



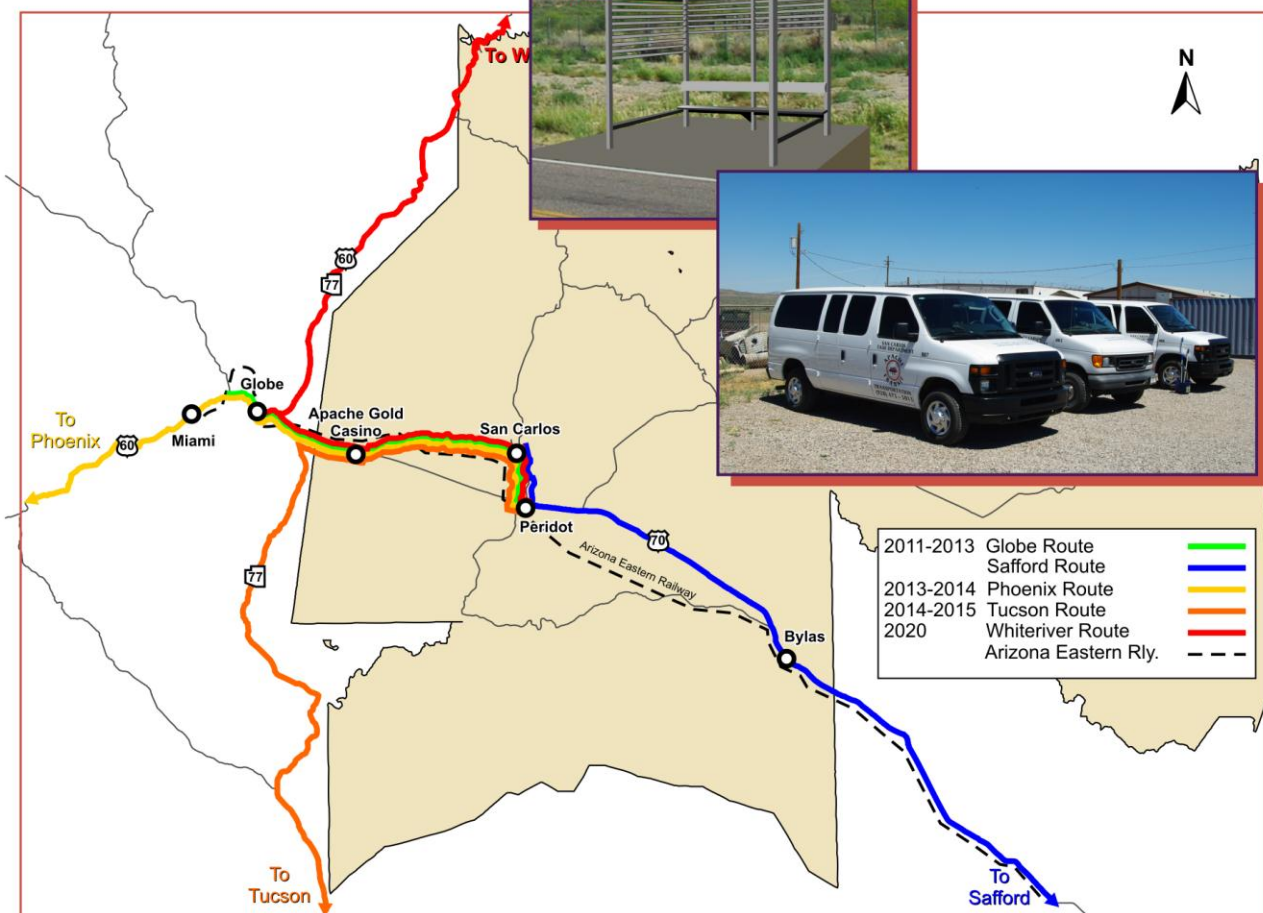
San Carlos Apache Tribe Transit Feasibility Study



Final Report



August 31, 2011



Prepared for

**San Carlos Apache
Nnee Bich'o Nii
Services**



**Arizona Department
of Transportation**



Prepared by

JACOBS™

R-H-B
R. H. BOHANNAN & ASSOCIATES, LLC

TABLE OF CONTENTS

	<u>Page</u>
1. INTRODUCTION	1
BACKGROUND	1
STUDY APPROACH	3
SUMMARY OF FINDINGS	3
2. EXISTING SOCIOECONOMIC AND TRANSPORTATION CONDITIONS	5
SAN CARLOS APACHE TRIBE DEMOGRAPHICS.....	5
CURRENT TRANSPORTATION SERVICES.....	5
SAN CARLOS APACHE NNEE BICH'ONII SERVICES	
FEDERAL GRANT APPLICATIONS	14
OTHER TRIBAL TRANSPORTATION PROVIDERS	15
ARIZONA EASTERN RAILWAY	16
COBRE VALLEY COMMUNITY TRANSIT	17
3. PREVIOUS STUDIES AND PLANS.....	20
ARIZONA EASTERN RIDERSHIP DEMAND STUDY, 2009.....	20
ARIZONA RURAL TRANSIT NEEDS STUDY, 2008.....	21
CASA GRANDE PUBLIC TRANSIT IMPLEMENTATION STUDY, 2009.....	21
GILA COUNTY SMALL AREA TRANSPORTATION STUDY, 2006.....	22
GILA COUNTY PASSENGER RAIL STUDY, 2008	23
GRAHAM COUNTY TRANSIT FEASIBILITY REVIEW, 2007	25
PAYSON PUBLIC TRANSIT FEASIBILITY STUDY, 2007	25
PINAL COUNTY COMPREHENSIVE PLAN UPDATE, 2009	26
PINAL COUNTY SMALL AREA TRANSPORTATION STUDY,	
TRANSIT ELEMENT, 2006	27
PINAL COUNTY TRANSIT FEASIBILITY STUDY, 2010	28
SAN CARLOS LONG RANGE TRANSPORTATION STUDY, 2009	28
STATEWIDE TRANSPORTATION PLANNING FRAMEWORK STUDY, 2010 ...	29
4. CURRENT TRANSIT SERVICE NEEDS AND DEMAND	30
CURRENT TRANSIT SERVICE NEEDS	30
OTHER AREA TRANSIT ISSUES	30
CURRENT TRANSIT DEMAND.....	31
SUMMARY OF CURRENT TRANSIT DEMAND ESTIMATION.....	37
5. FUTURE TRANSIT SERVICE NEEDS AND DEMAND	38
FUTURE DEMOGRAPHIC SUMMARY	38
FUTURE TRANSIT SERVICE NEEDS	38
FUTURE TRANSIT DEMAND METHODOLOGY	39

TABLE OF CONTENTS (Continued)

	<u>Page</u>
6. DRAFT TRANSIT IMPROVEMENT PLAN	43
SHORT-TERM PLAN.....	43
MID-TERM PLAN.....	57
LONG-TERM PLAN.....	60
7. PRO-FORMA FINANCIAL SUMMARY	62
TRANSIT IMPROVEMENT PLAN.....	62
CAPITAL IMPROVEMENT PROGRAM SUMMARY.....	62
8. MARKETING, MAINTENANCE, AND SAFETY PROGRAMS	66
MARKETING PLAN SUMMARY	66
FLEET MAINTENANCE PLAN SUMMARY	67
SAFETY PROGRAM SUMMARY	68
REFERENCES	70

LIST OF TABLES

	<u>Page</u>
2-1. SAN CARLOS APACHE TRIBE DEMOGRAPHICS	5
2-2. GLOBE SHUTTLE SCHEDULE	8
2-3. APACHE GOLD CASINO ROUTE SCHEDULE.....	10
2-4. SAFFORD ROUTE SCHEDULE	11
2-5. SAN CARLOS APACHE NNEE BICH'O NII SERVICES VEHICLES - FISCAL 2009-2010	12
2-6. MINIMUM LIFE-CYCLE COST REPLACEMENT AGES AND MILEAGES BY SERVICE-LIFE CATEGORY	13
2-7. ESTIMATED CURRENT VEHICLE FLEET MILEAGE	13
2-8. TRIBAL TRANSPORTATION GRANT APPLICATION BUDGET	14
2-9. APACHE GOLD CASINO BUS PICK-UP LOCATIONS	15
3-1. SUMMARY OF ARIZONA EASTERN RAILWAY RIDERSHIP DEMAND ESTIMATION	21
3-2. POTENTIAL RAILWAY RIDERSHIP SCENARIO.....	21
3-3. TRANSIT RECOMMENDATIONS OF SAN CARLOS LONG RANGE TRANSPORTATION PLANNING STUDY	29
4-1. CURRENT POPULATION OF SERVICE GROUPS IN SERVICE AREA	33
4-2. CALCULATION OF VEHICLE MILES PER SQUARE MILE.....	33
4-3. TCRP SERVICE FACTOR CALCULATIONS	34
4-4. TCRP ESTIMATION OF TRANSIT DEMAND	34
4-5. ESTIMATION OF TRANSIT DEMAND – TCRP ALTERNATIVE METHOD..	35
4-6. CURRENT TRANSIT DEMAND USING SURVEY RESEARCH METHOD	36
5-1. HORIZON YEAR FORECASTED TRIBAL DEMOGRAPHICS	38
5-2. SUMMARY OF TRIBAL SURVEY RESULTS	40

LIST OF TABLES (Continued)

	<u>Page</u>
5-3. SUMMARY OF TCRP FUTURE DEMAND ESTIMATION PROCESS.....	41
5-4. VEHICLE MILES PER SQUARE MILE FOR EACH TIME HORIZON	42
6-1. PROPOSED GLOBE SCHEDULE	45
6-2. PROPOSED SAFFORD SCHEDULE	47
6-3. PROPOSED PHOENIX SCHEDULE.....	50
6-4. PROPOSED TUCSON SCHEDULE	53
6-5. PROPOSED WHITERIVER SCHEDULE	57
7-1. SUMMARY OF FLEET AND DRIVER REQUIREMENTS	63
7-2. TRANSPORTATION IMPROVEMENT PLAN	64
7-3. CAPITAL IMPROVEMENT PROGRAM SUMMARY	65

LIST OF FIGURES

	<u>Page</u>
1-1. STUDY AREA	2
2-1. SAN CARLOS APACHE NNEE BICH'O NII STAFF	7
2-2. APACHE GOLD CASINO ROUTE	9
2-3. BYLAS MOUNT TURNBULL APACHE MARKET	10
2-4. THE <i>COPPER SPIKE</i> CRUISING BETWEEN GLOBE AND BIXBY	16
2-5. COBRE VALLEY COMMUNITY TRANSIT FARE ZONE MAP AND NEW VANS	19
3-1. FLOOR PLAN OF ELDORADO AEROTECH 24-FOOT CUTAWAY BUS PROPOSED FOR CASA GRANDE	23
3-2. ARIZONA EASTERN'S 2006 "SPIKE" RAILCAR AT APACHE GOLD CASINO DEPOT	24
3-3. PROPOSED GRAHAM COUNTY CHECKPOINT BUS ZONES	25
4-1. SAN CARLOS APACHE NNEE BICH'O NII SERVICES SERVICE AREA	32
4-2. CURRENT TRIP RATES FOR ALTERNATIVE ESTIMATION PROCEDURE	35
6-1. SAN CARLOS APACHE NNEE BICH'O NII SERVICES PICK-UP POINTS AND FARE ZONES	46
6-2. SAFFORD ROUTE	48
6-3. PHOENIX ROUTE	51
6-4. TUCSON ROUTE	54
6-5. WHITERIVER ROUTE	58
6-6/ BUS SHELTER LOCATIONS AND CONCEPT	59
6-7. PROPOSED SAN CARLOS APACHE NNEE BICH'O NII LONG-TERM ROUTE NETWORK	51

1. INTRODUCTION

BACKGROUND

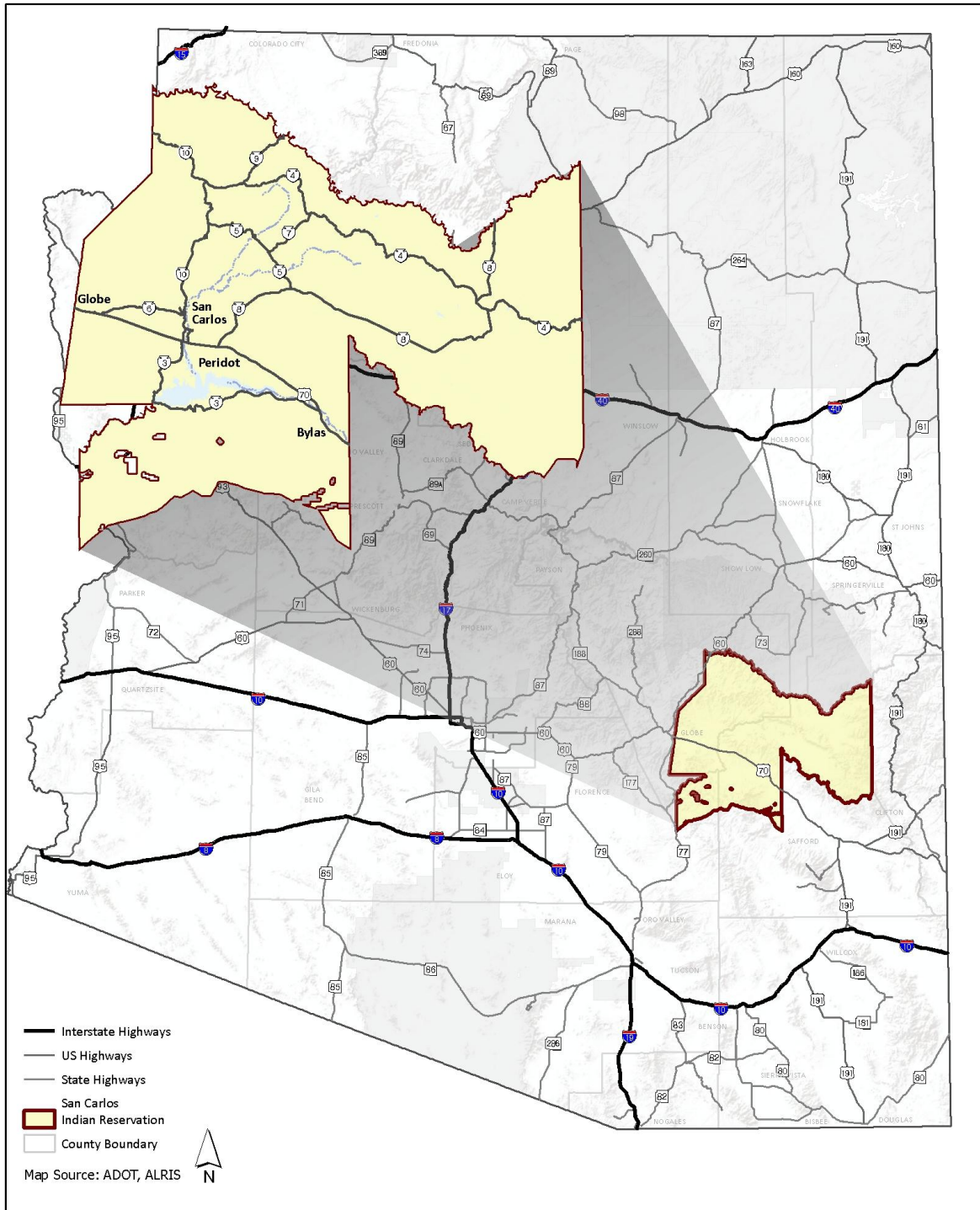
In October 2009, the San Carlos Apache Tribe completed an update to their Long-Range Transportation Plan (LRTP). One of the recommendations from the LRTP was for the Tribe to conduct an extensive transit feasibility study to evaluate the existing services and identify improvement opportunities. In addition, the Tribe is seeking support in preparing the required documentation to assist in the development of Federal and State transit funding grants. The San Carlos Apache Transit Services (SCATS) applied for, and received Planning Assistance for Rural Areas (PARA) program funding from the Arizona Department of Transportation (ADOT) Multimodal Planning Division to conduct the Transit Feasibility Study. The Study Area is the extents of the San Carlos Apache Nation as shown in Figure 1-1.

In July 2011, A Tribal resolution was adopted officially changing the name of the transit system from San Carlos Apache Transit Services to “San Carlos Apache Nnee Bich'onii Services.” Nnee Bich'onii means “Helping Our Apache People” in the Apache Language. San Carlos Apache Nnee Bich'onii Services provides services to elderly and disabled Tribal members, Tribal recipients of Temporary Assistance to Needy Families (TANF), other Tribal members—many of whom are living at or below the poverty level—and employees of the Apache Gold Casino and Resort. Apache Transit receives funding through the Tribal Transportation Program (TTP), as well as the FTA 5316 Job Access and Reverse Commute (JARC) and FTA 5317 New Freedom programs.

The San Carlos Apache Tribe operates its very own TANF department and has become the 64th federally-recognized tribe in the nation. The Department of Economic Security (DES) and the Family Assistance Administration (FAA), operating as subcontractors under San Carlos Apache Nnee Bich'onii Services, determine eligibility of applicants for receipt of cash assistance only. Once approved, TANF clients are referred to San Carlos Apache Nnee Bich'onii Services for employment, training, education, vocational training, and transportation services. The principal goal of San Carlos Apache Nnee Bich'onii Services is to end Tribal enrollee dependence on public assistance.

Lack of personal mobility has consistently been identified by Tribal and BIA transportation departments as a concern for individuals living within the San Carlos Apache Nation and other Tribal lands. This Feasibility study assessed the specific transit needs of San Carlos Apache tribal members and developed a plan for an expansion of services in order to more effectively serve San Carlos Apache tribal members with their current and future needs.

FIGURE 1-1. STUDY AREA



Source: Jacobs Engineering Group

STUDY APPROACH

The study consists of two separate phases: The first phase focuses on the feasibility of expanding and enhancing the San Carlos Apache Transit Services operation, and the second phase is the development of a five-year plan for implementing the recommended enhancements and service expansion. This is the Final Report for the first phase of the study.

The consultant began by inventorying the current transit conditions. The findings of this inventory are summarized in Chapter 2. Next, the consultant reviewed pertinent sections of relevant previously-conducted and on-going studies. Summaries of these reviews are presented in Chapter 3.

The consultant modeled the current demand for regional transit service to, from, and within the Study Area using the Workbook for Estimating Demand for Rural Passenger Transportation, Transit Cooperative Research Program (TCRP) Report No. 3, published by the Transportation Research Board and sponsored by the Federal Transit Administration. Available SCAT ridership data were used to validate these findings, and unmet regional and local public transportation needs of seniors, youths, mobility-limited persons, and others were identified. This process is described in Chapter 4.

Chapter 5 discusses future conditions, deficiencies, and estimates of future transit demand. Recommended short-, mid-, and long-term improvements and service expansions are presented in Chapter 6, and a pro-forma financial summary is presented in Chapter 7. Chapter 8 summarizes marketing, maintenance, and safety plans to be presented in full in the five-year implementation plan.

SUMMARY OF FINDINGS

- The Study Area has a higher than average percentage of persons living below the poverty level and hence a high number of potentially transit-dependent individuals.
- The existing San Carlos Apache Nnee Bich'o Nii Services operation is well-run, the morale of management and staff is high, and the vehicles are clean and well-maintained. This “can do” atmosphere facilitates creative and flexible management and the development of a long-range vision.
- The management has been aggressive about pursuing federal grants to support capital improvements and operations—and largely successful in obtaining them. The management has worked proactively to develop productive relationships with ADOT, adjoining jurisdictions, and other agencies.
- The operation receives political and financial support from the Tribal government, and is well-received by Tribal residents.
- Although the Tribal area population is forecasted to grow slowly, both current unmet needs and future demand exist for improvement and expansion of the San Carlos Apache Nnee Bich'o Nii Services system.

- During the duration of this study, a survey of Tribal residents was conducted by San Carlos Apache Nnee Bich'o Nii Services personnel that confirmed a broad level of public support for expanded transit services.
- Future potential exists for coordinating services with connecting transit operations such as Cobre Valley Community Transit and future Safford-area transit service. Long-range potential exists for coordinating with rural passenger rail service operated by Arizona Eastern Railway.
- This study proposes a phased expansion of services to destinations outside the Study Area to which service is desired by Tribal residents, including Phoenix and Tucson. While operation of these connections by San Carlos Apache Nnee Bich'o Nii Services is feasible and proposed herein, some or all of these external connections might eventually be provided by ADOT, or by a regional transit authority. Such an authority could be funded and managed through a joint powers agreement whose participants could include the San Carlos Apache Tribe, Gila, Pinal, and Maricopa Counties, the Cities of Apache Junction, Globe, Superior, the Towns of Hayden, Miami, and Winkelman, and other participants.
- Upgrades to the San Carlos Apache Nnee Bich'o Nii Services communications system are needed, including additional mountaintop radio repeaters, to maintain safety and operational control as the system grows.
- The high number of miles travelled annually will require an on-going fleet replacement program and the funding to support it. The rising cost of fuel could result in significantly increased annual operating costs, as well.
- As the system grows, marketing, maintenance, and safety procedures will need to evolve accordingly, and improved maintenance facilities will be needed.

2. EXISTING SOCIOECONOMIC AND TRANSPORTATION CONDITIONS

This chapter provides a summary of Tribal demographics and the current San Carlos Apache Nnee Bich'o Nii Services operation.

SAN CARLOS APACHE TRIBE DEMOGRAPHICS

The current Tribal enrolled resident population is estimated to be 10,943, and the non-enrolled population is approximately 3,000. Total population living within the San Carlos Apache Nation is 13,943, as presented in Table 2-1.

TABLE 2-1. SAN CARLOS APACHE TRIBE DEMOGRAPHICS

	Population				Growth Rate per Year	
	2000	2008				
Total Population	N/A	13,943				
Enrolled Population	9,425	10,943			2.01%	
Non-Enrolled Population	N/A	3,000				
	San				Rural	
YEAR 2008	Carlos	Peridot	Bylas	Cutter	Area	Total
Population	5,090	3,205	2,502	21	3,125	13,943
Occupied DU	969	588	471	8	624	2,660
Total Employment	1,133	330	56	543	98	2,160
Total Students	985	326	0	0	185	1,496

Source: Developed by Jacobs through analysis and extrapolation of Census 2000 data.

Most of the population reside within or adjacent to the Tribal capital of San Carlos, Cutter, Peridot, and Bylas, and along the route of the Arizona Eastern Railway and US Highway 70. In fact, 2,694 out of the 2,782 total residential dwellings in the Nation are located within a ten-mile wide corridor centered on these alignments.

CURRENT TRANSPORTATION SERVICES

San Carlos Apache Nnee Bich'o Nii Services operates three scheduled routes, together with a variety of demand-response and contract services. The scheduled routes include the following:

- Apache Gold Casino commuter shuttle service between Bylas, Peridot, San Carlos, and the Casino for the benefit of Casino employees
- Globe shuttle for use by students from Tribal communities attending classes at the Gila Community College Globe campus, together with persons traveling to downtown Globe or to Wal-Mart

- Safford Route for use by students attending classes at Eastern Arizona College in Thatcher and the Discovery Park in Safford

The San Carlos Apache Nnee Bich'o Nii Services provides on-call demand-response service for all community members, recreational transportation services for Tribal elders, and other special event transportation. Examples of this service are:

- Transportation for local youth to attend the Native Vision Camp, Santa Fe, New Mexico, June 2010
- Transportation for participants in the San Carlos Gilson Wash Coalition and San Carlos Peridot Coalition Programs to attend a conference in- Shiprock, New Mexico, August 2 through August 8, 2010
- Transportation for participants in the San Carlos Health & Human Services Workshop, Apache Gold Convention Center, August 3, 2010
- Transportation for participants in the San Carlos W.I.A. Program- Workshop, Apache Gold Convention Center, August 9, 2010
- Transportation for participants in the Peridot Coalition Program Acorn Picking expedition, August 20-22, 2010

Transit Service Developed as a Part of the Tribe's TANF Program

States receive Temporary Assistance for Needy Families (TANF) funds to provide cash assistance, work opportunities, and other needed support services for needy families with children. These funds are provided to assist states in developing and implementing welfare programs and are provided by the Office of Family Assistance, a part of the U. S. Department of Health and Human Services. TANF Funds may be used for transportation projects. In Arizona, TANF funds are administered by the Department of Economic Security (DES) Division of Employment and Rehabilitative Services. Qualifying families can receive assistance with bus tickets and taxi fares, as well as recycled bicycles and car repairs.

The San Carlos Apache Tribe made use of FTA Job Access and Reverse Commute (JARC) funds, matched by Tribal General Funds, to establish the beginnings of a regional transit system serving Tribal enrollees, including those receiving TANF assistance. Fares of TANF recipients are waived and the equivalent amounts recorded as part of the "in-kind" match for the JARC grant funds. The Tribal policy is to interpret TANF as a welfare-to-work program and to make use of the transit service to transport enrollees to and from jobs as well as support education and training programs structured to enhance employment opportunities. As of November 1, 2010, 453 paid employment placements have been made, and a work participation rate of over 20 percent has been achieved. The TANF case load has been reduced from 737 to 458 enrollees and the employment retention rate is being evaluated.

In August 2010, the Tribe restructured the public transportation program, reclassifying the staff, hiring five new drivers, and implementing the scheduled routes mentioned above. The transit services are administered from the Peridot TANF office on US Highway 70. Also in 2010, the Tribe implemented a GPS tracking system to monitor the location and speed of the

fleet vehicles in real time. This system can also facilitate the efficient dispatching of demand-response services and the minimizing of “dead-head” miles traveled by vehicles. As the system has grown, additional funding has been obtained from other federal programs such as the Federal Transit Administration’s Section 5316 Job Access and Reverse Commute (JARC) and 5317 New Freedom programs.

Ms. Bernadette Kniffin, SCAT Transit Administrator and Tribal Project Manager for the San Carlos Apache Tribe Transit Study, has led the effort to improve and expand public transportation services for the San Carlos Apache Nation. She is ably assisted by transit staffers who posed with one of the system’s new vehicles in Figure 2-1.

FIGURE 2-1. SAN CARLOS APACHE NNEE BICH'O NII SERVICES STAFF



Source: San Carlos Apache Nnee Bich'o Nii Services

Table 2-2 presents the Globe Shuttle schedule that was implemented effective October 12, 2010. During October 2010, the TANF and Transit services carried a total of 2,212 passengers.

TABLE 2-2. GLOBE SHUTTLE SCHEDULE

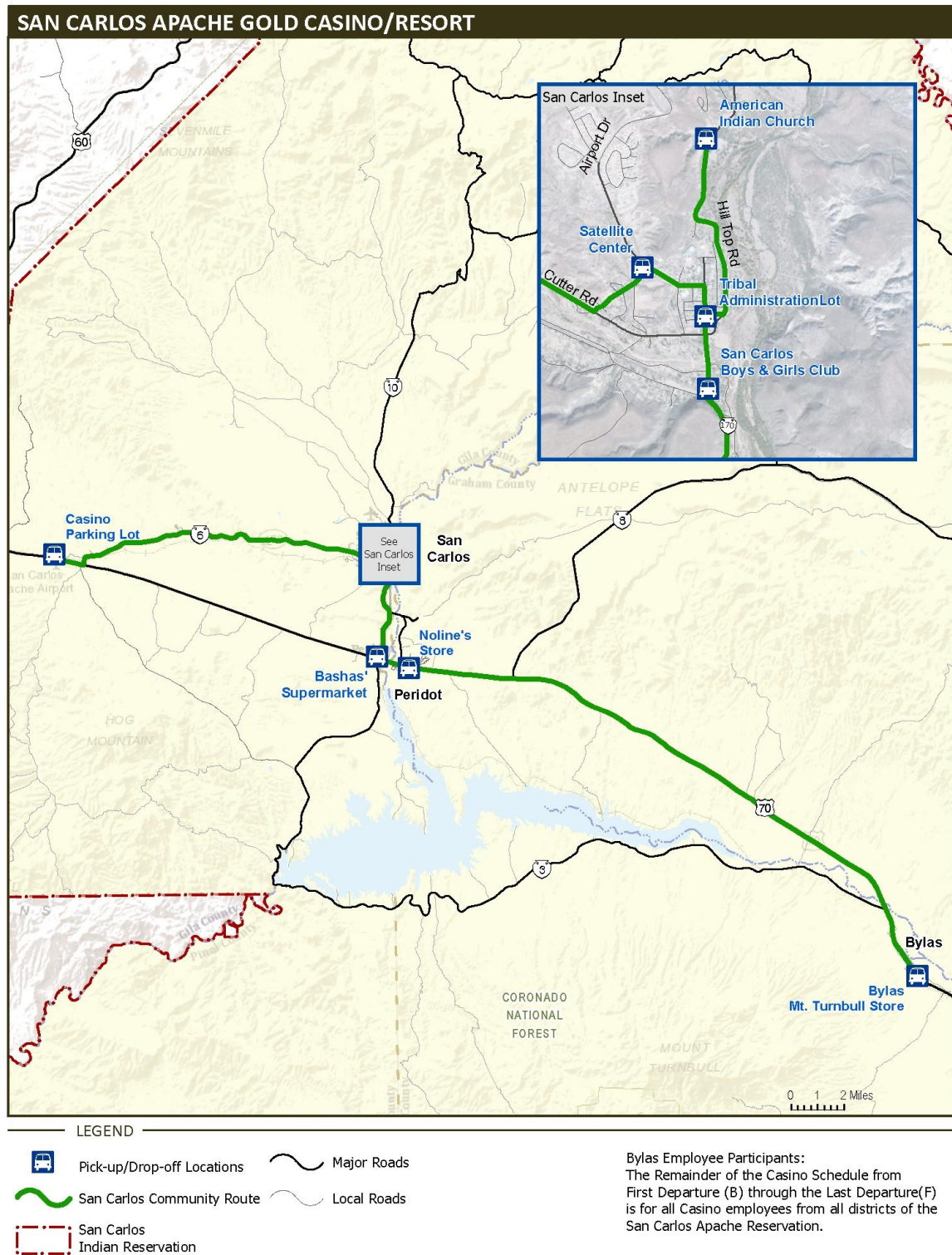
Pick-up Locations	Pick-up Schedule			
	1st RUN	2nd RUN	3rd RUN	4th RUN
Peridot TANF	6:45 AM	11:45 AM	3:45 PM	6:45 PM
China Town (Old. B. Ball Court)	6:50 AM	11:50 AM	3:50 PM	6:50 PM
Tribal Administration Area	6:55 AM	11:55 AM	3:55 PM	6:55 PM
Talkalai Lake Turn-Off	7:00 AM	12:00 PM	4:00 PM	7:00 PM
Across Airport 79 Tire Shop	7:05 AM	12:05 PM	4:05 PM	7:05 PM
Satellite Center	7:10 AM	12:10 PM	4:10 PM	7:10 PM
Apache Gold Casino	7:30 AM	12:30 PM	4:30 PM	7:30 PM
Across Express Stop	7:40 AM	12:40 PM	4:40 PM	7:40 PM
Gila Community College	7:50 AM	12:50 PM	4:50 PM	7:50 PM
Downtown Globe/ Arizona Eastern Depot	7:55 AM	12:55 PM	4:55 PM	7:55 PM
Globe Wal-Mart	8:10 AM	1:10 PM	5:10 PM	8:10 PM
Departure Locations	Departure Schedule			
	1st RUN	2nd RUN	3rd RUN	4th RUN
Globe Wal-Mart	8:20 AM	1:20 PM	5:20 PM	8:20 PM
Downtown Globe/ Arizona Eastern Depot	8:35 AM	1:35 PM	5:35 PM	8:35 PM
Gila Community College	8:40 AM	1:40 PM	5:40 PM	8:40 PM
Across Express Stop	8:50 AM	1:50 PM	5:50 PM	8:50 PM
Apache Gold Casino	9:00 AM	2:00 PM	6:00 PM	9:00 PM
Satellite Center	9:20 AM	2:20 PM	6:20 PM	9:20 PM
Across Airport 79 Tire Shop	9:25 AM	2:25 PM	6:25 PM	9:25 PM
Talkalai Lake Turn-Off	9:30 AM	2:30 PM	6:30 PM	9:30 PM
Tribal Administration Area	9:35 AM	2:35 PM	6:35 PM	9:35 PM
China Town (Old. B. Ball Court)	9:40 AM	2:40 PM	6:40 PM	9:40 PM
Bashas'	9:45 AM	2:45 PM	6:45 PM	9:45 PM
Peridot TANF				

Schedule times are subject to change.

Source: San Carlos Apache Nnee Bich'o Nii Services

Figure 2-2 depicts the Apache Gold Casino Route and Table 2-3 presents the schedule for the Apache Gold Casino Route. On the third return trip, Casino employees may be delivered directly to their homes due to passenger safety concerns. Figure 2-3 depicts the Bylas Mount Turnbull Apache Market, the origin point of the route.

FIGURE 2-2. APACHE GOLD CASINO ROUTE



Sources: San Carlos Apache Tribe; Jacobs Engineering Group

TABLE 2-3. APACHE GOLD CASINO ROUTE SCHEDULE

Pick-up Location		Pick-Up Schedule			
		Extra Run*	1st RUN	2nd RUN	3rd RUN
Lv.	Bylas - Mt. Turnbull Market	7:00 AM		2:30 PM	10:30 PM
Lv.	Noline's Country Store		6:55 AM	2:55 PM	10:55 PM
Lv.	Bashas'		7:00 AM	3:00 PM	11:00 PM
Lv.	San Carlos Boys & Girls Club		7:10 AM	3:10 PM	11:10 PM
Lv.	American Indian Church		7:15 AM	3:15 PM	11:15 PM
Lv.	Tribal Administration		7:20 AM	3:20 PM	11:20 PM
Lv.	GCC Satellite Center		7:25 AM	3:25 PM	11:25 PM
Ar.	Apache Gold Casino	7:45 AM	7:45 AM	3:45 PM	11:45 PM

Departure/Drop-off Location		Departure/Drop-off Schedule			
		1st RUN	2nd RUN	3rd RUN	
Lv.	Apache Gold Casino	8:35 AM	4:35 PM	12:35 AM	
Lv.	GCC Satellite Center	8:55 AM	4:55 PM	12:55 AM	
Lv.	Tribal Administration	9:00 AM	5:00 PM	1:00 AM	
Lv.	American Indian Church	9:10 AM	5:10 PM	1:10 AM	
Lv.	San Carlos Boys & Girls Club	9:20 AM	5:20 PM	1:20 AM	
Lv.	Bashas'	9:30 AM	5:30 PM	1:30 AM	
Lv.	Noline's Country Store	9:35 AM	5:35 PM	1:35 AM	
Ar.	Bylas - Mt. Turnbull Market	10:00 AM	6:00 PM	2:00 AM	

Schedule times are subject to change.

*Extra Run is primarily for the purpose of positioning the vehicle to depart from the Casino at 8:35 am.

Source: San Carlos Apache Nnee Bich'o Nii Services

FIGURE 2-3. BYLAS MOUNT TURNBULL APACHE MARKET

—Rob Bohannon photo

Table 2-4 presents the Safford Route schedule, which provides service to the Eastern Arizona College in Thatcher, the Safford Wal-Mart, and Discovery Park.

TABLE 2-4. SAFFORD ROUTE SCHEDULE

Pick-up Locations	Pick-up Schedule			
	1st RUN	2nd RUN	3rd RUN	
Peridot TANF	6:20 AM	10:30 AM	2:10 PM	
San Carlos Satellite Center	6:30 AM	10:40 AM	2:20 PM	
American Indian Church	6:35 AM	10:45 AM	2:25 PM	
San Carlos Boys & Girls Club	6:40 AM	10:50 AM	2:30 PM	
Noline's Country Store	6:45 AM	10:55 AM	2:35 PM	
Bylas Rest Area	7:15 AM	11:25 AM	3:05 PM	
Eastern Arizona College	7:50 AM	12:00 PM	3:40 PM	
Safford DES Area	8:00 AM	12:10 PM	3:50 PM	
Safford Wal-Mart	8:05 AM	12:15 PM	3:55 PM	
Discovery Park			4:00 PM	

Departure Locations	Departure Schedule			
	1st RUN	2nd RUN	3rd RUN	4th RUN*
Discovery Park			3:55 PM	8:05 PM
Safford Wal-Mart	8:10 AM	12:20 PM	4:00 PM	8:10 PM
Safford DES Area	8:15 AM	12:25 PM	4:05 PM	
Eastern Arizona College	8:25 AM	12:35 PM	4:15 PM	8:35 PM
Bylas Rest Area	9:00 AM	1:10 PM	4:50 PM	**
Noline's Country Store	9:30 AM	1:40 PM	5:20 PM	**
San Carlos Boys & Girls Club	9:35 AM	1:45 PM	5:25 PM	**
American Indian Church	9:40 AM	1:50 PM	5:30 PM	**
San Carlos Satellite Center	9:45 AM	1:55 PM	5:35 PM	**
Peridot TANF	9:55 AM	2:05 PM	5:45 PM	**

First, Second, and Third Runs operate Monday through Friday

*Forth Run operates Tuesday through Thursday

**Stops to drop off passengers only as needed

Schedule times are subject to change.

Source: San Carlos Apache Nnee Bich'o Nii Services

Current Vehicle Fleet

Table 2-5 presents the current Transit and TANF vehicle fleet. Nine vehicles comprise the transit fleet and three are reserved for TANF use. A tenth transit vehicle, acquired through the FTA 5317 New Freedom program, was delivered in the spring of 2011.

The vehicles were purchased from McSpadden Ford, Inc., in Globe, which performs routine mechanical maintenance on the vans including periodic oil changes, engine diagnostics, and tire alignment and repair. These mechanical maintenance costs average \$0.03 per mile and tend to increase as the vehicles age. (source: McSpadden Ford, Inc.) Vehicle cleaning and washing is performed by Tribal personnel, and the vans are kept in excellent condition and appearance. High-mileage vehicles are traded in for new ones, subject to available funding.

TABLE 2-5. SAN CARLOS APACHE NNEE BICH'ONII SERVICES VEHICLES - FISCAL 2009-2010

Year/Make/Model	License Plate No.	VIN #	Department	Vehicle No.	Purchase Date	Cost
Transit Vehicles						
09 Ford Econoline Van	G-270FP	1FBSS31L69DA89421	FTA	#009	10/2009	\$41,584.96
09 Ford Econoline Van	G-620FM	1FBNE31L99DA89420	FTA	#008	09/2009	\$20,800.00
09 Ford Econoline Van	G-619FM	1FBNE31L29DA89419	FTA	#007	09/2009	\$20,803.96
05 Ford Econo Van Lg.	G-364EA	1FBSS31L95HB12760	Tribal Funds	#006	03/2005	\$20,068.30
04Ford E-350 Van Sm.	G-070DB	1FBNE31L44HA20572	Tribal Funds	#005	12/2003	\$28,455.00
08 Ford Econo Van Lg	G-884FE	1FBSS31L58DA80496	Tribal Funds	#004	02/2008	\$23,870.00
08 Ford 350 Econo Van	G-707FS	1FBNE31L68DB40208	ADOT/Tribe	#003	10/2008	\$31,840.00
08 Ford 350 Econo Van	G-706FS	1FBNE31L48DB40207	ADOT/ Tribe	#002	10/2008	\$31,840.00
08 Ford 350 Econo Van	G-705FS	1FBNE31L28DB40206	ADOT/ Tribe	#001	10/2008	\$31,840.00
TANF Vehicles						
03 Ford Focus Red	G-085DB	1FAFP33P13W309838	Tribal Funds	#T1	10/2003	\$13,102.06
08 Ford 150 Truck	G-874EZ	1FTRX12W88KD09077	Tribal Funds	#T2	12/2008	\$23,870.00
08 Dodge Avenger SD	G-022FP	1B36C46K98N296897	Tribal Funds	#T3	06/2009	\$20,330.00

Source: San Carlos Apache Nnee Bich'onii Services, Revised: January 6, 2010

Table 2-6 presents the minimum life cycle cost replacement ages and mileages by vehicle type. All vehicles in the existing fleet are in the “Light Duty Small Bus/Van” category. Table 2-7 presents the estimated mileages of the current vehicle fleet.

TABLE 2-6. MINIMUM LIFE-CYCLE COST REPLACEMENT AGES AND MILEAGES BY SERVICE-LIFE CATEGORY

Vehicle Type / Category	Annual Vehicle Mileage	Minimum Cost Age	Minimum Cost Mileage
Heavy-Duty Large Bus:	25,000	17	425,000
12-Years / 500,000 Miles	35,000	14	490,000
	45,000	12	540,000
Heavy-Duty Small Bus:	25,000	12	300,000
10-Years / 350,000 Miles	35,000	11	385,000
	45,000	11	495,000
Medium-Duty Small Bus:	25,000	9	225,000
7-Years / 200,000 Miles	35,000	8	280,000
	45,000	7	315,000
Light-Duty Midsize Bus/Van:	20,000	7	140,000
5-Years / 150,000 Miles	30,000	6	180,000
	40,000	5	200,000
Light-Duty Small Bus/Van:	20,000	6	120,000
4-Years / 100,000 Miles	30,000	5	150,000
	40,000	4	160,000

Note: Shaded cells indicate where minimum cost point exceeds FTA age or mileage minimums.

Source: Federal Transit Administration, *Useful Life of Transit Buses and Vans, Final Report*, April 2007.

TABLE 2-7. ESTIMATED CURRENT VEHICLE FLEET MILEAGE

Vehicle Description	Vehicle Number	Date Purchased	Prior Mileage	2011-2012	
				Annual Miles per Vehicle	Accumulated Miles per Vehicle
08 Ford 350 Econo Van	#001	10/01/08	49,965	28,367	78,332
08 Ford 350 Econo Van	#002	10/01/08	47,047	28,367	75,414
08 Ford 350 Econo Van	#003	10/01/08	50,114	28,367	78,481
08 Ford Econo Van Lg	#004	02/01/08	121,594	28,367	149,961
04Ford E-350 Van Sm.	#005	12/01/03	141,359	28,367	169,726
05 Ford Econo Van Lg.	#006	03/01/05	151,222	28,367	179,589
09 Ford Econoline Van	#007	09/01/09	53,134	28,367	81,501
09 Ford Econoline Van	#008	09/01/09	65,923	28,367	94,290
09 Ford Econoline Van	#009	10/01/09	837	28,367	29,204

Sources: San Carlos Apache Nnee Bich'onii Services, R. H. Bohannan & Associates, LLC

As Table 2-6 shows, the FTA stipulates that vehicles in this category may be eligible for replacement after only four years if the annual mileage accumulated by each is 40,000 or more, or after only five years if the annual mileage accumulated by each is 30,000 or more. The data in Table 2-7 shows that vehicle numbers #005 and #006 have been in service for

eight years and six years, respectively. Vehicle #005 will have accumulated an estimated 169,726 miles by the end of the Fiscal 2011-2012 period, and vehicle #006 will have accumulated an estimated 179,589 miles by the end of the same period. Hence, both these vehicles will be due for replacement at that time.

SAN CARLOS APACHE NNEE BICH'ONII SERVICES FEDERAL GRANT APPLICATIONS

Tribal Transportation Grant Application

The Tribe submitted a grant solicitation for a grant under the Public Transportation on Indian Reservations Program for Fiscal Year 2010. The purpose of the submittal was to obtain funding to be coordinated with other transit grants awarded to San Carlos Apache Nnee Bich'o Nii Services such as the FTA Non-Urbanized Area Formula, JARC, and New Freedom programs. The funding sought would not have supplanted funding previously obtained but would have been used to supplement existing funding sources. Table 2-8 details the budget that was submitted.

TABLE 2-8. TRIBAL TRANSPORTATION GRANT APPLICATION BUDGET

1	Planning (Limit 15%)	\$ 26,602
2	Fleet Operating and Maintenance	71,160
3	Facility-Operations	9,602
4	Facility-Building	54,582
5	Website Development/Advertising/Community Outreach	27,000
6	Consultant	15,000
7	Indirect Costs (Limit 10%)	20,395
Total		\$224,341

Source: San Carlos Apache Tribe, Apache Transit, Public Transportation on Indian Reservations Program, Solicitation of Grant for FY 2010

San Carlos Apache Nnee Bich'o Nii Services was awarded all of the budget items with the exception of Item 3. The net amount of the grant received was \$214,739.

FTA 5311 Grant Application

During the conduct of this Feasibility Study, San Carlos Apache Nnee Bich'o Nii Services submitted an application to ADOT for an FTA Section 5311 rural transit assistance grant. The Tribe had been informed that, due to budgetary concerns at the federal level, the levels of funding that the system would receive for Fiscal 2012 through the JARC and New Freedom programs would be significantly reduced from those received in previous fiscal years. SCATS sought funding through the 5311 Program to compensate for the levels of funding lost, and also sought to obtain a cutaway minibus for use in a new San Carlos-Globe

Route. As this is being written, San Carlos Apache Nnee Bich'o Nii Services and ADOT are finalizing the arrangements for acquisition of the new vehicle and provision of funds to support the operation in the spring of 2012.

OTHER TRIBAL TRANSPORTATION PROVIDERS

Apache Gold Casino

The Apache Gold Casino Resort charts frequent motor coach service to bring patrons to the Resort from the Phoenix and Tucson metropolitan areas. The bus pick-up locations are listed in Table 2-9.

The Phoenix area tours are operated by Dreamers Travels LLC, and the Tucson area tours are operated by Citizen Auto Stage Company. Visitors to the Casino's Web site are urged to contact the tour operators for specific schedule information.

TABLE 2-9. APACHE GOLD CASINO BUS PICK-UP LOCATIONS

Community	Establishment	Location
East Valley		
Scottsdale	Old Bashas' Market	74th St. & McDowell
Mesa	Hilton Pavilion	SE Corner of Holmes & Alma School
Mesa	Power Square, Door #4	SE Corner Power Rd. & Baseline Rd.
Mesa	Feed Bag Restaurant	7530 E. Main (North side, West of Sossaman)
Apache Junction	99 Cent Store Apache Jct.	SE Shopping Center, Meridian & Apache Tr.
Gold Canyon	Red Sage Restaurant	Kings Ranch Rd. & Hwy. 60
West Valley		
Phoenix	Village Inn	I-17 & Northern Ave.
Sun City West	Sundome Aisle 19	RH Johnson Blvd.
Sun City	Bell Rec. Center	99th Ave. & Hutton
Tucson		
Tucson	Park Place Mall	Wilmot & Broadway
Tucson	Sam's Club	River & Stone
Sun City Vistoso	Old Ike's Market	Oracle & Rancho Vistoso
Mammoth	Chulla's Cafe	Hwy. 77

Source: <http://apachegoldcasinoresort.com/busschedule2.html>

San Carlos Apache Emergency Medical Services

The Emergency Medical Services operates 12 Ambulances and a 15-Passenger Van. The agency is in need of a "stretcher van" to transport convalescing patients not requiring enroute emergency medical care—such as patients being returned home who are not yet ambulatory or patients being transferred to long term care facilities. EMS reports that some patients refuse transport for perceived lack of return transportation home.

San Carlos Apache Older Adult Center

The Older Adult Center (OAC) has four vans to serve the Nation's senior community. However none of the vans has a wheelchair lift and two are high-mileage vehicles in need of replacement. The OAC transports seniors to the Center for meals and socializing and also provides "Meals on Wheels" service for those who are physically unable to be brought to the Center. The OAC plans to apply for FTA Section 5310 funding to assist in acquiring replacement vehicles.

ARIZONA EASTERN RAILWAY

Based on the encouraging findings of the Gila County Passenger Rail Study and a study conducted by the Railway itself, seasonal *Copper Spike* excursion service was inaugurated December 13, 2008, and has been operated December through April since. During the 2009-2010 season, the *Copper Spike* carried 9,900 passengers; the 2010/2011 season served over 12,000 passengers with an additional 27,000 riding Thomas the Train. Arizona Eastern is primarily in the rail freight business, and carried 12,469 carloads in 2009. Capital expenditures of the railway during the five years 2004 through 2009 totaled \$32 million. Infrastructure improvements included tie replacement and roadbed resurfacing, replacement rail, and highway-rail grade crossing reconstruction.

The *Copper Spike's* 2010-2011 season began Thursday, December 2nd and ended on May 1st. The train departed from Globe Thursdays through Sundays at 11:30 AM and 2:00 PM. In addition, the *Copper Sunset* Dinner Train departed Friday and Saturday evenings at 6:00 PM. This season's train was comprised of locomotive No. 6070, a full-length dome car, which was originally built in 1954 for the Santa Fe Railway, and the "Mardi Gras," a club-lounge observation car rebuilt in 1947 for the Illinois Central. (See Figure 2-4)

FIGURE 2-4. THE *COPPER SPIKE* CRUISING BETWEEN GLOBE AND BIXBY



—Rob Bohannon photo

The *Copper Spike* provided a genuinely “retro” experience with reasonably priced, cooked-on-board meals served on linen tablecloths by wait staff wearing white jackets. Extending the run westward to Bixby enhanced the ride over that experienced in prior years. Unlike the highway, which traverses commercial and industrial areas between Globe and Miami, the rail line loops northward through scenic backcountry. On well-patronized runs, local historians rode along and provided an informative narrative. After traveling to Bixby and back, the trip continued east from Globe to Apache Gold Casino as before. Fares charged during the 2011 season were \$18.00 for adults, \$15.00 for seniors, and \$12.00 for children, with a \$5.00 charged for dome car occupancy.

On August 2, 2011, Iowa Pacific Holdings, the owner of Arizona Eastern Railway, announced that the rail line had been sold to Genesee & Wyoming Inc., another holding company that, like Iowa Pacific, owns and operates a number of short-line railroads. Unlike Iowa Pacific, which operates other passenger excursion lines in addition to the Copper Spike, Genesee & Wyoming is strictly in the rail freight business and has revealed that the seasonal Copper Spike operation will be discontinued.

The City of Globe, in cooperation with the Central Arizona Council of Governments, plans to apply to ADOT for a Planning Assistance for Rural Areas (PARA) grant to study ways in which rail excursion or rail passenger service might be established on a more permanent basis.

San Carlos Apache Tribe, State, Federal, Counties, Railroad, Private Organization Partnership

In May 2009, a meeting was held with the San Carlos Apache Tribe Transportation Committee to determine the approach to developing a partnership among the Tribe, State, Federal, and County agencies, and the Arizona Eastern Railway. The official kick-off meeting was held on September 30, 2009 and a memorandum of understanding was signed. In attendance were representatives of ADOT, the Bureau of Indian Affairs, Arizona Eastern Railway, Federal Highway Administration, Southeastern Arizona Governments Organization, Central Arizona Association of Governments, Gila County, Pinal County, San Carlos Apache Tribe, Arizona Department of Public Safety, and the San Carlos Apache Tribe Police. The goals of the agreement are to promote safety, business development and tourism.

COBRE VALLEY COMMUNITY TRANSIT

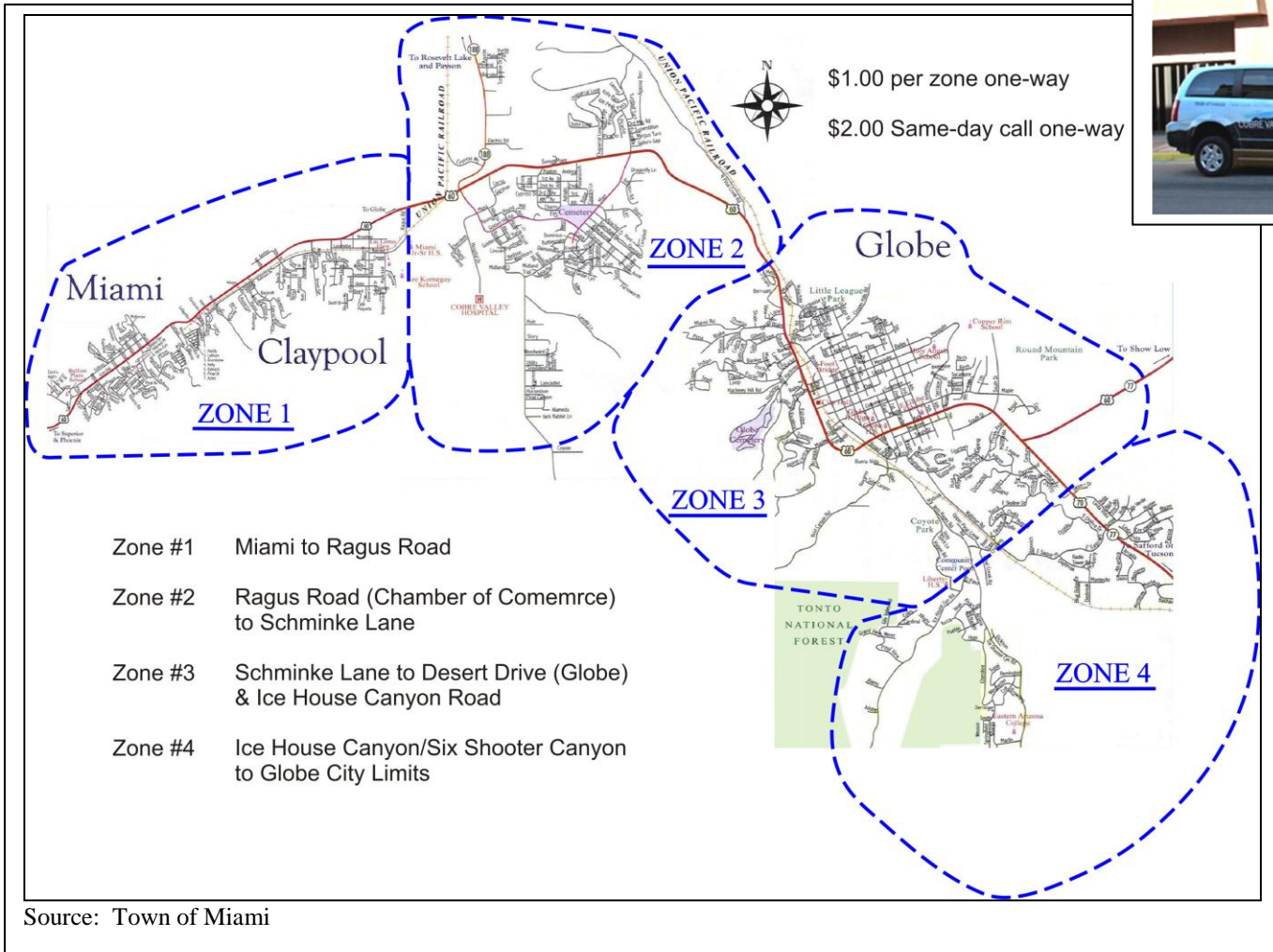
Cobre Valley Community Transit (CVCT) provides demand-response service to the general public in the communities of Globe, Miami, and Claypool. Service is provided Monday through Friday between 6:30 am and 4:00 pm; the CVCT does not operate Saturdays, Sundays, or Holidays.

The CVCT operation is supported by the Town of Miami, the City of Globe, and Gila County, and also receives funding from the FTA Section 5311 rural transit program

administered by ADOT. The system operates two cutaway minibuses and has acquired two new vans. (See Figure 2-5) All vehicles are wheelchair accessible. CVCT is working cooperatively with SCATS to coordinate service to better serve local and regional demands.

CVCT requires that reservations be made 24 hours in advance, although same-day pick-up requests will be accommodated if possible. The CVCT service area includes the Town of Miami, the City of Globe, and the community of Claypool, and is divided into four zones. (See Figure 2-5) Fares charged per person are \$1.00 per zone one-way if trip is reserved 24 hours in advance; \$2.00 per zone if same day service is requested.

FIGURE 2-5. COBRE VALLEY COMMUNITY TRANSIT FARE ZONE MAP AND NEW VANS



3. PREVIOUS STUDIES AND PLANS

The consultant team reviewed the following previous studies and plans relating to the enhancement of public transportation services in the study area:

- *Arizona Eastern Ridership Demand Study*, 2009
- *Arizona Rural Transit Needs Study*, 2008
- *Casa Grande Public Transit Implementation Study*, 2009
- *Gila County Small Area Transportation Study*, 2006
- *Gila County Passenger Rail Study*, 2008
- *Graham County Transit Feasibility Review and Implementation Study*, 2007
- *Payson Public Transit Feasibility Study*, 2007
- *Pinal County Comprehensive Plan Update*, Transit Element, 2009
- *Pinal County Small Area Transportation Study*, Transit Element, 2006
- *Pinal County Transit Feasibility Study*, 2010
- *San Carlos Long Range Transportation Study*, 2009
- *Statewide Transportation Planning Framework Study*, 2010

A summary of the pertinent findings of each of these studies follows:

ARIZONA EASTERN RIDERSHIP DEMAND STUDY, 2009

The Arizona Eastern Ridership Demand Study was conducted for the Arizona Eastern Railway (AZER) by Lima & Associates. The study developed ridership demand projections for passenger rail service on the AZER serving Gila Valley communities in Eastern Arizona. The consultant collected demographic and economic data for Gila and Graham Counties, which are traversed by the AZER. Passenger rail operating schedules between Globe and Safford were developed by the AZER that reflect upgrading operating speeds on certain track segments to a maximum of 60 mph. Ridership for the 2010, 2015, 2020, and 2030 horizon years was projected and appropriate exhibits developed for inclusion in the TIGER Discretionary Grant application submitted to the US Department of Transportation by the Railway in 2009.

The consultant followed three methodologies for developing sketch estimates of future ridership. The first methodology was based on the traffic volumes on the segment of US 70 that parallels the rail route. This approach estimated the numbers of “choice” riders—current motorists—who would be diverted to the rail service. The second methodology estimated potential tourist ridership based on a service catchment area. The third methodology, developed by the Transit Cooperative Research Program, was used to develop estimates of members of transit-dependent populations who may use the proposed service. A summary of the results of each of these approaches is presented in Table 3-1.

A likely ridership scenario for each of the horizon years forecasted is presented in Table 3-2.

**TABLE 3-1. SUMMARY OF ARIZONA EASTERN RAILWAY
RIDERSHIP DEMAND ESTIMATION**

		2000	2010	2015	2020	2030
Parallel Highway	Not					
Traffic Method	Calculated		11,323	11,944	12,549	13,609
Estimated Tourist	Not					
traffic	Calculated		40,312	42,525	44,677	48,452
TCRP Method I		27,894	31,311	33,030	34,701	37,634
TRCP Method II		55,631	62,445	65,873	69,207	75,055

Source: Lima & Associates, Inc.

TABLE 3-2. POTENTIAL RAILWAY RIDERSHIP SCENARIO

	2010	2015	2020	2030
Non-Tourists diverted	11,323	11,944	12,549	13,609
from the Highway				
Estimated Tourist Traffic	40,312	42,525	44,677	48,452
Total Annual Ridership	51,635	54,469	57,226	62,061

Source: Lima & Associates, Inc.

ARIZONA RURAL TRANSIT NEEDS STUDY, 2008

The Rural Transit Needs Study was conducted by Cambridge Systematics for ADOT to identify the future public transportation needs in the rural areas of Arizona. The study focused on a 10-year planning horizon. Data pertaining to population, employment, income levels, automobile ownership, and travel patterns was collected and analyzed. National trends in addressing rural transit needs were identified and stakeholder input regarding unmet needs was obtained. The study developed a plan for future new services and improvements. The San Carlos Apache Tribe was identified as one of the top candidates for new transit services.

The study estimated the SCAT unmet transit need in 2005 as 103,000 annually, or 282 trips per day. The 2016 unmet need was estimated at 119,600, or 328 trips per day.

CASA GRANDE PUBLIC TRANSIT IMPLEMENTATION STUDY, 2009

Lima & Associates was retained by the City of Casa Grande to assist the City in developing and submitting an application for FTA Section 5311 assistance for Fiscal Year 2009. Funding assistance for the project was provided by ADOT, the agency through which the application would be submitted to the FTA. This project included tasks that closely resemble tasks being conducted for the San Carlos Apache Tribe Transit Study.

The proposed route system included a total of 22 checkpoint stop locations, together with funding for four vehicles, bus stop signage and benches at each stop. A computer system and GPS for “real time” tracking of bus operations was included. First-year ridership was forecasted to be 55,299, and annual vehicle miles 78,998.

The application was accepted by ADOT and submitted, but the City ultimately decided to withdraw the application due to worsening business conditions and the resulting concern about the future availability of local matching funds. For the project the consultant assisted the City in completing a 32-page application document consisting of four parts, appendices, and accompanied by supporting documents. The application included:

- A narrative description of the transit system—a proposed system in the case of Casa Grande
- Pro-forma Administration and Operating Budgets
- Capital Request Application
- Federal Certifications and Assurances
- Support Documentation

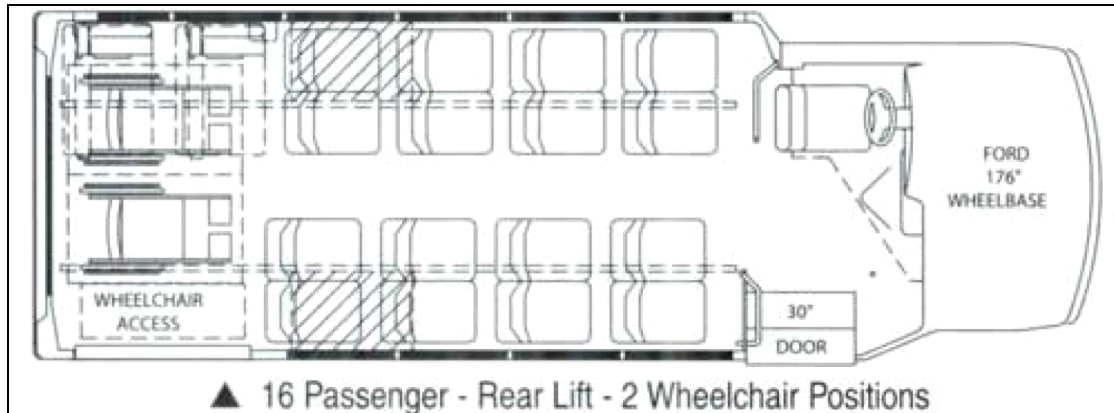
The consultant proposed a deviated fixed route system, including a service area, days and hours of operation, and fare structure. The local activity centers along the routes were listed including medical, employment, commercial locations, human service programs, and areas of low-income housing. The potential for connecting the system to other modes of transportation was explained. A ridership estimate was developed. The consultant proposed coordination of the service with other agencies such as the DES.

Pro-forma Administration and Operating Budgets were developed by the consultant in the FTA format provided for in the application. These budgets included forecasted passenger and other revenues as well as estimated operating expenses for items such as fuel, oil, driver and dispatcher salaries and fringe benefits, as well as vehicle supplies and maintenance. A budget was also developed for capital assistance, for the acquisition of the four transit vehicles, communications equipment, computers, bus stop improvements, and construction of transit centers. The consultant researched candidate vehicle types and configurations and included a floor plan of the recommended vehicle, based on the projected ridership and schedule. (See Figure 3-1) A draft Maintenance Plan was also developed.

GILA COUNTY SMALL AREA TRANSPORTATION STUDY, 2006

The Gila County Small Area Transportation Study was conducted by Lima & Associates to develop a 20-year transportation plan and implementation program to guide Gila County in meeting transportation needs into the future. Roadway and multimodal improvements were identified to address deficiencies and needs to improve mobility and safety in the County. The study also identified how and when these improvements should be implemented and funded. This long-range multimodal transportation plan is intended for use in day-to-day programming and funding of transportation improvements. In addition, transportation improvements have been prioritized to maximize project benefits within budget limitations.

**FIGURE 3-1. FLOOR PLAN OF ELDORADO AEROTECH 24-FOOT
CUTAWAY BUS PROPOSED FOR CASA GRANDE**



Source: City of Casa Grande, *FTA Section 5311 Application*, Lima & Associates, 2009.

Funding strategies and sources have been included to aid the County in pursuing local, regional, state, and federal funding.

In 2006, public transportation for the San Carlos Apache Tribe had recently been introduced. Other transit service in the County was limited to dial-a-ride programs operated by the Town of Miami and the Payson Senior Center. Other than shuttles connecting Payson with the Phoenix airport, no intercity service existed. County residents and visitors were almost entirely dependent on private automobile travel, the maintenance of good roads, and the availability of affordable gasoline.

Regional transit demand by 2030, exclusive of urban dial-a-ride and circulator services, was forecasted to be between 123 and 275 persons per day.

The consultant team made the following transit-related recommendations for Gila County:

- Designate a transportation coordinator
- Conduct a regional bus service study
- Coordinate with the Town of Miami, the City of Globe, and the Town of Payson on local transit studies
- Establish a process to coordinate transit services with private and public agencies
- Monitor and update transportation plan transit element

GILA COUNTY PASSENGER RAIL STUDY, 2008

The Arizona Eastern Railway, in cooperation with the Globe Mainstreet Program and the Apache Gold Casino Resort, experimented with “Copper Spike” excursion rail service between downtown Globe and the Casino during the spring of 2006. (See Figure3-2)

**FIGURE 3-2. ARIZONA EASTERN’S 2006 “SPIKE” RAILCAR
AT APACHE GOLD CASINO DEPOT**



Source: Lima & Associates – Rob Bohannon photo

Subsequent to the conduct of the Gila County Small Area Transportation Study and the “Spike” rail excursion demonstration, Lima & Associates received an additional task assignment to examine the feasibility of establishing permanent passenger rail service in the Globe-Miami area. The consultant reviewed the potential for passenger rail using area trackage of the Arizona Eastern Railway for three service areas: Globe depot to Apache gold Casino; Globe to Miami; and Apache Gold Casino to San Carlos.

The study documented railroad operating costs obtained from Arizona Eastern, researched and documented the best practices of excursion rail operations in the Western United States, and developed ridership estimates. Rail service scenarios were created including timetables, days and dates of operation, and a proposed fare structure. The consultant drafted operating pro-formas including operating revenues and expenses, administrative costs, and a discussion of excursion rail personnel requirements. Based on year-round operation, an annual ridership of 50,000 was forecasted.

Transit Demand

As a part of the Gila County Rail Passenger Study, the consultant also estimated transit demand for the Miami-Globe-San Carlos corridor. Two approaches to calculating demand were used, as provided for in the Transit Cooperative Research Project Report No. 3—the same procedure used in this San Carlos Apache Tribe Transit Study. Year 2030 population estimates developed for the Gila County Small Area Transportation Study were used. Year 2030 transit demand for the corridor was estimated to be between 39 and 83 trips per day, based on two round trips per day.

conditions in the Payson area, together with input received from Transit Workshops and Open Houses. A transit service area based on area demographics was defined and transit demand for the area of over 30,000 trips per year was estimated using the methodology, developed by the Transit Cooperative Research Program.

Four modes of transit were identified as most likely for eventual implementation in Payson: Dial-A-Ride and Paratransit Service; Deviated Fixed Route Service; Fixed Route Service including local and regional services; and Novelty Transit for Main Street tourists. Deviated fixed route service was selected as the preferred option on which to base two transit service scenarios. Scenario One was basically a loop system, and Scenario Two was a “Figure 8” system. Both scenarios would have served the same set of stops based on the locations of major activity centers within the Town,

Scenario One was estimated to have a ridership of 23,114 passengers per year and cost \$128,852 per year to operate, and Scenario Two was estimated to have a ridership of 23,712 passengers per year and cost \$130,022 per year to operate.

PINAL COUNTY COMPREHENSIVE PLAN UPDATE

The *Pinal County Comprehensive Plan Update* was adopted November 18, 2009. Lima & Associates was associated with the project and was responsible for the Mobility and Connectivity Element of the plan. The plan surveyed existing multimodal conditions within the County, anticipated future conditions based on the rapid rate of growth that had occurred in the County prior to the onset of the recession, and recommended multimodal goals, objectives, and policies for adoption by the County as follows: Policies that are pertinent to the future needs of the San Carlos Apache Tribe are listed for reference. Where appropriate, SCAT Study Area stakeholders and agencies are noted in brackets. Note that policies that do not pertain to the future needs of the San Carlos Apache Tribe have been omitted from the list.

4.2 Goal: Create a comprehensive multimodal system.

4.2.1 Objective: Develop additional transportation modes for a balanced mobility system.

Policies:

- 4.2.1.1 Conduct studies to determine the appropriate type(s) and timing of transit within identified corridors as appropriate population and employment density thresholds are reached.
- 4.2.1.2 Provide an enhanced public transportation system (local transit, carpool and park-and-ride lots, express bus or BRT, intercity bus, and commuter/intercity rail) that provides connections within the County and throughout the region.
- 4.2.1.4 Work with ADOT and UPRR [AZER] to identify appropriate Pinal County passenger/commuter rail station location(s).
- 4.2.1.5 Preserve sites for a suitable array of transit centers in the unincorporated County areas and coordinate with the cities and towns development of other transit centers.

- 4.2.1.6 Work with ADOT, UPRR, Maricopa Association of Governments (MAG), Pima Association of Governments (PAG), Central Arizona Association of Governments (CAAG) [AZER, SEAGO] and other stakeholders to add commuter rail service from Pinal County to locations in both the Phoenix and Tucson [GLOBE, SAFFORD] metropolitan areas.
- 4.2.1.7 Encourage Pinal County's development patterns to support a diverse range of travel modes (single-occupant vehicle, multi-occupant auto, pedestrian, bicycle, and public transit), and that the system is designed to effectively meet regional and local mobility needs.
- 4.2.1.9 Provide safe and efficient connections between modes to maximize opportunities for Pinal County.
- 4.2.1.13 Require provision of sufficient right of way on major arterials, particularly those deemed to be of regional significance, for the future addition of high capacity vehicle lanes or transit corridors.
- 4.2.1.14 Require provision of sufficient right of way on collector streets for bicycle lanes and multi-use paths.
- 4.2.1.16 Provide bus benches and shelters in areas to be served by local routes.
- 4.2.1.17 Strive for a "seamless" multimodal network providing convenient linkages and connectivity between all modes.

Many of the above policies suggest analogous policies that could be adopted by the Tribe to support enhancements to transit and multimodal mobility of Tribal members. Candidate analogous study area stakeholders are suggested within brackets in the above text.

PINAL COUNTY SMALL AREA TRANSPORTATION STUDY, TRANSIT ELEMENT, 2006

The Pinal County Small Area Transportation Study was conducted by Kirkham Michael Consulting Engineers in association with Lima & Associates. The Transit Element was completed in August 2006. Existing transit needs as of that date documented in the Transit Element included unmet needs for transit service within local jurisdictions in Pinal County, unmet needs for regional and inter-city transit services between Pinal County communities and connecting those communities with the Phoenix and Tucson metropolitan areas, and a possible future unmet need for commuter bus and/or rail service between Pinal County communities and Phoenix and Tucson. Findings with respect to future conditions in Pinal County were also summarized.

The study described future transit deficiencies and needs, as well as demographic thresholds that would lead to the implementation of transit service. The need for transit centers and the encouragement of more transit-friendly residential development were discussed, and scenarios for local circulator service and regional bus and rail services were presented. The findings and recommendations of this Transit Element led to the County's decision to move forward with a comprehensive transit study, which was conducted by Nelson Nygaard in association with Jacobs.

PINAL COUNTY TRANSIT FEASIBILITY STUDY, 2010

The Pinal County Transit Feasibility Study was conducted by Nelson Nygaard in association with Jacobs Engineering Group, Inc., as a follow-up to the Transit Element of the preceding Pinal County Small Area Transportation Study's Transit Element and was completed in October 2010. Two major themes that were identified from discussions with area stakeholders were the need for connectivity between County communities and the concept of standardization of local community transit systems.

Potential short-term transit improvements identified by the study are:

- Transit centers at key locations, around which transit services could be focused
- Park and Ride lots along key bus routes that could also be used as parking for carpools
- Express service from County cities to downtown Phoenix with connections to the METRO light rail system and to Sky Harbor Airport
- Arterial bus rapid transit service between Apache Junction and the end of the METRO light rail line
- Regional transit routes among County cities
- Local circulator service within Apache Junction, Casa Grande, and Coolidge

SAN CARLOS LONG RANGE TRANSPORTATION STUDY, 2009

The San Carlos Long Range Transportation Planning Study was a joint effort by the San Carlos Apache Tribe and the Arizona Department of Transportation (ADOT) conducted by Jacobs. The study updated the 1998 San Carlos Apache Tribe Transportation Planning Study by developing a region wide multimodal long range transportation plan that identifies the area's transportation priority needs. The plan provided a tool to help the Tribe achieve its vision and goals for a future transportation system that is closely aligned with the lifestyle and values of the community.

The multimodal transportation plan covered roadway, transit, pedestrian, bicycle, and horse trail modes. Short- and long-term transit-related projects and action items recommended by the study are presented in Table 3-3.

Study Area demographics gathered and documented in the San Carlos Long Range Transportation Planning Study are summarized in the previous chapter.

**TABLE 3-3. TRANSIT RECOMMENDATIONS OF
SAN CARLOS LONG RANGE TRANSPORTATION PLANNING STUDY**

Location	Agency	Description	Cost
Short Term			
Transit: San Carlos to Globe	State Federal Funds	Link services to other local services in Globe.	\$100,000
Regionwide	ADOT	Conduct comprehensive transit needs assessment study.	\$70,000
Transit Actions	State Federal Funds	Expand service levels of current programs.	\$200,000
Transit Actions	State Federal Funds	Apply for State and Federal funding.	TBD
Long-Term			
Transit: San Carlos to Safford	Transit	Connect with transit Service in Safford when implemented.	\$100,000
Transit Actions	Transit	Expand fixed route bus service.	\$400,000
Transit Actions	BIA	Evaluate commuter rail service using existing railroad.	\$120,000

Source: Jacobs Engineering Group

STATEWIDE TRANSPORTATION PLANNING FRAMEWORK STUDY, 2010

The Statewide Transportation Planning Framework Study was initiated in response to the Governor's Executive Order 2007-02: Expanding Arizona's Transportation Options. The study developed new strategies and investments needed to improve the mobility of Arizona residents and visitors through urban and rural highway, transit, and rail programs. To respond to the intent of the Executive Order, broad program categories were developed. The program category pertinent to the San Carlos Apache Tribe is "Mass Transit—bus and bus-related programs," which included the following:

- Connecting Communities
- Enhancing Rural Transportation Programs
- Serving Elderly/Disabled and Tribal populations in Rural Areas
- Sharing rides and Vanpooling
- Building State Infrastructure
- Planning, Marketing, and Other Programs

The area of Arizona including the San Carlos Apache Reservation was addressed by the Eastern Arizona Framework Study. The Enhancing Rural Transportation Programs would increase the level of service of existing rural transit services, as well as implement new services by means of FTA Section 5311 funding. The San Carlos Apache Tribe was identified as a potential recipient of this funding by the program. The Framework Study incorporated the findings of the Rural Transit Needs Study summarized below.

4. CURRENT TRANSIT SERVICE NEEDS AND DEMAND

CURRENT TRANSIT SERVICE NEEDS

A San Carlos Apache Tribe Transit Stakeholders Meeting was conducted on October 27, 2010 at the Peridot TANF office. At the Stakeholders Meeting, the consultant team obtained input from Transit, TANF, the Tribal Emergency Medical Services operation, The Tribal Older Adults Center staff and other Tribal stakeholders. Transit needs identified by the stakeholders and the consultant team are as follows:

- Consistent arrangements for fueling vehicles—or availability to make bulk fuel purchases.
- Adjustment of schedules—or additional schedules—to serve shift workers.
- FTA Section 5311 and other funding to assist in system operation and expansion.
- Additional transit service marketing and promotion techniques.
- Study increased operational efficiency through sharing of vehicles and other resources among Tribal agencies making use of the “Arizona Rides” concept.
- Develop vanpools for use by groups of shift workers.
- Study use of Public Transit system to transport family members of those taken to hospitals by medical paratransit. This would free up space in the medical vehicles for patients.
- Study subsidizing use of Transit System by Tribal members through vouchers or other technique as is done by Navajo Nation.

OTHER AREA TRANSIT ISSUES

Also at the Stakeholders Meeting, other public transportation and human services transportation issues were raised that may impact future transit planning and improvements:

- Outside medical transportation vendors are responding to Tribal members’ emergency needs—impacting potential SCAT E.M.S. revenues.
- Parochial and other private schools need bus transportation for students.
- Arizona Eastern Railway did not receive TIGER grant funding to enable rural passenger rail service between Miami, Globe, San Carlos, and Safford.
 - ✓ Railway still plans to implement service in the future and will continue efforts to obtain funding.
 - ✓ Railway is concerned about train/ pedestrian incidents that occur on the segments of the line that traverse the SCAT.
 - ✓ Increased speeds needed to provide effective passenger service to Safford could lead to additional pedestrian fatalities.
 - ✓ The Railway would like to see a multiuse pathway provided as a more appealing pedestrian alternative to the railroad right-of-way.

CURRENT TRANSIT DEMAND

Estimating demand for transit on the San Carlos Apache Reservation provides a general idea of what type of service enhancements or expansions may be feasible and how many people may be expected to use the expanded transit system. To estimate possible demand for transit service in the Nation, TCRP Report 3, *Workbook for Estimating Demand for Rural Passenger Transportation*, was utilized. This workbook provides a methodology for estimating transit demand for rural systems, using population data for the year service is proposed to be implemented and assumptions of service area size and route lengths.

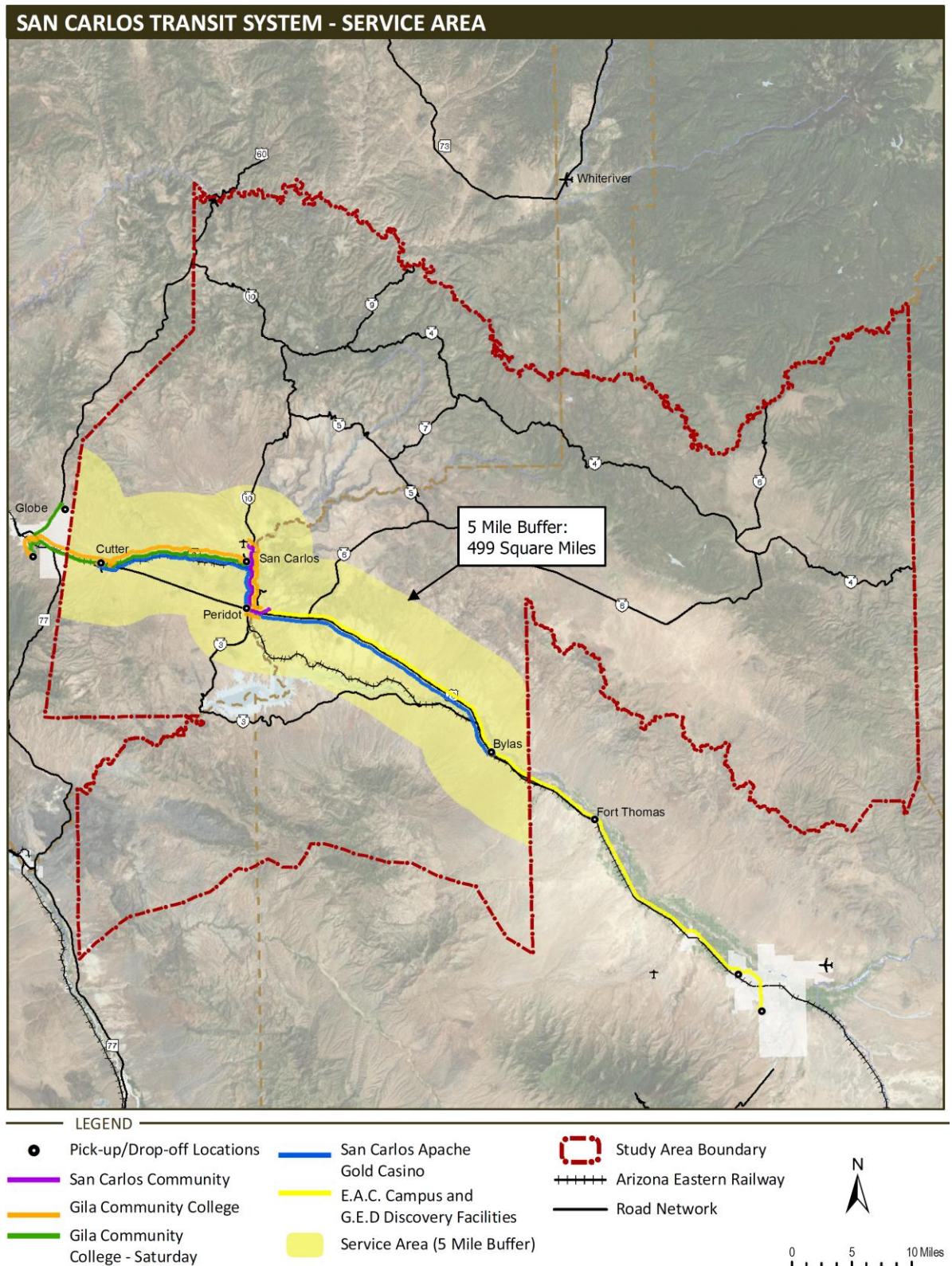
The workbook contains two methodologies: one for estimating future demand for expansion of an existing system and one for estimating future demand for a new system. The methodology for estimating future demand for expansion of an existing system relies heavily on the analysis of ridership data. While San Carlos Apache Nnee Bich'o Nii Services is an established system, the bulk of available ridership data predates the significant system restructuring and expansion that was implemented in August 2010. Hence the consultant believes that the more useful approach for demand estimation purposes is to treat the service as a proposed system. This approach requires that a hypothetical system be developed for analysis purposes only. In this case, we can use the existing route network and service levels to derive the most accurate results.

In addition to developing a hypothetical system, the methodology requires that a service area be defined, in order that vehicle miles per square mile—an important metric for modeling purposes—can be calculated. Most of the San Carlos Apache Reservation is rural in character, and very sparsely populated. Even though San Carlos Apache Nnee Bich'o Nii Services provides demand response service throughout the Nation, the bulk of the population served lives within a corridor along US 70 and IRR 6 in or near the Tribal communities of San Carlos, Cutter, Peridot, and Bylas. A 10-mile wide corridor centered on these roadways (and on the route of the Arizona Eastern Railway) includes 2,694 out of the 2,782 total residential dwellings in the Study Area as shown in Figure 4-1. Within the extents of the Nation, this 10-mile wide corridor equates to 499 square miles.

The TCRP estimations were developed based on specific population groups within the service area. These population groups are typically referred to as transit dependent populations, and statistically are the most likely to use transit if available. The groups include (as defined by the Census); person aged 65 or over, persons aged 16 to 64 with mobility limitations, and persons aged 64 or under, residing in households with incomes below the poverty level. Table 4-1 shows the total current populations for each group in the service area.

Note that the current demand calculations were developed based on the schedules implemented in August 2010. Since that time, the service has been restructured.

**FIGURE 4-1. SAN CARLOS APACHE NNEE BICH'ONII SERVICES
SERVICE AREA**



**TABLE 4-1. CURRENT POPULATION OF SERVICE GROUPS
IN SERVICE AREA**

Service Group	Population
Persons aged 65 or over	429
Persons aged 16 to 64 with mobility limitations	1,382
Persons aged 64 or under, residing in households with incomes below the poverty level	4,724

Source: Jacobs

Table 4-2 presents the calculation of vehicle miles per square mile using the one-way distances of the four scheduled routes, together with the trip frequencies for each route.

TABLE 4-2. CALCULATION OF VEHICLE MILES PER SQUARE MILE

Route	One- Way Distance (Miles)	Trips per Week	Miles per week	Miles per Year
E.A.C. Campus & G.E.D. Discovery Facilities Route	63.48	24	1,523.52	79,223.04
Gila Community College Route	30.81	28	862.68	44,859.36
Gila Community College Saturday Route	30.82	2	61.64	3,205.28
Apache Gold Casino/Resort Route	44.32	49	2,171.68	112,927.36
San Carlos Community Route	9.12	25	228.00	11,856.00
Total			4,847.52	252,071.04
Service Area Square Miles				499.00
Vehicle Miles per Square Mile				505.15

Source: R. H. Bohannon & Associates, LLC

The calculations from Table 4-2, specifically the vehicle miles per square mile, are input into a formula provided in the TCRP workbook to create a service factor for each population group. These formulas rely on given factors which are related to the vehicle miles per square mile. Table 4-3 shows the calculation of the service factors needed for calculating the estimate of transit demand.

TABLE 4-3. TCRP SERVICE FACTOR CALCULATIONS

Population Group	Vehicle Miles per Square Mile	Multiplied by TCRP Factor 1	Plus TCRP Factor 2	Divided by 1 million	Equals Service Factor
Over 65	505.15	2.682	376	1,000,000	0.001730812
Mobility Limited	505.15	1.57	1010	1,000,000	0.001803086
Below Poverty	505.15	2.45	525	1,000,000	0.001762618

Source: R. H. Bohannon & Associates, LLC

These derived service factors, based on the frequency of service and size of the service area, are part of the final calculations to estimate demand. Table 4-3 shows the formula provided in the TCRP workbook, which includes a standard factor, population of each group, and the service factor. Table 4-4 shows the estimated demand for each population group and the total estimated demand for transit. This methodology estimates a total yearly demand (all trips made during a year period) for the San Carlos Apache Nnee Bich'o Nii Services Area of 20,523 trips, an average of about 56 trips per day (assuming 365 days of service).

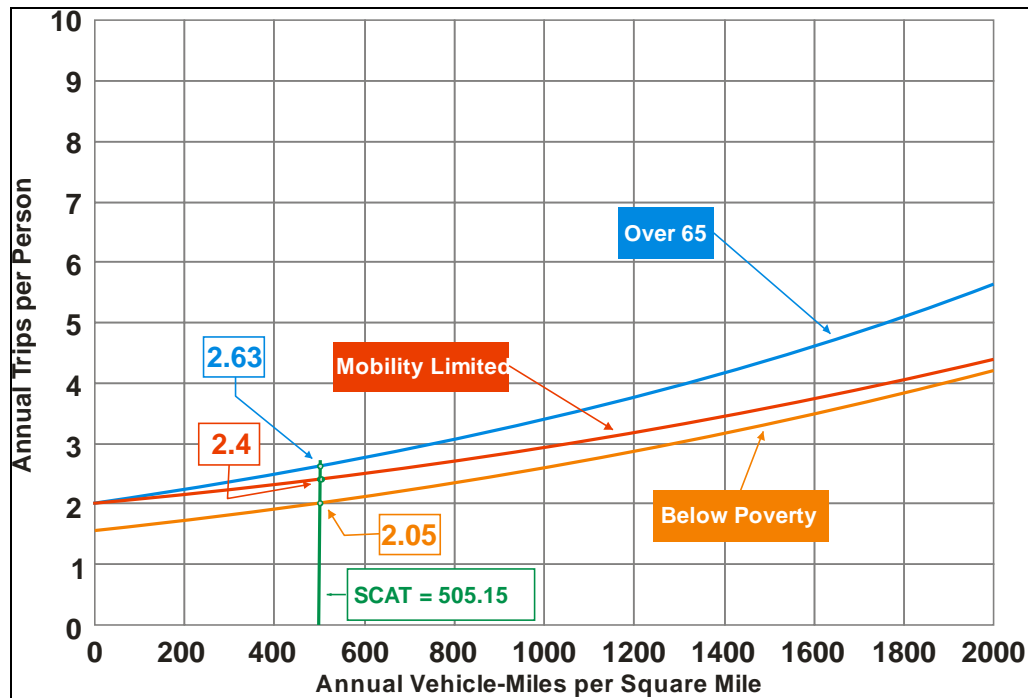
TABLE 4-4. TCRP ESTIMATION OF TRANSIT DEMAND

Population Group	TCRP factor	x	Population	x	Service Factor	=	Estimated Annual Demand
Over 65	1,200	x	429	x	0.001730812	=	1,318
Mobility Limited	1,200	x	1,382	x	0.001803086	=	4,424
Below Poverty	1,200	x	4,724	x	0.001762618	=	14,782
Total Estimated Annual Transit Demand =							20,523

Source: R. H. Bohannon & Associates, LLC

The TCRP workbook includes an alternative method for estimating demand. This alternative method provides a secondary demand estimate that can be compared against the first. This alternative method is based on pre-calculated trip rate curves created from research and analysis of other rural transit programs. The chart compares vehicle miles per square mile (as derived in Table 4-2) against annual trips per person as shown in Figure 4-1. The trip rates for the San Carlos Apache Nnee Bich'o Nii Services based on 505.15 vehicle miles per square mile for each population group are overlaid on the chart taken from the TCRP workbook, and shown below in Figure 4-2.

**FIGURE 4-2. CURRENT TRIP RATES
FOR ALTERNATIVE TCRP ESTIMATION PROCEDURE**



Source: Adapted from: TCRP Report 3, *Workbook for Estimating Demand for Rural Passenger Transportation*, Figure 6, pg. 45.

The estimated trip rates taken from Figure 4-2 are used to estimate the demand for each population group as shown in Table 4-5. The total estimated demand, using this alternative method, is 14,129 annual trips, or about 39 trips per day (assuming 365 service days).

**TABLE 4-5. ESTIMATION OF TRANSIT DEMAND –
TCRP ALTERNATIVE METHOD**

Population Group	Population in Service Area	Trip Rate (from Figure 10)	Estimated Demand (Pop. x Trip Rate)
Over 65	429	2.63	1,128
Mobility Limited	1,382	2.40	3,317
Below Poverty	4,724	2.05	9,684
Total Estimated Trip Demand =			14,129

Source: R. H. Bohannon & Associates, LLC

Survey Research Method

As a comparison for the results achieved using the TCRP method, the Consultant also calculated the demand using a Survey Research Method documented in the, Graham County Transit Feasibility Review. This approach does not rely on hypothetical routes or mileage, but instead considers the numbers of population sub-groups in the Study Area known to have a high propensity for using transit. The results from this approach are presented in Table 4-6.

**TABLE 4-6. CURRENT TRANSIT DEMAND
USING SURVEY RESEARCH METHOD**

	Percentage of Total	Current
Total Population	100%	13,943
Population Below 65	95.45%	13,309
Population Aged 65 and Over	4.55%	634
Mobility Limited Population	14.66%	2,044
Population Below 65 Without Mobility Limitations	80.79%	11,265
Calculation for Population Below Age 65 Without Mobility Limitations		
6.5 percent of that population use transit		732.20
X 0.02 round trips per day per person		14.64
X 2 one-way trips per round trip		29.29
X 365 days per year		10,690.06
Calculation for Population Aged 65 and Over		
7.6 percent of that population use transit		48.21
X 0.04 round trips per day per person		1.93
X 2 one-way trips per round trip		3.86
X 365 days per year		1,407.87
Calculation for Mobility Limited Population		
80 percent of that population use transit		1,635.24
X 0.03 round trips per day per person		49.06
X 2 one-way trips per round trip		98.11
X 365 days per year		35,811.65
Estimated Transit Demand using Survey Research Method		
Trips by Population Below Age 65 Without Mobility Limitations		10,690.06
Trips by Population Aged 65 and Over		1,407.87
Trips by Mobility Limited Population		35,811.65
Total Annual Trips		47,909.58

Source: R. H. Bohannon & Associates, LLC

SUMMARY OF CURRENT TRANSIT DEMAND ESTIMATION

The base and alternative methods of the TCRP transit demand estimation procedure resulted in daily estimates of 56 and 39 trips, respectively. The figure of 56 trips per day is closer to what San Carlos Apache Nnee Bich'onii Services is already carrying, and the consultant believes the higher figure to be more accurate. However the Survey Research methodology, which is not dependent on the current number of vehicle miles per square mile—a service level metric—resulted in a demand estimate more than twice that of the higher TCRP figure. This suggests that, despite the increased level of service now being provided by San Carlos Apache Nnee Bich'o Nii Services, unmet demand remains significantly high.

5. FUTURE TRANSIT SERVICE NEEDS AND DEMAND

FUTURE DEMOGRAPHIC SUMMARY

Tribal enrolled resident population is estimated to be 10,943, and the non-enrolled population is approximately 3,000. Total population living within the San Carlos Apache Nation is 13,943, as presented in Table 2-1.

Total resident population of the San Carlos Apache Nation is forecasted to be 15,658 in 2015, and reach 19,341 by 2030 as shown in Table 5-1.

TABLE 5-1. HORIZON YEAR FORECASTED TRIBAL DEMOGRAPHICS

	San Carlos	Peridot	Bylas	Cutter	Rural Area	Total
Year 2015						
Population	6,039	3,426	2,829	31	3,333	15,658
Occupied DU	1,175	647	543	12	683	3,060
Total Employment	1,227	350	121	583	200	2,481
Total Students	1,105	371	0	0	205	1,681
Year 2030						
Population	7,628	4,116	3,372	122	4,103	19,341
Occupied DU	1,549	782	678	50	856	3,915
Total Employment	1,389	430	156	618	478	3,071
Total Students	1,364	427	0	0	285	2,076

Source: Jacobs

FUTURE TRANSIT SERVICE NEEDS

The Jacobs Team, with input from Tribal stakeholders, has identified the following future area transit needs:

- Expansion of existing San Carlos Apache Nnee Bich'o Nii Services
- Operation of scheduled regional service to Phoenix, Tucson, Globe, Safford, Payson, Whiteriver, and other areas
- Enhanced service through use of GIS for dispatching, and ongoing ridership data analysis
- Local circulator service within San Carlos, Peridot, and Bylas
- Covered storage for vehicle fleet
- Fueling and maintenance facilities
- Additional mountain top radio repeaters to facilitate communications and dispatching throughout the San Carlos Apache Nnee Bich'o Nii Services area

- Cooperation and coordination with Cobre Valley Transit and future transit services of neighboring jurisdictions
- Coordination with future AZER rail service

As funding becomes available, some of these goals could be implemented in the short term; eventually all would be beneficial to the growth and sustainability of the service.

FUTURE TRANSIT DEMAND METHODOLOGY

In order to estimate demand for new transit service in a particular service area, it is necessary to define a hypothetical service, or set of services, including routes and schedules, in order to determine the resulting vehicle miles per square mile of the service area, a key metric in the demand estimation process. In developing a phased, long-range improvement program, it is also essential to determine the appropriate order in which services are enhanced or new services are introduced.

Future Scat Service Expansion Scenario

The Consultant developed a draft set of schedules that could be protected by four vehicles, leaving the remainder of the SCAT fleet for demand response service and allowing for continuing the practice of rotating the vehicles through the routine maintenance program. These draft schedules were for discussion and demand estimating purposes only. The Apache Gold Casino and Safford Routes would remain the same. The Globe Route would be expanded to serve Phoenix, and new routes would be added to Tucson, Whiteriver and Payson. The draft set of schedules were presented to Tribal stakeholders for review and comment at a Technical Advisory Committee meeting as well as a series of two public open houses.

San Carlos Apache Nnee Bich'o Nii Services Transit Service Preference Survey

During the fall of 2010, San Carlos Apache Nnee Bich'o Nii Services distributed and collected a transit service preference survey of resident opinions and preferences with respect to potential transit improvements. The consultant was provided with the raw survey data and has tabulated some of the key findings that could be gathered from reviewing the data. In the absence of a true origin-destination survey, or a scientifically-conducted survey, the informal results gathered by the TANF office are utilized in two ways. First, the service preferences indicated by the respondents are used to prioritize the proposed service improvements. Second, the percentages of the respondents preferring specific routes were used to calibrate the distribution of the total ridership forecasts for each time horizon among the future proposed routes.

A summary of participant responses for each of four tribal districts is presented in Table 5-2.

TABLE 5-2. SUMMARY OF TRIBAL SURVEY RESULTS

Tribal District Surveyed	District Total	Number of respondents from each Tribal Area who mentioned specific desired transit service:			
		Phoenix	Tucson	Safford	Whiteriver
Peridot	274	105	41	46	18
Bylas	270	133	85	71	22
Gilson Wash	124	54	14	8	6
Seven Mile Wash	172	74	17	10	3
Total Responses:	840	366	157	135	49
		Percentage of respondents who mentioned specific desired transit service:			
		Phoenix	Tucson	Safford	Whiteriver
Peridot		38.32%	14.96%	16.79%	6.57%
Bylas		49.26%	31.48%	26.30%	8.15%
Gilson Wash		43.55%	11.29%	6.45%	4.84%
Seven Mile Wash		43.02%	9.88%	5.81%	1.74%
Total Responses:		43.57%	18.69%	16.07%	5.83%

Sources: San Carlos Apache Nnee Bich'onii Services Tribal Survey; R. H. Bohannon & Associates, LLC

The results for each of the four districts are presented in Table 5-2 for information only. The total responses were used for service prioritization and ridership estimation purposes. In interpreting the survey findings, the consultant assumed that the Globe Route, which is already operating, had first priority. In fact, more of the survey participants who specified a desired destination mentioned a Phoenix area destination by name than mentioned Globe. However, the responses in general inferred a strong desire for continued or improved service to Globe by mentioning the Community College, Wal-Mart, or other high-profile destinations in the Globe area.

Note that multiple responses from survey participants were counted. Mention of “Phoenix” and “Safford” by a single respondent resulted in a count for both cities. The consultant used discretion in interpreting the data. For example, “Phoenix”, “Mesa”, “The Valley”, or other responses clearly intended to denote the Phoenix area—or a stop on the logical route to Phoenix such as “Apache Junction”—were all counted as “Phoenix.” Due to the significant response for Phoenix as a destination, that particular route was selected as the first one not operating to be introduced in the Plan. In addition to Globe, San Carlos Apache Nnee Bich'o Nii Services has already been operating service to the Safford area. The survey findings were also used to prioritize Tucson ahead of Whiteriver. The Payson route, which also had been suggested by stakeholders, received so few mentions that it was omitted altogether.

Demand Estimation Process

As was done for estimating existing transit demand, the *Workbook for Estimating Demand for Rural Passenger Transportation*, Transit Cooperative Research Program (TCRP) Report No. 3, published by the Transportation Research Board and sponsored by the Federal Transit Administration was used to estimate future demand for transit at each of the time horizons. A summary of this process is presented in Table 5-3.

TABLE 5-3. SUMMARY OF TCRP FUTURE DEMAND ESTIMATION PROCESS

	Short-Term			2020	2030
	2012-2013	2013-2014	2014-2015		
Factor-Based Non-Program Ridership Estimates					
Estimated Study Area Population	14,972	15,315	15,658	16,885	19,341
Vehicle Miles per Square Mile	594	743	863	1,439	1,768
Persons aged 65 or over.	681	697	713	769	880
Service Factor	0.001969	0.002368	0.002690	0.004237	0.005119
TCRP Factor	1,200	1,200	1,200	1,200	1,200
Est. Over 65 Annual Demand	1,610	1,981	2,301	3,907	5,408
Persons aged 16 to 64 with mobility limitations	2,195	2,246	2,296	2,476	2,836
Service Factor	0.001942	0.002176	0.002365	0.003270	0.003786
TCRP Factor	1,200	1,200	1,200	1,200	1,200
Est. Mobility Limited Annual Demand	5,117	5,864	6,515	9,715	12,886
Persons aged 64 or under, residing in households with incomes below the poverty level.	7,504	7,676	7,848	8,463	9,694
Service Factor	0.001980	0.002345	0.002639	0.004052	0.004858
TCRP Factor	1200	1200	1200	1200	1200
Est. Low Income Annual Demand	17,828	21,598	24,856	41,147	56,508
Estimated Total Annual Demand	24,555	29,443	33,672	54,769	74,802
Graph-Based Non-Program Ridership Estimates					
	Short-Term			2020	2030
	2012-2013	2013-2014	2014-2015		
Estimated Study Area Population	14,972	15,315	15,658	16,885	19,341
Vehicle Miles per Square Mile	594	966	1,041	1,401	1,790
Persons aged 65 or over.	681	697	713	769	880
Annual Trips per Person from Graph	2.75	2.99	3.18	4.25	5.02
Annual Trips of Over 65 population	1,874	2,084	2,266	3,266	4,419
Persons aged 16 to 64 with mobility limitations	2,195	2,246	2,296	2,476	2,836
Annual Trips per Person from Graph	2.50	2.66	2.78	3.52	4.00
Annual Trips of Mobility Limited population	5,488	5,973	6,383	8,715	11,344
Persons aged 64 or under, residing in households with incomes below the poverty level.	7,504	7,676	7,848	8,463	9,694
Annual Trips per Person from Graph	2.11	2.28	2.43	3.23	3.77
Annual Trips of Low Income population	15,834	17,502	19,071	27,336	36,547
Estimated Annual Demand	23,196	25,559	27,720	39,317	52,310
Average of Both Estimates	23,876	27,501	30,696	47,043	63,556

Source: R. H. Bohannon & Associates, LLC

The Study Area population for each time horizon was estimated by interpolating data provided by Jacobs. The vehicle miles per square mile were calculated by selecting the routes that would be proposed to be introduced in each time horizon and determining the service miles for each, taking into consideration the length of the route and the frequency of operation. These calculations are presented in Table 5-4. The service area square miles represent a corridor ten miles wide, centered on the route alignments within the Study Area as explained in Chapter 4.

**TABLE 5-4. VEHICLE MILES PER SQUARE MILE FOR EACH TIME HORIZON
BASED ON 499 SERVICE AREA SQUARE MILES**

2012-2013	Annual Miles
Apache Gold Casino/Resort Route	112,927.36
Globe Route - Monday through Saturday	75,797.28
Safford Route - Monday through Friday	107,577.60
Total Annual Miles	296,302.24
Vehicle Miles per Square Mile	593.79
2013-2014	Annual Miles
Apache Gold Casino/Resort Route	112,927.36
Globe Route - Monday through Saturday	75,797.28
Safford Route - Monday through Friday	107,577.60
Phoenix Route – Two Days per Week	74,318.40
Total Annual Miles	370,620.64
Vehicle Miles per Square Mile	742.73
2014-2015	Annual Miles
Apache Gold Casino/Resort Route	112,927.36
Globe Route - Monday through Saturday	75,797.28
Safford Route - Monday through Friday	107,577.60
Phoenix Route – Two Days per Week	74,318.40
Tucson Route – Two Days per Week	59,991.36
Total Annual Miles	430,612.00
Vehicle Miles per Square Mile	862.95
2020	Annual Miles
Apache Gold Casino/Resort Route	112,927.36
Globe Route - Monday through Saturday	75,797.28
Safford Route - Monday through Saturday	129,093.92
Phoenix Route - Monday through Friday	185,796.00
Tucson Route - Monday through Friday	149,978.40
Whiteriver Route– Two Days per Week	64,675.52
Total Annual Miles	718,267.68
Vehicle Miles per Square Mile	1,439.41
2030	Annual Miles
Apache Gold Casino/Resort Route	112,927.36
Globe Route - Monday through Saturday	75,797.28
Safford Route - Monday through Saturday	129,093.92
Phoenix Route - Monday through Saturday	222,955.20
Tucson Route - Monday through Saturday	179,974.08
Whiteriver Route - Monday through Saturday	181,688.80
Total Annual Miles	882,435.84
Vehicle Miles per Square Mile	1,768.41

Specific recommendations for future San Carlos Apache Nnee Bich'o Nii Services expansions and improvements are presented in the next Chapter.

6. DRAFT TRANSIT IMPROVEMENT PLAN

This Chapter presents a draft transit improvement plan for the Tribe, including draft recommendations for short-, mid-, and long-term expansions to the transit operation, and an accompanying capital improvement program to provide the vehicles that will be needed to introduce the new services. The primary purpose of this chapter is to refine some of the ideas that were first set forth in the future conditions portion of the previous chapter. A revised set of potential transit routes are presented, together with suggested time horizons for the introduction of each. Draft financial data is presented in a subsequent chapter.

SHORT-TERM PLAN

Proposed transit services for the 2011-2012 through 2014-2015 time horizons are summarized in this section. Each horizon includes twelve months from October of one year through September of the following year. This convention is being followed as it is consistent with the calendar used in submitting applications for financial assistance to the Federal Transit Administration (FTA).

2011-2012

A 2011-2012 pro-forma was developed for a current application for FTA Section 5311 Rural Transit Funding assistance that was presented in a separate Technical Memorandum developed by the consultant for inclusion as an exhibit accompanying the San Carlos Apache Nnee Bich'o Nii Services application. During the 2011-2012 time frame, the following capital expenditures have been recommended:

- Two Ford chassis cutaway minibuses estimated to cost \$93,200 each
- Maintenance shop equipment estimated to cost a total of \$10,000
- Fifteen bus stop signs for the San Carlos and Globe area checkpoint stops, estimated to cost a total of \$1,500.00 assuming installation by Tribal personnel

The exteriors of the recommended cutaway minibuses resemble those purchased by Cobre Valley Community Transit (See Figure 2-5), and the floor plan for the buses resembles that depicted in Figure 3-2.

2012-2013

During the 2012-2013 period, the ridership estimates and the financial pro-forma assume that San Carlos Apache Nnee Bich'o Nii Services will operate the following routes:

- Apache Gold Casino/Resort Route
- Globe Route - Monday through Saturday
- Safford Route - Monday through Friday

The Apache Gold Casino Resort Route, which San Carlos Apache Nnee Bich'o Nii Services has been operating on its current schedule since 2010, operates seven days a week, providing commuter service for Tribal employees of the Casino. Returning after dark, employees are delivered to their homes. The schedule for this route is presented in Table 2-3 in Chapter 2..

During 2012-2013, the Globe Route, which was introduced on its current schedule in the fall of 2010 as a Monday through Friday service, is proposed to be extended to six-days-a-week. Tribal survey respondents requested more service, including Saturday and Sunday service. While for the purpose of the draft the additional day chosen was Saturday, San Carlos Apache Nnee Bich'onii Services may want to evaluate Sunday service in place of or in addition to Saturday service. Both shopping and church were mentioned frequently by survey participants desiring additional service.

Globe Schedule

The one-way mileage of the Globe route is 40.49, not including deviations to off-line destinations such as the Gila Community College campus in Globe. The schedule presented above could be operated by three drivers, operating in three shifts, five-days-per-week. The shifts would correspond to each of the round-trip schedules: The first shift would be from 6:00 am to 1:00 pm; the second shift would be from 3:00 pm to 10:00 pm; and the third shift would be from 6:00 pm to 1:00 am. Each driver would work five 7-hour shifts each week. The three drivers assigned to this schedule would be drawn from the Tribal driver pool.

Cultural practices exist that also affect the selection of desirable schedule times and locations. For example, activities that might be conducted by mail, by phone, or on-line in metropolitan areas, such as paying bills or making appointments, are often done in person by Tribal enrollees, resulting in increased trips per person.

Many roadways on the reservation lack shoulders or street lighting, and can be hazardous to drive at night. Tribal elders and parents of high school and college students desire safe transportation to and from night classes at Gila Pueblo College in Globe. Some of the classes end at 7:50 pm or later. Late-night service also facilitates participation in or attendance at sports events and other evening, after school activities. Many adults without access to automobiles also take night courses at the college. The Globe schedule is shown in Table 6-1.

TABLE 6-1. PROPOSED GLOBE SCHEDULE

WESTBOUND	1st RUN	2nd RUN	3rd Run
Peridot SCATS	6:10 AM	3:10 PM	6:10 PM
Tribal Administration Area	6:40 AM	3:40 PM	6:40 PM
Satellite Center	7:05 AM	4:05 PM	7:05 PM
Apache Gold Casino Main Entrance	7:25 AM	4:25 PM	7:25 PM
(Across) Globe Express Stop	7:45 AM	4:45 PM	7:45 PM
Downtown Globe/Arizona Eastern Depot	8:10 AM	5:10 PM	8:10 PM
Fry's Shopping Center	8:35 AM	5:35 PM	8:20 PM
Walmart	8:45 AM	5:45 PM	8:30 PM
EASTBOUND			
Walmart	9:45 AM	6:45 PM	9:30 PM
Fry's Shopping Center	9:55 AM	6:55 PM	9:40 PM
Downtown Globe/Arizona Eastern Depot	10:25 AM	7:25 PM	No Stop
(Across) Globe Express Stop	10:50 AM	7:50 PM	9:55 PM
Apache Gold Casino Main Entrance	11:10 AM	8:10 PM	10:15PM
Satellite Center	11:30 AM	8:30 PM	10:35PM*
Tribal Administration Area	11:55 AM	8:55 PM	11:00PM*
Peridot SCATS	12:25 PM	9:25 PM	11:30PM

Current Pick-up Points, Drop-off Points, and Fare Zones

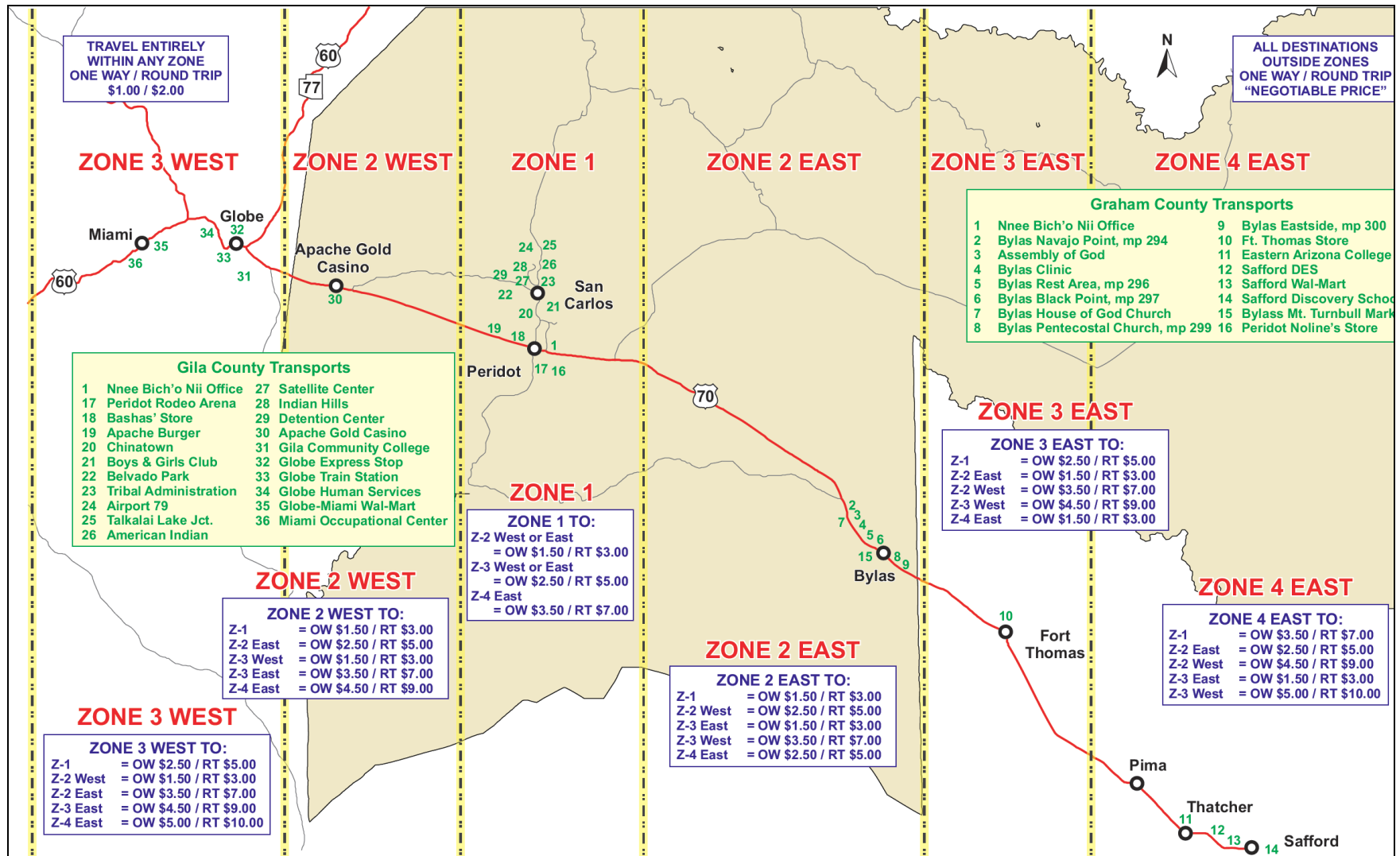
The current pick-up points, drop-off points, and fare zones are presented in Figure 6-2.

Safford Schedule and Route Alignment

The one-way mileage of the Safford schedule is 68.96. As three round trips are made daily, the daily mileage total is 413.76 and the annual mileage total is 107,577 for Monday through Friday service (260 days per year). The Safford schedule, shown in Table 6-2 below, is designed to be operated with a single vehicle, although three driver shifts would be required. Drivers could combine operating one of the Safford runs with demand response work in the San Carlos/Globe area to comprise an eight-hour work day. East of Peridot, the Safford route would operate over US 70 to the Safford area.

The Safford service already in place and operated by San Carlos Apache Nnee Bich'onii Services is the logical initial expansion for pro-forma purposes, even if survey participants requested Phoenix service more frequently. .

FIGURE 6-1. SAN CARLOS APACHE NNEE BICH'ONII SERVICES PICK-UP POINTS AND FARE ZONES



Source: R. H. Bohannon & Associates, LLC

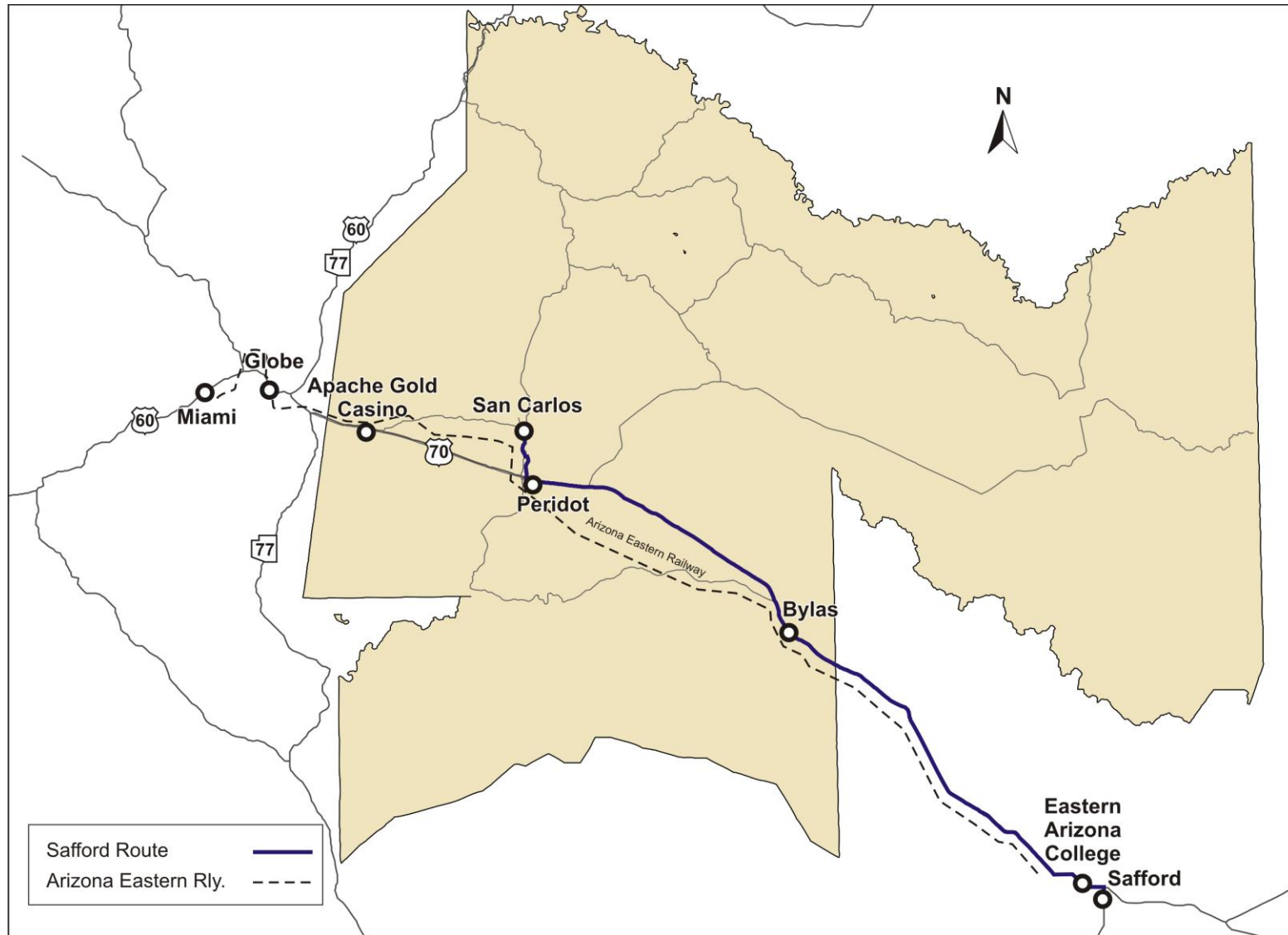
TABLE 6-2. PROPOSED SAFFORD SCHEDULE

Eastbound	1st Run	2nd Run	3rd Run
Peridot SCATS	6:00 AM	11:00 AM	4:00 PM
San Carlos Satellite Center	6:15 AM	11:15 AM	4:15 PM
American Indian Church	6:25 AM	11:25 AM	4:25 PM
Tribal Administration Area	6:30 AM	11:30 AM	4:30 PM
San Carlos Boys & Girls Club	6:35 AM	11:35 AM	4:35 PM
Noline's Country Store	6:45 AM	11:45 AM	4:45 PM
Bylas Rest Area	7:15 AM	12:15 PM	5:15 PM
Eastern Arizona College Parking Lot	7:50 AM	12:50 PM	5:50 PM
Safford DES Area	8:00 AM	1:00 PM	6:00 PM
Safford Wal-Mart	8:05 AM	1:05 PM	6:05 PM
Discovery Park	No Stop	1:10 PM	6:10 PM
Westbound	1st Run	2nd Run	3rd Run
Safford Wal-Mart	8:30 AM	1:30 PM	6:30 PM
Safford DES Area	8:35 AM	1:35 PM	6:35 PM
Eastern Arizona College Parking Lot	8:45 AM	1:45 PM	6:45 PM
Bylas Rest Area	9:20 AM	2:20 PM	7:20 PM
Noline's Country Store	9:50 AM	2:50 PM	7:50 PM
San Carlos Boys & Girls Club	10:00 AM	3:00 PM	8:00 PM
Tribal Administration Area	10:05 AM	3:05 PM	8:05 PM
American Indian Church	10:10 AM	3:10 PM	8:10 PM
San Carlos Satellite Center	10:20 AM	3:20 PM	8:20 PM
Peridot SCATS	10:25 AM	3:25 PM	8:25 PM

In the San Carlos and Peridot areas, Tribal enrollees also use transit for shopping as well as commuting to work, or for medical purposes. When enrollees are hospitalized, medical transportation to the hospital is provided for the patient. However, after recovering from illness or surgery, the patient is often released from the hospital without being provided a return trip home. Medical transportation also does not provide service for family members who wish to accompany the patient to the hospital, or to visit the patient during his or her stay. The general public transportation service being proposed would also enable these trips.

The route alignment of the Safford route is shown in Figure 6-2.

FIGURE 6-2. SAFFORD ROUTE



Source: R. H. Bohannon & Associates, LLC

2012-2013 Capital Expenditures

During the 2012-2013 period, recommended capital expenditures are as follows:

- One Ford E-350 replacement van, \$55,000
- Five bus stop signs for the Safford route checkpoints, \$500

Coordination with Cobre Valley Community Transit (CVCT)

Concurrent with the San Carlos Apache Nnee Bich'o Nii Services Transit Study, CVCT is evaluating a proposed expansion and restructuring of their service. It is essential for the ultimate success of both San Carlos Apache Nnee Bich'o Nii Services and CVCT that their services be coordinated and complement—not compete—with one another.

When CVCT begins operating fixed route service in the Globe-Miami area, the establishment of one or more transfer points with CVCT will be desirable. Where this point—or points—should be located will depend upon the specific route structures of both systems at the time that CVCT fixed route service is implemented. One logical location would be the Arizona Eastern Railway depot in downtown Globe, especially if the future introduction of year round rural passenger service is anticipated. Different transfer points could be used for connections to different routes. For example, if San Carlos Apache Nnee Bich'o Nii Services establishes a San Carlos – Tucson route, establishment of a transfer point at the Apache Gold Casino would give Globe and Miami passengers access to the service without the schedule having to deviate west of the US 70/SR 77 junction that is the turn-off to Tucson.

While SCATS may need to traverse “CVCT Territory” to, for example, operate to and from Phoenix, the two agencies can work together to ensure that the operations of one do not adversely impact those of the other agency. Perhaps a system of honoring each other’s tickets and settling collected revenue could be developed that would also facilitate “seamless” travel from the passengers’ point of view.

2013-2014

In 2013-2014, a Phoenix Route is proposed to be introduced as a two-days-per-week operation. The schedule is shown in Table 6-3.

Phoenix Schedule and Route Alignment

The one-way mileage of the Phoenix schedule is 119.10; operating this schedule two days a week will result in the accumulation of 74,318.40 annual miles. The schedule will require two vehicles and three drivers on each day of operation. Ridership estimates suggest that minibuses might be needed for this route. If the route were operated on an advance reservations basis, vans could be assigned on light days. As gasoline prices climb, Tribal residents will want to depend more and more on public transportation for shopping, medical

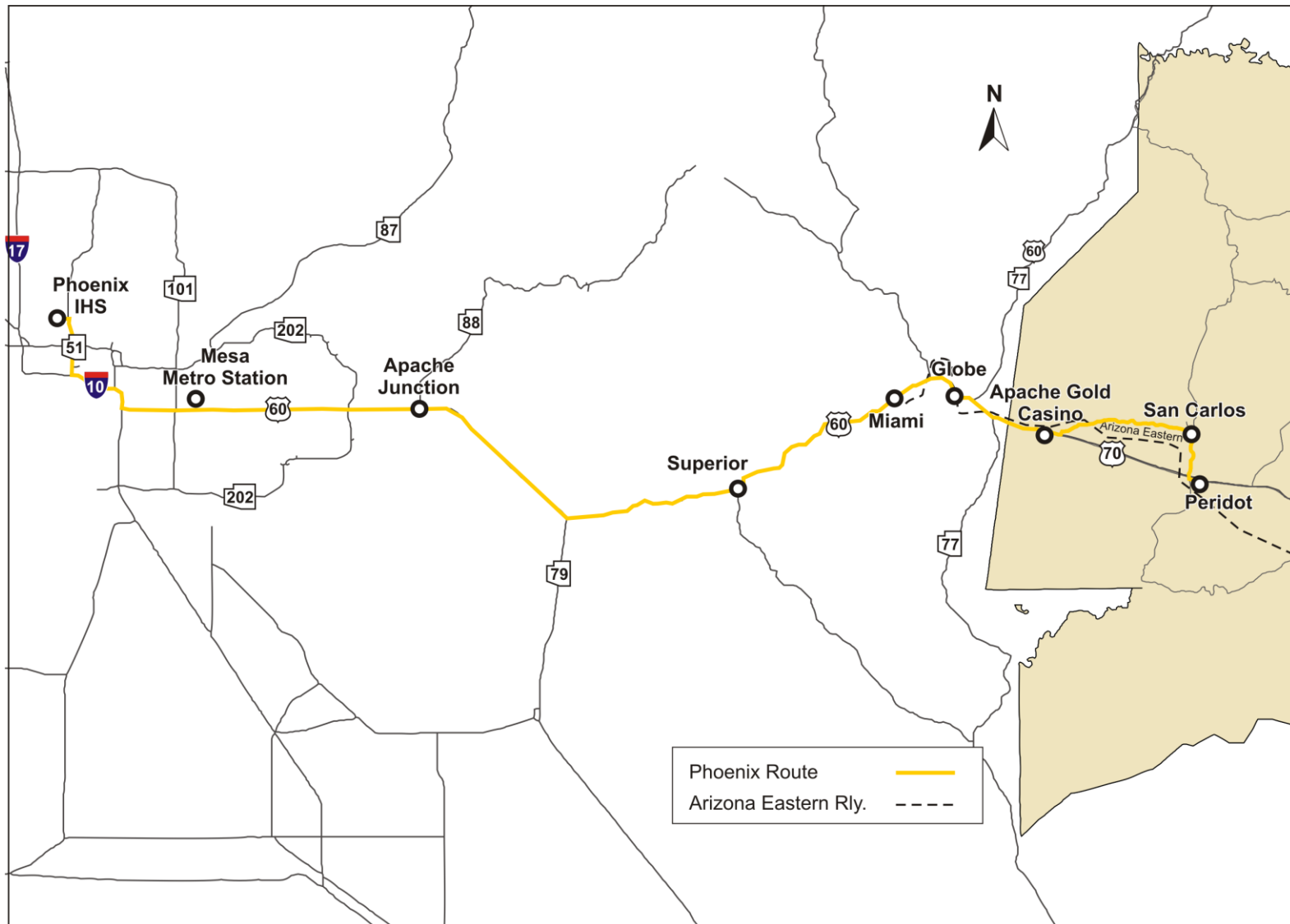
TABLE 6-3. PROPOSED PHOENIX SCHEDULE

Westbound	1st Run	2nd Run	3rd Run
Peridot SCATS	6:30 AM	2:30 PM	6:30 PM
Bashas'	6:35 AM	2:35 PM	6:35 PM
China Town (Old. B. Ball Court)	6:40 AM	2:40 PM	6:40 PM
Tribal Administration Area	6:45 AM	2:45 PM	6:45 PM
Satellite Center	6:50 AM	2:50 PM	6:50 PM
Apache Gold Casino	7:10 AM	3:10 PM	7:10 PM
Across Express Stop	7:25 AM	3:25 PM	7:25 PM
Downtown Globe/Arizona Eastern Depot	7:30 AM	3:30 PM	7:30 PM
Wal-Mart	7:40 AM	3:40 PM	7:40 PM
Miami Town Hall	7:45 AM	3:45 PM	7:45 PM
Superior	8:10 AM	4:10 PM	8:10 PM
Apache Junction	8:45 AM	4:45 PM	8:45 PM
Mesa METRO LRT Station	9:20 AM	5:20 PM	9:20 PM
Phoenix Indian Medical Center	9:45 AM	5:45 PM	9:45 PM
Eastbound	1st Run	2nd Run	3rd Run
Phoenix Indian Medical Center	10:30 AM	6:30 PM	10:00 PM
Mesa METRO LRT Station	10:55 AM	6:55 PM	10:25 PM
Apache Junction	11:30 AM	7:30 PM	11:00 PM
Superior	12:05 PM	8:05 PM	11:35 PM
Miami Town Hall	12:30 PM	8:30 PM	12:00 AM
Wal-Mart	12:40 PM	8:40 PM	12:10 AM
Downtown Globe/Arizona Eastern Depot	12:50 PM	8:50 PM	12:20 AM
Across Express Stop	12:55 PM	8:55 PM	12:25 AM
Apache Gold Casino	1:10 PM	9:10 PM	12:40 AM
Satellite Center	1:30 PM	9:30 PM	1:00 AM
Tribal Administration Area	1:35 PM	9:35 PM	1:05 AM
China Town (Old. B. Ball Court)	1:40 PM	9:40 PM	1:10 AM
Bashas'	1:45 PM	9:45 PM	1:15 AM
Peridot SCATS	1:50 PM	9:50 PM	1:20 AM

visits, and access to evening sports events concerts, and other urban area attractions. The late night return schedule enables these activities.

The Phoenix route alignment is shown in Figure 6-3. West of Miami, the Phoenix route would operate over US 60 through Superior to Apache Junction, thence west on US 60 to Mesa. US 60, Interstate 10, and SR 51 could be used in the Phoenix area. The proposed Phoenix schedule terminates at the Indian Health Service in Phoenix, a destination mentioned by a number of survey participants. It would also stop at the Mesa station of Phoenix's METRO light rail service, where connections to a number of Valley locations are available. METRO runs through both the Tempe and Downtown Phoenix campuses of Arizona State University, and also stops near Sky Harbor Airport, Chase Field, US Airways Center, the Heard Museum, and St. Joseph's Hospital.

FIGURE 6-3. PHOENIX ROUTE



Source: R. H. Bohannon & Associates, LLC

METRO also serves Park Central and Spectrum (Christown) Malls, the Phoenix Art Museum, the Convention Center, and numerous downtown restaurants, theatres, museums, and other cultural and entertainment destinations.

For both time and financial constraints, operation of this schedule as a fixed route within the Phoenix area would be desirable, relying on the light rail and frequent bus connections rather than making extensive detours in Valley traffic. Further study should be undertaken before the final route and stops are selected.

Joint Operation of Phoenix Services

The proposed Phoenix schedule is presented as an operation implemented and managed by San Carlos Apache Nnee Bich'o Nii Services on its own. However, regional interest exists in restoring intercity transit service along the US 60-US 70 corridor between Phoenix, Superior, Miami, Globe, and Safford. The Tribe will want to explore the option of partnering with Cobre Valley Community Transit, ADOT or other entities to operate the service. Funding assistance could be provided through a number of public agencies including ADOT, Gila, Graham, Maricopa, and Pinal Counties, the Cities of Globe, Phoenix, and Superior, the Town of Miami, and other sources.

Such a service might be implemented as part of a newly-implemented regional transit network that would include service along the SR 77 corridor to Winkelman, San Manuel, Oro Valley, and Tucson.

2013-2014 Capital Expenditures

Capital expenditures for the 2013-2014 period include

- Additional Ford chassis cutaway minibus, \$93,200
- Replacement Ford E-350 van, \$55,000
- Five more bus stop signs for the Phoenix route checkpoints.

2014-2015

In 2014-2015, two-days-per-week service to Tucson will be added. The proposed Tucson schedule is shown in Table 6-4.

Tucson Schedule and Route Alignment

The Tucson Route would follow the alignment of the Globe route between Peridot, San Carlos, and the Casino. Leaving the Casino, the route would follow US 70 to its junction with SR 77 and then operate over SR 77 to the Tucson Area. The proposed Tucson Route would be 144 miles in length, and would terminate at the VA Medical Center in Tucson, after making stops in San Manuel, at a transit center north of downtown, and in the vicinity of the University of Arizona. Two round trips are proposed for each day the route is operated.

TABLE 6-4. PROPOSED TUCSON SCHEDULE

Southbound	1st Run	2nd Run
Peridot SCATS	7:00 AM	2:00 PM
Bashas'	7:05 AM	2:05 PM
China Town (Old. B. Ball Court)	7:10 AM	2:10 PM
Tribal Administration Area	7:15 AM	2:15 PM
Satellite Center	7:20 AM	2:20 PM
Apache Gold Casino	7:40 AM	2:40 PM
Winkelman	8:20 AM	3:20 PM
San Manuel	8:55 AM	3:55 PM
Tucson - Tohono Tadaí Transit Center	9:55 AM	4:55 PM
Tucson - Health Sciences/Streetcar	10:10 AM	5:10 PM
Tucson - VA Medical Center	10:25 AM	5:25 PM
Northbound	1st Run	2nd Run
Tucson - VA Medical Center	10:30 AM	5:30 PM
Tucson - Health Sciences/Streetcar	10:45 AM	5:45 PM
Tucson - Tohono Tadaí Transit Center	11:00 AM	6:00 PM
San Manuel	12:00 PM	7:00 PM
Winkelman	12:35 PM	7:35 PM
Apache Gold Casino	1:15 PM	8:15 PM
Satellite Center	1:35 PM	8:35 PM
Tribal Administration Area	1:40 PM	8:40 PM
China Town (Old. B. Ball Court)	1:45 PM	8:45 PM
Bashas'	1:50 PM	8:50 PM
Peridot SCATS	1:55 PM	8:55 PM

Operation of the Tucson route two days per week would add an additional 59,991.36 annual miles to the San Carlos Apache Nnee Bich'o Nii Services system. The route is designed to be operated with one vehicle, but would require two drivers. (See Figure 6-4)

The Tucson Route is designed to take advantage of existing and future transit services in Tucson, to facilitate distribution and collection of San Carlos Apache Nnee Bich'o Nii Services riders and minimize the amount of route deviation in Tucson traffic. As is the case with the Phoenix Route, the consultant recommends that San Carlos Apache Nnee Bich'o Nii Services plan to operate this service as a fixed route within the Tucson area to save the time and expense of deviating in urban traffic.

Stopping at the Tohono Tadaí Transit Center near Stone Avenue and River Road will give SCATS riders connections to Tucson's SunTran bus system. The Transit Center is also within walking distance of Tucson Mall, a major regional mall featuring major stores such as Dillards, Penny's and Sears, as well as specialty shops. There are also a number of popular restaurants in the area.

Another Tucson stop would be near the University of Arizona Health Sciences Center, giving access to another highly respected and patronized health care facility as well as the terminal

FIGURE 6-4. TUCSON ROUTE



Source: Jacobs Engineering Group, Inc

of the Tucson Modern Streetcar, which is expected to be operating by 2014. The Streetcar will connect to additional areas of the University of Arizona campus, the Tucson Amtrak Station, and the downtown Ronstadt Transit Center.

Potential for Coordination with CVCT

The proposed Tucson Route traverses State Route 77 and does not serve downtown Globe in order to maintain attractive end-to-end running times. If CVCT is operating fixed route service at the time the Tucson route is introduced, CVCT could operate a connecting bus from Miami and Globe to the Casino, giving riders originating in those communities access to the Tucson service. If CVCT is not able to provide the service, San Carlos Apache Nnee Bich'o Nii Services may want to evaluate the operation of a connection to/from this route and Globe and Miami, interchanging passengers at the Casino. Running times could be adjusted to connect with other San Carlos Apache Nnee Bich'onii Services runs, or even with future passenger rail service. Alternatively, this Route could be restructured as a Globe – Tucson Route, with local connections to Peridot and San Carlos provided by San Carlos Apache Nnee Bich'o Nii Services.

As was the case with the Phoenix schedule, the proposed Tucson schedule is presented as an operation implemented and managed by San Carlos Apache Nnee Bich'o Nii Services on its own. However, regional interest exists in implementing intercity transit service along the SR 77 corridor between Globe, Winkelman, Oro Valley, and Tucson. The Tribe will want to explore the option of partnering with CVCT, ADOT or other entities to operate the service. Funding assistance could be provided through a number of public agencies including ADOT, Gila, and Pima Counties, the Cities of Globe and Tucson, and other sources.

2014-2015 Capital Expenditures

Capital expenditures recommended for 2014-2015 are as follows:

- Ford Chassis Cutaway Bus, \$93,200
- Ford E-350 Van, \$55,000
- Upgrade GPS/GIS tracking and dispatch system, \$25,000
- New radio repeaters (2 @ \$25,000 each), \$50,000
- Five bus stop signs for the Tucson route, \$500

If the Phoenix and Tucson Routes, both of which would begin by operating two days per week, are operated on different days, the same vehicle could be used. However, a spare cutaway minibus, to be available for maintenance and to protect the Globe, Phoenix, and Tucson services, is recommended. Five more bus stop signs will also be needed.

During the 2014-2015 period, the consultant recommends upgrading the GPS/GIS tracking and dispatch system developed with the assistance of Jacobs during the conduct of the 2009 San Carlos Apache Tribe Transportation Study. After the tracking and dispatch system was

placed in service, several “dead” spots were identified within the reservation where radio communication with the vehicles needed for the tracking system is not possible. Radio repeaters to be located on Pinal Peak, south of Globe, and on Hill Top, north of San Carlos, are recommended to achieve complete coverage.

Study of Future Rail Passenger Service

As was discussed in Chapter 2, prior to change in ownership, the Arizona Eastern Railway had expressed an interest in expanding its current seasonal Copper Spike excursion train service to provide year round rural passenger rail service within some or all segments of its Miami-Globe-San Carlos-Safford corridor. Attempts to obtain federal funding in 2009 and 2010 that would have resulted in the implementation of such service were not successful. However, the City of Globe has applied to ADOT for a Planning Assistance to Rural Areas (PARA) grant to study the concept of implementing year-round passenger rail service. If the grant is awarded, San Carlos Apache Nnee Bich'o Nii Services will want to participate in the study.

MID-TERM PLAN

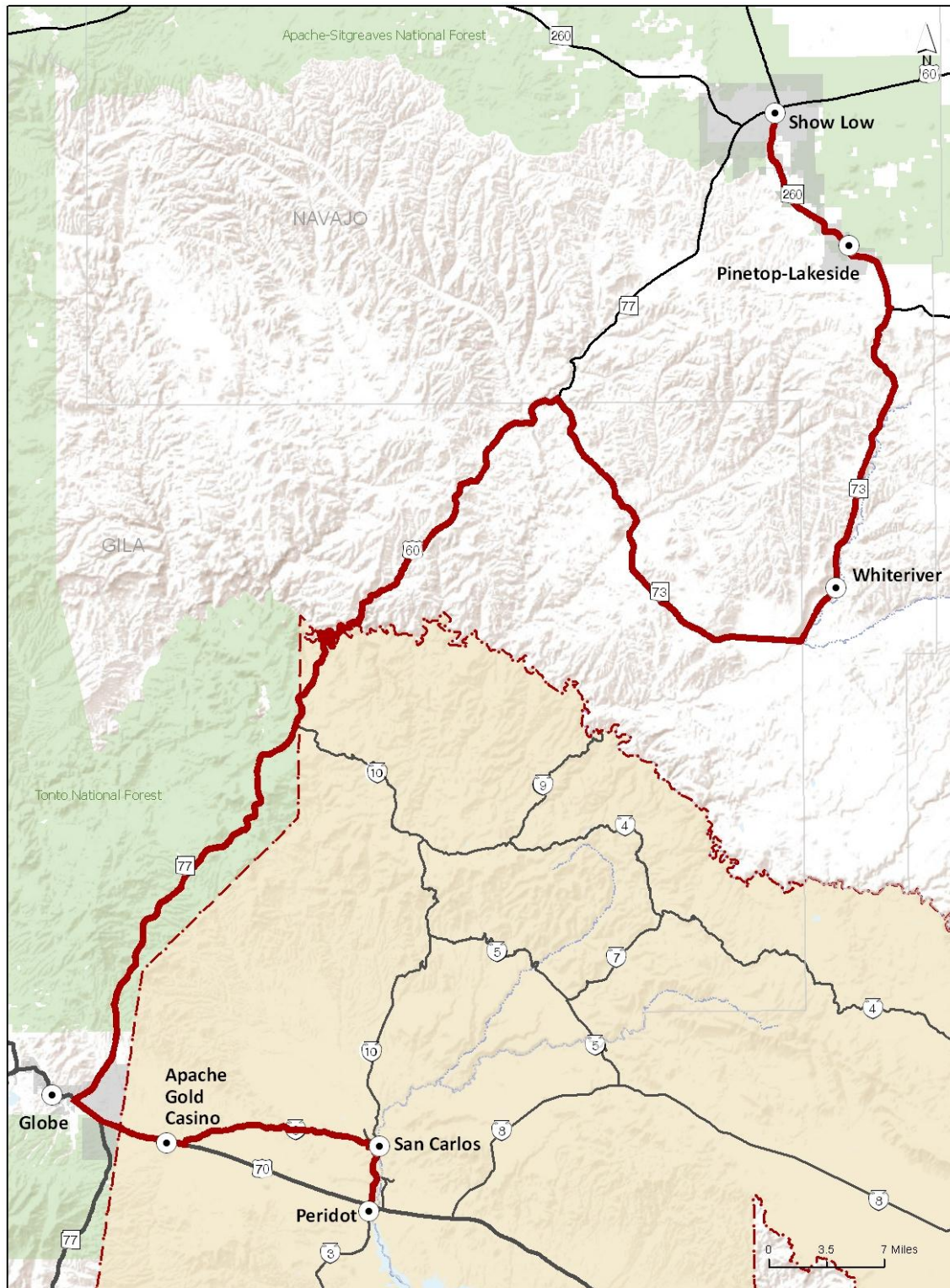
By 2020, both the Phoenix and Tucson Routes would be expanded to Monday through Friday Service. Expanding the Phoenix route to five days a week will add 111,477.60 miles annually and expanding the Tucson route to five days a week will add another 89,987.04 annual miles. Also by 2020, a route would be opened to the White Mountains two days a week, serving Whiteriver, Pinetop-Lakeside, and Show Low (See Table 6-5).

TABLE 6-5. PROPOSED WHITERIVER SCHEDULE

Northbound	1st Run	2nd Run
Peridot SCATS	6:45 AM	2:45 PM
Bashas'	6:50 AM	2:50 PM
China Town (Old. B. Ball Court)	6:55 AM	2:55 PM
Tribal Administration Area	7:00 AM	3:00 PM
Satellite Center	7:05 AM	3:05 PM
Apache Gold Casino	7:25 AM	3:25 PM
Downtown Globe/Arizona Eastern Depot	7:40 AM	3:40 PM
Express Stop	7:45 AM	3:45 PM
Whiteriver	9:35 AM	5:35 PM
Pinetop Lakeside	10:10 AM	6:10 PM
Show Low	10:30 AM	6:30 PM
Southbound	1st Run	2nd Run
Show Low	10:45 AM	6:45 PM
Pinetop Lakeside	11:05 AM	7:05 PM
Whiteriver	11:40 AM	7:40 PM
Across from Express Stop	1:30 PM	9:30 PM
Downtown Globe/Arizona Eastern Depot	1:35 PM	9:35 PM
Apache Gold Casino	1:50 PM	9:50 PM
Satellite Center	2:10 PM	10:10 PM
Tribal Administration Area	2:15 PM	10:15 PM
China Town (Old. B. Ball Court)	2:20 PM	10:20 PM
Bashas'	2:25 PM	10:25 PM
Peridot SCATS	2:30 PM	10:30 PM

This route will add another 64,675.52 miles. (See Figure 6-5) The route will follow the alignment of the Globe route from Peridot through San Carlos to the Casino, and continue west on US 70 to its junction with US 60 in Globe. The route would operate north over US 60 to its junction with SR 73, following that route to Whiteriver and on to Pinetop-Lakeside. This service is an example of one that could benefit from coordination with CVCT, where riders from the Western portions of the Globe-Miami area could connect in the central or Eastern part of Globe for travel to the White Mountains. In the proposed schedule shown in Table 6-6, both the Arizona Eastern Depot and the Express Stop are shown as Globe stops. Specific downtown stops of this and other San Carlos Apache Nnee Bich'o Nii Services will depend upon the coordination developed with CVCT and the refinement of efficient operating practices.

FIGURE 6-5. WHITERIVER ROUTE



Source: Jacobs Engineering Group, Inc.

2020 Capital Expenditures

Capital expenditures recommended for 2020 are as follows:

- Ford Chassis Cutaway Buses (2 @ \$93,200 ea.), \$186,400
- Ford E-350 Van (2), \$110,000
- Bus Shelters (20 @ \$12,000 each), \$240,000
- Five bus stop signs, \$500

By 2020, the buses purchased during the 2011-2015 period will have accumulated significant mileage and will likely be in need of replacement, or reassignment to use as back-ups or spares. Replacement vans for the lower volume routes will also be needed. Ridership will have grown to levels where provision of shelters at key boarding locations will be appropriate. Figure 6-6 depicts the candidate locations in the San Carlos and Peridot areas where shelters might be located, as well as a concept for a shelter design. Additional bus stop signs will be needed for the Whiteriver route.

FIGURE 6-6. BUS SHELTER LOCATIONS AND CONCEPT



Source: Jacobs Engineering Group

LONG-TERM PLAN

By 2030, the Phoenix and Tucson routes will be expanded to six days per week, adding Saturday service. The Whiteriver route will be expanded from two days per week to Monday through Friday. Expanding the Whiteriver service will add another 97,013 miles to the SCAT system, assuming the operation of two daily round trips. The service is designed to be operated with one vehicle, but will require two drivers.

Weekend trips and other special runs could be operated to accommodate tourist travel to the High Country, as well as Inter-Tribal events with the White Mountain Apache Tribe.

2030 Capital Expenditures

Capital expenditures recommended for 2030 are as follows:

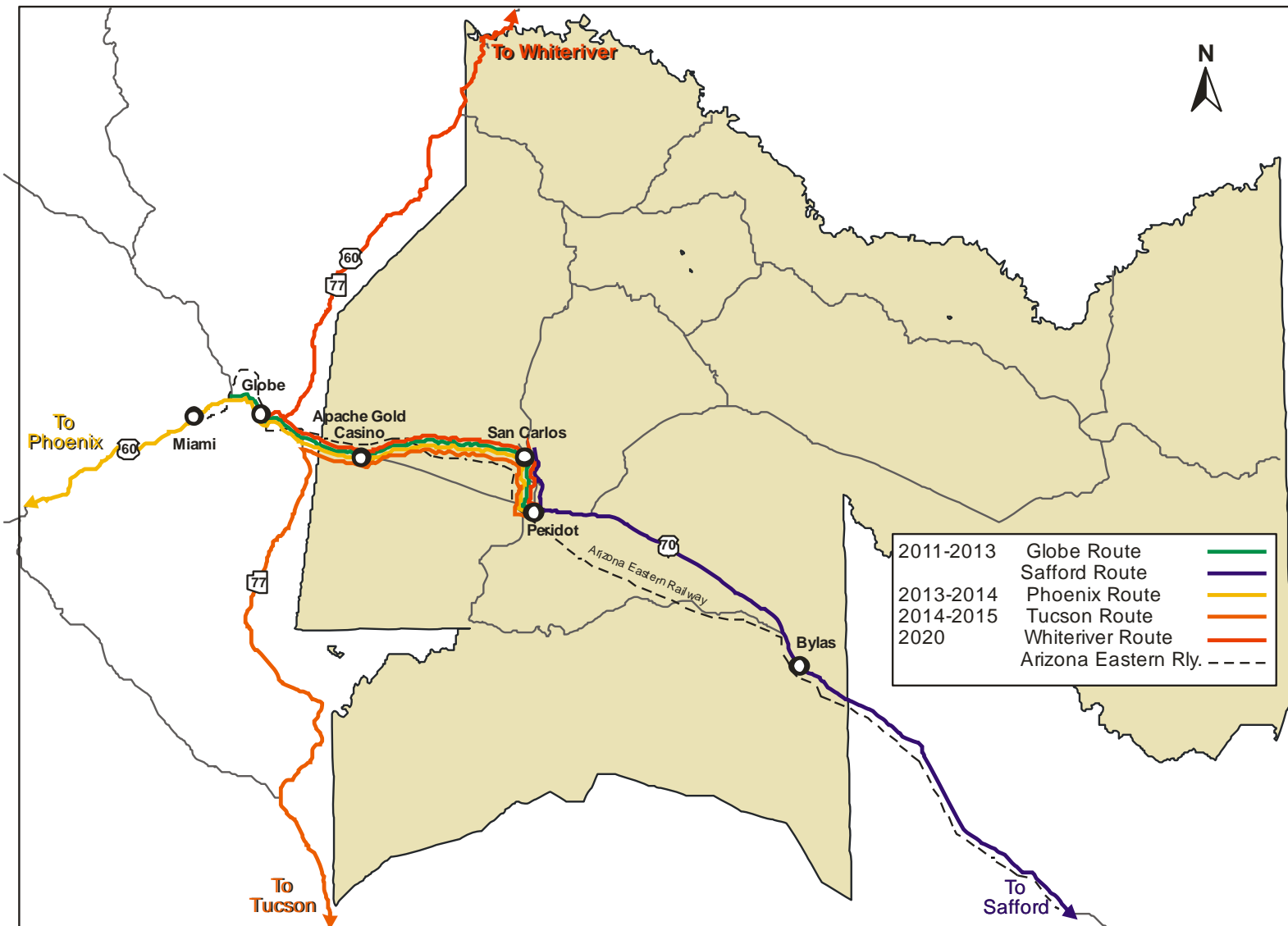
- Ford Chassis Cutaway Buses (2 @ \$93,200 ea.), \$186,400
- Ford E-350 Van (2), \$110,000
- New Office, Maintenance & Fueling facility, \$4,000,000

As is predicted for 2020, by 2030 the existing fleet will have high mileage and many of the vehicles will be ready for retirement. For the purposes of this draft, it is proposed that two buses and two vans will be purchased in 2030. Depending upon ridership growth, and maintenance procedures it is likely that more than two of each may be needed.

It is also proposed to program the construction of a new office, maintenance, and fueling facility by 2030. By then, if this plan is adopted, San Carlos Apache Nnee Bich'o Nii Services will be operating a comprehensive regional network of transit services. While the estimated \$4 million cost of the facility is shown here as being fully allocated to San Carlos Apache Nnee Bich'o Nii Services, vehicle maintenance and fueling conducted at the facility could easily include maintenance and fueling for other Tribal transportation services such as those provided by the medical transportation service and the Older Adult Center. Payment to San Carlos Apache Nnee Bich'o Nii Services in cash or in kind for these services could help offset the cost of the design, construction, and operation of the facility.

A map of the proposed long-range regional network of services is presented in Figure 6-3. Refer to Figure 6-1 for details of stop locations within the Peridot-San Carlos-Globe corridor.

FIGURE 6-7. PROPOSED SAN CARLOS APACHE NNEE BICH'ONII SERVICES LONG-TERM ROUTE NETWORK



7. PRO-FORMA FINANCIAL SUMMARY

To develop this pro-forma financial summary, pro-forma statements of operation were created for each time horizon. Administrative, Operating, and Capital expenses were all analyzed. For each time horizon, a year extending from October of one year through September of the following year was used—e.g., October 2011 through September 2012. This year coincides with the federal fiscal year and is the fiscal year used in the development of grant applications to the Federal Transit Administration and other federal agencies.

All dollars shown in this financial summary are 2011 dollars. The direct costs associated with the operation were increased as improvements were added. For example, the amount budgeted for drivers and fuel increased with the increase in hours and miles as service improvements are introduced. However, the hourly wage per driver and the dollar amount of fringe benefits remains the same. Beginning with the 2013-2014 period, one additional support staff person was added. For 2020 and 2030, an additional shop assistant was added. Fixed costs such as utilities and telephone were kept the same. When the Implementation Plan is developed during the next phase of the Study, methodologies for anticipating annual increases in these costs, over and above the obvious increases related to increased driver hours and vehicle mileage, will be suggested. A summary of fleet and driver requirements for the Short-, Mid-, and Long-terms is presented in Table 7-1.

TRANSIT IMPROVEMENT PLAN

Table 7-2 presents a draft Transit Improvement Plan and provides an idea of how operating costs will rise as services are expanded and new services are added. Because the costs shown are in 2011 dollars throughout, and because administrative costs not related to driver hours or vehicle mileage are kept the same, the actual costs are likely to be higher than those shown. Throughout the pro-forma process, a price of \$3.50 per gallon was used for fuel. At the time this report is being written, it is likely that gasoline prices may remain above that amount and are likely to be significantly higher by 2030.

On the revenue side, the ridership figures are calculated from the demand within the service area shown in Figure 4-1 in Chapter 4. As the services proposed in this Report can and should be marketed to potential riders in Globe, Phoenix, Tucson, and other areas proposed to be served, the actual ridership is likely to be higher, as well.

CAPITAL IMPROVEMENT PROGRAM SUMMARY

Throughout this paper, recommended capital improvements for each time period have been shown, along with explanations of need. The Capital Improvement Program Summary (Table 7-3) presents all of the improvements in chronological order, along with the Tribal share of the capital expenditure estimated for each time period. Vehicles programmed to be purchased throughout the time periods will enable older, high vehicles to be retired, maintaining a manageable average age for the vehicle fleet.

TABLE 7-1. SUMMARY OF FLEET AND DRIVER REQUIREMENTS

Timeframe	Globe		Safford		Phoenix		Tucson		Whiteriver		Total	
	Drivers	Vehicles	Drivers	Vehicles	Drivers	Vehicles	Drivers	Vehicles	Drivers	Vehicles	Drivers	Vehicles
Short-term												
Current	3	2	3	1	Begins Operating		Begins Operating		Begins Operating		6	3
2012-2013	3	2	3	1	2013						6	3
2013-1014	3	2	3	1	3	2	2014		Begins Operating		9	5
2014-2015	3	2	3	1	3*	2*	0*	0*	2020		9	5
Mid-term												
2020	3	2	3	1	3	2	2	1	2	1	13	7
Long-term												
2030	3	2	3	1	3	2	2	1	2	1	13	7

*In 2014-2015, Phoenix and Tucson routes both operate 2 days per week only; could share drivers and vehicles if operated on different days.

TABLE 7-2. TRANSPORTATION IMPROVEMENT PLAN

Year	Description	Total Expenses	Net Revenues	Net Expenses	Federal	Tribal/Other
Short-Term						
2011-2012	Implement Globe Schedule, Monday through Friday. Pursue coordination with CVCT. Purchase two buses and shop equipment.	\$ 585,982	\$ 41,098	\$ 544,884	\$ 378,866	\$ 166,019
2012-2013	Add Saturday Globe Service, Implement Safford Route, Monday through Friday. Purchase replacement van.	\$ 570,530	\$ 63,945	\$ 506,584	\$ 325,324	\$ 181,261
2013-2014	Add Phoenix Service, two days a week. Purchase bus and van.	\$ 948,392	\$ 86,960	\$ 861,432	\$ 554,418	\$ 307,014
2014-2015	Add Tucson Service, two days a week. Purchase bus and van. Upgrade GPS tracking and communications system.	\$ 1,034,599	\$ 102,487	\$ 932,112	\$ 611,912	\$ 320,200
Mid-Term						
2020	Increase both Phoenix and Tucson service to Monday through Friday. Add Whiteriver service two days per week. Add Saturday Safford Service. Purchase two buses and two vans. Purchase bus shelters.	\$ 1,891,704	\$ 185,707	\$ 1,705,996	\$ 1,129,669	\$ 576,327
Long-Term						
2030	Add Saturday Phoenix and Tucson service. Construct new office and maintenance facility. Purchase two buses and two vans.	\$ 5,870,741	\$ 263,922	\$ 5,606,819	\$ 4,219,236	\$ 1,387,583

TABLE 7-3. CAPITAL IMPROVEMENT PROGRAM SUMMARY

Description	Short-Term				2020	2030
	2011-2012	2012-2013	2013-2014	2014-2015		
Ford Chassis Cutaway Buses (2 @ \$93,200 ea.)	\$ 186,400					
Shop Equipment	10,000					
Bus stop signs (15)	1,500					
Ford E-350 Van		\$ 55,000				
Bus stop signs (5)		500				
Ford Chassis Cutaway Bus			\$ 93,200			
Ford E-350 Van			55,000			
Bus stop signs (5)			500			
Ford Chassis Cutaway Bus				\$ 93,200		
Ford E-350 Van				55,000		
Upgrade GPS/GIS tracking and dispatch system				25,000		
New radio repeaters (2 @ \$25,000 each)				50,000		
Bus stop signs (5)				500		
Ford Chassis Cutaway Buses (2 @ \$93,200 ea.)					\$ 186,400	
Ford E-350 Van (2)					110,000	
Bus Shelters (20 @ \$12,000 each)					240,000	
Bus stop signs (5)					500	
New Office, Maintenance & Fueling facility						\$ 4,000,000
Ford Chassis Cutaway Buses (2 @ \$93,200 ea.)						186,400
Ford E-350 Van (2)						110,000
Total	\$ 197,900	\$ 55,500	\$ 148,700	\$ 223,700	\$ 536,900	\$ 4,296,400
San Carlos Apache Tribe Share	\$ 39,580	\$ 11,100	\$ 29,740	\$ 44,740	\$ 107,380	\$ 859,280

8. MARKETING, MAINTENANCE AND SAFETY PROGRAMS

As part of the Implementation Plan to be developed in the next phase of the Study, the consultant will develop draft marketing, maintenance, and safety programs. It is important to note that these three are closely related. Successful marketing of any service ultimately depends on favorable word-of-mouth. Drivers that are safe and courteous and vehicles that are clean, smooth-running, comfortable riding, and reliable are all key attributes of a transit service that will attract repeat customers. In addition to desired destinations, analysis of the Tribal resident survey discussed in Chapter 4 identified the following concerns:

- Additional stops in Bylas area desired
- Stops closer to residential areas for benefit of seniors and children
- More service to hospitals, schools, malls, and regional destinations

Outlines of the Marketing, Maintenance, and Safety Plans are provided below. As an on-going, established operation, San Carlos Apache Nnee Bich'o Nii Services likely has versions of these programs in place. In lieu of starting from scratch, the consultant team will review current practices and available documentation and provide suggestions for enhancing or restructuring the programs as needed. After the following outlines have been reviewed by the Tribal project manager and other stakeholders, completed plans will be included in the Five-year Implementation Plan that is the next task in the Study.

MARKETING PLAN SUMMARY

Implementing even part of this proposed route network will amount to a significant outreach effort on the part of the Tribe to adjacent communities. If successfully implemented, these services will certainly attract riders from surrounding areas in addition to Tribal enrollees. While the cost of operating these new routes is significant, the benefit to the Tribe will also be significant, not only in the enhanced mobility provided to enrollees, but as an effective means of fostering more communication and interaction between the Tribe and surrounding communities.

The goals of the Marketing Plan should be three-fold, namely:

1. To keep current residents of the Study Area informed of the transit services that are available
2. To inform Tribal Enrollees living outside the Study Area of the availability of the service for visiting family and friends
3. To inform the General Public of the services that San Carlos Apache Nnee Bich'onii Services provides

Key components of the Marketing Plan could be:

- On-going series of public service announcements in local media
- Up-to-date brochures containing fares, schedules, stop locations, and connecting services
- Notices and flyers posted at key activity centers in the Study Area
- Educational package provided to area schools
- San Carlos Apache Nnee Bich'onii Services Web site
- Participation in Google Transit
- Coordination with Arizona Rides Program

Each bus should be kept stocked with a supply of attractive timetables that passengers can take with them for future reference and to share with family and friends. San Carlos Apache Nnee Bich'o Nii Services personnel could demonstrate buses at schools and at other high-visibility locations, such as in front of stores or at special events such as the Rodeo. These demonstrations could inform viewers of the features of the vehicle and how the system functions: Where to catch the bus; how to arrange for a special pick-up; how to load a bicycle in the bike rack; and so forth.

The Rural Transit Assistance Program is working with Google to facilitate the participation in Google Transit by smaller transit agencies. Schedules, fares, and stop locations can be uploaded to Google's universally accessible Google Transit Web site, enabling a transit user in Phoenix, for example, to learn about the service. In addition, San Carlos Apache Nnee Bich'o Nii Services could maintain its own Web site. That Web site would have a link to the Google page but would provide additional information regarding equipment, "rules of the road", San Carlos Apache Nnee Bich'o Nii Services news, and other information that might not be available on Google.

Exchanging fare and schedule information, and coordinating service, with adjacent transit service providers such as Cobre Valley Community Transit will also be an important part of the marketing approach.

FLEET MAINTENANCE PLAN SUMMARY

The Federal Transit Administration (FTA) requires each recipient of federal funding to have a current written maintenance plan for its federally funded rolling stock, as provided for in FTA Circular 9030.1C. The consultant will provide a Fleet Maintenance Plan that implements the federal requirements for a written maintenance plan and program.

In addition to the explicit provisions of the Fleet Maintenance Plan, San Carlos Apache Nnee Bich'o Nii Services may perform additional maintenance on its transit fleet pursuant to the recommendations of the equipment manufacturer and consistent with established vehicle maintenance procedures. The Fleet Maintenance Plan will be developed from the Fleet Maintenance Plan adopted by the Northern Arizona Intergovernmental Public Transit Agency (NAIPTA) and approved by the Federal Transit Administration (FTA).

Key elements of the Fleet Maintenance Plan will include:

- Vehicle inspection and scheduled maintenance
- Maintenance documentation
- Warranty recovery program
- Monitoring performance indicators
- Service day inspections

The Maintenance Plan will provide for the conduct of regularly scheduled preventive maintenance of each vehicle, with strict adherence to the schedule provided by the manufacturer. Comprehensive records of all maintenance and repairs will be kept, which will assist San Carlos Apache Nnee Bich'o Nii Services in evaluating the performance of each bus. Drivers will have a daily check list of items to inspect before each trip.

SAFETY PROGRAM SUMMARY

San Carlos Apache Nnee Bich'o Nii Services has implemented a safety program. As part of the development of the Five-year Implementation Plan, the consultant will interview San Carlos Apache Nnee Bich'o Nii Services management to identify the strengths and weaknesses of the existing program and discuss steps that can be taken to correct any weaknesses.

Weekly safety meetings should be held in an atmosphere that encourages frank discussion among all personnel with respect to safety issues. As part of the Maintenance Plan outlined above, drivers will be required to inspect the vehicle before each trip. Drivers should be encouraged to discuss any recurring problems—especially any that pose a potential hazard to drivers or passengers.

Rules against behavior proved to be risky, such as drug or alcohol usage prior to or during a trip, texting or talking on a cell phone while in motion, exceeding posted speed limits, or reckless driving must be strictly enforced. Unruly or distracting passenger behavior must also be discouraged.

On vans or other vehicles lacking standard driver-operated transit doors, the driver must exit the vehicle, open and stand by the door, and assist each passenger in boarding or alighting from the vehicle. Such practice is the surest way to prevent slips and falls by passengers. Care must be taken when spotting the vehicle at a stop to make sure that the footing is conducive to safe passenger boarding and alighting, and that oncoming traffic has sufficient sight-distance to be aware of a stopped transit vehicle and the potential for pedestrians in the vicinity.

Drivers are currently drug-tested. Drivers should be given periodic written and/or oral examinations to ensure that safety rules are known and understood.

Mountaintop Radio Repeater Improvements

The San Carlos Apache Nnee Bich'o Nii Services have implemented a GPS tracking system for their service vans. The system works fairly well, with the exception of several “dead areas” in the current radio transmission coverage. To correct this deficiency and improve the GPS tracking ability, two new repeaters need to be installed. The location of the repeaters will be determined by San Carlos Apache Nnee Bich'o Nii Services at locations that will provide extended coverage for all routes operated, both existing and future. For future service provided off the Apache Nation, San Carlos Apache Nnee Bich'o Nii Services will need to enter into agreements with other service operators for GPS tracking of their vehicles.

GIS System Upgrade

We recommend that the GIS system be upgraded on an annual basis, if budget permits, to assure that the service maintains pace with changes and improvements in the technology. Provisions should be made to equip all new vans added into service with the latest GPS Automated Vehicle Location (AVL) systems. The new systems must be compatible with the GIS tracking software currently in use by San Carlos Apache Nnee Bich'o Nii Services. Both for operational and safety considerations this system is a high priority now and in the future.

REFERENCES

- Arizona Eastern Railway, *Copper Spike Train Excursion*, www.copperspike.com.
- Apache Gold Casino Resort, <http://apachegoldcasinoresort.com/busschedule2.html>.
- Arizona Department of Transportation, *Arizona Rural Transit Needs Study*, Cambridge Systematics, 2008.
- Arizona Department of Transportation, *Statewide Transportation Planning Framework Study*, 2010.
- Arizona Tribal Transportation, San Carlos Apache Tribe, State, Federal, Counties, Railroad, Private Organization Partnership, www.aztribaltransportation.com/aztt/SCA/history.asp.
- City of Casa Grande, *Casa Grande Public Transit Implementation Study*, Lima & Associates, 2009.
- Gila County, *Gila County Rail Passenger Study*, Lima & Associates, 2008.
- Gila County, *Gila County Small Area Transportation Study*, Lima & Associates, 2006.
- Graham County, *Graham County Transit Feasibility Review*, Ostrander Consulting, Inc., with RAE Consulting, Inc., 2007.
- Iowa Pacific Holdings, *Arizona Eastern Ridership Demand Study*, Lima & Associates, 2009.
- McSpadden Ford, Inc., Service Department, Globe, Arizona, Tribal Vehicle Maintenance Records, December 12, 2010.
- Pinal County, *Pinal County Comprehensive Plan Update Mobility and Connectivity Element*, Lima & Associates, 2009.
- Pinal County, *Pinal County Small Area Transportation Study Transit Element*, Kirkham Michael Consulting Engineers in association with Lima & Associates, 2006.
- San Carlos Apache Tribe TANF Transit, *TANF and Transit Vehicle and Ridership Records*, January through October, 2010.
- San Carlos Apache Tribe, *San Carlos Long Range Transportation Planning Study*, Jacobs Engineering Group, 2009.
- San Carlos Apache Tribe, *Tribal Transportation Grant Application*, May 2010.
- TCRP Report 3, *Workbook for Estimating Demand for Rural Passenger Transportation*.
- Town of Miami, Cobre Valley Community Transit brochure, December 10, 2010.
- Town of Payson, *Payson Public Transit Feasibility Study*, Lima & Associates, 2007.