identified for Tribal Reservations: Gila River Reservation (in Maricopa and Pinal Counties); Fort Apache Reservation (in Apache, Gila, and Navajo Counties); and the San Carlos Reservation (in Gila, Graham, and Pinal Counties).
- **Expanded Section 5311 Local Services.** Expanded 5311 program services were identified for Navajo Transit System (in Apache, Coconino, and Navajo Counties, as well as portions of New Mexico and Utah); Catholic Community Services in Douglas (Cochise County); Pima County Rural Transit; Lake Havasu City Transit Services (Mohave County); Bullhead Area Transit System (Mohave County); Cotton Express in Coolidge (Pinal County); Hopi Senom Transit System (in Coconino and Navajo counties); City of Sierra Vista Public Transit System (Cochise County); Kingman Area Regional Transit (Mohave County); the City of Sedona (Yavapai County); and the City of Show Low/Pinetop (Navajo County).

4.4 SECTION 5311 INTERCITY SERVICE ALTERNATIVES

During the stakeholder input process, the need for having expanded long-distance, intercity transit services throughout the State was repeatedly identified. Many rural cities/towns are (and will continue to be) highly dependent on larger cities and metropolitan areas for their employment, medical, and shopping needs. This section presents alternatives for intercity transit services that connect rural cities/towns with each other or with urbanized areas. This section is organized according to the following subsections:

- **Demand Analysis.** Presents results from a demand analysis for general public intercity transit services based on U.S. Census Transportation Planning Package (CTPP) travel pattern data; and
- **New Section 5311 Program Services.** Describes proposed alternatives for new intercity Section 5311 program nonurbanized area general public service provision based on results from the demand analysis and stakeholder information.

Demand Analysis

Working Paper #2: Future Trend Analysis, Section 6.3 presented the estimated number of 2015 intercounty and out-of-state commuters, and the change from 2005. An adjustment from 2015 to 2016 was made based on extrapolation. For

purposes of this analysis, it is assumed that the potential demand for such services is based on a 1.0 percent transit mode share, with each commuter making 500 one-way transit trips annually (250 days, 1 round trip). Since no information is available for nonwork trips, the demand estimate is doubled to account for this. Table 4.6 provides the results of the intercounty and out-of-state commuter demand analysis from 2005 to 2016.

Table 4.6 Intercounty and Out-of-State Commuter Demand Analysis, 2005 and 2016

Residence County	Workplace County	2005 Intercounty & Out-of-State		2016 Intercounty & Out-of-State	
		Commuters	Demand	Commuters	Demand
Pinal	Maricopa	30,871	308,700	80,974	809,700
Mohave	Out of state	18,262	182,600	33,675	336,800
Maricopa	Pinal	9,755	97,600	16,186	161,900
Pinal	Pima	4,202	42,000	12,041	120,400
Maricopa	Out of state	10,221	102,200	10,480	104,800
Yavapai	Maricopa	5,093	50,900	10,829	108,300
Yavapai	Coconino	4,411	44,100	8,163	81,600
Cochise	Pima	2,510	25,100	5,778	57,800
Apache	Navajo	1,681	16,800	5,002	50,000
Graham	Greenlee	1,908	19,100	4,795	48,000
Gila	Maricopa	1,659	16,600	4,514	45,100
Pima	Maricopa	2,240	22,400	3,454	34,500
Coconino	Maricopa	1,336	13,400	3,538	35,400
Navajo	Maricopa	1,087	10,900	3,472	34,700
Apache	Out of state	1,832	18,300	2,764	27,600
Pima	Pinal	1,678	16,800	2,433	24,300
Coconino	Yavapai	1,320	13,200	2,165	21,700
Pima	Santa Cruz	1,586	15,900	2,047	20,500
Coconino	Navajo	1,286	12,900	2,013	20,100
Cochise	Graham	581	5,800	2,160	21,600
Pima	Cochise	1,308	13,100	1,897	19,000
Yuma	Out of state	1,769	17,700	1,815	18,200
Yavapai	Navajo	493	4,900	1,833	18,300
Pima	Out of state	1,848	18,500	1,600	16,000
Maricopa	Yavapai	1,041	10,400	1,678	16,800

Source: Cambridge Systematics, Inc. (Working Paper #1, Table 2.14; and Working Paper #2, Table 6.3). Demand numbers are rounded to the nearest hundred.

New Section 5311 Program Services

New intercity services were identified that build on ADOT's Regional Transportation Connector Services (RTCS) pilot program. The intent of the RTCS Program is to provide four three-year pilot projects for needed public transportation connector services between a rural community and an urbanized environment. These services are made available by ADOT, so residents in rural communities can commute to urban areas for employment, medical appointments, shopping, education, and other services. The RTCS pilot projects are as follows:

- **Ajo to Gila Bend to Phoenix.** Service began in March 2005;
- **Green Valley to Sahuarita to Tucson.** Service began in February 2006;
- **Wellton to Yuma.** Service began in February 2006; and
- **Kachina Village to Flagstaff.** Service began in May 2006.

Table 4.7 presents the corridors that best warrant new or expanded intercity commuter-oriented Section 5311(f) program general public service, based on taking the county-to-county flow information and translating them to transit service needs in specific corridors.

Table 4.7 List of Top Candidates for New or Expanded Intercity Section 5311 Program Services

Counties	Corridor	Route Length (Approximate)
Pinal	Casa Grande-Arizona City-Eloy-Coolidge	34 miles
Pinal-Maricopa	Coolidge/Florence-Phoenix	62 miles
Pinal-Maricopa	Maricopa-Tempe	31 miles
Mohave	Lake Havasu City-Bullhead City-Kingman	159 miles (loop)
Yavapai-Coconino	Cottonwood-Prescott-Camp Verde-Sedona	79 miles (2 lines)
Navajo	Fort Apache Reservation-Show Low-Snowflake/Taylor-Holbrook	82 miles
Gila-Maricopa	Miami-Superior-E. Mesa	66 miles
Gila-Maricopa	Payson-E. Mesa	76 miles
Graham-Greenlee	Safford/Thatcher-Clifton/Morenci	47 miles
Cochise	Bisbee-Sierra Vista-Benson	58 miles
Navajo-Coconino	Page-Tuba City-Kayenta-Flagstaff	208 miles (2 lines)

Source: ADOT and Cambridge Systematics, Inc.

The first three candidates (**Casa Grande-Arizona City-Eloy-Coolidge; Coolidge/Florence-Phoenix; and Maricopa-Tempe**) focus on intercity transit service within Pinal County and between Pinal and Maricopa Counties, which is by far the most significant need going forward due to the rapid population growth in

Pinal County and the high level of trip-making to/from the Phoenix urbanized area. A transit connector service between the City of Maricopa and downtown Phoenix is scheduled to begin after October 2007.

In 2006, demonstration project implementation efforts took place that included collaboration among agencies within central Pinal County and formation of a regional Coordination Council. In December 2006, two pilot routes began operation (Route #1: Florence, Coolidge, and Casa Grande; and Route #2: Eloy, Casa Grande, and Maricopa).[6] The proposed candidate services would build on these pilot routes, and provide more complete intercity transit connectivity throughout Pinal and Maricopa Counties.

If new commuter or intercity rail services are introduced in the future, it would make sense to orient these intercity bus services in Pinal County to have timed transfers at the rail stations. This would strengthen connectivity with the Phoenix urbanized area to the north, as well as improve transit service between Pinal County and the Tucson urbanized area to the south. Plans for rail services are as follows:

- The 1998 *ADOT High-Speed Rail Feasibility Study* reviewed Phoenix-Tucson high-speed rail alignment options with a Pinal County station in either Coolidge or Casa Grande.[7] Based on discussion with ADOT, further planning of this service is underway, including a possible station in Eloy.
- The Maricopa Association of Governments (MAG) Commuter Rail Strategic Plan is assessing support and establishing an implementation strategy for a commuter rail service in Maricopa and Pinal Counties, with a study area that extends as far south as Eloy.[8]

If the rail alternatives that are currently being planned are not implemented within the next few years, the fallback would be to increase the service provision of intercity bus service that complement existing intercity Greyhound and Tufesa bus services with additional stops made in Pinal County.

Figure 4.2 shows the intercity corridors listed in Table 4.7 graphically.

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[6] Source: *2006 Arizona Rides Annual Report*, page 22; Arizona Department of Transportation, December 2006.

[7] Source: *2006 Arizona Rides Annual Report*, page 22; Arizona Department of Transportation, December 2006.

[8] Source: *Commuter Rail Strategic Planning Services Proposers Conference Presentation*, Slides 8 to 9, Maricopa Association of Governments, July 2006.

Figure 4.2 Top Candidates for New Intercity Section 5311 Program Services

Source: Arizona Department of Transportation; and Cambridge Systematics, Inc.

The corridors shown in Figure 4.2 are located in Pinal County (Casa Grande-Arizona City-Eloy-Coolidge); Pinal-Maricopa Counties (Coolidge/Florence-Phoenix and Maricopa-Tempe); Mohave County (Bullhead City-Kingman-Lake Havasu City); Yavapai-Coconino Counties (Cottonwood-Prescott-Camp Verde-Sedona); Navajo County (Fort Apache Reservation-Show Low-Snowflake/ Taylor-Holbrook); Gila-Maricopa Counties (Miami-Superior-East Mesa and Payson-East Mesa); Graham-Greenlee Counties (Safford/Thatcher-Clifton/ Morenci); and Navajo-Coconino Counties (Page-Tuba City-Kayenta-Flagstaff).

In addition, discussions with Greyhound could occur pertaining to adding intermediate stops for select trips. Doing this would provide more coverage in rural areas. The following locations are suggested for intermediate stops:

- **Flagstaff-Phoenix.** Add stops in Camp Verde and Black Canyon City; and
- **Tucson-Nogales.** Add stops in Rio Rico and Sahuarita.

4.5 SECTION 5310, 5316, AND 5317 SERVICE ALTERNATIVES

New or Expanded Section 5310 Program Service

Section 5310 program operators serve elderly and disabled riders in both urbanized and rural areas across the State. Every city/town listed previously in Tables 4.1 and 4.2 would be potential candidates for new or expanded Section 5310 program service, as well as possibly cities/towns with a 2005 population of under 2,500 in population. A good starting point for possible new Section 5310 program services would be to identify those cities/towns in Tables 4.1 and 4.2 that do not currently have a local Section 5311 or a Section 5310 program service. These locations are as follows.

- **Apache County.** Eagar and Saint Johns;
- **Coconino County.** Kachina Village and Williams;
- **Graham County.** Thatcher;
- **Navajo County.** Heber-Overgaard and Snowflake/Taylor;
- **Pima County.** Catalina and Three Points;
- **Pinal County.** Arizona City, City of Maricopa (recommended for 5311), San Manuel, and Superior;
- **Santa Cruz County.** Rio Rico NE, Rio Rico NW, and Rio Rico SW; and
- **Yavapai County.** Lake Montezuma.

There are also selected corridors with potential for new or expanded intercity Section 5310 program elderly/disabled transit services, based on information obtained from stakeholders throughout the State. These corridors are as follows.

- **Black Canyon City-Phoenix.** Distance of about 47 miles;
- **Colorado City-St. George, Utah.** Distance of about 43 miles;
- **Colorado River Indian Reservation-Parker-Lake Havasu City.** Distance of about 54 miles;
- **Hualapai Reservation-Kingman.** Distance of about 52 miles;
- **Safford-Duncan.** Distance of about 39 miles;
- **Sedona-Flagstaff.** Distance of about 29 miles; and
- **St. Johns-Springerville/Eagar-Show Low.** Distance of about 68 miles.

Coordination of Section 5310 Program Services

Coordination of Section 5310 program services with each other, other human and social service providers, and/or with a Section 5311 program operator should be

encouraged to the extent that multiple services operate within the same city/ town. The benefits of enhanced service coordination are described in Section 5.3 of the report. A number of opportunities exists for 5310 service (and program planning) coordination with existing Section 5311 providers. The latter group has the unique position within their communities for providing public transportation connectivity to the demand-response or single-purpose-trip type of operation typical of many 5310 operations, thereby, closing service gaps often found when only one-or-the-other type of operation exists.

In addition, significant potential exists in these communities for coordinated maintenance (preventative maintenance and repair) between Section 5310 and 5311 operations. Section 5311 agencies more frequently have the infrastructure and expertise on-site to assist in this manner. Similarly, joint procurement and referral agreements also hold promise for mutual program benefit.

In locations where the only public or quasi-public transportation provided is via "5310-type" agencies, route and trip planning, maintenance, shared vehicle and/ or driver, mutual training, and other operating agreements between service providers have significant potential to realize increased efficiencies of service for all system users.

Multiple state (ADOT, DES, Department of Homeland Security (DHS), Arizona Health Care Cost Containment System (AHCCCS), etc.) and Federal (DOT-Federal Transit Administration (FTA)/Federal Highway Administration (FHWA), U.S. Department of Health and Human Services (DHHS), etc.) funding and regulatory sources represent both opportunities and challenges for coordination to occur between the different service providers, regardless of whether their specific transit operations were originally Section 5310, Section 5311, or "other" funded. Many of the host programs cite institutional barriers – whether perceived or real – to cooperative agreements for sharing resources and information. The State's Arizona Rides program, initiated with the Governor's 2005-16 Executive Order, is charged with streamlining and reducing these inefficiencies.

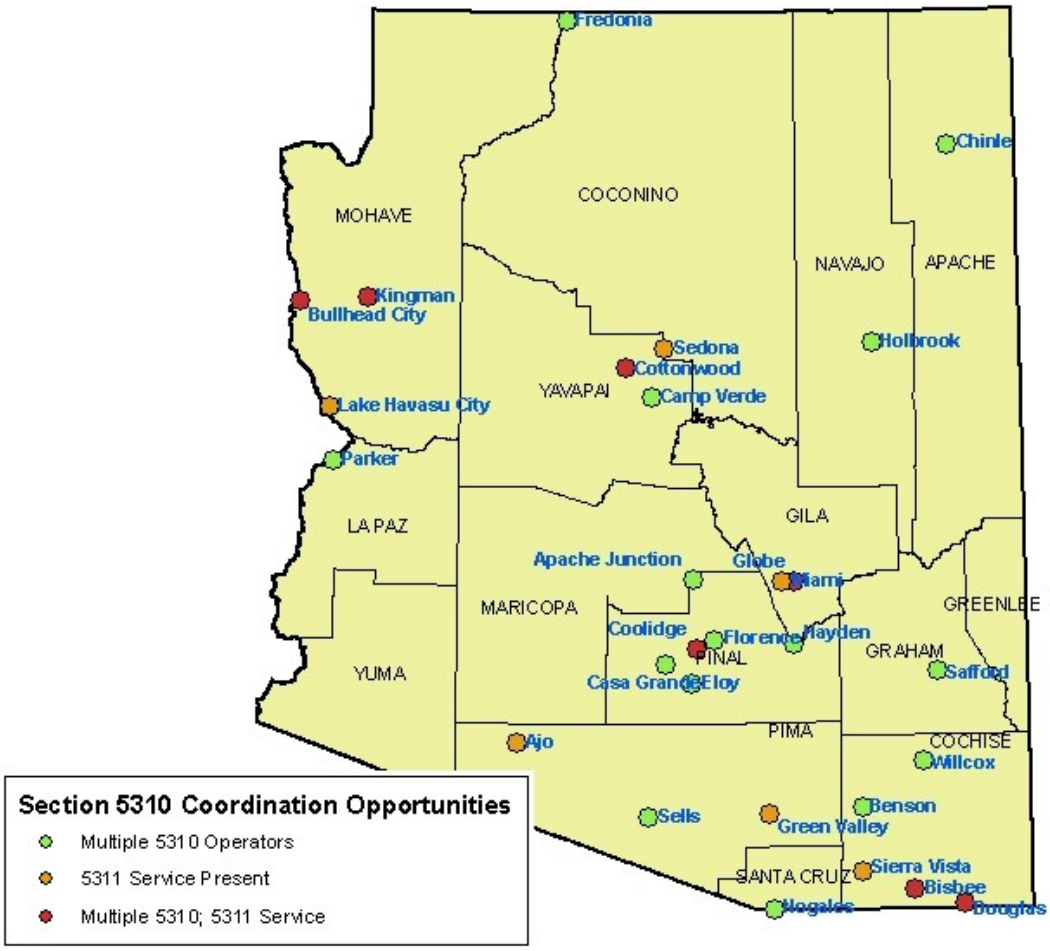
The Federal United We Ride program (via a 2004 Presidential Executive Order and initiative) calls for the alignment of Federal agencies in the quest to reduce waste and increase efficiencies. In response to United We Ride, the Arizona Rides effort is ongoing in Arizona, which directs all state agencies dealing with human service transportation to seek common ground for collaboration among and between its programs. Many of these programs also are directed by United We Ride by virtue of their Federal grant funding.

While myriad complexities remain to be addressed in the coordination arena (including insurance, privacy-protection, antiquated service provision, etc.), the Arizona Rides initiative has given visibility to the overarching issues, and brought them to the forefront for deliberation by affected communities and policy-makers alike.

The Governor and state department partners are attempting to provide a framework for coordination to happen, but it is through grass roots-level efforts "where the rubber meets the road" that coordination needs to – and most effectively does – happen.

Figure 4.3 shows the cities/towns in rural Arizona that have multiple Section 5310 program operators located within the service area of an existing Section 5311 program operator, or both. Figure 4.3 also outlines just the basic framework of existing rural 5310 and 5311 program coverage. Other state and private programs interface with these FTA-funded operations and with each other, and are a critical connection that needs to be made or reinforced on an ongoing basis.

Figure 4.3 Rural Locations With Section 5310 Coordination Opportunities



Source: Arizona Department of Transportation; and Cambridge Systematics, Inc. Not shown: Mojave Valley.

The rural cities/towns, grouped by category according to Section 5310 program coordination opportunities includes the following:

- **Locations with Multiple Section 5310 Program Operators.** Apache Junction, Benson, Camp Verde, Casa Grande, Chinle, Eloy, Florence, Fredonia, Hayden, Holbrook, Mojave Valley, Nogales, Parker, Safford, Sells, and Willcox;
- **Locations with Section 5311 Program Service.** Ajo, Green Valley, Lake Havasu City, Miami, Sedona, and Sierra Vista; and
- **Locations with Multiple Section 5310 Program Operators and Section 5311 Program Service.** Bisbee, Bullhead City, Coolidge, Cottonwood, Douglas, Globe, and Kingman.

As additional Section 5310 and 5311 program operators are introduced, the number of cities/towns that have coordination opportunities will increase accordingly.

Section 5316 – JARC

Section 5316, Job Access Reverse Commute (JARC), is an FTA program with the purpose of assisting states and localities to develop new or expanded transportation services that connect welfare recipients and other low-income persons to jobs and other employment-related services. Job Access projects are targeted at developing new or expanded transportation services, such as shuttles, vanpools, new bus routes, connector services to mass transit, and guaranteed ride home programs for welfare recipients and low-income persons.

Eligible activities for Job Access grants include capital, operating, and planning expenses of services, equipment, facilities, and associated capital maintenance items related to providing access to jobs. Eligible projects include, but are not limited to:

- Late-night and weekend services;
- Guaranteed ride home services;
- Shuttle services;
- Expanding fixed-route mass transit routes;
- Demand-responsive van services;
- Ridesharing and carpooling activities; and
- Transit-related aspects of bicycling.

Also included are the costs of promoting the use of transit by workers with non-traditional work schedules; promoting the use of transit vouchers; and promoting the use of employer-provided transportation, including the transit benefits. In addition, mobility management activities are an eligible capital expense. These eligible expenses are defined as short-range planning and

management activities and projects for improving coordination among public transportation and other transportation services providers.

Reverse Commute projects provide transportation services to suburban employment centers from urban, rural, and other suburban locations for all populations. Eligible applicants include private, nonprofit organizations; state or local governmental authority; and operators of public transportation services, including private operators of public transportation services.

For Reverse Commute grants, the following activities are eligible: operating costs; capital costs; and other costs associated with reverse commute by bus, train, carpool, vans, or other transit service.

The Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users (SAFETEA-LU) changed the allocation of funds under the JARC program from a discretionary basis to a formula basis. The formula is based on the number of low-income persons in the state in the following three categories of apportionments:

1. A portion of each state's JARC funds are apportioned to individual urbanized areas of over 200,000 in population. In Arizona, these include Phoenix-Mesa and Tucson. JARC funding for those areas may be used for Reverse Commute projects to serve residents who live in the city core and work in outlying suburban or rural employment centers.
2. A portion of each state's JARC funds are apportioned to the state for urbanized areas of between 50,000 and 199,999 in population. In Arizona, the current list of these areas is Avondale, Flagstaff, Prescott, and Yuma. The state has the flexibility to transfer its JARC funding for these urbanized areas to nonurbanized areas, or vice versa.
3. The remainder of each state's JARC funds is apportioned to the state for nonurbanized areas of under 50,000 in population. Such funds may be used in any nonurbanized area of the state for eligible activities as stated in JARC guidelines (i.e., new or expanded transportation services for welfare recipients and other low-income persons).

Starting in FY 2007, states must determine JARC grantees competitively through locally developed, human service transportation coordination plans. The Arizona Rides project is serving as the human services transportation planning process in Arizona.

Section 5316 funding can support rural Arizona in a number of applications. Capital funding through the JARC program can support trips between rural areas and urban or suburban employment centers. JARC funds also may offset existing public transit route operation costs to serve commuter needs within rural parts of the State, as well as between rural portions and urban employment centers.

Section 5317 – New Freedom

The purpose of the New Freedom grant program is to encourage services and facility improvements to address the transportation needs of persons with disabilities that go beyond those required by the Americans with Disabilities Act (ADA). Funds are available to support the capital and operating costs of new public transportation service targeted toward persons with disabilities or public transportation alternatives that go beyond those required by the ADA.

Eligible recipients include private, nonprofit organizations; state or local governmental authority; and operators of public transportation services, including private operators of public transportation services. Activities that could be funded under the program include, but are not limited to:

- Purchasing vehicles and supporting accessible taxi, ridesharing, and vanpooling programs, including staff training, administration, and maintenance.
- Providing paratransit services beyond minimum requirements (three-quarter mile to either side of a fixed route), including for routes that run seasonally.
- Making accessibility improvements to transit and intermodal stations not designated as key stations.
- Supporting voucher programs for transportation services offered by human service providers.
- Supporting mobility management and coordination programs among public transportation providers and other human service agencies providing transportation. These activities are considered a capital cost and are defined as short-range planning and management activities and projects for improving coordination among public transportation and other transportation service providers.

New Freedom funds are distributed by formula based on the number of persons with disabilities in each state. As with the JARC program, New Freedom apportionments are made within three categories: 1) individual urbanized areas of over 200,000 in population (Phoenix-Mesa and Tucson); 2) urbanized areas of between 50,000 and 199,999 in population (Avondale, Flagstaff, Prescott, and Yuma); and 3) nonurbanized areas of under 50,000 in population. The State has the flexibility to transfer its New Freedom funding for urbanized areas to nonurbanized areas, or vice versa.

New Freedom funds apportioned to nonurbanized areas may be used in any nonurbanized area of the state for eligible activities as stated in New Freedom guidelines (i.e., new public transportation services for persons with disabilities that go beyond those required by the ADA).

Starting in FY 2007, states must determine New Freedom grantees competitively through locally developed, human service transportation coordination plans. The Arizona Rides project is serving as the human services transportation planning process in Arizona.

Section 5317 funding can support rural Arizona through several applications. Operations and capital funding through the New Freedom program can support disabled veterans in rural Arizona to travel to large or small urban areas for healthcare needs. The New Freedom program also may contribute to disabled transportation services beyond service boundaries currently provided by Section 5311 program rural public transportation services.

4.6 VANPOOLING AND RIDESHARING

Approximately 350 vanpools are currently in operation in Arizona, primarily within the Tucson and Phoenix urban areas. A continuing trend is the development of these services in rural portions of the State.

Vanpooling and ridesharing are actively used by commuters traveling between rural and urban environments. An example of such a commuter trip is use of the Phoenix's Valley Metro Vanpool Program between the City of Maricopa (Pinal County) and the Phoenix urban area.

ADOT is currently conducting research to investigate the potential for a statewide ridesharing and vanpool program for Arizona, specifically in nonmetropolitan areas where established ridesharing programs already exist.[9] The upfront study tasks included a literature review and a survey of other state DOTs. This work found that the current role of many state DOTs in ridesharing might best be described as facilitative and supportive, especially in ensuring vanpool services are available in all parts of the state.

The ADOT study team is presently gathering information and preparing a needs assessment for ridesharing and vanpooling services in key areas around the State (outside of Maricopa and Pima Counties), which involves qualifying potential contacts, screening contacts, developing a short-list of prospects, and conducting site interviews. Based on work completed to date, the two target areas identified for further assessment are Flagstaff and the Kingman/Bullhead City/Lake Havasu City tri-cities area.

The final product of ADOT's ridesharing and vanpool research will be an Implementation Plan that includes key corridors, start-up considerations, staffing, and operational guidelines, as well as funding options for capitalizing the statewide program.

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[9] Source: *Implementing a Statewide Rideshare and Vanpool Program in Arizona*; *Technical Memorandum Task 4 – Information Gathering and Needs Assessment in Arizona*; Arizona Department of Transportation, in cooperation with The Center for Transportation and the Environment, June 2007.

5.0 Supporting Policies and Practices

This section builds on the work conducted and presented in the previous section and in Working Paper #4: Funding Issues and Solutions; and provides a discussion of supporting policies and practices that are relevant to planning for new and expanded rural transit services in Arizona. The remainder of this section is organized as follows.

- **Background on Funding.** Presents a review of the funding sources for existing Section 5311 program operators by percentage, based on data reported to the FY 2006 rural NTD.
- **Funding Criteria.** Presents a policy discussion on potential performance-based criteria for rural transit operators to receive funding from new state funding sources, as well as requirements for local matching funds.
- **Best Practices Review.** Describes best practices relevant to rural transit service provision on the following topics: flexible services, coordination, and technology.

Information on case studies in other states or regional areas nationwide pertaining to the application of best practices is provided in Appendix B: Case Studies.

5.1 BACKGROUND ON FUNDING

Existing Funding Sources

The main funding sources for existing rural transit services in Arizona include the following:

- **Federal funds.** FTA Section 5310, Section 5311, Section 5316, and Section 5317 programs;
- **State funds.** Surface Transportation Program (STP) Flexible Funding and LTAF II;
- **Local funds.** Local funding contributions from regional governments, counties, local municipalities, and Tribal governments, primarily from sales tax and property tax revenue; and
- **Directly generated funds.** Passenger fares and service contracts.

Estimated FY 2005, FY 2006, and FY 2007 Federal funding levels for Arizona through the SAFETEA-LU are provided in Appendix C: Federal Funding Levels for Arizona.

Table 5.1 shows the amount and sources of FY 2006 capital funds reported by the existing Section 5311 program transit operators.

For Section 5311 program operators as a whole, 76 percent of capital funding were from Federal sources, 3 percent were from state sources, and 21 percent were from local sources.

Table 5.1 Section 5311 Program FY 2006 Capital Funding

County	Section 5311 Operator	FY 06 Total	% Federal	% State	% Local
Cochise	City of Bisbee	$3,301	93%	0%	7%
Cochise	City of Sierra Vista	$73,110	42%	53%	5%
Coconino	City of Sedona	$56,934	80%	0%	20%
Maricopa	Valley Metro Rural Transit	$392,521	73%	0%	27%
Mohave	City of Bullhead	$575	80%	0%	20%
Mohave	City of Kingman	$152,407	86%	0%	14%
Mohave	City of Lake Havasu	$57,219	93%	0%	7%
Navajo	City of Show Low	$391,924	90%	0%	10%
Pima	Pima County Rural Transit	$141,526	37%	2%	61%
Pinal	City of Coolidge	$65,000	93%	0%	7%
Yavapai	City of Cottonwood	$274	93%	0%	7%
	All 5311 Operators	$1,334,791	76%	3%	21%

Source: Cambridge Systematics, Inc., based on FY 2006 National Transit Database rural data reporting.

Note: Navajo Nation (Apache County), Cobre Valley Community Transit (Gila County), Salt River Pima-Maricopa (Maricopa County), and Hopi Tribe (Navajo County) did not report capital expenses in FY 2006.

Table 5.2 shows the amounts and sources of FY 2006 operating funds reported by the existing Section 5311 program transit operators.

For Section 5311 program operators as a whole, 39 percent of operating funding were from Federal sources, 9 percent were from state sources, 37 percent were from local sources, and 13 percent were directly generated revenue.

Table 5.2 Section 5311 Program Fiscal Year 2006 Operating Funding

County	Section 5311 Operator	FY 2006 Total	% Federal	% State	% Local	% Directly Generated
Apache	Navajo Nation	$633,291	47%	0%	42%	11%
Cochise	City of Bisbee	$192,330	44%	8%	33%	15%
Cochise	City of Sierra Vista	$748,281	47%	33%	8%	12%
Coconino	City of Sedona	$106,933	57%	38%	5%	0%
Gila	Cobre Valley Comm. Transit	$154,305	47%	1%	43%	9%
Maricopa	Valley Metro Rural Transit	$240,486	69%	23%	4%	4%
Maricopa	Salt River Pima – Maricopa	$341,069	19%	0%	77%	4%
Mohave	City of Bullhead	$826,189	36%	4%	40%	19%
Mohave	City of Kingman	$538,080	37%	4%	46%	13%
Mohave	City of Lake Havasu	$1,681,433	32%	3%	45%	21%
Navajo	City of Show Low	$298,579	50%	4%	35%	12%
Navajo	Hopi Tribe	$76,116	52%	0%	41%	7%
Pima	Pima County Rural Transit	$776,705	37%	18%	34%	11%
Pinal	City of Coolidge	$219,736	40%	20%	30%	10%
Yavapai	City of Cottonwood	$537,127	37%	2%	31%	29%
	All 5311 Operators	$7,370,660	39%	9%	37%	13%

Source: Cambridge Systematics, Inc., based on FY 2006 National Transit Database rural data reporting.

5.2 FUNDING CRITERIA

Funds from existing sources will fall short of the amount needed to address all of the current and projected rural transit needs in Arizona over the next ten years. As such, existing funding sources at the state level will need to be maintained, and new state-level funding sources will need to be pursued. In addition, greater levels of funding from local entities (i.e., regional governments, counties, local municipalities, and Tribal governments) will also need to be made available.

Expanding and improving rural transit service provision statewide should be viewed as a partnership between the state, local governments, and the funding recipients. If the state is to significantly increase the amount of state-level funding available for rural transit services, it should be expected that formalized criteria for funding recipients to receive this funding should be established and communicated, including local matching requirements. The intent would be to make sure that state rural transit funding is used for cities/towns that have the most need, and for services that demonstrate good or improving cost efficiency, cost effectiveness, service productivity, and local support. An overview of possible criteria for capital and operating funding is provided to follow.

Capital Funding

The Federal Section 5311: Nonurbanized Area Formula program is the most significant Federal funding program for transit services in rural areas. Section 5311 funds can be used for either capital expenses (with a 20 percent local match requirement) or operating expenses (with a 50 percent local match requirement). At the state level, LTAF II funds can currently be used for either capital or operating expenses, and potential future state funding sources could also be designed to allow for this flexibility. In effect, both capital and operating expenses for rural transit services are typically derived from the same funding sources.

In each fiscal year between now and FY 2016, there will be a set need to provide funding for the operating expenses of existing Section 5311 program services, as well as replacement vehicles associated with these services. This will constrain the amount of funding in any particular year that could be devoted to either the construction or expansion of capital facilities, or the purchase of vehicles for new or expanded services. In other words, if too much funding is devoted to capital expenses in a particular year, there will not be enough funding available to support ongoing operating expenses.

Therefore, the State should ideally maintain a master statewide program for facility expenses and new vehicle purchases for rural transit services. The intent would be to prioritize and phase in expenses for facility construction/expansion and vehicles for new or expanded services. Capital project requests for rural transit services that are not planned for in advance (i.e., do not appear in the statewide program) would not be eligible to receive Federal or state funds.

Suggested guidelines for capital funding are as follows.

- **Number of vehicles.** The number of vehicles required to operate a particular transit service is a function of the service frequency and route length during peak periods. Services that run more frequently and/or have long-route lengths will require more vehicles to be in operation at a particular time. Spare vehicles should be available in the event of active vehicle breakdown or maintenance issues. A reasonable spare ratio is 20 percent of the number of peak vehicles (i.e., one spare vehicle per five vehicles operated in maximum service).
- **Vehicle type.** Vehicles should be appropriately sized for the expected ridership demand. In rural areas, vehicles are most likely to be light-duty transit buses, small buses, or vans. Vehicles should be equipped with wheelchair ramps or lifts to accommodate persons in wheelchairs.
- **Vehicle replacement.** The FTA specifies the approximate service life of a 25- to 35-foot light-duty transit bus (i.e., body on chassis vehicles) as 5 years or 150,000 miles.[10] For small buses or vans, the approximate service life is

[10] http://www.fta.dot.gov/FY2007TriReview/04satisfactory.htm

4 years or 100,000 miles. Vehicles that have exceeded their approximate service life, on the basis of either years or miles, should be candidates for replacement.

- **Facility needs.** For rural areas, it is typically not practical for vehicles to be serviced and stored at maintenance facilities in urbanized areas because of the distances involved. As such, new or expanded maintenance facilities in rural areas should be considered for vehicle running repairs, servicing, and vehicle storage. The optimal number, capacity, and siting of maintenance facilities is a function of the number of vehicles that operate within a particular geographic area. Facility useful lives can vary significantly, depending on construction materials, frequency of use, and weather conditions. Facilities can potentially be used for 25 to 30 years or longer.
- **Other capital expenses.** Other types of capital expenses that could support rural transit services include transit stations, park-and-ride lots, high-occupancy vehicle (HOV) ramps, and grade separations. Transit stations may include shelters, lighting, bus bays, transit information kiosks, and other amenities (i.e., restrooms, vending machines, bicycle lockers, landscaping). The need for these other expenses will vary by region, depending on existing capital investments and levels of travel demand.
- **Local match.** Local match guidelines for capital expenses should be developed. An example would be to require that 50 percent of the non-Federal share of funding required for capital expenses be covered from local funding sources. The other 50 percent would be covered by the State.

Operating Funding

Section 5311: Nonurbanized Area Program

In order to channel Federal and state operating funding for Section 5311 program services most appropriately, it is recommended that the state implement and track formalized performance-based criteria that should all be met in order for an operator to receive such funds. Five suggested criteria are presented below.

1. **Local plus directly generated funding share** of 45 percent or higher. In other words, for each Section 5311 program operator, the sum of fare revenue, contract revenue, and local operating assistance should be equal to or greater than 45 percent of total operating expenses.
2. **Farebox recovery ratio** (i.e., fare revenue plus contract revenue, then divided by operating expenses) of 10 percent or higher. An exception could be made for designated free-fare services such as the Sedona circulator, provided the operator agrees upfront to meet a higher local plus directly generated funding share (i.e., 60 percent, instead of 45 percent).
3. **Operating cost per vehicle hour** of no more than 150 percent the average across all Section 5311 program operations, calculated based on total service

provision (i.e., total operating costs divided by total vehicle hours, as opposed to the strict numerical average of the operators).

4. **Operating cost per passenger trip** of no more than 200 percent the average across all Section 5311 program operations.
5. **Passenger trips per vehicle hour** of no less than 50 percent the average across all Section 5311 program operations.

Section 5311 operators differ with respect to service area, service modes, days/hours of operation, passenger trip purposes, and average passenger trip lengths. As such, these criteria are designed to establish relatively broad ranges of acceptable performance. Exceptions to these criteria should be made for systems that are showing consistent annual improvements in measures that are not being met. There should also be a two-year grace period for new Section 5311 program operators, and for operators that are deemed to have either significantly expanded or significantly restructured their service provision.

A local plus directly generated funding share requirement of 45 percent is stated as one of the criteria. This is based on the assumption that Federal and state funding sources will cover the other 55 percent of operating expenses:

- In FY 2006, the local plus directly generated funding share across all Section 5311 program operations was 51.5 percent, so the 45 percent funding share requirement does not seem unreasonable based on current precedence (although the reported share across individual operators ranged from a high of 81 percent to a low of 5 percent).
- As the amount of rural transit service provision increases statewide, the Federal share of operating expenses is projected to decline over time. As such, the State is expected to be picking up a greater share of the other 55 percent of funding required over time.

Section 5311 program services that consistently do not meet one or more of the criteria could still continue to be operate, but would receive a lower percentage of state funding (i.e., perhaps 20 percent instead of 45 percent) and would need to make up the difference from local sources. Services that do not meet the criteria for multiple years could potentially have Federal and state funding withdrawn completely. However, it is expected that the State and the operators will together be tracking and monitoring performance criteria over time and discussing opportunities for improvement, in order to hopefully avoid an outcome of Federal and state funds being withdrawn.

Appendix D: FY 2006 Section 5311 Financial and Performance Criteria shows results from applying the five suggested criteria to existing Section 5311 operators based on FY 2006 data. While definitive conclusions should not be drawn based on a single year of data, this provides a starting point for future discussion.

Section 5310, 5316, and 5317 Programs

For the Section 5310: Elderly and Persons with Disabilities Program, the Section 5316: JARC Program, and the Section 5317: New Freedom Program, to the extent that funding requests outstrip the amount of available Federal and State funding, a process to prioritize such investments should also be followed. The candidates should be to devote funding to rural cities/towns that do not currently have a Section 5310 or Section 5311 operator and to existing Section 5310 operators that have demonstrated good cost efficiency and service productivity.

The State does not currently provide any direct operating funding source for Section 5310 program services for the elderly and persons with disabilities. Several stakeholders mentioned that having such a funding source would be beneficial with respect to improving and expanding such services statewide. The State should consider having such a program, subject to overall rural transit funding constraints. If such an operating source is established, it is recommended that Section 5310 program operators report basic performance information to the State or to regional governments in order to establish a basis for determining the distribution of funds. Section 5310 program operations funding could be distribution on a per-capita basis to cities/towns, or to individual operators on the basis of vehicle hours of operation or passenger trips carried.

5.3 BEST PRACTICES REVIEW

Flexible Services

In rural areas where population densities are low and trip origins and destinations are spread out, traditional fixed-route service is often not very effective and paratransit service may be expensive. As such, flexible services that combine elements of both fixed-route and demand-responsive service are used by many transit providers instead, including several existing providers in Arizona. The most familiar types of flexible services include:

- Route deviation services, in which a vehicle follows an established route and schedule, but detours off-route to pick up and/or drop off passengers at other locations upon request. The vehicle then returns to the route and arrives at the next stop at the scheduled time.
- Point deviation services, which are similar to route deviation services, but feature scheduled stops at designated timepoints with no set route in between. Deviations for pick-ups and/or drop-offs occur in between the timepoints.
- Demand responsive feeder services to fixed route stops. This type of service is especially effective in areas where regional or intercity service is available, but distances to and from stops are too far for customers to walk.

When resources are limited, some rural transportation systems schedule fixed-route or demand-responsive trips from certain geographic areas to certain destinations or activity centers on particular days of the week.

Coordination

Coordination among rural transportation providers and purchasers of transportation services can take many forms, from steps to improve communication and cooperation among interested parties while leaving separate transportation programs intact, to actions that significantly change the way in which services are delivered by consolidating transportation programs previously managed or administered by separate organizations. When administrative or operational functions are handled centrally by one entity instead of separately by a number of providers, there is potential to reduce duplication and maximize use of existing resources.

Coordination can improve cost efficiency by increasing service productivity, or the number of trips served per hour. This occurs when trips for clients or customers of different agencies and/or members of the general public are grouped together on the same vehicle. For example, in a coordinated system, a transportation provider may combine trips for human service agency clients with trips for ADA customers, older adults, and/or general public riders, thereby, filling more seats on each vehicle.

With a coordinated service, the single entity is also better positioned to identify the need for the use of lower-cost providers, such as particular human service transportation providers or local taxi operators, to provide demand-responsive service during times of very low demand.

The savings derived from improved cost efficiency can be translated back into expanding service areas, extending days and hours of service, and increasing the number of persons eligible or types of trips served, thus, filling in service gaps that would otherwise exist.

In addition to possible improvements in cost efficiency, other benefits that coordination of resources and services among transportation providers and other organizations include the following:

- Having a source for more centralized transportation information;
- Increasing the likelihood that a particular trip can be served, given that a coordinated service is likely to cover a larger geographic area and provide more days and hours of service than multiple single operators; and
- Having a greater possibility that a long-distance trip can be handled on a single-ride basis without the need to transfer between multiple operators.

Technology

Advanced technology systems can help transportation providers to increase efficiency, enhance customer information, simplify data collection, and improve other operational functions. Transportation providers in rural areas may find the technologies described below to be especially useful:

- Automated or computer-assisted reservations/scheduling/dispatching systems can streamline the trip reservations process, improve the efficiency of vehicle schedules, enhance the capability of dispatchers, and upgrade the tracking and reporting of customer and trip data. While the needs of smaller rural transit systems are different from those of larger services, software vendors are beginning to make more scaled-back versions of their scheduling systems available.
- Automatic Vehicle Location (AVL) technology, which uses Global Positioning System (GPS) capabilities to identify the location of vehicles in real time. AVL contributes to improve dispatching and eliminates the need for voice communications between dispatchers and drivers to determine vehicle location.
- Mobile Data Terminals or Mobile Data Computers provide a means for dispatchers and drivers to exchange information about schedules, trips, passengers, or vehicles electronically, which can improve the accuracy of information, as well as reduce the need for voice communications.

6.0 Summary and Next Steps

6.1 OVERVIEW

This study process identifies rural public transportation needs based upon a variety of inputs. The predominant outcome is that in 2006, only 18 percent of needs are being addressed in one of the most rapidly growing states in America. As a result, significant improvements in transit services must be made to address need and growth simultaneously over the next decade to provide necessary mobility options within rural Arizona, connecting rural Arizona to urbanized areas and addressing rural growth factors.

6.2 STUDY OBJECTIVES

The State of Arizona Rural Transit Needs Study is intended to provide regionally-based solutions to rural transit service provision in Arizona. The ADOT-PTD worked in close partnership with MPOs and COGs throughout the State to prepare this Study. The primary study tasks focused on a 10-year planning horizon, including:

- Collection and analysis of relevant data, including population, employment, income levels, automobile ownership, and travel patterns;
- Identification of national trends in addressing rural transit needs;
- Obtaining key stakeholder input on current gaps in transit service;
- Developing projections for future transit demand;
- Identification and quantification of potential solutions; and
- Development of a plan for future new services and service improvements.

6.3 DEMOGRAPHIC TRENDS

Rural Arizona is defined as all areas of the State that are not within one of the five existing urbanized areas in Arizona (Phoenix, Tucson, Yuma, Flagstaff, and Prescott). The primary demographic characteristics of rural Arizona are as follows.

- **Population.** The year 2005 population of rural Arizona is estimated at 1.5 million, or 24.8 percent of the total state's population. The counties with the most rural residents are Pinal (about 213,000); Mohave (188,000); Pima (169,000); and Maricopa (168,000). Over the past 5 years, the most rapidly growing counties in rural population are Pinal (43.9 percent), Yuma (22.1 percent), and Mohave (21.3 percent).

The 2015 population of rural Arizona is estimated at 1.9 million, including currently rural areas projected to become urbanized following the 2010 U.S. Census. The counties projected to have the most rural residents are Pinal (about 452,000); Mohave (253,000); Cochise (180,000); and Yavapai (153,000). Over the next 10 years, the counties projected to have the most growth in rural population are Pinal (112.3 percent); Cochise (36.6 percent); Mohave (34.4 percent); and Yavapai (34.1 percent).

- **Age.** The 2005 elderly population ages 60 and over of rural Arizona is estimated at 348,533 or 31.7 percent of the total state's elderly population. The percentage of persons who are elderly in rural Arizona is higher than the urbanized areas of the State (23.2 percent compared to 16.5 percent). Counties with the highest percentage of elderly persons are La Paz (40 percent), Mohave (30.4 percent), and Yavapai (29.8 percent).

  The percentage of persons in rural Arizona who are elderly is projected to increase from 23.2 percent in 2005 to 27.7 percent in 2015.

- **Income level.** The 2005 low-income population (i.e., persons with household incomes below the poverty line) is estimated at 230,800 or 32.3 percent of the total state's low-income population. The poverty rate in rural Arizona is significantly higher than in urbanized areas (18.1 percent poverty rate in rural Arizona compared to 12.5 percent in urban Arizona). The counties with the highest poverty rates are Apache (37.8 percent), Navajo (29.5 percent), and Santa Cruz (24.5 percent).

6.4 STAKEHOLDER INPUT

Telephone Interviews

The study team conducted telephone interviews with regional planning organizations, transit operators, and Tribal Reservations. Eight rural transit stakeholder input workshops were held throughout the State in January and February 2007. The common themes that emerged were as follows.

- While there are many existing transit service providers in rural Arizona, there still continues be substantial unmet needs. These needs include local transit services within rural communities, as well as intercity services that connect rural and urbanized areas. Top market segments for rural transit should be elderly, disabled, and low-income riders.
- Service needs were indicated for over 100 rural communities and more than 10 Tribal Reservations located throughout the State.
- Funding for rural transit services is limited and should be expanded. Other key concerns include coordination of existing services, coordination with other ongoing plans and studies, and how to effectively serve large geographic regions.

Online Survey

A rural transit needs study online survey was posted on the ADOT web site from January to March 2007. A total of 435 survey responses were received, of which 41 percent use public transit, 22 percent are frequent riders (use public transit 4 days or more per week), 32 percent were ages 55 and older, and 30 percent do not have a household vehicle available. The main findings from the survey were as follows.

- **Service availability.** When asked if public transit service was available in their communities on a scale of 1 to 10, 37 percent responded 1 to 3 (service is not very available), 28 percent responded 4 to 7 (service is moderately available), and 35 percent responded 8 to 10 (service is very available).
- **Service quality.** When asked to rate the quality of public transit in their community on a scale of 1 to 10, 13 percent responded 1 to 3 (service is not good), 31 percent responded 4 to 7 (service is of moderate quality), and 56 percent responded 8 to 10 (service is very good). The major concerns expressed were lack of sufficient geographic coverage and limited service days, hours, and frequency.
- **Service importance.** Public transit service is very important to 85 percent of those who use public transit (i.e., rating of 8 to 10 on a scale of 1 to 10). The reasons given include sustaining mobility for elderly persons, only way to get to medical appointments, and no vehicle available for the household (high cost of owning and operating an automobile).

6.5 TRANSIT DEMAND AND NEED

Two analytical methods were applied to estimate the potential demand and need for rural transit service in Arizona through the year 2016. After reasonableness review, the results from one method were recommended and carried forward:

- Annual ridership in 2007 carried by existing rural transit services in Arizona is 1.4 million, indicating that only about 18 percent of existing transit demand are currently being met with appropriate transit services in rural Arizona. Rural transit services are projected to meet only 13 percent of total ridership need in 2016, if no additional services are introduced.
- Transit demand (need) in rural Arizona is projected to grow from 7.8 million passenger trips in 2007 to 10.5 million in 2016, an increase of 34.0 percent, or an increase of about 750 percent over existing service. This includes demand in currently rural areas that are projected to become urbanized (according to the U.S. Census).
- The counties with the highest projected levels of rural transit demand in 2016 are Pinal (2.5 million trips), Mohave (1.3 million), Navajo (1.0 million), and Cochise (0.9 million).

6.6 VISION, GOALS, AND OBJECTIVES

Based on findings from demographic trends, stakeholder input, and the transit demand and need analysis, the following vision, goals, and objectives were established to set the framework for the path forward for rural transit service provision in Arizona:

- **Vision**
  - Rural transit service provision in Arizona should be expanded significantly through the year 2016 to address the rapidly growing transportation demands and needs of rural residents statewide. Presently, only 18 percent of estimated demand for rural transit services are currently being met. Existing rural transit services are projected to meet only 13 percent of total ridership need in 2016, if no additional services are introduced.
- **Goals**
  - Provide services in multiple geographic areas;
  - Address needs of particular market segments; and
  - Serve a variety of trip purposes.
- **Objectives**
  - Tailor service delivery;
  - Improve service effectiveness; and
  - Enhance service coordination.

6.7 STRATEGY TO MEET NEED

A strategy was proposed to gradually ramp up service provision over time to fully meet the projected rural transit need by the year 2016:

- With this strategy, the projected needs of total capital and net operating cost per year for rural transit services statewide would increase from about $30 million in 2007 to $134 million in 2016.
- Net operating costs would increase from the current level of about $12 million in 2007 to $97 million in 2016.
- Capital costs, including vehicle and facility expenses, would increase from about $18 million in 2007 to $37 million in 2016. This represents the cost estimate associated with a 10-year capital expansion plan.
- The total size of the vehicle fleet in rural Arizona would increase from the current level of about 397 vehicles in 2007 to 1,751 vehicles in 2016. In addition to the 1,354 vehicles that would be purchased for fleet expansion,

another 1,892 vehicles would need to be purchased for fleet replacement purposes.

- Rural transit ridership is projected to increase from the current level of about 1.4 million passenger trips in 2007 to 10.5 million trips in 2016.

6.8 SERVICE ALTERNATIVES AND SOLUTIONS

Specific service alternatives were developed and top service candidates were identified for new or expanded rural transit operations throughout the State. The top service candidates are based on results from the study's stakeholder input process, a review of previously completed rural transit plans and studies, and transit demand analysis results at the local level. Service solutions to address the following needs include Section 5310, 5311, 5316, and 5317 program services.

Section 5311: Nonurbanized Area Program

There are three categories of service solutions for the Section 5311 nonurbanized area formula program:

1. New Section 5311 Nonurbanized Area general public services that operate in cities, towns, and Tribal Reservations;
2. Expanding existing Section 5311 services; and
3. Adding Section 5311 intercity services (connector services) that provide service between communities.

Table 6.1 lists the top candidates for Section 5311 program general public transit services in local communities and Tribal Reservations.

Table 6.1 Top Candidates for New Local and Tribal Section 5311 Program Service

County(ies)	City/Town, Tribe, or Agency	Description
Central Arizona Association of Governments (CAAG)		
Gila	Payson	New local service in Payson
Gila, Graham, Pinal	San Carlos Reservation	New fixed-route service for the San Carlos Reservation
Pinal	Casa Grande	New local service in Casa Grande, consider regional operator
Pinal	Eloy	New local service in Eloy, consider regional operator
Pinal	Florence	New local service in Florence, consider regional operator
Pinal	City of Maricopa	New local service in Maricopa, consider regional operator
Pinal	Oracle	New local service in Oracle, consider regional operator
Pinal	San Manuel	New local service in San Manuel, consider regional operator
Maricopa Association of Governments (MAG)		
Maricopa, Pinal	Gila River Reservation	New service for the Gila River Reservation
Northern Arizona Council of Governments (NACOG)		
Apache	Eagar/Springerville	New local service in Eagar/Springerville
Apache, Gila, Navajo	Ft. Apache Reservation	New fixed-route service for the Fort Apache Reservation
Navajo	Holbrook	New local service in Holbrook
Navajo	Winslow	New local service in Winslow
Yavapai	Camp Verde	New local service in Camp Verde
South Eastern Arizona Governments Organization (SEAGO)		
Cochise	Benson	New local service in Benson
Cochise	Willcox	New local service in Willcox
Graham	Safford/Thatcher	New local service in Safford, Thatcher, and Pima
Santa Cruz	Nogales	New fixed-route and demand-response service in Nogales
Western Arizona Council of Governments (WACOG)		
Mohave	Colorado City	New local service in Colorado City

Source: ADOT and Cambridge Systematics. No top new local and tribal Section 5311 program services are present in Pima County (Pima Association of Governments).

Services have been assigned to its primary COG based on geographic location:

- The San Carlos Reservation is located in both the CAAG and SEAGO regions.
- The Gila River Reservation is located in both the MAG and CAAG regions.
- The Fort Apache Reservation is located in both the NACOG and CAAG regions.

Table 6.2 lists the top candidates for the expansion of existing Section 5311 program transit operators.

Table 6.2 Top Candidates for Expanded Local and Tribal Section 5311 Program Service

County(ies)	City/Town, Tribe, or Agency	Description
Central Arizona Association of Governments (CAAG)		
Pinal	Cotton Express in Coolidge	Expand coverage of Cotton Express, consider regional Pinal Co. operator
Northern Arizona Council of Governments (NACOG)		
Apache, Coconino, Navajo*	Navajo Transit System	New Navajo Transit routes in Arizona, Utah, New Mexico
Coconino, Navajo	Hopi Senom Transit System	Add connector services within Hopi Senom Reservation
Navajo	City of Show Low/ Pinetop	Expand geographic coverage for integration with new service in Fort Apache Reservation
Yavapai	City of Sedona	Consider service expansion in Sedona area
Pima Association of Governments (PAG)		
Pima	Pima County Rural Transit	New or expanded services in Green Valley, Catalina, Oro Valley
South Eastern Arizona Governments Organization (SEAGO)		
Cochise	Catholic Community Services in Douglas	Increased service frequency, longer span of service in Douglas
Cochise	Sierra Vista Public Transit System	Implement restructuring, longer span of service in Sierra Vista
Western Arizona Council of Governments (WACOG)		
Mohave	Bullhead Area Transit System	New route and increased service frequency in Bullhead City
Mohave	Kingman Area Regional Transit	Expand geographic coverage in Kingman area
Mohave	Lake Havasu City Transit Services	Expand geographic coverage in Lake Havasu City area

Source: ADOT and Cambridge Systematics. No top expanded local and tribal Section 5311 program services are present in Maricopa County (Maricopa Association of Governments).

*Navajo Nation also includes portions of New Mexico and Utah.

Table 6.3 lists the top candidates for new Section 5311 program general public transit services in intercity corridors.

Table 6.3 Top Candidates for New Intercity Section 5311 Program Service

County(ies)	Description
Central Arizona Association of Governments (CAAG)	
Gila-Maricopa	Miami-Superior-East Mesa
Gila-Maricopa	Payson-East Mesa
Pinal	Casa Grande-Arizona City-Eloy-Coolidge
Pinal-Maricopa	Coolidge/Florence-Phoenix
Pinal-Maricopa	Maricopa-Tempe
Northern Arizona Council of Governments (NACOG)	
Navajo	Fort Apache Reservation-Show Low-Snowflake/Taylor-Holbrook
Navajo-Coconino	Page-Tuba City-Kayenta-Flagstaff
Yavapai-Coconino	Cottonwood-Prescott-Camp Verde-Sedona
South Eastern Arizona Governments Organization (SEAGO)	
Cochise	Bisbee-Sierra Vista-Benson
Graham-Greenlee	Safford/Thatcher-Clifton/Morenci
Western Arizona Council of Governments (WACOG)	
Mohave	Lake Havasu City-Bullhead City-Kingman

Source: ADOT and Cambridge Systematics. No top new intercity Section 5311 program services are present in Pima County (Pima Association of Governments).

Services have been assigned to its primary COG based on geographic location. The Gila-Maricopa and Pinal-Maricopa services are located in both the CAAG and MAG regions.

Section 5310, 5316, and 5317 Programs

Recommended service alternatives for Section 5310, Section 5316, and Section 5317 program services include:

- New or expanded Section 5310. Elderly and Persons with Disabilities program services, particularly for cities/towns that currently do not have a Section 5310 provider or other social services programs;
- Adding and expanding Section 5310. Elderly and Persons with Disabilities, Section 5316: Job Access and Reverse Commute, and Section 5317: New Freedom services;
- Coordination of existing Section 5310 program services with each other and/or with a Section 5311 operator;
- Additional Section 5310 program services in select intercity corridors;

- Capitalize on the use of FTA Section 5316 JARC grant funding to contribute to the facilitation of employment-related trips; and
- Improve service and facility needs through the use of the FTA Section 5317 New Freedom grant funding.

6.9 FUNDING

In the future, existing funding will continue to be important for rural transit services in Arizona, but will not be sufficient to address all of the State's current and projected needs. More funding for rural transit will be needed at the state and local levels in order to expand service provision statewide:

- Arizona ranks 26th among the 50 states in overall state-level transit funding per capita, at $3.38 per capita. The highest per capita transit funding is $187.09 (Massachusetts); and the lowest is $0 (four states).
- Several strategies were proposed and evaluated in order to provide additional state-level funding for rural transit in Arizona. These strategies include increasing motor fuel taxes, vehicle license taxes, motor carrier fees, registration fees, and retail sales taxes.
- Local entities, including regional governments, counties, municipalities, and Tribal governments, will also need to increase their funding for rural transit.

6.10 ROLES AND RESPONSIBILITIES

The following are suggested roles, responsibilities, and next steps for agencies in Arizona pertaining to implementation of these service recommendations:

State

- **Federal funding.** Work with transit operators in Arizona to claim and obligate all available Federal funds;
- **Capital program.** Develop a master statewide rural transit program for facility expenses and vehicle purchases, and identify new Federal funding sources; and
- **Operating funding.** Consider performance-based criteria for operators to receive Federal and state funds.

Councils of Government

- **Regional planning.** Oversee detailed service planning and cost estimates for new and expanded services;
- **Data collection.** Collect ridership and cost data for Section 5310 and other social service agency operations;

- **Service coordination.** Identify public transportation services within region that promote efficiency of general public, elderly, and disabled service by supporting the streamlining and coordination of existing public transportation programs;
- **Regional funding support.** Act on behalf of region to garner support for regional funding collaboration to support public transportation within region; and
- **Regional coordination.** Act on behalf of region to facilitate communication to other levels of government to ensure regional public transportation needs are identified and action is taken to support identified needs.

The State and COGs should work closely with local and Tribal governments and social service agencies to pool funding resources by region, encourage efficiency, improve service coordination, and consolidate services if applicable.

Local and Tribal Governments

- **Support.** Generate support for rural transit among local residents;
- **Monitor demographics.** Actively monitor demographic changes in jurisdiction that may impact existing or new services;
- **Service coordination.** Identify public transportation services within city/town or Tribal Reservation that promote efficiency of general public, elderly, and disabled service by supporting the streamlining and coordination of existing public transportation programs; and
- **Planning**. Ensure proper planning and development of operations is provided to meet the needs of the city/town or Tribal Reservation.

Transit Operators

- **Quality service.** Provide high-quality operations tailored to rider needs; and
- **Data collection.** Monitor service performance on an ongoing basis.

All levels of government should secure additional funding for rural transit services in cooperation with the private sector and not-for-profit agencies.

A target should be established to plan and cost out specific rural transit service candidates, secure funding, and begin operations of these top candidates within the next five years.

6.11 CONCLUSION

Rural public transportation plays an important role in Arizona's transportation system. The development of mobility options, connecting rural communities to urbanized areas, and properly addressing rural growth factors must all occur to ensure public transportation service needs are met in rural Arizona over the next decade. The further development and improvement of rural public transportation service in Arizona are critical in addressing the anticipated substantial growth of the State's population. Given only 18 percent of rural Arizona's public transportation needs are being met today, it is clear that significant improvement is necessary. Existing rural public transportation services are projected to meet only 13 percent of total ridership need in 2016 if the current investment strategy continues, as a result of continued population growth throughout the State during the next 10 years. These substantial unmet needs in rural Arizona are in addition to unmet needs in Arizona's urbanized areas, which are also significant and growing.

Next steps to ensure further development and improvement of service should include the use of regionally based strategies outlined within this Final Report to address the State's unmet rural public transportation needs. Strategies include adding rural public transportation service in cities, towns, and Tribal Reservations to ensure general public, elderly, and disabled service needs are met. Increasing local, regional, state, and Federal funding to support these services is critical to ensure service options are provided. Connecting rural and urban communities also represents a growing Arizona need. Establishing roles and responsibilities between the State, COGs, local governments, Tribal Governments, and transit operators will facilitate the development of public transportation service in rural Arizona.

The strategies outlined within the final report are important tools to be used in the development of Arizona's rural public transportation services. It is through the use of these strategies and the establishment of critical public transportation services that Arizona can meet the challenge of the rural mobility needs and the State's growing rural population today and for years to come.

Appendix A. Definitions

ADOT. The Arizona Department of Transportation. ADOT's mission is to provide products and services for a safe, efficient, cost-effective transportation system that links Arizona to the global economy, promotes economic prosperity, and demonstrates respect for Arizona's environment and quality of life.

Americans with Disabilities Act. Signed into law in 1990, the Americans with Disabilities Act (ADA) gives civil rights protections to individuals with disabilities similar to those provided to individuals on the basis of race, color, sex, national origin, age, and religion. It guarantees equal opportunity for individuals with disabilities in public accommodations, employment, transportation, state and local government services, and telecommunications. ADA requirements, pertaining to public transit services, include the need for ADA-accessible services to be available within one-half mile of fixed-route operations.

APTNA Methodology. The Arkansas Public Transportation Needs Assessment (APTNA) methodology for estimating transit demand is based on applying calibrated trip rates to three population groups within a particular geographic area – elderly persons, disabled persons, and persons of low income. The sum of transit demand across the three groups equals the total transit demand.

ATRC. The Arizona Transportation Research Center (ATRC) administers the research activity of ADOT and the publication of the results. In addition, the ATRC houses the ADOT Library and the Product Resource Investment Deployment and Evaluation (PRIDE) program, which coordinates the evaluation of new products for use by ADOT and maintains the Approved Products List.

Arizona Department of Economic Security. The Department of Economic Security (DES) was established by the State Legislature in July 1972. The purpose in creating DES was to provide an integration of direct services to people in Arizona in such a way as to reduce duplication of administrative efforts, services, and expenditures. The DES promotes the safety, well-being, and self sufficiency of children, adults, and families.

Arizona Transit Association. Also known as AzTA, the Arizona Transit Association is a nonprofit statewide organization dedicated to improving public transportation in all Arizona communities. AzTA's membership includes local governments, chambers of commerce, major employers, transit program operators, transit suppliers and contractors, small businesses, nonprofit community agencies, and transportation consultants.

Best Practices. A management idea that asserts that there is a technique, method, process, activity, incentive, or reward that is more effective at

delivering a particular outcome than other available techniques, methods, processes, etc. The idea is that through best practices, a desired outcome can be delivered with fewer problems and unforeseen complications. Best practices also can be defined as the most efficient and effective way of accomplishing a task, based on repeatable procedures that have proven themselves over time.

Boardings. A boarding is counted each time a passenger boards a transit vehicle. Also referred to as an unlinked passenger trip.

Capital Cost. Expenses related to the purchase of facilities, vehicles, and equipment having a useful life of more than one year and an acquisition cost of $5,000 or more (or more than the capitalization level established by the government unit for financial statement purposes).

Census 2000 Demographic Profile Data. A profile based on survey data from Census 2000. It includes a series of tables that provide various demographic, social, economic, and housing characteristics for the United States, states, counties, minor civil divisions in selected states, places, metropolitan areas, American Indian and Alaska Native areas, Hawaiian home lands, and congressional districts.

Census 2000 Transportation Planning Package. Also referred to as CTPP 2000. CTPP 2000 is a set of special tabulations designed for transportation planners, derived from answers to the Census 2000 long-form questionnaire mailed to one in six U.S. households. Transportation planners may use CTPP data to evaluate existing conditions, develop or update travel demand models, or analyze demographic and travel trends.

Circulator Service. A transit route that operates within a small geographic area, designed for local neighborhood travel. Typically operates in a loop.

Coordination. Coordination among rural transportation providers and purchasers of transportation services can take many forms, from steps to improve communication and cooperation between multiple service providers to consolidating transportation programs previously managed or administered by separate organizations. The benefits of coordination include improved cost efficiency by grouping more passengers on the same trip, the ability to identify geographic areas of need more effectively, and having a single source of centralized travel information for passengers.

Cost Effectiveness. Cost per unit of service consumption (i.e., operating cost per passenger trip).

Cost Efficiency. Cost per unit of service provision (i.e., operating cost per vehicle hour).

Council of Governments. A Council of Governments (COG), or Regional Council, is a public organization that encompasses a multijurisdictional regional community. A COG serves the local governments and the citizens in the region by dealing with issues and needs that cross city, town, county, and/or state boundaries. Mechanisms that COGs use to address these issues

may include communication, planning, policy-making, coordination, advocacy, and technical assistance.

There are four COGs in Arizona:

1. Central Arizona Association of Governments (CAAG) covering Gila and Pinal Counties;
2. Northern Arizona Council of Governments (NACOG) covering Apache, Coconino, Navajo, and Yavapai Counties;
3. Southeastern Arizona Government Organization (SEAGO) covering Cochise, Graham, Greenlee, and Santa Cruz Counties; and
4 Western Arizona Council of Governments (WACOG) covering La Paz, Mohave, and Yuma Counties.

The Maricopa Association of Governments (MAG) and the Pima Association of Governments (PAG) are designated Metropolitan Planning Organizations and are classified instead as MPOs.

County. The primary administrative geographic division of most states in the United States. There are a total of 15 counties in Arizona: Apache, Cochise, Coconino, Gila, Graham, Greenlee, La Paz, Maricopa, Mohave, Navajo, Pima, Pinal, Santa Cruz, Yavapai, and Yuma.

Demand Response Service. A transit mode comprised of passenger cars, vans, or small buses operating in response to calls from passengers or their agents to the transit operator, who then dispatches a vehicle to pick up the passengers and transport them to their destinations. With a demand-response operation, the vehicles do not operate on a fixed route or a fixed schedule, except possibly on a temporary basis to satisfy a special need. Typically, the vehicle may be dispatched to pick up several passengers at different pick-up points before taking them to their respective destinations.

Demographics. Defined statistics used to characterize human populations. Demographic groups include elderly persons, disabled persons, and persons of low income.

Dial-A-Ride Service. Refer to "Demand Response Service."

Disabled Persons. Individuals with a physical or mental impairment that substantially limits one or more of the major life activities of such individual.

Elderly Persons. For purposes of this report, elderly persons are defined as individuals of age 60 or older.

Farebox Recovery Ratio. Passenger fare revenue plus service contract revenue, divided by operating costs.

Federal Transit Administration. As authorized by the Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users of 2005 (SAFETEA-LU), the Federal Transit Administration (FTA) is a Federal agency that supports locally planned and operated public mass transit systems

throughout the United States through the oversight and administration of several major transit assistance programs for eligible activities.

Fixed-Route Service. Rail or bus service provided on a fixed schedule basis along a specific route with vehicles stopping to pick up and deliver passengers at specific, designated locations.

Flexible Service. Form of transit service that combines elements of both fixed-route and demand-responsive service. The most familiar types of flexible services are route deviation services, point deviation services, and demand-responsive feeder services to fixed-route stops.

Intercity Service. Transit services that connect communities with each other. These include services between rural areas and other rural areas, between rural and urban areas, or between urban areas and other urban areas.

Local Plus Directly Generated Funding Share. Directly generated funds (including fare revenue, service contract revenue, advertising, and concessions) plus funding from regional or local governments (below the state level), divided by operating expenses.

Local Service. Transit services that operate within a particular community (i.e., city or town).

Local Transportation Assistance Fund II (LTAF II): The Arizona State Legislature passed LTAF II in 1998 to assist counties and incorporated communities with additional transportation funds. In 2000, additional legislation was passed that made LTAF II a funding program specifically for public transportation, sponsored by local government entities, Tribal governments, and nonprofit agencies. These organizations must apply for a grant with matching fund requirements through their appropriate Metropolitan Planning Organization or Council of Government. Prior to 2003, LTAF II was funded by the vehicle license tax and the state General Fund. Since 2003, LTAF II has been funded solely by Powerball lottery revenue. The amount of LTAF II funding is determined annually, equal to the amount of Powerball revenue in excess of $31 million for that year, capped at a maximum of $18 million. LTAF II revenue could be zero in any given year.

Low-Income Persons. Individuals who are part of households that earned less than a specified amount within a given year. In 2005, the poverty level for a one-person household as defined by the U.S. Census was an annual income of $9,973 or less. For a household with two adults and two children, the poverty level was an annual income of $19,806 or less.

Market Segment. Particular group of persons for which transit services are tailored for. Market segments can be based on demographic characteristics or on other factors such as geographic area or trip purpose.

Metropolitan Planning Organization. A Metropolitan Planning Organization (MPO) is a Federally required transportation planning entity comprised of elected and appointed officials representing Federal, state, and local governments or agencies having an interest or responsibility in transportation

planning and programming. An MPO is required for metropolitan areas of 50,000 or more in population, and is responsible for the development of a Long-Range Transportation Plan (LRTP) and a Transportation Improvement Program (TIP) for its planning jurisdiction. The adoption of these documents is a prerequisite for the receipt of both Federal transit and highway funding.

There are currently five MPOs in Arizona:

1. Central Yavapai Metropolitan Planning Organization (CYMPO) in Yavapai County (Prescott-Prescott Valley urbanized area);
2. Flagstaff Metropolitan Planning Organization (FMPO) in Coconino County (Flagstaff urbanized area);
3. Maricopa Association of Governments (MAG) in Maricopa County (Phoenix urbanized area);
4. Pima Association of Governments (PAG) in Pima County (Tucson urbanized area); and
5. Yuma Metropolitan Planning Organization (YMPO) in Yuma County (Yuma urbanized area).

Among these MPOs:

- CYMPO and FMPO have jurisdictions that are smaller than a county, and are both located within the planning boundaries of NACOG;
- YMPO has Yuma County as its jurisdiction, and is located within the planning boundaries of WACOG; and
- MAG and PAG have Maricopa County and Pima County, respectively, as their jurisdictions, and each also acts as COGs.

National Transit Database. The National Transit Database (NTD) is the Federal Transit Administration's primary national database for statistics on the transit industry. Recipients of the FTA Section 5307: Urbanized Area Formula Program and Section 5311: Nonurbanized Area Formula Program are required by statute to submit data to the NTD. Annual NTD reports are submitted to Congress summarizing transit service and safety data.

Nonurbanized Area. Any geographic area that is not located within an urbanized area. Also referred to as a rural area.

Operating Cost. The expenses associated with the day-to-day operation of the transit agency, including vehicle operations, vehicle maintenance, nonvehicle maintenance, and general administration. Includes the purchase of consumable items with a useful life of less than one year or an acquisition cost of less than $5,000 (or the capitalization level established by the government unit for financial statement purposes).

Per Capita. Average per person.

Persons Below Poverty. Refer to "Low Income Persons."

Point Deviation Service. Form of flexible transit service that features scheduled stops at designated timepoints with no set route in between. Passengers may call in advance to request a pickup at a location that is not a scheduled time-point, and may be dropped off at a destination that is not a scheduled timepoint.

Ridership. The number of passengers who board public transit vehicles, or unlinked passenger trips. Passengers are counted each time they board a vehicle no matter how many vehicles they use to travel from their origin to their destination.

Ridesharing. A form of transportation other than public transit, in which more than one person shares the use of the vehicle, such as a van or car, to make a trip. Also known as carpooling or vanpooling.

Route Deviation Service. A form of flexible service, in which a vehicle follows an established route and schedule, but detours off-route to pick up and/or drop off passengers at other locations upon request. Passengers may call in advance to request a pickup at a location that is not on the scheduled route, and may be dropped off at a destination that is not on the scheduled route.

Rural Arizona. All portions of the State that are not located within an urbanized area (i.e., all nonurbanized areas of the State).

SAFETEA-LU. The Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users (SAFETEA-LU) authorizes the Federal surface transportation programs for highways, highway safety, and transit for the five-year period 2005 to 2009. SAFETEA-LU was signed into law in August 2005, building on the foundation established by two previous landmark bills: Intermodal Surface Transportation Efficiency Act (ISTEA) and Transportation Equity Act for the 21st Century (TEA-21); and represents the largest surface transportation investment in the nation's history.

Section 5310. The Federal Transit Administration's Section 5310: Elderly and Persons with Disabilities Program provides Federal funding to states for the purpose of providing capital assistance for public transportation services that transport elderly persons and persons with disabilities. The amount of funding to each state is determined by a formula based on the number of elderly and disabled persons in each state. The Section 5310 funding distribution to individual recipients is administered by the states, and specific funding decisions are made at the state level. Entities eligible to receive Section 5310 funding include private nonprofit organizations and public agencies approved by the state to coordinate services for elderly persons and persons with disabilities.

Section 5310 Operator. Entities that receive Section 5310 funding to provide public transportation services for elderly persons and persons with disabilities. In total, there are 102 entities that have received Section 5310 funding in recent years to provide services for elderly and disabled patrons in rural Arizona. The total number of Section 5310 funding recipients is over 150, including additional service providers in urbanized areas.

Section 5311. The Federal Transit Administration's Section 5311: Nonurbanized Area Formula Program provides Federal funding for public transportation in nonurbanized areas, and is the largest Federal funding program for nonurbanized areas in terms of dollars available. The amount of funding to each state is determined by a formula based on each state's population in rural and small urban areas (under 50,000 in population) and on land area. Eligible recipients include public agencies, nonprofit organizations, and Native American Tribes. Participation in the program by private for-profit enterprises under contract to an eligible recipient is encouraged.

Section 5311 also includes the Section 5311(b) program, or Rural Transit Assistance Program, which provides funding to states for training, technical assistance, research, and related support services pertaining to rural transit service provision. With SAFETEA-LU, Section 5311(c): Public Transportation on Indian Reservations was created for Tribal entities; also referred to as the Tribal Transit Program. Native American Tribes are the direct recipients of funding through this program, and apply directly to the FTA for the provision of transit services on Native American reservations. Funding from this program is meant to supplement, rather than replace, transit funds that Tribes may now be receiving from their state through other Federal programs.

Section 5311 Operator. Entities that receive Section 5311 funding to provide public transportation services in nonurbanized areas. Existing Section 5311 operators in Arizona are as follows:

- Catholic Community Services (Douglas Rides in Cochise County);
- City of Bisbee (Bisbee Bus Service in Cochise County);
- City of Bullhead City (Bullhead Area Transit System in Mohave County);
- City of Coolidge (Cotton Express in Pinal County);
- City of Cottonwood (Cottonwood Area Transportation System in Yavapai County);
- City of Kingman (Kingman Area Regional Transit in Mohave County);
- City of Lake Havasu City (Lake Havasu City Transit Services in Mohave County);
- City of Sedona (Northern Arizona Intergovernmental Public Transportation Authority in Yavapai County);
- City of Show Low and Pinetop/Lakeside (Four Seasons Connection in Navajo County);
- City of Sierra Vista (City of Sierra Vista Public Transit System in Cochise County);
- Hopi Tribe (Hopi Senom Transit System in Navajo County);
- Navajo Nation (Navajo Transit System in Apache County);
- Pima County (Pima County Rural Transit in Pima County);

- Salt River Pima-Maricopa Indian Community (Salt River Transit System in Maricopa County);
- Town of Miami (Cobre Valley Community Transit in Gila County); and
- Valley Metro/Regional Public Transportation Authority (Valley Metro Rural Transit in Maricopa County).

Section 5316. The Federal Transit Administration's Section 5316: Job Access Reverse Commute (JARC) Program has the purpose of assisting states and localities to develop new or expanded transportation services that connect welfare recipients and other low-income persons to jobs and other employment-related services. Job Access projects are targeted at developing new or expanded transportation services, such as shuttles, vanpools, new bus routes, connector services to mass transit, and guaranteed ride home programs for welfare recipients and low-income persons. Reverse Commute projects provide transportation services to suburban employment centers from urban, rural, and other suburban locations for all populations. Eligible applicants include private, nonprofit organizations; state or local governmental authority; and operators of public transportation services, including private operators of public transportation services.

Section 5317. The Federal Transit Administration's New Freedom Program is designed to encourage services and facility improvements to address the transportation needs of persons with disabilities that go beyond those required by the Americans with Disabilities Act (ADA). Funds are available to support the capital and operating costs of new public transportation service targeted toward people with disabilities or public transportation alternatives that go beyond those required by the ADA. Eligible recipients include private, nonprofit organizations; state or local governmental authority; and operators of public transportation services, including private operators of public transportation services.

Service Effectiveness. Service consumption per unit of service provision (i.e., passenger trips per vehicle hour).

State. For this report, refers to the Arizona Department of Transportation.

Surface Transportation Program (STP). STP funds are among the Federal TEA-21 programs that are flexible and can be used for either highway or transit purposes. In FY 2006, $6.5 million of Arizona's STP funds were allocated to transit. About $1.5 million of this amount (23 percent) went to the Section 5310 program; and over $900,000 (14 percent) went to the Section 5311 program. STP funding for transit in Arizona is generally only available for capital projects, such as vehicles and facilities.

Technology. Advanced technology systems can help transportation providers to increase efficiency, enhance customer information, simplify data collection, and improve other operational functions. Examples of such technologies include automated or computer-assisted reservations/scheduling/

dispatching systems, Automatic Vehicle Location (AVL) technology, and Mobile Data Terminals.

Transit Demand. Transit demand is the potential ridership, or unlinked passenger trips, that could be served by transit if the services were available.

Transit Need. Also referred to as unmet need, the transit need is the difference between the estimated total transit demand and the demand that is currently being served by existing service providers.

Tribal Reservation. A Tribal Reservation, or Native American Reservation, is land which is managed by a Native American Tribe under the United States Department of the Interior's Bureau of Indian Affairs. There are about 300 Tribal Reservations in the United States; meaning that not all of the country's more than 550 recognized Tribes have a reservation – some Tribes have more than one reservation, others have none. There are 21 Tribal Reservations that are partially or fully located within the State of Arizona as identified in Census 2000: Cocopah Reservation; Colorado River Indian Reservation; Fort Apache Reservation; Fort McDowell Reservation; Fort Mojave Reservation; Fort Yuma Reservation; Gila River Reservation; Havasupai Reservation; Hopi Reservation; Hualapai Reservation; Kaibab Reservation; Maricopa (Ak Chin) Reservation; Navajo Nation Reservation; Pascua Yaqui Reservation; Salt River Reservation; San Carlos Reservation; Tohono O'odham Reservation; Tonto Apache Reservation; Yavapai-Apache Nation Reservation; Yavapai-Prescott Reservation; and Zuni Reservation.

Urbanized Area. An urbanized area is a statistical geographic entity designated by the Census Bureau, consisting of a central core and adjacent densely settled territory that together contain at least 50,000 people, generally with an overall population density of at least 1,000 people per square mile. A Metropolitan Planning Organization is required by the Federal government to be established for each individual urbanized area or multiple urbanized areas to provide regional transportation planning functions.

Vanpool Service. A transit mode comprised of vans, small buses and other vehicles operating as a ridesharing arrangement, providing transportation to a group of individuals traveling directly between their homes and a regular destination within the same geographical area. As defined by the National Transit Database, vanpool vehicles shall have a minimum seating capacity of seven persons, including the driver.

Appendix B. Case Studies

This appendix presents 16 case studies of examples addressing these trends in the provision of rural transit:

- Voucher Programs;
- Planned Demand;
- Flexible Services;
- Coordination;
- Technology; and
- Intercity Services

Except as noted, many of the case studies are excerpted from Appendix C of the *Transportation Services for People with Disabilities in Rural and Small Urban Communities*, a study conducted for Easter Seals Project ACTION by TranSystems in cooperation with RLS & Associates and Nelson\Nygaard Consulting Associates. Some editing of the excerpts has been made for brevity.

Voucher Programs

American Council of the Blind of Nebraska (ACBN)[11]

The American Council of the Blind of Nebraska (ACBN) is a member-based, volunteer organization that serves people with vision disabilities in Nebraska. ACBN is a state affiliate of the national American Council of the Blind (ACB), the nation's leading membership organization of blind and visually-impaired people. It has long identified transportation as a major need of its members and has worked since the mid-1980s to develop expanded transportation options for residents with vision disabilities in several communities across the State.

ACBN has developed two transportation programs. These are:

1. Subsidized Taxi Program (Taxi Program); and
2. Supported Volunteer Rural Transportation Program (Volunteer Program).

[11] The following is an edited excerpt from pages C-9 to C-16, Appendix C of the *Transportation Services for People with Disabilities in Rural and Small Urban Communities*, Easter Seals Project ACTION, 2006. The passages are found on the CD-ROM containing the full report. Excerpt has been edited for brevity.

The Taxi program is used in areas that have available taxicab services. The Volunteer program provides an alternative in areas where taxicab services do not exist. It also can supplement limited, local taxicab services.

Both programs are coupon/voucher programs that assist eligible individuals with the cost of transportation services. At the state level, ACBN has developed program guidelines, policies, procedures, and materials. This includes:

- Eligibility standards and a common application form;
- Coupon and voucher formats;
- Sample advertisements for recruiting volunteers;
- Sample letters to eligible individuals describing the programs; and
- Agreements with taxicab companies and volunteers.

ACBN then provides these materials along with administrative start-up support to local agencies that express an interest in starting transportation programs. To date, managing agencies have included local ACBN chapters, as well as local Centers for Independent Living (CILs). A CIL is a community-based nonresidential, nonprofit agency that is designed and operated within a local community by individuals with disabilities; and provides an array of independent living services. ACBN also conducts statewide fundraising efforts and provides" start-up" funding, as well as whatever ongoing funding is possible. Over time, local managing agencies are expected to undertake their own fundraising efforts to grow and support the programs.

The Subsidized Taxi Program

As a general rule, eligible individuals who choose to participate in the Taxicab program can purchase up to $200 worth of taxi coupons every 6 months. Coupons are provided at a 50 percent subsidy, which means that $200 worth of coupons can be purchased by eligible riders for $100. Once eligible, individuals simply need to indicate how many coupons they would like and send the local agency managing the program a check or money order for 50 percent of the coupon value requested.

Individuals can request additional coupons beyond this amount, provided at the discretion of the local managing agency. Additional support is provided if the customer can show a compelling need and if funding is available.

Where local taxicab services exist, ACBN will negotiate with companies to get them to participate in the program. ACBN does not place additional insurance, training, or reporting requirements on participating taxicab companies beyond those required by local regulators. Participating companies simply need to agree to accept program vouchers and submit completed vouchers to the local agency managing the program for payment.

ACBN reports that quick payment is a key to getting local taxicab companies to participate. To allow local administering agencies to pay participating taxicab

companies quickly, ACBN provides "up-front" funding (usually about $5,000) to local managing agencies and works with the agencies to allow them to keep a positive balance.

The Supported Volunteer Rural Transportation Program

The Volunteer program is designed to be "self-directed." It allows participating individuals to identify their own drivers, and then provides support for the transportation provided to these drivers. The Volunteer program was modeled after Nebraska's Private Attendant Care Services (PAS) program, another successful "self-directed" program. Private attendant care is when a single attendant works for a single handicapped individual.

Eligible individuals can identify and use their own volunteer driver or drivers. ACBN has found, however, that some individuals lack the support network that allows them to have access to volunteer drivers. To assist these individuals, ACBN works with local administering agencies to recruit volunteer drivers. A standard advertisement seeking volunteers has been developed by state-level ACBN staff that can then be used at each local implementation site. State-level ACBN staff is also working with the Lions Club in Nebraska on recruiting members of that organization to serve as volunteer drivers. The names of available local volunteers are then shared with eligible individuals, if needed. The eligible individual can then contact anyone on this list.

Volunteers are reimbursed 35 cents per mile. ACBN provides 50 percent of the reimbursement, and the eligible rider must provide the other 50 percent. As a general rule, eligible individuals can receive reimbursement for up to 500 miles of travel every 6 months. Again, special variances to this "maximum" are possible at the local agency's discretion, based on need and available funding.

Individuals who elect to use this program are sent a supply of voucher forms. The vouchers are completed by the volunteer drivers and indicate the date of travel, addresses of the origin and destination, and total miles traveled. Forms are submitted to the local managing agency for review and reimbursement.

Applicability and Transferability

While not a large program in terms of total dollars spent, this program is unique in that it has been created and managed by a "member-based" disability organization. It shows that similar organizations that identify transportation needs can utilize simple coupon/voucher programs to provide some additional levels of transportation. This can be done cost-effectively by utilizing available transportation services (taxicabs or van providers), and the programs can be run with low overhead (in the ACBN case, by member volunteers). Improved transportation can be developed without the need to obtain vehicles and start a separate transportation service. The ACBN program also demonstrates a "self-directed" transportation services. Assistance with the cost of transportation can be provided, but eligible individual can be allowed to identify the type of service that best meets their needs (taxi, van, or volunteer driver). Riders also can identify and utilize their own volunteer drivers.

The ACBN approach might be applicable to other member-based organizations seeking to implement low-cost, self-directed transportation services that utilize local providers, as well as the volunteer support network available to riders.

Western Community Action, Marshall, Minnesota[12]

Western Community Action (WCA), a human service agency that operates a multicounty transit system in Southwestern Minnesota, was selected as a case study for its unique transportation voucher program and the provision of a full complement of transportation services, which include demand-responsive services, flexible routes, volunteer driver program, and referral program.

WCA is a Section 5311 rural transit provider whose services and customer service philosophy embody coordination. Their service reflects this, having evolved into a flexible, coordinated service that strives to meet all transportation requests, either directly with their regularly scheduled bus service (14 vehicles), via their volunteer driver program (125 volunteer drivers), via the travel cheque voucher program, or through referrals to other operators.

Travel Cheque Voucher Program

To expand travel options for people with disabilities, WCA worked with the Southwestern Center of Independent Living (SWCIL) to implement a Travel Cheque Voucher program. The program is one of a number of national demonstrations that is initiated and supported by the Association of Programs for Rural Independent Living (APRIL). The program, administered by SWCIL, was established to assist people with disabilities with transportation to jobs, employment-related services, and other travel needs.

The program is "self-directed" with eligible individuals responsible for finding and securing the types of transportation that work best for them. Travel vouchers can be used to pay for rides provided by volunteer drivers, WCA, or the local transit agency. Vouchers are distributed at no cost to the riders. SWCIL works with each eligible rider to establish a maximum number of miles of service that can be purchased using the vouchers. This maximum is somewhat flexible and takes each rider's needs into consideration.

The WCA's transit program accepts the cheques from passengers as payment for their rides, and then WCA submits the cheques to SWCIL for reimbursement. The Travel Cheque Vouchers help cover trip costs and encourage participants to use the travel cheques creatively and effectively. The transit system can be

[12] The following is an edited excerpt from pages C-165 to C-171, Appendix C of the *Transportation Services for People with Disabilities in Rural and Small Urban Communities*, Easter Seals Project ACTION, 2006. The passages are found on the CD-ROM containing the full report. Excerpt has been edited for brevity.

assured of payment for the trip, plus people have choices in managing their options and financial resources.

The Travel Cheque Voucher program was initiated in 2002. Agreeing to partner with SWCIL to support the Travel Cheque Voucher program as payment for trip costs for eligible individuals was the first step. SWCIL staff had the client base of people eligible for the travel cheques, and they were in charge of assigning cheque amounts to eligible individuals. Referrals were made by dispatchers, service providers, and at networking meetings about who to contact for travel cheque information.

It was necessary to implement procedures with staff, drivers, and eligible participants so they understood how the vouchers could be used. The program was designed to integrate the needs of people with disabilities along with the needs of the community. Buses are equipped with lifts and volunteer drivers are available to those who do not need special equipment to help them access services. A good working relationship between WCA and SWCIL enables staff to continually communicate suggestions, concerns, and misuse of the vouchers. Staff from both agencies worked together to find ways to minimize the extra recordkeeping of vouchers, and to help passengers understand their responsibility for using the vouchers as payment for their transportation. According to the WCA Transit Director, it was important that the transit program was flexible and creative in supporting projects or requests that benefit area residents and communities. WCA has received very positive feedback from individuals who use the travel cheques program.

Transferability/Applicability of Innovative Practice

The travel cheque voucher program could be easily replicated in other states by any local agency or organization with funds available to contract with a local transportation provider. The main three issues to consider when reproducing this program in other locations are the following:

1. There must be procedures established by the contracting agency or organization (SWCIL in this case study) for eligible participants on how, why, and when they should use the travel cheques;
2. Staff resources must be set aside for marketing/public relations as much time was spent informing providers, drivers, and participants of the travel cheque procedures as they were developed; and
3. As a transit system, the process for receiving reimbursement from the contracting agency must be developed and must include the tracking of performance data, such as the number of cheques received and the number of miles driven.

Planned Demand

ACCESS Transportation Program, Developmental Services of Northwest Kansas, Inc., Hays, Ellis County, Kansas[13]

Developmental Services of Northwest Kansas, Inc. (DSNWK) is a private, not-for-profit organization serving both children and adults with disabilities. For more than 30 years, DSNWK holds the philosophy that all people should have the right to live and work as independently as possible, regardless of their disability.

DSNWK provides services and programs to more than 500 individuals with mild to severe disabilities. These services are available through a network of community-based and outreach programs and interagency agreements with other service providers in the 18 northwestern counties of Kansas, covering 16,000 square miles. It has provided transportation to its clients since 1969.

Innovative Service Strategies

The ACCESS transportation program was chosen as a case study for its regional, long-distance medical transportation programs – the CAREVan and the Health Express Bus Service.

The CAREVan service (CARE – Community Access Rural Express) is a deviated, fixed-route, regional, intercity bus service funded with Section 5311(f) funds that covers one of three different routes every weekday between St. Francis in the far northwestern corner of the State and Hays. This program serves 14 different counties (as noted above).

The primary purpose for the CAREVan is to provide regularly scheduled public transportation from several rural northwest Kansas communities to Hays, Kansas, where regional facilities are located. The service operates Monday through Friday, 6:00 a.m. to 6:00 p.m. The cost to ride the vehicle is $0.50 per county. Trips on the CAREVan are scheduled on a first come, first serve basis. The Hays Medical Center, DSNWK, and the Kansas DOT fund this service.

The Health Express bus is for medical transportation trips for residents of Ellis County and the eight surrounding counties to connect with the regional medical care available in Hays, Kansas. The primary purpose of this project is to provide subsidized, nonemergency medical transportation for people residing in the nine-county service area who are not currently served with subsidized "nonemergency" medical transportation. The "hub" for this transportation service is the City of Hays, Kansas, where regional medical facilities are located.

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[13] The following is an edited excerpt from pages C-17 to C-26, Appendix C of the *Transportation Services for People with Disabilities in Rural and Small Urban Communities*, Easter Seals Project ACTION, 2006. The passages are found on the CD-ROM containing the full report. Excerpt has been edited for brevity.

This service is available from 6:00 a.m. to 6:00 p.m., Monday through Friday. The fare is $0.50 per county for a one-way trip. Trips may be scheduled by calling a toll-free telephone number from 8:00 a.m. to 5:00 p.m., Monday through Friday. There are scheduled routes between communities Monday through Thursday. Fridays have flexible scheduling, based on the locations of trip requests.

The Kansas DOT, DSNWK, and Hays Medical Center fund this service.

Transferability/Applicability of Innovative Practice

DSNWK and the ACCESS program are examples of how a disability services agency, together with other local agencies and the state DOT, can expand to successfully provide more comprehensive and coordinated transportation throughout a large rural area. The transportation services in many rural areas could be improved by pooling resources and by designating one agency as a "lead" provider. Federal Section 5311 and 5310 funding can then be used to build on this lead agency provider to offer broader general public services. Targeted programs, such as the Health Express and CAREVan services, can then be added to extend services throughout the region and link very rural communities to regional services. Innovative methods of operation, such as route deviation, also can be used to make these regional services more effective and efficient.

Flexible Services

Alger County Public Transit Authority, Munising, Michigan[14]

The Alger County Public Transportation Authority (Altran) provides rural public transit services in the Upper Peninsula of Michigan. The program is a classic example of a specialized transportation program expanding its scope to include rural public transit services. The program was begun in 1976 as a component of a local community action agency, the Alger/Marquette Community Action Board. With the passage of Section 5311 in 1978, the program made the transition to public service several years later in 1982. Alger County was the grantee for transit funds with the Michigan DOT. The community action agency was the service provider of record under contractual arrangements with Alger County. In 1991, the organization changed again, when the County formed a transit authority pursuant to the Public Transportation Authority Act (PA 196 of 1986). Altran is based in Munising, Michigan, the county seat. The system provides demand-response and route-deviation services in the service area. Due to its rural nature, Alger County residents must access goods, services, and medical

[14]The following is an edited excerpt from pages C-27 to C-31, Appendix C of the *Transportation Services for People with Disabilities in Rural and Small Urban Communities*, Easter Seals Project ACTION, 2006. The passages are found on the CD-ROM containing the full report. Excerpt has been edited for brevity.

facilities in other parts of Michigan, most notably Marquette County. Daily service to these out-of-county locations is a core component of Altran service.

Service is provided primarily in demand-response mode. However, as considerable demand exists among Alger County residents to access destination outside the County, Altran operates a regularly schedule, deviating route service along Route 28 to Marquette in Marquette County (3 round trips per day). In addition, some commuter runs are also made for employment trips to Harvey, also located in Marquette County (1 round trip per day). Demand-response services are used to feed customers to this regional service.

Fares for the service are distance-based. Trips within a 3-mile distance are $1.50 each way. Altran offers a discounted fare for seniors and people with disabilities of $0.75 per one-way trip. Trips that are over 3 miles, but less than 5 miles, are $2.00 each way. Altran's one-half-fare discount enables seniors and people with disabilities to pay $1.00 for these trips. Trips more than 5 miles, but less than 10 miles, are $2.50. Multiride tickets are available for frequent users of the system. A ticket purchased for $5.00 can be used to purchase $6.25 worth of full fare transit rides. A $10.00 ticket can be used to purchase $12.50 in transit service.

The out-of-county service to Marquette has its own fare structure. The one-way fare is $5.00 with a round trip costing $10.00. A multiride ticket, providing 10 round trips for $30.00, is also available, providing a discount for frequent users of this service.

Churchill Area Regional Transportation (CART), Fallon/Churchill County, Nevada[15]

Churchill Area Regional Transportation, also known as CART, is a 501(c)(3) private, nonprofit corporation that is the public transportation provider for Churchill County, Nevada. Churchill County and Fallon (its largest city and county seat) are located about 60 to 70 miles east of Reno and about 400 miles north of Las Vegas. With a 2000 population of 24,000 (which includes Fallon at 7,500), and a land area of 4,929 square miles, the County is fairly rural – the overall population density of the County is 4.7 residents per square mile. That being said, the population of Churchill County and Fallon are growing; it has been estimated that the current populations are 26,100, and 8,400, respectively. The number of people with disabilities living in the County, according in 2000 was 4,109 or 17 percent of the population. Fallon has the only Wal-Mart (being upgraded to a Super Wal-Mart) in the region. A Naval Air Station, home to the

[15] The following is an edited excerpt from pages C-61 to C-65, Appendix C of the *Transportation Services for People with Disabilities in Rural and Small Urban Communities*, Easter Seals Project ACTION, 2006. The passages are found on the CD-ROM containing the full report. Excerpt has been edited for brevity.

Navy's Top Gun program, is also based in Fallon. Nearest major medical facilities are in Reno.

CART currently provides three services:

1. **General-public dial-a-ride service.** This service, also called CART, began in 2000. This service is operated with a peak pullout of 6 to 7 vehicles, depending on the day of the week. It is operated Monday through Friday from 7:00 a.m. to 7:00 p.m. While it is available to the general public, priority is given to seniors and people with disabilities. Reservations must be called in at least 1 day in advance. The fare is $1.00 for general public and $0.50 for older adults and people with disabilities.
2. **Local fixed-route service.** This service, called the Fallon Shuttle, began in 2001. This service is operated on Mondays, Wednesdays, and Fridays only from 9:00 a.m. to 3:00 p.m. All stops on the Shuttle route are made on an hourly schedule, starting at Wal-Mart and returning to Wal-Mart every hour on the hour; the last stop being at Wal-Mart at 3:00 p.m. The fixed route is 13 miles round trip, and takes approximately 1 hour to run. The fare is the same as on CART. An accessible cutaway is used for this service.
3. **Intercity route deviation service.** This service, called the Reno Shuttle, also began in 2000. This is a route deviation, door-to-door, advance reservation service, operated on Tuesdays and Thursdays only from 7:00 a.m. to 3:00 p.m. This service is primarily for medical appointments, with other trips served on a space-available basis. Travel time to and from Reno is about 2 hours. The fare is $10.00 for general public, and $5.00 for older adults and people with disabilities, with personal attendants and caregivers riding free. Reservations must be made by 1:00 p.m. on the day before the trip, and are on a space and time available basis.

CART staff volunteers its time and fleet to provide "field trips" to local older adults and people with disabilities. These include trips to the State Museum and Railroad Museums in Carson City, a Virginia City Old West tour, trips to casinos in South Lake Tahoe, trips to the Ponderosa Range, a Christmas Tree Lights tour in Fallon, Christmas shopping trips to Reno, a Lake Tahoe M.S. Dixie lake tour, trips to Harrah's Auto Museum, and visits to other senior centers for lunch and socializing. In FY 2005 to date, these field trips provided 307 free rides.

CART also provides free rides to people with physical and mental disabilities to and from a work training and employment program, Monday thru Friday. (Fallon Industries also provides rides for some of Fallon Industries employees who work at the local Wal-Mart on Tuesdays and Thursdays.)

In addition, CART management, from the outset, has done a particularly good job getting the support of the community. This has taken the form of the following ongoing services, which as mentioned above were valued at nearly $30,000 in FY 2004.

- The local telephone company donates vehicle maintenance services;
- The county school district allows CART to use its bus washer;
- Western Nevada Community College provides their parking lot for a transfer hub for intercity bus service;
- The local radio station provides free radio spots;
- The local television station provides free PSAs;
- The County donates free legal services, while its comptroller assists with CARTS financials; and
- The City of Fallon pays for 100 percent of the fuel used for senior trips.

Keys to Success

Ernie Maguire, Director of CART, mentioned four keys to success. The first was working closely with the City, the County, and the business community to support the program. This was done from the beginning, with terrific results as evidenced by the creative way in which several "partners" provide needed services on an ongoing basis. This enables CART not only to access more Federal and state funding, but to stretch the funding that they do get.

Secondly, Maguire puts a very high premium on service quality, and CART's driver training program reflects that philosophy. For example, in addition to the standard defensive driving courses and passenger assistance/customer service training, the driver training curriculum has a disability sensitivity component and elder abuse prevention training.

CART implemented fare tickets, not only as a convenience for customers, and for agencies wishing to distribute tickets to their clients, but as a budgeting device for their customers. Briefly, there are several low-income customers on limited budgets. By purchasing a month's worth of tickets at the beginning of a month, it ensures that they are not left stranded at the end of the month.

In addition, CART has done a particularly good job marketing its services not only to the general public, but specifically to the disability community. CART has an attractive web site that includes a video. Churchill County promotes the system in connection with new developments. The various human service agencies in Churchill County (e.g., County Social Services, County Division of Aging Services, Family Resource Center, State Department of Welfare, VOC Rehab, Fallon Industries, Services for the Blind) directly market services to clients. And Maguire makes presentation to civic groups. CART also makes available its Service Guide in audio tape, large print, and Braille.

Gogebic County Transit Program, Gogebic County, Michigan[16]

Gogebic County Transit, a county-based agency under the direction of the Gogebic County, Michigan Commissioners, is a Section 5311 rural public transit agency. By working closely with local human service and disability agencies, Gogebic County Transit has developed a very successful, fully-integrated countywide public transit system. The system provides demand-responsive service, as well as deviated fixed-route service to meet the needs of the public, including riders with disabilities. Travel training and highly personalized assistance by drivers also makes the service usable by all riders.

Gogebic County Transit serves all of Gogebic County, Michigan, the seventh largest county in the State of Michigan. The County is located on the western boundary of Michigan's Upper Peninsula on the shore of Lake Superior. The County is approximately 1,102 square miles in size.

The project service area has a population of 17,370 people according to the 2000 U.S. Census. Of those 17,370 people, 3,879 (22.3 percent) are individuals over age 5 who have disabilities. This is a significantly higher percentage of people with disabilities than the United States as a whole (19.3 percent).

Gogebic County Transit provides demand-response and deviated fixed-route transportation service. The demand-responsive service operates countywide. The deviated fixed-route service is designed to connect residents of the County's three largest communities – the City of Ironwood, the City of Wakefield, and the City of Bessemer – to regional medical services. The deviated fixed-route service operates 14 runs each day from these communities to the County's major medical center.

Innovative Service Description

Rather than operating separate services for people with disabilities, both types of services operated by Gogebic County Transit are designed to serve all residents of the County. The demand-responsive service is open to the public. The fixed-route service deviates to better meet the needs of riders who cannot get to and from designated stops.

Local agencies also provide travel training to teach riders to independently use the system. Much of this training is one-on-one instruction for riders with cognitive disabilities.

Gogebic County Transit works closely with human service and disability agencies to ensure that the needs of their riders are met. For 25 years, Gogebic

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[16] The following is an edited excerpt from pages C-75 to C-79, Appendix C of the *Transportation Services for People with Disabilities in Rural and Small Urban Communities*, Easter Seals Project ACTION, 2006. The passages are found on the CD-ROM containing the full report. Excerpt has been edited for brevity.

County Transit has worked with Gogebic County Community Mental Health (CMH) and the Gogebic Medical Care Facility (MCF) to provide transportation services. According to the Gogebic County Transit Director, working with the same people (very little employee turnover) at Gogebic CMH, Gogebic MCF and Gogebic County Transit for a long period of time has been very helpful. The partnerships created and everyone's ability to be flexible enough to accommodate each other's needs have also contributed to the success of the transit system.

Key Implementation Issues

According to the Director of Gogebic County Transit, initial detailed training for transit drivers and dispatchers was essential to the success of the transit program in serving people with disabilities. A high degree of knowledge about disabilities and how to provide appropriate service and assistance for riders with disabilities is needed. Passenger sensitivity training is provided by the transit agency. Staff of the CMH are involved in this training to provide a perspective on the needs of their riders. A handout outlining how to provide appropriate rider assistance was developed by CMH and is used in this training.

The Transit Director also cited the one-on-one instruction provided by local agencies as a key to success. The training has had a high success rate, and the agencies are able to monitor use of the service on a daily basis and provide refresher training or other individualized instruction on an ongoing basis. A direct line of communication also is maintained between transit agency dispatchers and local agency staff. This communication is important for addressing riders needs and issues as they are encountered.

System marketing to the general public includes advertising on the radio and in the newspapers. However, the Transit Director stated that word of mouth and having the employees of the service organizations/agencies be familiar with transit services are the most important.

According to the Transit Director, the main challenge related to the implementation of the transit project is meeting all of the transportation needs in a rural area with a declining population, few jobs, and a significant number of people that really need public transportation to access health care and employment, and to remain independent in their own homes and apartments.

Transferability/Applicability of Innovative Practice

This type of project, with excellent communication between local agencies, could be easily replicated in other locations if the right institutional relationships exist according to the Transit Director. Institutional relationships must be established where staff know each other on a first-name basis, and utilize and value each other's expertise. Each institution involved must have a management structure that rewards and encourages independence in their employees, and they must have developed a culture that views other agencies as partners and riders as their "neighbors and friends."

Link Transit, Wenatchee, Washington[17]

Link Transit is the public transportation operator in Wenatchee, Washington, and the surrounding area in Chelan and Douglas Counties. Wenatchee is almost exactly in the center of Washington State. The service area has a population of roughly 44,000 people, of whom about three-fourths live in the twin cities of Wenatchee and East Wenatchee on opposite sides of the Columbia River.

Two of several outlying communities served by Link Transit have figured prominently in the agency's recent innovations. Leavenworth is a community of about 2,100 located 23 miles west of Wenatchee. Leavenworth is a base for mountain-oriented sports. By developing itself as a Bavarian village, it has attracted a substantial tourist trade. Chelan, about 40 miles north of Wenatchee on the shore of Lake Chelan, has a year-round population of about 3,500. The area attracts a high volume of tourism oriented to the lake during the summer months. A casino that is operated by a local Tribal government in the lakeshore community of Manson, eight miles from Chelan, is also a significant draw.

Innovations

In addition to basic ADA paratransit, Link has experimented with a number of innovations designed to maintain service levels for people with disabilities in the face of extreme budget pressure resulting from the loss of a major portion of its operating funding. A number of these innovations are non-ADA service intended to increase the overall efficiency of Link's services for people with disabilities. For trips to and from outlying areas, Link has used taxis and Medicaid van providers and has limited pick-up times in order to concentrate these trips at particular times. Link has also experimented with flexible service in two of these same outlying areas, and developed fixed routes in its central service area designed to allow older people and people with disabilities to meet many of their needs without needing to rely on paratransit. Link has contracted with two non-profit organizations to provide service to clients of specific programs at very favorable rates. Lastly, as of July 2005, Link was in the process of developing a taxi scrip program to provide ADA paratransit in one outlying community.

Motivation

The principal motivation of Link's innovations was to reduce Link Plus' operating cost per trip, which was one of the highest in Washington State. These high costs stem, at least in part, from the fact that paratransit and fixed-route drivers are paid the same at Link, and from the fact that Link Transit and Link Plus serve some very long trips. Pressure to cut cost also came from the passage of

[17] The following is an edited excerpt from pages C-107 to C-114, Appendix C of the *Transportation Services for People with Disabilities in Rural and Small Urban Communities*, Easter Seals Project ACTION, 2006. The passages are found on the CD-ROM containing the full report. Excerpt has been edited for brevity.

Initiative 695 in November 1999, which repealed the state motor vehicle excise tax that had provided about one-half of Link Transit's budget. The agency cut fixed-route transit service, but this did not reduce paratransit demand. The agency also began charging a fare. However, the $0.50 basic fare is quite low, and is the same for fixed route and paratransit.

Use of Nondedicated Providers

Link has agreements with four nondedicated providers, primarily for serving intercommunity trips between several outlying communities and the central area of Wenatchee and East Wenatchee. These trips are very expensive to serve using Link Plus' dedicated vehicles; opportunities for trip sharing are often limited. Overall 5.1 percent of trips were carried on nondedicated vehicles. However, these trips accounted for 19 percent of revenue vehicle miles, because the nondedicated vehicles are mostly used for intercommunity trips. Nondedicated vehicles are also used for some trips within outlying communities.

The intercommunity service is designed to operate on the principle that riders can choose which if any of nondedicated providers they will ride with. When a rider requests an intercommunity Link Plus trip, the reservationist will check to see if the ride can be part of a productive run using a Link Plus vehicle, or if it is needed to fill out a driver's minimum guarantee. If not, the reservationist checks with the rider to see if a nondedicated vehicle can be used, and whether the rider has a preference among the available companies. Generally, preferences have already been noted in the rider's record. The reservationist then schedules the trip on a holding run for a scheduler to assign later to one of the nondedicated providers.

The nondedicated providers are paid for each trip using rates that were established by Link as a result of discussions with the providers; they are fixed based on the communities between which the trip operates. A $10.00 reimbursement is provided for trips within a community, and an additional $10.00 is paid for transporting a passenger who uses a wheelchair and requires an accessible vehicle. There is also a provision to pay a deadheading fee for some trips. These rates are less than taxi rates or Medicaid rates for similar trips. For example, Classic Taxi's regular rates are $3.00 drop fee, plus $2.00 per mile. Trancare, the broker for Medicaid transportation in this area, pays a $2.00 drop fee plus $1.60 per mile for taxi service, and $25.00 drop plus $2.50 for trips by riders who use wheelchairs.

On-time performance issues are not addressed in the nondedicated provider agreements. The taxi companies do not call in pick up times and do not record actual pick up times. However, riders do complain if trips are not picked up within the established 20-minute Link Plus pick up window. The manager of Classic Taxi was aware of this service standard, and indicated that adhering to it is one aspect of the service that their drivers find challenging.

Flexible Services and Taxi Scrip

In September 2004, Link introduced flexible trolley routes in Chelan; and in March 2005, it introduced similar service in Leavenworth and Cashmere. The intention was to serve local paratransit trips using deviations by the trolleys. The level of demand proved high enough that the trolleys were not able to maintain their schedules. In the case of Chelan, this was addressed by contracting with Lake Chelan Community Hospital to serve a volume of repeat trips as described below. Most of the remaining trips are still served by trolley deviations, although Link is looking at other options. The trolleys are "historic" replicas with wooden, side-facing seats and wheelchair lifts, appropriate to a tourist-oriented business. They have reportedly not been popular with older riders.

In the case of Leavenworth, local ADA service is now being provided under a temporary arrangement with Gateway Bus Company, one of the nondedicated service providers. As of July 2005, Link was in the process of preparing a request for proposal (RFP) for a permanent provider of ADA paratransit within Leavenworth using taxi scrip. Link is working together with the City of Leavenworth with the aim of providing an economic foundation to help support taxi service there. A city of this size might not normally be able to support a taxi company. However, Leavenworth is a tourist destination, so it is hoped that the combination of tourist business, paratransit trips, and other work will support a taxi service.

Concentrating Trips at Specific Times

In addition to using nondedicated providers, Link has also pursued a scheduling strategy to reduce the cost of service between Wenatchee and Leavenworth and between Wenatchee and Chelan, the two most popular intercommunity corridors. Beginning in March 2005, pick-ups for these trips were scheduled according to established time points with available pick-up times at each time point spaced two hours part. The time points are posted in the call-taking and dispatch area in a format much like a fixed-route bus schedule for each intercommunity corridor. By requiring riders to choose from among the available pick-up times, Link hopes to group intercommunity trips more than would be possible by matching each caller's requested time. This procedure applies regardless of whether the trip is assigned to a Link Plus vehicle or a nondedicated vehicle.

Benefits

The principle goal and benefit of all the innovations by Link Transit has been to reduce the unit cost of Link Plus service. By reducing the cost of long-distance intercommunity service, and the cost of operating local service in communities that are distant from Link's operating base, these innovations have also helped to maintain the viability of providing service to outlying communities.

Another benefit of nondedicated service has been helping to maintain the viability of taxicabs and other nondedicated providers in the community. The operator in Chelan was on the verge of going out of business until it began carrying

trips for Link Plus. As the owner of the company explained, Chelan is mainly a "summer town," with an influx of population related to leisure activities on Lake Chelan. The permanent residents have limited incomes and make little use of taxis. At the time of the case study site visit, this company was not being assigned as many Link Plus trips as previously, apparently as a result of complaints from one of the regular riders.

Institutional and Regulatory Issues

Link is prevented by labor agreement from basing vehicles in any of the outlying communities. However, it is not limited in its ability to refer trips to nondedicated providers or to contract for paratransit service.

Link considers that its agreements with the nondedicated providers are not contracts. The agreements specify no service standards other than those that may be established by local and state regulation. For example, as noted before, the agreements do not require adherence to on-time performance standards. Instead, the agreements specify that the company shall "recognize that this is a user side subsidy agreement, and as the Commuter Club member chooses the Taxi/Livery provider for his/her trip, it is in the best interest of the Taxi/Livery provider to offer the best quality service and equipment possible." This language reflects the origins of nondedicated vehicle service as a guaranteed ride home option before it was used for Link Plus. In the case of Link Plus, the principle is that riders can choose not to ride any company that does not meet the usual Link Plus service standards. The agreements contain no language related to driver training, selection, or drug testing. A sample agreement provided to the research team (of Project ACTION) is signed for Link Transit by the Planning Manager.

With respect to liability, the provider agreement specifies only that the company maintain, at its sole expense, comprehensive general and automobile liability insurance covering its operations in the program at levels required by local and state regulations. The most recent company to join the program provided Link a certificate of insurance naming Link as an additional insured. Link staff recalled that a passenger was injured riding a nondedicated vehicle, and the claim was handled by the provider or its insurance company.

Applicability and Transferability

The most transferable innovations from Link Transit's experience are using nondedicated providers for service to, from, and within outlying communities, and contracting for service within those communities. Since Link is prevented by labor contract from basing vehicles in these communities, any demand-responsive service to them is unproductive. These innovations are potentially applicable for any operator that needs or desires to maintain paratransit service for communities that are distant from the central portion of the operator's service area.

A factor in Link's ability to make the changes it did was the availability of suitable providers, including one taxi company and the hospital in Chelan, a taxi company in Wenatchee, and Medicaid providers. Multiple providers are

essential to "rider choice" and the ability to provide travel options without a formal contract between Link and the providers, which would bring with it drug testing requirements and liability issues. In addition, the economics of the taxi and Medicaid transportation business in the area appear to work in Link's favor, since otherwise it would probably be necessary to pay more for nondedicated service than has been the case.

Mountain Line Transit, Morgantown, West Virginia[18]

Mountain Line Transit (formally the Monongalia County Urban Mass Transportation Authority) provides public transportation services in Morgantown, West Virginia, and surrounding Monongalia County. Monongalia County is located in northern West Virginia, on the border with Pennsylvania. The 2000 Census population of the county was 81,866, of whom 26,809 lived in Morgantown. Morgantown is home to West Virginia University (WVU), the largest institution of higher education in the State with an annual enrollment of 21,500 students.

Mountain Line Transit provides deviating fixed-route bus service on 17 routes. The fleet consists of 23 vehicles, principally 22-passenger small buses and 10-passenger cutaways, of which a maximum of 15 are in service at one time. The agency also operates a Medicaid shuttle service and two special shuttles funded under the JARC program. In FY 2004 to 2005, Mountain Line operated 37,586 revenue vehicle hours of service and carried 392,972 passengers. As of 2000, Mountain Line became eligible to receive Federal funding under the Section 5307 Small Urban program. Previously it received only Section 5311 rural transit funding. About one-quarter of the agency's funding is from Section 5307, with most of the balance from county and city funds, and a subsidy from the University.

All of Mountain Line's regular routes deviate on request for passengers with disabilities. This deviation service was introduced in 1999 to replace a prior system of separate fixed-route and ADA paratransit services. The deviations work as follows, as described by Mountain Line:

"All fixed-route buses are accessible to individuals with impairments and provide for deviations from the fixed bus route up to three-quarters of a mile to pick patrons up at a location of their choosing. This service is limited only by the ability to physically get the bus to the desired location. This service allows riders to call for a pick-up as little as 15 minutes before the desired trip, and is available to all riders, whether they have a documented disability or not.

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[18] The following is an edited excerpt from pages C-125 to C-128, Appendix C of the *Transportation Services for People with Disabilities in Rural and Small Urban Communities*, Easter Seals Project ACTION, 2006. The passages are found on the CD-ROM containing the full report. Excerpt has been edited for brevity.

In order to request this service, the applicant must complete a Call-and-Ride Application and submit it to the Authority for consideration. A driver will be dispatched to the desired location to determine the best route and any obstacles which might prevent the bus from accessing the location. After review, the applicant will be notified in writing at the address provided on the application.

After the application has been approved, riders can call 291-RIDE as little as 15 minutes before the desired pick-up time to request a deviation. The cost of a one-way deviation is a standard fare plus $0.25 cents (i.e., one token plus $0.25 cents, $1.00 cash, or $0.25 cents for monthly, quarterly, or annual pass holders)."

Note that the service is intended for passengers with "impairments," but does not require a "documented disability." The Call-and-Ride application asks only for information about mobility aids used, if any, and a description of the location to which a deviation is requested. No information about disabilities is requested. Applications may be turned down if a bus cannot safely go to the requested location.

The deviation requests that come to the office are transmitted by radio to the driver of the appropriate route. The office staff and all drivers have a list of all approved deviation locations. Some riders have standing orders for deviations.

When the current route structure was established, schedules were designed to leave 10 minutes of slack time for each hour of scheduled service in order to accommodate deviations. In practice, buses often run late due to traffic congestion. The area's topography and street layout create traffic bottlenecks. Mountain Line's policy is that if a run is more than 20 minutes behind schedule, the next scheduled run will be skipped. If the route that would normally serve a deviation is already late, the shift dispatcher (who is generally driving a bus) may assign a different route to serve it.

Implementation was a two-year process that included establishing a Citizens Advisory Committee with representatives of the key agencies serving people with disabilities and older people, a rider from each bus route, a representative of the university student administration, and representatives of the business community. There was resistance to the proposed changes, but these were overcome through public discussion.

Keys to Success

Mountain Line was able to win support for the deviation service as a result of extensive public consultation. Despite resistance from some people for whom the prior paratransit service worked well, the agency was able to make the case that separate paratransit service was cost prohibitive, and that deviation service would be better for the community overall, including people with disabilities.

Another factor in the success of route deviation service is the nature of the service area. Mountain Line uses only small buses for its operation. These vehicles make sense for a small city operation, especially in an area with narrow streets

and difficult topography. As a result, the buses are able to deviate into neighborhoods where larger buses would be unwelcome or could not operate.

Coordination

Arrowhead Transit, Virginia, Minnesota[19]

Based in Virginia, Minnesota, and serving a seven-county area in northeastern Minnesota, Arrowhead Transit is a rural, 5311-funded, public transportation service that is provided by Arrowhead Economic Opportunity Agency (AEOA). The service area includes Aitkin, Canton, Cook, Itasca, Koochiching, Lake Counties, and the portions of St. Louis County that are outside the Duluth metropolitan area. Most of these counties are quite rural, with populations ranging from 5,168 to 43,992, and with densities of under 10 people per square mile in 4 of the counties.

Arrowhead Transit operates three types of accessible services in all seven counties, all of which are open to the general public with no age or income restrictions:

- **Flexible (route deviation) transit service**. This service is available to the general public and provides both local and intercity service. Reservations are taken 1+ days in advance, although same-day requests are sometimes accommodated on a time/space available basis. For ambulatory customers, the service will deviate anywhere along the route up to a one-half mile. In contrast, the service will deviate much further (up to 10 miles) if the customer uses a wheelchair. (For long deviations, drivers will start out earlier and try to get the customer on the front-end of the route, rather than in the middle of it (so as not to disrupt the route schedule.) The fare system is roughly based on the length of the trip, with fares ranging from $1.10 for local service to $1.50 for a 10-mile trip and $2.00 for a 20-mile trip. There is no additional charge for a deviation. About 40 to 50 percent of the deviations are standing orders.
- **General public dial-a-ride**. These services are also open to the general public and are primarily local in nature. The level of service is generally curb-to-curb, although door-to-door service, including assistance with grocery bags, is provided depending on the rider's disability and weather. The reservation policy for dial-a-ride service is the same for the flexible transit service. There is some coordination between the dial-a-ride services and the flex-route services. For example, in some cases, the dial-a-ride service is used as a feeder to the flex-route service (e.g., there is a group trip every Friday from

[19] The following is an edited excerpt from pages C-33 to C-37, Appendix C of the *Transportation Services for People with Disabilities in Rural and Small Urban Communities*, Easter Seals Project ACTION, 2006. The passages are found on the CD-ROM containing the full report. Excerpt has been edited for brevity.

International Falls (near the Canadian border) to Duluth, with the local dial-a-ride service in International Falls acting as a feeder/distributor service). In addition, local trips normally assigned to a dial-a-ride service might wind up on a flex route if the Dial-a-ride vehicles are busy in a different part of their service area.

- **Route guarantees.** These are agency-based and sponsored subscription routes. These purchasers of contract transportation include the following:
  - Head Start (administered through AEOA),
  - Five Day Activity Centers (DACs);
  - The County Departments of Human/Social Services in 5 of the 7 counties;
  - Nine other human service agencies, including The Range Center; and
  - Two municipalities and a senior agency which retain Arrowhead Transit to operate public dial-a-ride service in Moose Lake, Eveleth, and Ely.

Most of the public and private agencies above contract for route guarantee service at a rate of $28.00 per hour. Arrowhead Transit will attempt to co-mingle clients from different agencies on route guarantees service if their trips are ride-sharable. For example, riders going to DACs and Occupational Development Centers (ODCs) often travel together on the same vehicles. Head Start clients are usually not co-mingled, mainly because the schools are in different locations than the DACs and ODC work sites. Other rides can be scheduled on a route guarantee, but only if it does not significantly affect the agency trip(s). Other municipalities and agencies purchase fare tickets from Arrowhead Transit at $1.50 per ticket and distribute the tickets to their constituents or clients, as they see fit.

In addition to the services above, Arrowhead Transit also has an extensive volunteer driver program in 3 of the counties (Itasca, Koochiching, and Lake) currently utilizing 25 drivers. Volunteer drivers are usually used for medical assistance (Medicaid) trips. Volunteers are paid based on the IRS-allowed reimbursement rate (currently 40.5 cents per mile). This is passed through to the sponsoring county department that oversees Medicaid transportation (Itasca, Koochiching, and Lake Counties all utilize Arrowhead's Volunteer Driver program for this.), along with an administrative fee per mile or a flat administrative fee.

Description of Innovative Service

To serve the general public and people with disabilities, Arrowhead Transit utilizes a combination of service approaches, including flex-routes, scheduled routes, dial-a-ride, and volunteer driver, plus coordination with human service agencies. There are several policies/practices employed by Arrowhead Transit that stand out as particularly noteworthy.

- The first is the deviation policy. As mentioned above, drivers on flex routes will deviate from one-half mile to 10 miles, depending on rider needs.

- The second is the policy to use route guarantees service to expand general public transportation. Available agency funding is used to develop the basic network of routes and services. The general public, including people with disabilities who are not agency clients, are also then served by these routes as time and space allow.
- Third, customers from different agencies are often intermingled when it becomes cost-efficient to do so.
- Fourth, it is somewhat unusual for a rural public transit system to provide Head Start transportation. However, this partnership has been unusually successful in northeastern Minnesota. While the partnership is undoubtedly connected to the fact that AEOA is also the Head Start provider in the region, AEOA's Head Start Coordinator credits Arrowhead Transit with being able to access areas that the program previously could not.

There is also a high level of coordination between the three service types above and the volunteer driver program. For example, all trip requests for route deviation, dial-a-ride, and route guarantees come into Arrowhead Transit. These are taken manually and scheduled onto route sheets; sometimes with the assistance of Internet map/routing services such as Mapquest. Requests for service are transferred to bus dispatch or the volunteer driver coordinator as they are received. The conversation reveals which service they need or are eligible to use. In general, staff will first try to schedule a sponsored, eligible trip onto one of Arrowhead Transit's routes or dial-a-ride services, and will only use a volunteer driver (or reimburse family or friends at a lower rate), if that cannot be accomplished. Typically, local trips can be served by one of the transit services, while longer trips are found to be better suited to volunteer drivers. In addition, trips may be scheduled for a later time or date, or dispatched immediately if there is already a vehicle in the area.

The volunteer coordinator may also determine that a passenger could use the bus or is ineligible for a volunteer driver. The dispatcher makes arrangement for the passenger, if possible. If the dispatcher cannot determine a solution, the Supervisor will review the alternatives and assist the customer needing transportation. These trips are then scheduled onto one of these services, noting that Human Service transportation policies all include a statement requesting the use of the most cost-effective means of transporting in the area. This tends to mean "on the bus."

Keys to Success

Certainly a key to success is Arrowhead Transit's focus on coordination and agency contract work. Arrowhead Transit can offer attractively-priced contract transportation to human service agencies for three reasons:

1. Arrowhead Transit is partially subsidized with Federal and state funding;
2. Arrowhead Transit has a lower maintenance labor rate ($24 to $26 per hour) than the labor rate of most commercial garages in the area ($60 to 70 per hour); and
3. Arrowhead Transit's piggy-backing routes and co-mingling trips from different agencies on the same vehicle ultimately results in less hours of contract service for the purchasing agency. (Indeed, in cases where a client from one agency is scheduled onto a route guarantee sponsored by another agency, and that addition has a negligible effect on routing and hours, Arrowhead Transit will not charge the first agency for transporting that one trip.)

In a recent study commissioned by Minnesota DOT, it was estimated that the agencies and municipalities would be paying an additional $4,143,887 to transport the same number of trips if Arrowhead Transit had not been established. Or, another – and perhaps more realistic – way to couch the difference is that the agencies and municipalities, with their current budgets and at an average cost of $26.15 per trip, could only afford to serve 30,484 trips per year, instead of the 188,950 trips that they do sponsor.

Other key to success has been the marketing activities, including use of radio, newspaper, and television, as well as direct mail, that Arrowhead Transit has employed.

Lane Transit District, Eugene, Oregon[20]

The Lane Transit District (LTD) serves Lane County located at the southern end of the Willamette Valley in western Oregon (extending from the Pacific Ocean to the west and the Cascade Mountains to the east). The County encompasses 240 square-miles and has a population of total 246,000. Fixed-route and ADA complementary paratransit service is operated primarily in the Communities of Eugene and Springfield. The ADA paratransit service area, which covers all areas within three-quarters of a mile of bus routes, encompasses 56 square miles and a population of 189,435.

Working with state and local agencies and with the regional planning agency, LTD has developed a broad range of services to meet the transportation needs of people with disabilities, as well as seniors and other transit-dependent citizens. This includes:

[20] The following is an edited excerpt from pages C-93 to C-105, Appendix C of the *Transportation Services for People with Disabilities in Rural and Small Urban Communities*, Easter Seals Project ACTION, 2006. The passages are found on the CD-ROM containing the full report. Excerpt has been edited for brevity.

- A fully accessible fixed-route service with travel training support services;
- An ADA complementary paratransit service that serves the larger communities of Eugene and Springfield;
- A "Shopper Shuttle" program that provides shopping trips in a highly efficient, grouped way;
- Regional commuter and deviated fixed-routes connecting rural communities with Eugene;
- Demand-responsive services in outlying rural communities; and
- A significant volunteer driver program.

To emphasize the integrated and multimodal nature of its transportation programs, LTD markets all of these services under the name of "EZ Access." Information about all of the services is included on an EZ Access page on LTD's web site.

ADA Paratransit, Demand-Responsive, and Volunteer Driver Programs: A Coordinated System

Through a variety of efforts at the state and local level, LTD has become the primary coordinator of paratransit services for seniors, people with disabilities, and the clients of many human services agencies in Lane County. This includes serving as the designated administering agency for State of Oregon Special Transportation Fund for the Elderly and Disabled (STF). As the administering agency for state STF monies, LTD assesses the transportation needs of seniors and people with disabilities in Lane County with the input of an Advisory Committee. STF funds are then allocated to programs to meet this need.

In addition to STF funds, LTD also receives and administers the County's allocation of the FTA Section 5310 and 5311 funds from the State. By combining the FTA Section 5310 and 5311 funds with state STF funding, LTD is able to provide both capital and operating funding, as appropriate, for local projects.

LTD has been able to work with local and state agencies to develop a broad range of services that not only meet ADA paratransit requirements, but also serve seniors and other agency clients and are provided countywide.

Ride*Source* Escort Volunteer Driver Program

An extensive volunteer driver program also exists within Lane County. The program is a coordinated effort between the LTD, the Lane Council of Governments Senior and Disabled Services (S&SD), the designated Area Agency on Aging, and the local Senior Companion Program.

Escort volunteer driver service is provided throughout Lane County. Eligibility for the escort service is determined by S&SD Senior Connections Workers and by the Senior Companion Program. The program focuses primarily on medical transportation for seniors and people with disabilities.

Volunteers are coordinated and service is provided by three different agencies. One program is coordinated by SMS, the Ride*Source* contractor. S&DS and the Senior Companion Program also have volunteers to whom they assign trips.

Coordinated Funding of Services

LTD utilizes Federal Section 5310 and 5311 funding, state STF and local funding, and third-party reimbursements from participating human services agencies to provide this comprehensive array of services. State STF and Federal 5311 funding is particularly important for funding the rural demand-responsive and small city services in outlying areas of the County.

Many of the paratransit riders served by LTD are clients of local human services agencies. This includes clients of the county S&DS programs, the County Developmental Disabilities Services (DDS) programs, and other agencies. LTD works with these agencies on an ongoing basis to coordinate Federal and state funding for Ride*Source* services. LTD arranges for regular, guaranteed subscription transportation for these riders as part of the Ride*Source* program, and receives available Federal and state funding to support this transportation.

Through the Oregon Department of Human Services, LTD provides nonmedical trips for Medicaid-eligible people who are also ADA paratransit eligible. (Medicaid is the United States health insurance program for individuals and families with low incomes.) Through coordination with local agencies, DHS reimburses LTD for about 60 percent of the total fully allocated cost of these trips and LTD provides local funding for the remaining 40 percent. DHS passes through 50 to 60 percent of the trip cost from Medicaid funding.

For the Lane County's Development Disabilities Services program, LTD provides transportation to work sites and work training services for riders who are ADA paratransit eligible. DDS pays approximately 55 percent of the fully allocated cost per trip. LTD provides local matching funds for the remainder.

A system is also in-place to ensure that full-cost reimbursement is received for medical trips provided Medicaid-eligible individuals who are also ADA paratransit eligible. Medicaid medical trips are currently brokered by S&DS. This broker utilizes the Ride*Source* program, as well as local private vendors. If Medicaid-eligible riders, who are also ADA paratransit eligible call, for a medical trip under the RideSource program, they are referred to S&DS. The trip is then brokered to one of the providers. If the trip is referred back to Ride*Source*, Medicaid reimbursement is provided. SMS, LTD's paratransit contractor, is a Medicaid vendor and bills these trips separately to S&DS. To further these efforts, LTD also is being encouraged to develop a full Medicaid medical transportation brokerage as part of its coordinated service network.

Through these coordinated efforts, LTD is able to maintain a 33 percent fare recovery ratio for its paratransit services.

Public Participation

LTD has been able to maintain a coordinated system with full participation by other agencies, partly by having extensive public and agency involvement in the design and operation of the system. LTD coordinates meetings of an Accessible Services Advisory Committee each month. This committee guides LTD in setting policy for programs, and helps in the selection of projects to be funded with state Special Transportation Fund dollars. The Committee also addresses fixed-route accessibility. Bus access issues are discussed and plans are developed for improvements. Recent meetings focused, for example, on the LTD web site and online access to route and schedule information, the LTD fixed-route service animal policy, and accessibility features for LTD's new Bus Rapid Transit Line – EmX.

Membership is open to the public and is by appointment. Individuals who would like to join the committees can write to LTD to express their interest. Officers are self-selected by the members.

Applicability of Programs to Other Areas

Many of the programs implemented by LTD could be implemented in other rural and small urban communities. The efforts to make the fixed-route service as accessible as possible and to offer a variety of travel training and support services show how effective fixed-route services can be in serving riders with disabilities, even in smaller urban communities. The "Travel Host" program, in particular, could increase the effectiveness of travel training programs in any small urban community that operates fixed-route services on a "pulse" design (which makes a transfer necessary for most trips). The low-cost accessible bus design features used throughout the LTD area also are particularly applicable in other rural and small urban fixed-route systems.

The broad array of services that has been created in Lane County also illustrates what can be accomplished when a local transit agency is willing to take the lead to coordinate and administer services, and when local and state agencies fully participate in helping to fund these services. The willingness of state and county agencies to utilize Medicaid funding for Medicaid-eligible trips provided within the overall system is important. The availability of dedicated state STF funding also has been a key to expanding services to outlying rural communities.

Technology

Iowa Statewide Transit ITS Deployment Plan

The Iowa DOT developed a Statewide Transit Intelligent Transportation Systems (ITS) Deployment Plan. The development of the State's rural and small urban transit systems provided a means for transit agencies in the State's rural and small urban communities to utilize ITS applications to support and enhance transit operations.

The ITS deployment plan was based on a thorough assessment of each transit system's individual needs and business practices. Technology was not introduced for the sake of using technology. Rather, it was introduced when clearly defined benefits outweighed the initial and ongoing costs. An important consideration for the project was to take advantage of the national experience gained with rural ITS applications when developing the ITS plan for Iowa.

A consultant provided technical planning support to the State's transit agencies in developing ITS solutions. The objective of the project was to develop a "tool box" of ITS applications that can be deployed fully or in part by the transit agencies throughout the State. In addition, the other key objective was to demonstrate the benefits of ITS. The intent was to develop a Business Case for ITS deployment, such that ITS strategies focus on increasing effectiveness and efficiency in transit operations. The project evaluated the short term (two to three years), thus proven available technology was recommended. The Transit ITS plan is consistent with Iowa's Statewide ITS Architecture and National ITS Architecture.

The Deployment plan has been adopted and is in various stages of implementation.

Other Examples[21]

In Charlottesville, Virginia, JAUNT, which coordinates transportation services for over 50 human service agencies in a four-county area, has implemented an automated, voice-enabled 24/7 telephone reservation system for booking, confirming, and canceling trips. The system assists with scheduling, prepares driver manifests, and also provides automatic notification to riders, via a telephone connection, when vehicles are about to arrive. Several different technologies, including an advanced reservation and scheduling system, AVL, MDT, and IVR have been integrated in this state-of-the-art system.

The Northern Shenandoah Valley Mobility Program in Virginia is developing a web-based coordinated dispatching system that will support "mobility manager" efforts in the area. The system will allow transportation providers in the area to share scheduling and routing information with human service organizations that do not have vehicles. Human service agencies will then be able to request rides for their clients from transportation providers that are listed. The system plans to utilize AVL technology to display routes and vehicle locations. It also will include a Medicaid billing module that will facilitate automatic Medicaid billing and reporting. And the Regional Transportation Program, Inc., in Portland, Maine, has developed an integrated trip planner specifically to assist riders with disabilities in planning trips on various service modes in the area.

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[21]TranSystems in cooperation with RLS & Associates and Nelson\Nygaard Consulting Associates, *Transportation Services for People With Disabilities in Rural and Small Urban Communities, Final Report*, Easter Seals Project ACTION, 2006, pages 121 and 122.

Intercity Services

Colorado[22]

The City of Steamboat Springs is working with Greyhound to subsidize intercity bus service. The subsidy uses Section 5311(f) funds to help operate an intercity bus route on U.S. 40, connecting the Utah/Colorado border with the City and Denver. The total cost of service is $175,249 with $92,000 coming from Section 5311(f) funds and the balance from Greyhound.

Idaho[23]

A not-for-profit agency in northeastern Idaho operates intercity bus routes, which not only connects the given communities, but also feed Greyhound services as well. The agency, Community and Rural Transportation (CART), Inc., is based in Idaho Falls, Idaho. Seven routes are operated and are subsidized with 5311(f) funds. The service utilizes 15-passenger, lift-equipped vans and costs about $150,000 annually. About $24,000 (in FY 2000) is from 5311(f) funds. The balance of funding is from fares, Medicaid reimbursements, and freight shipping fees.

Montana[24]

Valley County in northeastern Montana provides general public transit services. In addition it also provides intercity transportation. The main intercity route connects two cities (Glasgow and Glendive), 200 miles apart. The route serves smaller communities along the way and operates once a week. In addition, the service provides for parcel delivery. The cost of the service is $16,000 annually with one-half coming from the State of Montana from its 5311(f) allocation. The County and donations provide the balance of funding. The communities served by the route apparently provide no funding.

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[22] KFH Group, Inc., *Effective Approaches to Meeting Rural Intercity Bus Transportation Needs*, TCRP Report 79, Transit Cooperative Research Program, 2002, page 124.

[23] KFH Group, Inc., *Effective Approaches to Meeting Rural Intercity Bus Transportation Needs*, TCRP Report 79, Transit Cooperative Research Program, 2002, page 126.

[24] KFH Group, Inc., *Effective Approaches to Meeting Rural Intercity Bus Transportation Needs*, TCRP Report 79, Transit Cooperative Research Program, 2002, pages 135 to 136.

Appendix C. Federal Funding Levels for Arizona

The Fiscal Year 2005 to 2009 Federal funding apportionments to Arizona through SAFETEA-LU is provided on the following two pages. The programs that are most directly applicable to public transportation in rural areas are:

- Special Needs for Elderly Individuals and Individuals with Disabilities (Section 5310);
- Formula Grants for Other Than Urbanized Areas (Section 5311);
- Rural Transportation Assistance Program (Section 5311(b)(3));
- Public Transportation on Indian Reservations (Section 5311 (c)(1));
- Job Access and Reverse Commute (Section 5316) – The apportionment for Nonurbanized Areas Less than 50,000 in population;
- New Freedom Program (Section 5317) – The apportionment for Nonurbanized Areas Less than 50,000 in population; and
- Surface Transportation Program (STP)-Flexible Funds – The allocation to Section 5310 and Section 5311.

Table C.1 is provided on the following two pages.

Table C.1 Federal Funding Levels for Arizona, FY 2005 to FY 2009

Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users (SAFETEA-LU)
Arizona Authorized Programs and Funding Levels -- Fiscal Year 2005 - 2009

Date: 6/21/2007

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Authorization Program	FY 2005	FY 2006*	FY 2007	FY 2008**	FY2009**
Metropolitan Transportation Planning Program (Section 5303)	$1,212,515	$1,548,104	$1,647,393	$1,761,267	$1,868,259
Statewide Transportation Planning Program (Section 5304)	$241,159	$308,041	$328,654	$350,456	$371,746
Urbanized Area Apportionments					
Urbanized Area Formula Program (Section 5307)					
Urbanized areas 1,000,000 or more in population:					
Phoenix--Mesa, AZ	$37,130,533	$37,688,964	$41,539,986	$43,069,509	$45,811,358
Urbanized areas 200,000 to 999,999 in population:					
Tucson	$9,583,896	$9,672,348	$10,230,078	$10,595,557	$11,270,081
Urbanized areas 50,000 to 199,999 in population:					
Avondale	$814,700	$958,078	$869,823	$859,099	$913,790
Flagstaff	$597,917	$612,343	$645,037	$630,006	$670,112
Prescott	$620,808	$638,032	$672,195	$687,279	$731,032
Yuma, AZ--CA	$1,190,222	$1,202,384	$1,265,863	$1,260,012	$1,340,225
Fixed Guidway Modernization Capital Investment Program (Section 5309)					
Phoenix--Mesa, AZ	$2,288,197	$2,654,002	$2,727,749	$3,450,341	$3,797,409
Bus and Bus Facility Allocations (Section 5309)				TBD	TBD
Coconino County Bus Facilities	$0	$990,000	$0		
Coconino County Buses and Bus Facilities for Flagstaff	$1,360,489	$237,947	$250,800		
Coconino County, Bus and Bus Facilities for the Sedona Transit System	$2,526,623	$180,839	$190,608		
East Valley Bus Maintenance Facility	$0	$990,000	$0		
Intermodal Center, Scottsdale	$0	$801,900	$0		
Phoenix, Construct City of Phoenix para-transit facility (Dial-A-Ride)	$340,123	$190,357	$200,640		
Phoenix, Construct metro bus facility in Phoenix's West Valley	$0	$951,786	$1,003,200		
Phoenix, Construct regional heavy bus maintenance facility	$0	$190,357	$200,640		
Phoenix/Avondale/Glendale Bus Expansion	$0	$1,485,000	$0		
Phoenix/Avondale/Glendale Bus Replacement	$1,457,667	$0	$0		
Phoenix/Glendale West Valley Operating Facility	$3,401,224	$990,000	$0		
Scottsdale--Plan, design, and construct intermodal center	$0	$475,893	$501,600		
Sun Tran CNG Buses and Facilities	$0	$1,980,000	$0		
Tempe--Construct East Valley Metro Bus Facility	$6,753,859	$1,237,322	$1,304,160		
Downtown Tempe Transit Center	$777,422	$0	$0		
Tucson Sun Tran Alternative Fuel Bus Replacement	$971,779	$1,485,000	$0		
Tucson Sun Tran Bus Storage and Maintenance Facility	$0	$4,950,000	$0		
Tucson Sun Tran CNG Replacement Buses	$2,672,390	$0	$0		

Table C.1 Federal Funding Levels for Arizona, FY 2005 to FY 2009 (continued)

CONTINUED

Authorization Program	FY 2005	FY 2006*	FY 2007	FY2008**	FY2009**
New Starts Program Allocations (Section 5309)					
Central Phoenix/East Valley LRT	$74,400,000	$88,209,000	$90,000,000	TBD	TBD
Special Needs for Elderly Individuals and Individuals with Disabilities (Section 5310)	$1,723,473	$2,011,510	$2,126,988	$2,303,932	$2,421,844
Formula Grants for Other Than Urbanized Areas (Section 5311)	$3,404,552	$7,855,503	$8,323,026	$8,890,697	$9,396,735
Rural Transportation Assistance Program (Section 5311(b)(3))	$90,271	$108,491	$119,285	$120,998	$127,265
Public Transportation on Indian Reservations (Section 5311 (c)(1))	Program N/A	$783,000	TBD	TBD	TBD
Job Access and Reverse Commute (Section 5316)					
Urbanized Area 200,000 or more in population:					
Phoenix--Mesa	No Funding	$1,437,345	$1,515,115	$1,640,892	$1,730,300
Tucson	No Funding	$441,408	$465,291	$504,066	$531,531
Urbanized Areas 50,000 to 199,999 in population	No Funding	$275,606	$290,494	$314,537	$331,675
Nonurbanized Areas Less than 50,000 in population	No Funding	$491,772	$518,262	$561,393	$591,982
New Freedom Program (Section 5317)					
Urbanized Area 200,000 or more in population:					
Phoenix--Mesa	Program N/A	$816,250	$817,306	$900,676	$952,142
Tucson	Program N/A	$196,373	$223,339	$246,682	$260,779
Urbanized Areas 50,000 to 199,999 in population	Program N/A	$148,388	$138,375	$168,052	$177,655
Nonurbanized Areas Less than 50,000 in population	Program N/A	$200,872	$233,977	$227,465	$240,463
Surface Transportation Program (STP)--Flexible Funds					
ADOT Flex					
Flagstaff, AZ (FMPO/Coconino County)	$258,606	$100,056	$58,950	$58,950	$58,950
Tucson, AZ (PAG)	$822,263	$822,263	$698,651	$698,651	$698,651
Phoenix, AZ (MAG)	$3,152,478	$2,993,928	$3,147,997	$3,147,997	$3,147,997
Yuma, AZ (YMPO)	$155,952	$155,952	$94,947	$94,947	$94,947
Central Yavapai Metropolitan Planning Organization (CYMPO)	$0	$0	$71,654	$71,654	$71,654
Section 5310	$1,182,900	$1,500,000	$1,500,000	$1,500,000	$1,500,000
Section 5311	$927,801	$927,801	$927,801	$927,801	$927,801
Local Flex***					
Pima Association of Governments (PAG)	$190,000	$2,095	$1,333,000	$60,000	$60,000
Phoenix, AZ (MAG)	$3,859,029	$13,364,655	$2,034,665	$0	$0
Congestion Mitigation & Air Quality (CMAQ)--Flexible Funds***					
Maricopa Association of Governments (MAG)	$18,561,754	$3,695,536	$9,639,811	$14,056,633	$11,406,416
Total Arizona Apportionments:	$182,670,602	$198,956,501	$187,857,360	$99,159,549	$101,502,799

*** Reflects the 1% across the board cut in discretionary spending for FY2006**

**** Reflects FY2008 and FY2009 SAFETEA-LU and Discretionary estimated apportionments**

***** Local Flex and CMAQ funding reflect as documented in the STIP to include amendments**

Appendix D. FY 2006 Section 5311 Financial and Performance Criteria

Table D.1 Financial-Based Criteria for Existing Section 5311 Operators, FY 2006

County	Provider Name	Total Operating Revenue	% Federal	% State	% Local	% Directly Generated	% Local + Directly Generated
Apache	Navajo Nation	$633,291	47%	0%	42%	11%	53%
Cochise	City of Bisbee	$192,330	44%	8%	33%	15%	48%
Cochise	City of Sierra Vista	$748,281	47%	33%	8%	12%	19%
Coconino	City of Sedona	$106,933	57%	38%	5%	0%	5%
Gila	Cobre Valley Community Transit	$154,305	47%	1%	43%	9%	52%
Maricopa	Valley Metro Rural Transit	$240,486	69%	23%	4%	4%	8%
Maricopa	Salt River Pima-Maricopa	$341,069	19%	0%	77%	4%	81%
Mohave	City of Bullhead	$826,189	36%	4%	40%	19%	59%
Mohave	City of Kingman	$538,080	37%	4%	46%	13%	59%
Mohave	City of Lake Havasu	$1,681,433	32%	3%	45%	21%	65%
Navajo	City of Show Low	$298,579	50%	4%	35%	12%	46%
Navajo	Hopi Tribe	$76,116	52%	0%	41%	7%	48%
Pima	Pima County Rural Transit	$776,705	37%	18%	34%	11%	44%
Pinal	City of Coolidge	$219,736	40%	20%	30%	10%	40%
Yavapai	City of Cottonwood	$537,127	37%	2%	31%	29%	60%
	All Section 5311 Operations	**$7,370,660**	**39%**	**9%**	**37%**	**15%**	**51%**

Five operators are below a 10% farebox recovery ratio, based on FY 2006 data (Sedona is a free-fare service).
Five operators are below a 45% local plus directly generated funding share, based on FY 2006 data.

Table D.2 Performance-Based Criteria for Existing Section 5311 Operators, FY 2006

County	Provider Name	Operating Expenses	Vehicle Hours	Passenger Trips	Operating Cost per Vehicle Hour	Operating Cost per Passenger Trip	Passenger Trips per Vehicle Hour
Apache	Navajo Nation	$633,291	5,989	35,700	$105.74	$17.74	5.96
Cochise	City of Bisbee	$179,683	3,388	30,302	$53.04	$5.93	8.94
Cochise	City of Sierra Vista	$748,282	15,459	115,782	$48.40	$6.46	7.49
Gila	Cobre Valley Community Transit	$154,305	4,040	14,224	$38.19	$10.85	3.52
Maricopa	Valley Metro Rural Transit	$338,486	6,425	2,842	$52.68	$119.10	0.44
Maricopa	Salt River Pima-Maricopa	$326,978	10,934	17,754	$29.90	$18.42	1.62
Mohave	City of Bullhead	$796,811	16,037	113,993	$49.69	$6.99	7.11
Mohave	City of Kingman	$506,493	10,172	66,194	$49.79	$7.65	6.51
Mohave	City of Lake Havasu	$1,678,830	44,827	136,817	$37.45	$12.27	3.05
Navajo	City of Show Low	$298,579	7,456	104,486	$40.05	$2.86	14.01
Navajo	Hopi Tribe	$70,991	2,577	5,025	$27.55	$14.13	1.95
Pima	Pima County Rural Transit	$663,831	17,069	100,446	$38.89	$6.61	5.88
Pinal	City of Coolidge	$219,736	5,172	21,962	$42.49	$10.01	4.25
Yavapai	City of Cottonwood	$526,291	14,787	45,528	$35.59	$11.56	3.08
	Total of All Section 5311 Operations:	**$7,142,587**	**164,332**	**811,055**			
	Average for All Section 5311 Operations:				**$43.46**	**$8.81**	**4.94**
	150% x average operating cost per vehicle hour:				**$65.20**		
	200% x average operating cost per passenger trip:					**$17.61**	
	50% x average passenger trips per vehicle hour:						**2.47**

City of Sedona is a new service and did not performance data in FY 2006.

One operator is above 150% x average Section 5311 operating cost per vehicle hour, based on FY 2006 data.
Three operators are above 200% x average Section 5311 operating cost per passenger trip, based on FY 2006 data.
Three operators are below 50% x average Section 5311 passenger trips per vehicle hour, based on FY 2006 data.

Note: Section 5311 operators differ with respect to service area, service modes, days/hours of operation, passenger trip purposes, and average passenger trip lengths. As such, these criteria are designed to establish relatively broad ranges of acceptable performance. Exceptions to these criteria should be made for systems that are showing consistent annual improvements in measures that are not being met. There should also be a two-year grace period for new Section 5311 program operators, and for operators that are deemed to have either significantly expanded or significantly restructured their service provision.