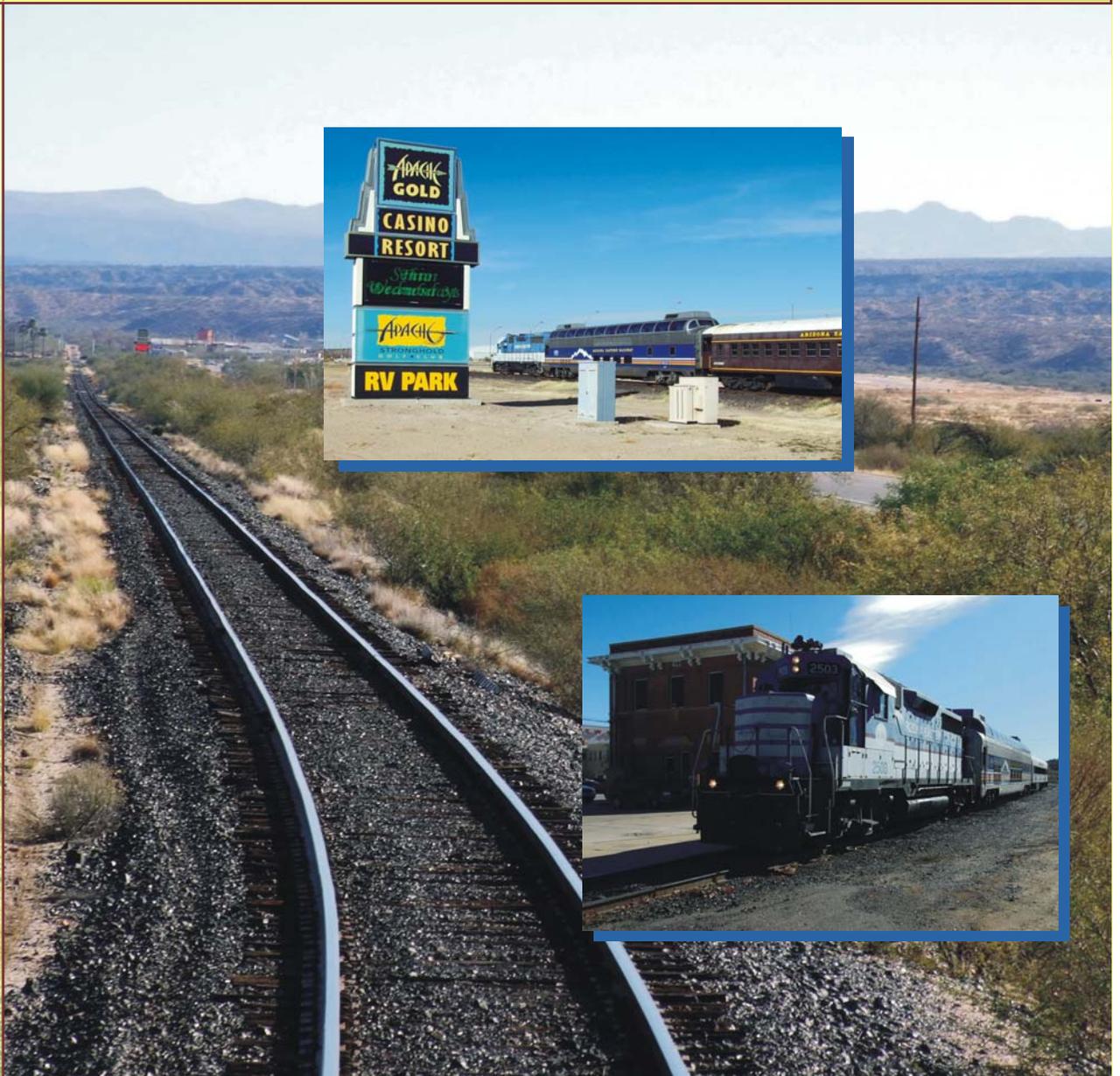




GILA COUNTY

RAIL PASSENGER STUDY

FINAL REPORT



LIMA & ASSOCIATES
Transportation - G.I.S.

JANUARY 2009

TABLE OF CONTENTS

	<u>Page</u>
1. INTRODUCTION	1
STAKEHOLDER WORKSHOP	4
2. RAILROAD OPERATING COSTS	6
3. EXCURSION RAIL BEST PRACTICES	7
TYPES OF EXCURSION RAIL SERVICE	7
PEER EXCURSION RAIL SERVICES	8
4. TRANSIT DEMAND AND EXCURSION RIDERSHIP ESTIMATES	20
ESTIMATING TRANSIT DEMAND	20
ESTIMATING EXCURSION RIDERSHIP.....	22
5. RAIL SERVICE SCENARIOS	26
SCENARIO TIMETABLES	27
DAYS AND DATES OF OPERATION.....	27
PROPOSED FARE STRUCTURE	27
6. DRAFT OPERATING PRO-FORMAS	34
REVENUES	34
EXPENSES.....	34
CONCLUSION	39
APPENDIX A. ESTIMATING TRANSIT DEMAND	44
REFERENCES	48

LIST OF TABLES

	<u>Page</u>
1. RAIL AND HIGHWAY DISTANCE AND TIME ESTIMATES	2
2. STAKEHOLDER WORKSHOP PARTICIPANTS	4
3. ARIZONA EASTERN OPERATING COSTS PER 8-HOUR DAY	6
4. MATRIX OF PEER EXCURSION RAIL OPERATIONS	10
5. ANALYSIS OF FARES CHARGED PER LENGTH AND DURATION OF TRIP	17
6. ANALYSIS OF FARE DISCOUNTING FOR SENIORS AND CHILDREN	18
7. SKETCH RIDERSHIP ESTIMATING PROCESS – METHODOLOGY I	24
8. SKETCH RIDERSHIP ESTIMATING PROCESS – METHODOLOGY II	25
9 A. TWO ROUND TRIPS BETWEEN MIAMI, GLOBE, THE CASINO, AND SAN CARLOS.	28
9-B. THREE ROUND TRIPS BETWEEN MIAMI, GLOBE, AND THE CASINO....	28
9-C. THREE ROUND TRIPS BETWEEN GLOBE, THE CASINO, AND SAN CARLOS	28
9-D. FOUR ROUND TRIPS BETWEEN GLOBE AND THE CASINO	29
9-E. ONE ROUND TRIP DINNER TRAIN BETWEEN GLOBE, THE CASINO, AND SAN CARLOS	29
9-F. ONE ROUND TRIP DINNER TRAIN BETWEEN MIAMI, GLOBE, AND THE CASINO	29
10. ARIZONA EASTERN RAILWAY ROUTE SEGMENTS AND PEER PER-MILE RATES	32
11. REVISED FARE STRUCTURE	33
12-A OPERATING PRO-FORMA – FORECASTED RIDERSHIP SCENARIO	35
12-B OPERATING PRO-FORMA – MINIMAL RIDERSHIP SCENARIO	36

LIST OF TABLES (CONTINUED)

	<u>Page</u>
13-A. FOUR TRIPS DAILY SCHEDULE	41
13-B. EIGHT TRIPS DAILY SCHEDULE	41
14. RECOMMENDED OPERATING SCENARIO PRO-FORMA	42
12. PREFERRED DAILY OPERATING SCENARIO PRO-FORMA	17
A-1. 2030 POPULATION OF SERVICE GROUPS IN SERVICE AREA.....	45
A-2. CALCULATION OF VEHICLE MILES PER SQUARE MILE	45
A-3. SERVICE FACTOR CALCULATIONS.....	46
A-4. ESTIMATION OF TRANSIT DEMAND	46
A-5. ESTIMATION OF TRANSIT DEMAND - ALTERNATIVE METHOD	47

LIST OF FIGURES

	<u>Page</u>
1. 2006 DEMONSTRATION EXCURSION RAIL SERVICE	1
2. ARIZONA EASTERN RAILWAY ROUTE WITH PROPOSED STATIONS.....	3
3. ARIZONA EASTERN RAILWAY DOME CAR	5
4. PEER EXCURSION RAILROAD 2008 DAYS OF OPERATION	9
5. TRANSIT CORRIDOR FOR DEMAND ESTIMATION.....	21
6. DETERMINATION OF GLOBE-BASED EXCURSION TRAIN CATCHMENT AREA	23
7. PROPOSED OPERATING SEASON	30
8. EXCURSION RAIL ADULT FARES PER MILE COMPARED WITH LENGTH OF ROUND TRIP	32
A-1. TRIP RATES FOR ALTERNATIVE ESTIMATION PROCEDURE	47

1. INTRODUCTION

The **Arizona Eastern Railway**, in cooperation with the **Historic Globe Mainstreet Program** and the **Apache Gold Casino Resort**, operated demonstration excursion rail service between downtown Globe and the Apache Gold Casino in early 2006 to evaluate the feasibility of implementing permanent excursion rail service between those two points. (See Figure 1)

FIGURE 1. 2006 DEMONSTRATION EXCURSION RAIL SERVICE



“Spike,” the 1930 rail car used for the demonstration excursion service between Globe and the Apache Gold Casino, prepares to depart from the Globe depot. The car was reminiscent of the old electric “interurban” cars that were early 20th Century precursors to modern suburban rail services such as those operated in Philadelphia and Chicago.

—Lima & Associates photo

The San Carlos Apache Tribe constructed a solidly-built covered platform to serve as a depot. The stop is located approximately 50 yards from the entrance to the casino.

—Lima & Associates photo



The equipment used for the runs was a restored self-propelled 38-passenger gas-mechanical rail car originally manufactured by the Brill Company in 1930. The rail car, nicknamed “Spike” for the duration of the demonstration, made four round trips on Thursdays, Fridays, Saturdays, and Sundays. Fares of \$5 one-way and \$10 round trip were charged.

Subsequent to the conduct of the Gila County Small Area Transportation Study and the rail excursion demonstration, the consultant received an additional task assignment to examine the feasibility of establishing permanent passenger rail service in the Globe-Miami area. The consultant is tasked with conducting a comprehensive review of the potential for passenger rail utilizing area trackage of the Arizona Eastern Railway. Three service areas will be examined:

- Globe (downtown) to Apache Gold Casino.
- Globe (downtown) to Miami (downtown).
- Apache Gold Casino to San Carlos.

Distances and estimated travel times by rail and highway between these points are listed in Table 1. Figure 2 depicts the rail and highway routes in the Study Area.

TABLE 1. RAIL AND HIGHWAY DISTANCE AND TIME ESTIMATES

	Rail Mileage	Maximum Rail MPH	Rail Travel Time	Highway Mileage	Average Highway MPH	Highway Travel Time
Miami - Claypool	1.51	15	0:06	1.17	30	0:02
Claypool - Globe	9.38	30	0:18	5.38	35	0:09
Globe - Casino	6.52	30	0:13	8.82	40	0:13
Casino - San Carlos	13.96	30	0:27	14.31	50	0:17
Miami - Casino	17.41		0:37	15.37		0:24
Miami - San Carlos	31.37		1:05	29.68		0:41

Source: Arizona Eastern Railway, Arizona Transportation Information System, Lima & Associates

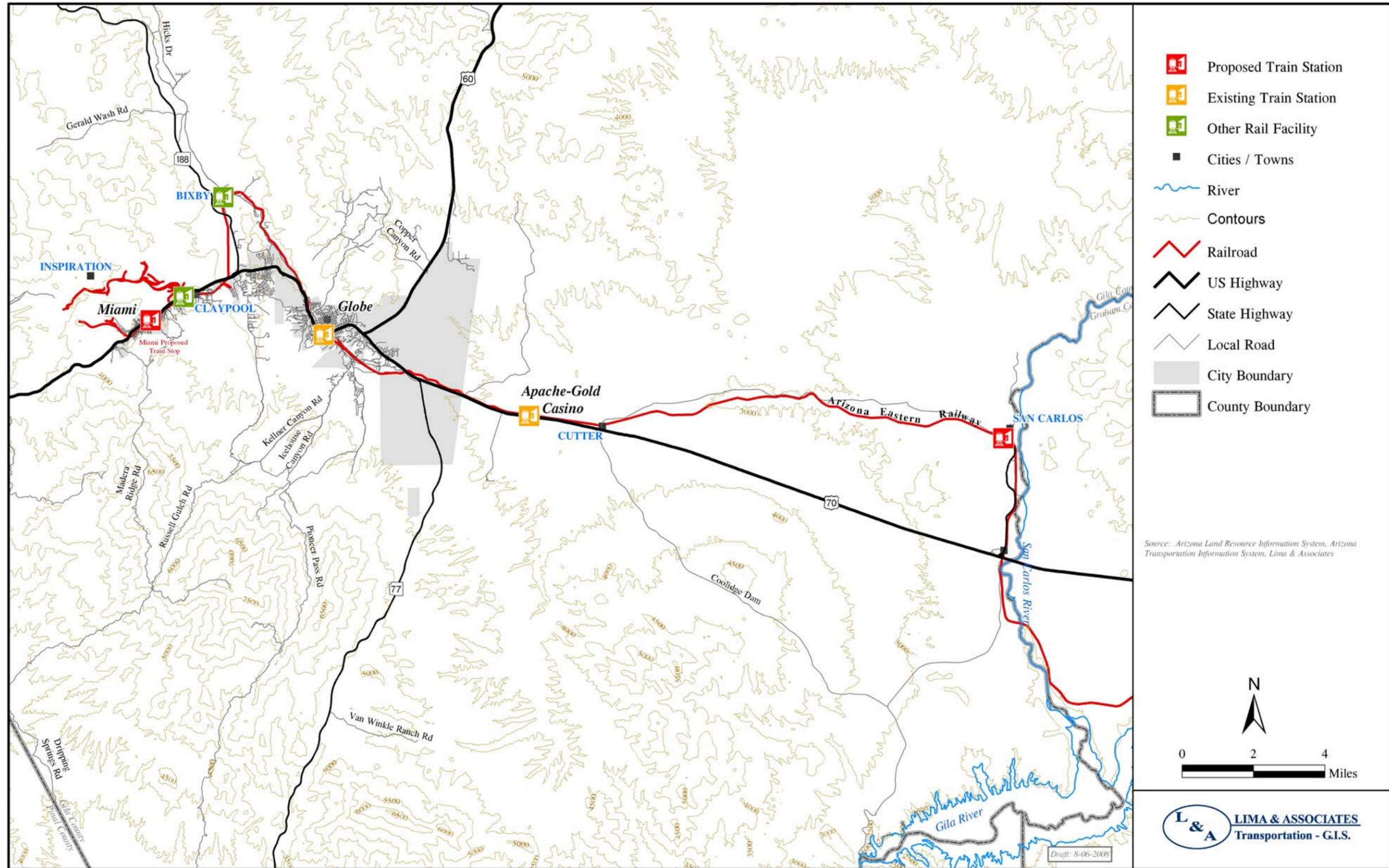
Note that the maximum rail speed is based on the designation by the Arizona Eastern Railway itself that its trackage between Miami and Claypool meets Federal Railroad Administration (FRA) Class I standards and that the trackage between Claypool and San Carlos meets or exceeds Class II standards. Class I standards permit passenger train operation at speeds up to 15 mph and Class II standards permit passenger train operation at speeds up to 30 mph.

This Report represents the findings of the project, including the railroad operating costs obtained from Arizona Eastern Railway in Chapter 2 and a summary of Excursion Rail operation best practices in Chapter 3.

Chapter 4 presents an estimate of transit demand, together with the findings of a sketch estimate of potential excursion rail ridership and characteristics of the Arizona tourism market,

Chapter 5 presents draft rail service scenarios including a proposed operating season, a fare structure, and a set of timetables for different route configurations. Chapter 6 presents draft operating pro-formas for the six candidate operating scenarios, together with

FIGURE 2. ARIZONA EASTERN RAILWAY ROUTE WITH PROPOSED STATIONS



the recommended scenario that resulted from the discussion that took place at the Stakeholder Workshop and the input provided to the consultant.

STAKEHOLDER WORKSHOP

On Wednesday, October 29, 2008, a stakeholder workshop was conducted at the passenger depot in Globe. Workshop participants are listed in Table 2.

TABLE 2. STAKEHOLDER WORKSHOP PARTICIPANTS

Participant	Title	Affiliation
Scott Friedson	Rail Planner	ADOT
Dennis Giacoletti	General Manager	Arizona Eastern Railway
Bill Leister	Sr. Transportation Planner	CAAG
Hon. Fernando Shipley	Mayor	City of Globe
Steve Sanders	Deputy Public Works Director	Gila County
Kip Culver	Administrator	Globe Main Street Program
Ed Ellis	President	Iowa Pacific
John E. Thomas	V. P. Sales & Marketing	Rio Grande Scenic Railroad
Robin Marquis	Tour & Travel Sales Manager	Rio Grande Scenic Railroad
Barney Bigman	Tribal Transportation Planner	San Carlos Apache Tribe
Rob Bohannon	Sr. Transportation Planner	Lima & Associates

The consultant presented the findings and draft recommendations of the project, including a proposed operating season, a draft fare structure, and six potential operating scenarios as described in Chapter 5. Draft operating pro-formas were also presented for discussion.

Key elements of the workshop discussion were:

- Railroad officials suggested that the draft fare structure should be revised to reflect the fact that the per-mile fare charged for excursion trips is typically higher for shorter route segments. The Fare Structure discussion in Chapter 5 reflects this input.
- Railroad officials also expressed a preference for a downtown Globe – Apache Globe Casino route. These termini both have established tourist appeal and a rail operation between the two would be the least complicated to implement. The Report Conclusion in Chapter 6 reflects this input.
- Gila County has reserved approximately \$40,000 in Local Transportation Assistance Funds for the purpose of facilitating the implementation of excursion rail service. Following the consultant presentation and Workshop discussion the County’s representative suggested that these funds will be made available.

- All present expressed interest in implementing the service. The railroad explained that they had been conducting their own field view and analysis of the concept and plan to proceed with implementation.
- Using a diesel locomotive in the short term would mean lower up-front capital costs. However steam locomotives are actually less expensive to operate because of their ability to use re-claimed motor oil and other fuels that are cheaper than diesel.
- Draft plans for the proposed operation as described by Arizona Eastern and the Globe Main Street Program are:
 - ✓ Following the demonstration service that was operated in the spring of 2006, the excursion service will be known as “Copper Spike Railway”
 - ✓ Marketing expertise and assistance with ticketing and reservations will be provided by Rio Grande Scenic Railway, which is a corporate sibling of Arizona Eastern.
 - ✓ Service was inaugurated December 13, 2008.
 - ✓ Trains operate Thursdays through Sundays during the 98-day season, making four round-trips daily between the Globe depot and Apache Gold Casino.
 - ✓ Consideration will be given to providing area residents and Casino employees the opportunity to purchase multi-ride tickets for commuting purposes.
 - ✓ Equipment to be used will initially consist of a diesel locomotive, an open-window coach, a parlor car, and a dome car similar to that depicted in Figure 3 below. A steam locomotive is being prepared for use.

FIGURE 3. ARIZONA EASTERN RAILWAY DOME CAR



Lima & Associates photo

2. RAILROAD OPERATING COSTS

Standard railroad accounting practice divides the operation of the company into four categories. These are Maintenance-of-way, Equipment, Transportation, and Administrative.

Maintenance-of-way includes all of the labor and materials related to the construction and maintenance of track including the rails, crossties, and other track materials such as joint bars, and other track hardware. Bridges and structures are usually included in this category, as are signals and signage.

Equipment includes the maintenance and repair of locomotives, motor vehicles and machinery.

Transportation includes the operating crews—engineer and conductor—wages and fringe benefits, as well as the fuel and oil consumed by the locomotives.

Administrative costs include the corporate management, administrative professionals, and expenses such as telephone, printing, and so forth.

Arizona Eastern Railway Operating Costs

The Arizona Eastern Railway supports studying the concept of excursion service on their line. Iowa Pacific Holdings, the parent company of Arizona Eastern, currently owns and operates the Rio Grande Scenic Railroad, headquartered in Alamosa, Colorado, and is familiar with excursion train operating issues and concerns. The Railway provided the consultant with cost figures for operating the trains, as well as fees for transferring equipment between Alamosa and Globe for use in both operations. Table 3 lists the dollar amounts.

TABLE 3. ARIZONA EASTERN OPERATING COSTS PER 8-HOUR DAY

Equipment	Cost per Day*	Transfer to/from Alamosa
One Diesel Locomotive	\$1,000.00	On-site
Two Diesel Locomotives	\$1,300.00	On-site
Steam Locomotive	\$2,500.00 - \$3,000.00	\$30,000 - \$40,000
Passenger Car	\$150.00 - \$200.00	\$6,000 - \$8,000

*These costs include:

- Three-person Crew Wages and Fringe
- Locomotive Fuel, Water, and Lubrication
- Maintenance
- 24/hour dispatching from Iowa Pacific in Chicago

Additional crew time = \$100 - \$150/hour

Source: Arizona Eastern Railway, Interview with CEO Ed Ellis, February 18, 2008

3. EXCURSION RAIL BEST PRACTICES

This Chapter briefly examines the excursion railroad industry. The different types of excursion rail services are summarized, and peer operations are analyzed.

TYPES OF EXCURSION RAIL SERVICE

Excursion rail service can take many forms—service is tailored to the community or region served. Some rail lines were purpose-built to serve tourists. The Manitou & Pikes Peak Cog Railway in Colorado was completed in 1891 to carry sightseers to the summit. Ten years later, the Grand Canyon Railway was finished to the rim of the Canyon. While some speculation relating to copper mining activity was the original impetus for building a branch north from the Santa Fe mainline at Williams, tourist passengers comprised the bulk of the Railway's business from the moment of completion. Although both are scenic trips, the Pikes Peak and Grand Canyon lines are destination-oriented.

Other excursion railroads exist to provide the experience of a train ride itself, to provide an attractive means of viewing the scenery along the route, or a combination of the two. While scenic excursions have been a part of railroading almost since the technology was invented in the early 19th Century, operations intended to preserve scenic remnants of longer routes or to provide the nostalgia of rail travel began to appear in earnest after World War II. The passage in 1956 of the Interstate Highway Act and the introduction of jet airliners the following year hastened the demise of privately-operated long-distance rail passenger service, and lightly-patronized branches—often the more scenic segments of the railroad—were the first to lose regularly scheduled passenger service. At the same time the technology for the design and operation of diesel locomotives had been refined during the War, and steam locomotives were rapidly being replaced during the 1950s by more easily maintained diesels. Steam locomotive preservation was another significant catalyst for the establishment of excursion railroad operations. Grand Canyon Railway has several steam locomotives that it operated during the peak summer season through 2008.

In the Southwest, one of the more prominent early examples of preserving a scenic railroad branch for recreational enjoyment was that of the Denver & Rio Grande Western's Durango-to-Silverton line. For many years, this line was operated by the Rio Grande itself, although it was unusual for the original Class I railroad owner of a line to operate an on-going excursion operation. Later, in the 1990s, the line was sold to private investors and now operates as the Durango & Silverton Narrow Gauge Railroad. In Arizona, Verde Canyon Railroad is an example of an excursion where the en-route scenery is the main attraction.

The Grand Canyon and the Verde Valley are two of the most scenic places in North America. While the railroads serving these areas have been very successful, excursion railroads have succeeded elsewhere in America where the scenery was less spectacular, compensating in other ways.

Excursion rail service variables include:

- Type(s) of motive power used
- Type(s) of passenger-carrying equipment used
- Length(s) of trips offered
- Frequency and seasonality of operation
- Theme(s) of excursions
- Target market(s)

PEER EXCURSION RAIL SERVICES

The consultant identified 10 excursion rail operations in the Western United States that provide a cross-section of the variety of services these railroads offer. Information on the railroads was obtained through internet research including the railroads' own Web sites and other Web sites that provide data regarding excursion railroad services. The current *Guide to North America's Tourist Railways and Museums*, the companion publication to the popular PBS "Great American Railway Journeys" program, was also consulted. The consultant has also visited Arizona's two operations, the Grand Canyon Railway and the Verde Canyon Railroad, many times—both before and after the introduction of excursion rail service. In both cases, the inaugural trips were ridden, as well as repeat trips after the services had matured and additional amenities were added.

Existing Arizona Excursion Rail Services

Grand Canyon Railway After years of false starts beginning in 1972, the Grand Canyon Railway opened with much fanfare in September 1989, the project of Scottsdale entrepreneur Max Biegert and his wife Thelma. The GCR now carries over 200,000 passengers annually, and the property was recently sold to Xanterra, owners of the Grand Canyon National Park concessions previously operated by Fred Harvey. Trains have been steam powered during the peak summer season; the Railway announced in the fall of 2008 its intention to use diesels year round. Five different classes of accommodations are offered including vintage "Harriman" coaches, deluxe parlor cars, and glass-topped "Vista Dome" cars dating from the 1950s streamliner era.

The 64-mile trip between Williams and Grand Canyon takes approximately two and one-half hours each way, and a four-hour layover at the Canyon provides ample time for viewing the South Rim and dining at the luxurious El Tovar Hotel or one of the other former Fred Harvey establishments. Theme runs are also provided including the popular *Polar Express* during the Holidays and the *Sunset Limited* during selected evenings in the early Fall.

Verde Canyon Railroad In the late 1980s the Santa Fe Railway's branch line between Drake and Clarkdale, Arizona, was purchased by David and Linda Durbano, owners of the

Wyoming and Colorado Railroad, which operates short lines in Wyoming and Oregon. The purpose of the line, initially called the Arizona Central, was to serve Phoenix Cement, a major rail freight customer located at Clarkdale. However an inspection trip through the Verde River Canyon between Perkinsville and Clarkdale revealed the obvious tourist potential of the route and the Arizona Central's excursion operation, named the Verde Canyon Railroad, was implemented in November 1990. The line operates air-conditioned coaches, first class parlor cars, and open air "gondolas" where passengers can enjoy close-up views of the breathtaking en-route scenery. Other than the railroad, a primitive trail used by equestrians and hikers is the only access to the canyon, and a variety of wildlife including nesting bald eagles can be seen from the train. The round trip between Clarkdale and Perkinsville takes four hours. A number of theme trips are operated throughout the year including popular "moonlight" trips on summer evenings, wine-tasting trips, and Valentines Day specials.

Other Excursion Rail Operations in the Western United States

The ten other excursion rail operations examined by the consultant are:

- Abilene & Smoky Valley Railroad
- Copper King Express
- Grapevine Vintage Railroad
- Nevada Southern Railroad
- Santa Fe Southern Railway
- Austin Steam Train
- Fillmore and Western Railroad
- Mount Hood Railroad
- Rio Grande Scenic Railroad
- Yreka Western Railway

Dozens of excursion railroads operate within the Western United States. These ten were selected because of their proximity to Arizona and the variety of terrain and scenery through which they operate. All ten offer relatively short trips, and most operate both steam and diesel locomotives. Table 4 presents the key characteristics of each operation. Trip durations range from 45 minutes (Nevada Southern) to four hours (Santa Fe Southern). Round trip lengths range from six miles on the Nevada Southern to 96 miles on the Rio Grande Scenic Railroad. Note that many of the railroads, including the Rio Grande Scenic, offer a choice of destinations and itineraries, and trip lengths and travel times vary. For statistical analysis, one trip from each peer operation was selected.

It should be noted that the consultant has personally field viewed the following peer operations: Grand Canyon Railway, Verde Canyon Railroad, Austin Steam Train, and Santa Fe Southern. The consultant has also field viewed portions of the right-of-way of the Nevada Southern Railroad and the Rio Grande Scenic Railroad.

TABLE 4. MATRIX OF PEER EXCURSION RAIL OPERATIONS

Name of Railroad	Location	Description of Service	Motive Power	Equipment	Trips per Day	Dinner Train Option?	Theme Train Option?	Adult Fare	Child Fare
Abilene & Smoky Valley	Abilene KS	1-1/2 hour 10 mile round-trip from Abilene to Enterprise through the Smoky Hill River Valley	Diesel	Coach, open-air gondola, cabooses	2	No	No	\$12.00	\$6.00
Austin Steam Train	Cedar Park, TX	Three hour round-trip from Cedar Park to Bertram	Steam and Diesel		1	No	Yes	\$28.00	\$12.00
Copper King Express	Anaconda, MT	3 ½-hour, 52-mile trip over the former Butte, Anaconda and Pacific Railway between the mining and smelting communities of Butte and Anaconda.	Diesel	Air conditioned chair cars	1	No	No	\$25.00	\$5.00
Fillmore and Western	Fillmore, CA	3.5 hour round trip between Fillmore and Santa Paula.	Diesel	Vintage coaches	1	Yes	Yes	\$22.00	\$8.00
Grapevine Vintage Railroad	Grapevine, TX	42-mile roundtrip over the Cotton Belt line, linking the communities of Grapevine, Colleyville, Smithfield and Fort Worth's Stockyards.	Steam and Diesel	Vintage coaches	1	No	Yes	\$20.00	\$10.00
Mount Hood	Hood River, OR	A 2.5-hour morning or afternoon trip between Hood River and Odell	Diesel	Coaches, open-air gondola	1, 2	Yes	Yes	\$25.00	\$15.00
Nevada Southern	Boulder City, NV	45 minutes run departs from the Boulder City station at Yucca Street and proceeds west approximately 3.0 miles to just behind the Railroad Pass Casino	Diesel	Air-conditioned/heated cars, an open-air car, and a generator car.	4	No	No	\$8.00	\$4.00
Rio Grande Scenic Railroad	Alamosa, CO	2.5 hour round trip between Alamosa and Fir or between La Veta and Fir	Steam and Diesel	Dome car and standard coaches	2	No	Yes	\$39.00	\$25.00
Santa Fe Southern	Santa Fe, NM	26-mile ride on a working freight train through high desert scenery on a 4-hour round trip from Santa Fe to Lamy, 18 miles southeast. A caterer is available on certain days.	Diesel	Both vintage and streamlined coaches.	1	Yes	Yes	\$28.00	\$18.00
Yreka Western	Yreka, CA	3 hour, 15-mile round trip from Yreka to Montague	Steam	Coaches, open-air gondola	1	No	Yes	\$20.00	\$12.00

Days and Dates of Operation

Figure 4 presents a series of 2008 calendars that graphically depict the days and dates of operation of the 10 out-of-state railroads. Arizona's two railroads and the Fillmore & Western in California all operate year-round. The other nine properties have seasons of varying lengths. The Grapevine Vintage Railroad and the Nevada Southern both began operating in February. But the Austin Steam Train and the Yreka Western did not start up before June.

FIGURE 4. PEER EXCURSION RAILROAD 2008 DAYS OF OPERATION

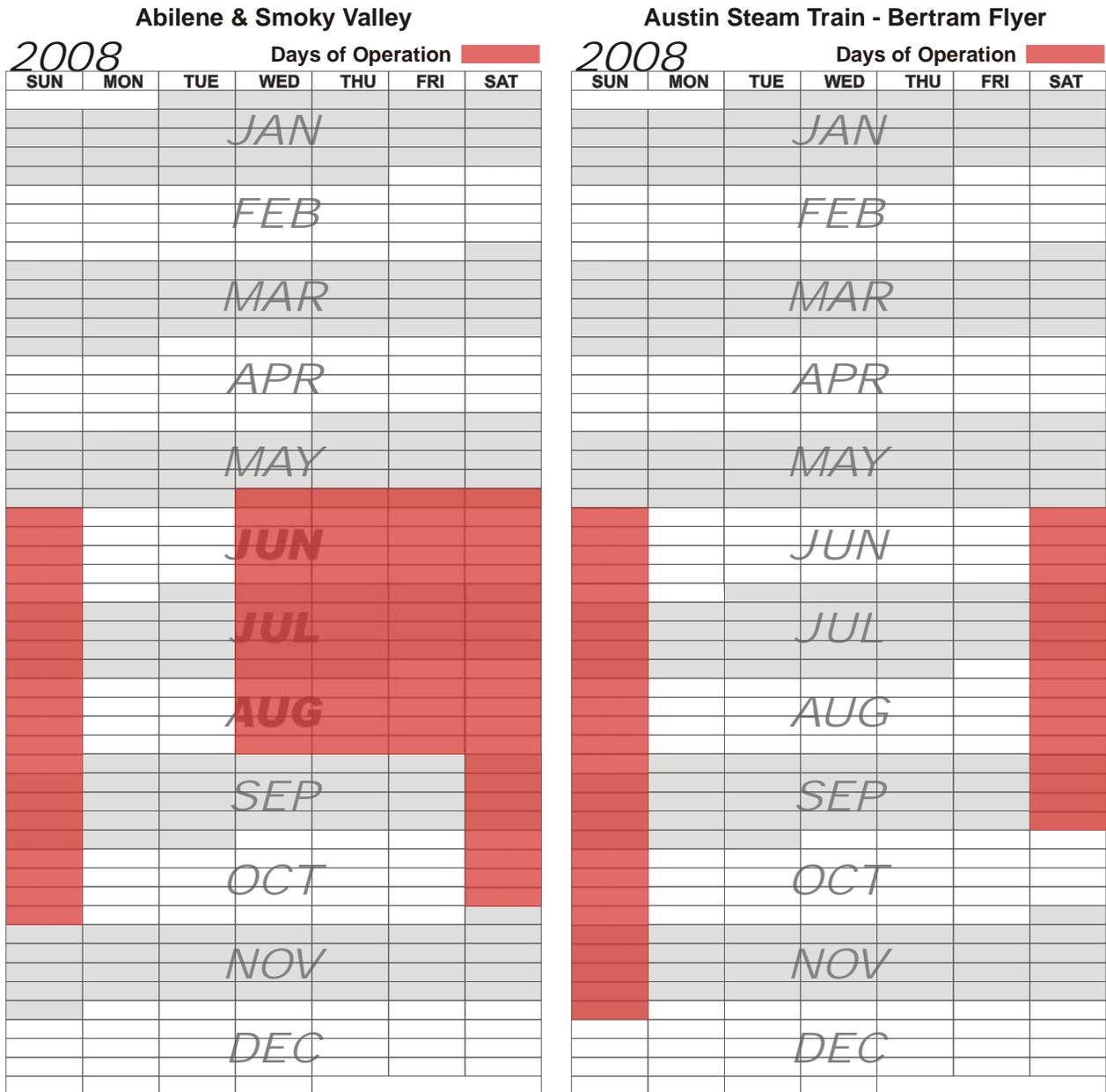


FIGURE 4. PEER EXCURSION RAILROAD 2008 DAYS OF OPERATION
(Continued)

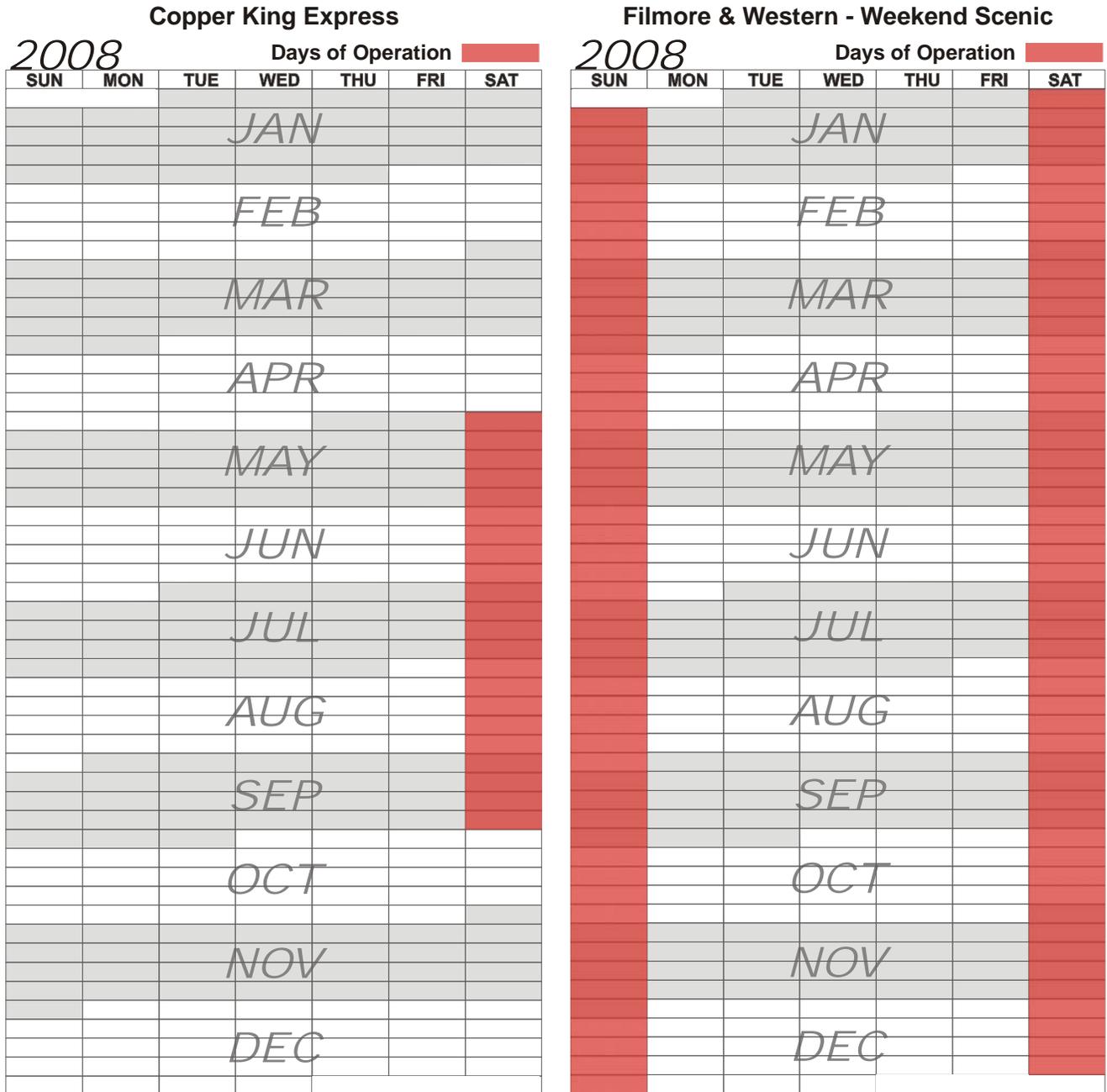


FIGURE 4. PEER EXCURSION RAILROAD 2008 DAYS OF OPERATION
(Continued)

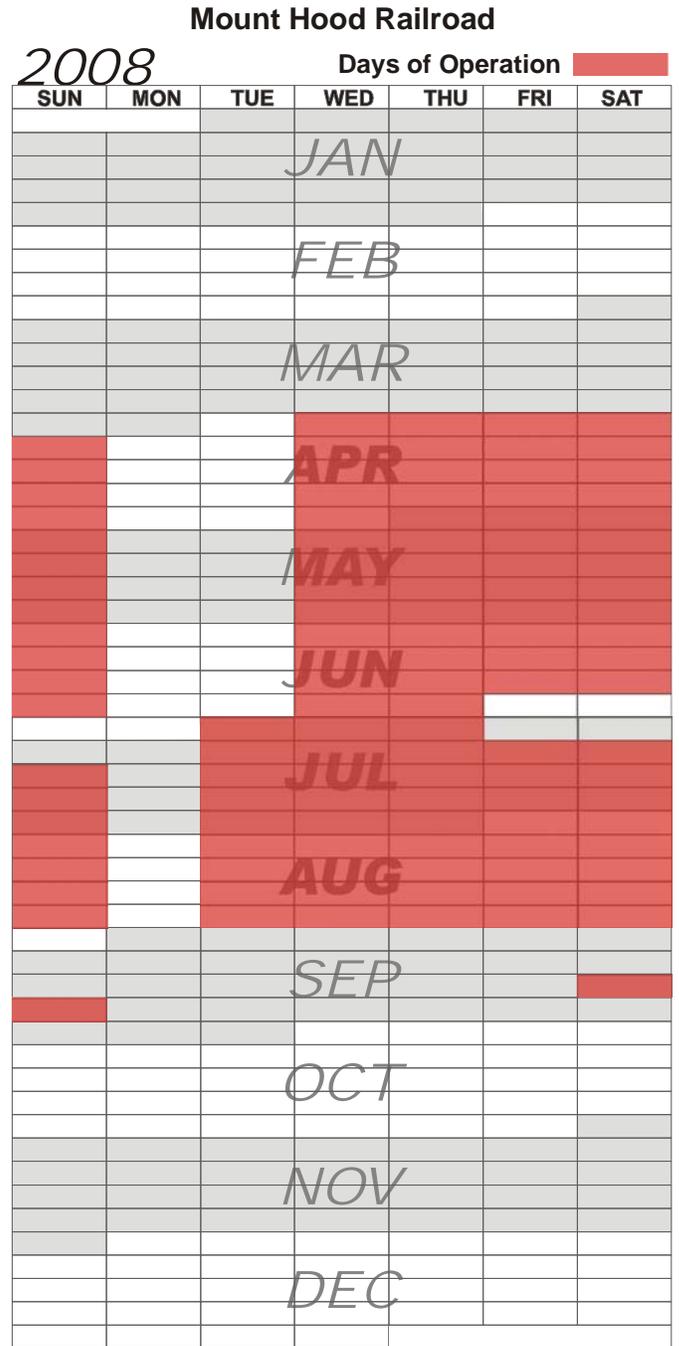
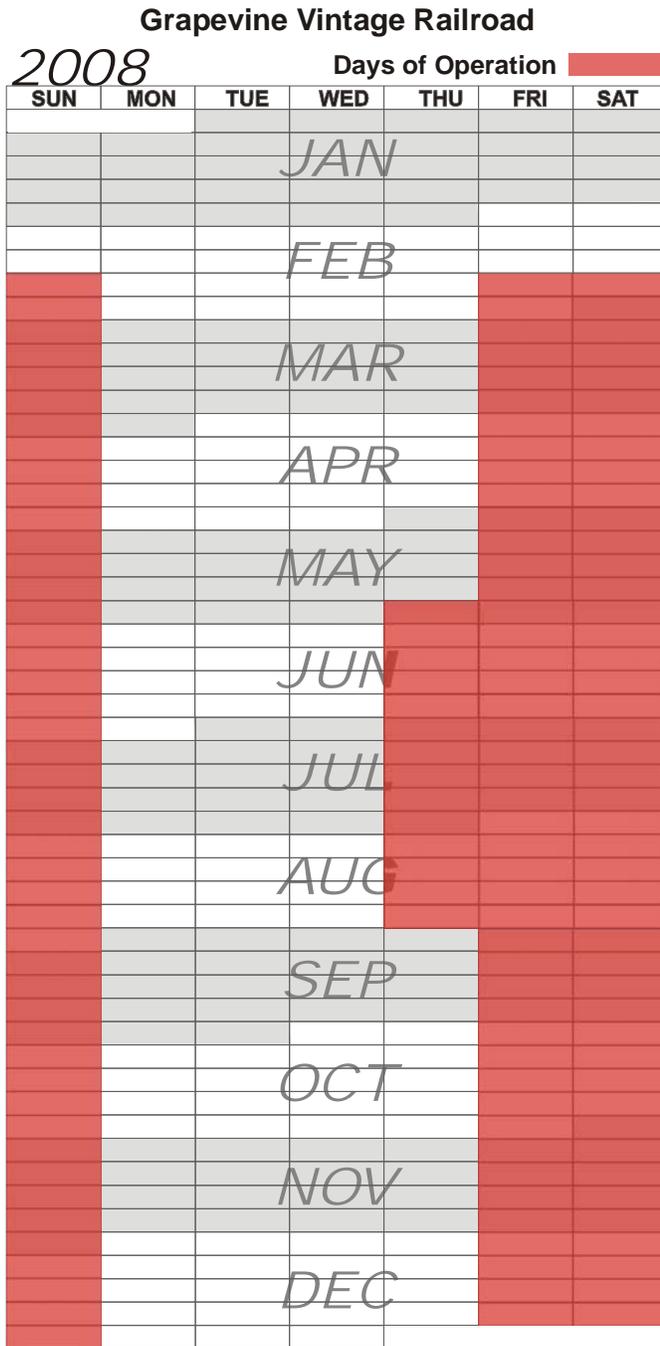
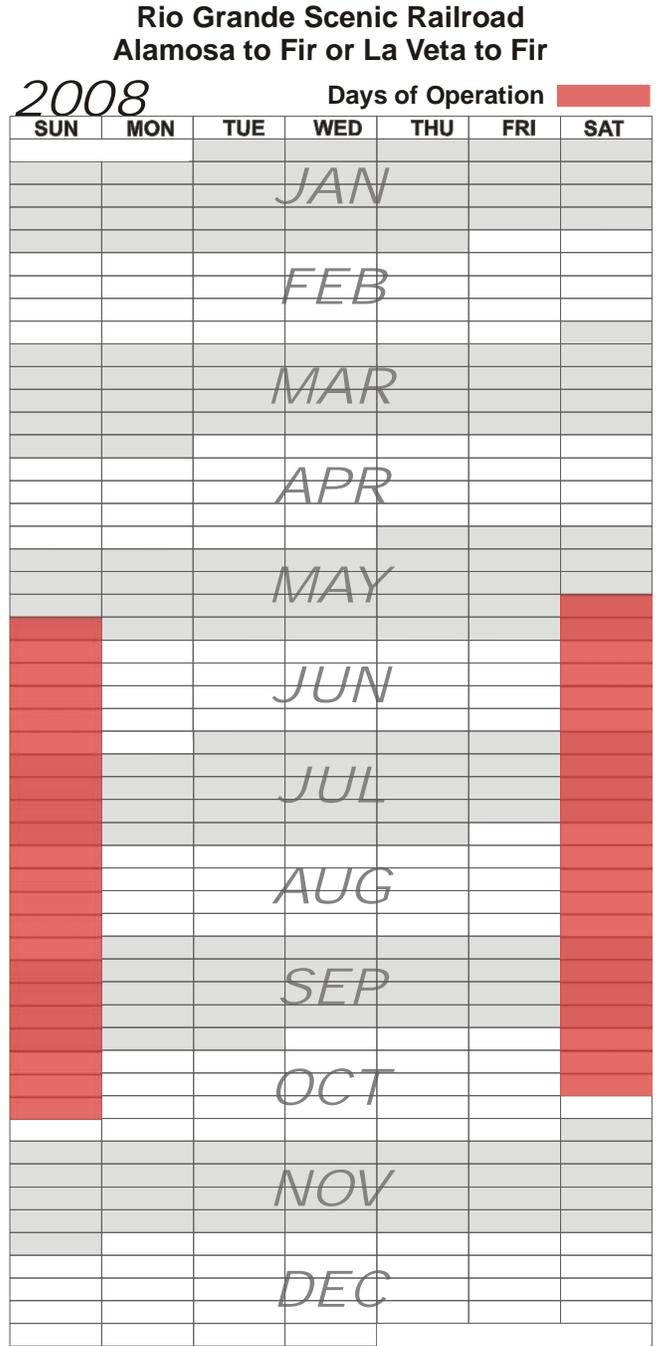


FIGURE 4. PEER EXCURSION RAILROAD 2008 DAYS OF OPERATION
(Continued)



**FIGURE 4. PEER EXCURSION RAILROAD 2008 DAYS OF OPERATION
(Continued)**



Theme Trains and Special Events

Nine of the 12 properties offer themed excursions—many of which include meals of some sort—but only three appear to operate regularly scheduled dinner trains. Holiday themes such as the “Polar Express” or “Easter Bunny Special” geared towards children are popular. Adults are offered “Murder Mystery Trains”, while specials offered on other holidays, such as the Fourth of July, attract families. Theme trains are often scheduled outside the regular operating calendar.

En Route Scenery

Surveys conducted by the Arizona Office of Tourism repeatedly show that “scenery” is one of the main attractions of rural Arizona for both in-state and out-of-state tourists. A brief discussion of en-route scenery is in order:

The scenery through which many of these railroads operate is somewhat similar to that in Southern Gila County. The Austin Steam Train runs through the Texas Hill Country, the Nevada Southern operates in Mohave Desert terrain near Las Vegas, the Rio Grande Scenic Railroad crosses Colorado’s San Luis Valley, and the Santa Fe Southern crosses high desert outside its namesake city.

The countryside crossed by the Abilene & Smoky Valley Railroad in Kansas and the Grapevine Vintage Railroad in the Fort Worth area, as well as the desert domain of the Nevada Southern are arguably less scenic than the country around Globe. Mount Hood provides a dramatic backdrop for its namesake railroad and Mount Shasta provides the same backdrop for the Yreka Western.

Paralleling the Highway

The Arizona Eastern Railway closely parallels US 70 most of the way between Globe and Apache Gold Casino. Paralleling a highway is a double-edged sword. The train can “market itself” to passing motorists, particularly if the rail equipment is attractive or attention-getting—such as a steam locomotive, for example. On the other hand, motorists have already “seen” the route and many, including railroad buffs, are apt to use the highway to “chase” the train and photograph it, rather than paying to ride.

The routes of the Austin Steam Train and the Nevada Southern closely parallel highways, while the routes of the Grand Canyon Railway, Verde Canyon Railroad, Santa Fe Southern, and Rio Grande Scenic Railroad do not.

Other portions of the Arizona Eastern do not parallel any roadways. East of the Casino, the line deviates to the north towards San Carlos, then turns and follows the San Carlos River south underneath the highway before turning east. The railroad and highway do not

come together again until the vicinity of Bylas. Another portion of the line that is not paralleled by any roads is the segment between Globe and Miami, a candidate route segment that this study examined.

Fares and Discounts

The consultant documented and compared the fares and discounts charged and offered by the different excursion rail operators. Table 5 presents an analysis of the fare charged per length and duration of the trip. In this table, only adult fares were analyzed. The average adult fare is just under a dollar a mile, or about \$7.78 per hour. The Verde Canyon Railroad, which has one of the most spectacular rail routes anywhere, charges the most—\$2.29 per mile and \$13.74 per hour. It is worth noting that the second highest rates, \$1.33 per mile and \$10.67 per hour, are charged by the Nevada Southern, the one peer railroad known to operate in the vicinity of a Casino.

TABLE 5. ANALYSIS OF FARES CHARGED PER LENGTH AND DURATION OF TRIP

Name of Railroad	Adult	Length of Trip (RT miles)	Duration of Trip (hours)	Adult Fare per mile	Adult Fare per Hour	
Abilene & Smoky Valley	\$12.00	10	1:30	\$1.20	\$8.00	
Austin Steam Train	\$17.00	50	3:00	\$0.34	\$5.67	
Copper King	\$25.00	52	3:30	\$0.48	\$7.14	
Fillmore and Western	\$22.00	20	3:30	\$1.10	\$6.29	
Grand Canyon Railway	\$65.00	130	8:00	\$0.50	\$8.13	
Grapevine Vintage Railroad	\$20.00	49	5:00	\$0.41	\$4.00	
Mount Hood Railroad	\$25.00	19	2:30	\$1.32	\$10.00	
Nevada Southern	\$8.00	6	0:45	\$1.33	\$10.67	
Rio Grande Scenic Railroad	\$39.00	96	6:30	\$0.41	\$6.00	
Santa Fe Southern	\$32.00	26	4:30	\$1.23	\$7.11	
Verde Canyon	\$54.95	24	4:00	\$2.29	\$13.74	
Yreka Western	\$20.00	15	3:00	\$1.33	\$6.67	
				Averages	\$0.99	\$7.78
				Highest	\$2.29	\$13.74

Source: Railroad Web sites

The extent to which rail fares were discounted for seniors and children was also analyzed as shown in Table 6. Senior fares averaged 90.65 percent of adult fares. However, three of the railroads, Abilene & Smoky Valley Railroad, Grand Canyon Railway, and Yreka Western Railroad, do not offer discounts for seniors. All 12 railroads—including the two Arizona lines—offer substantial discounts for children 12 and under, the average child fare being 52.26 percent of the adult fare.

**TABLE 6. ANALYSIS OF FARE DISCOUNTING
FOR SENIORS AND CHILDREN**

Name of Railroad	Adult	Senior	Child	Senior % of Adult	Child % of Adult
Abilene & Smoky Valley	\$12.00	\$12.00	\$6.00	100.00%	50.00%
Austin Steam Train	\$17.00	\$14.00	\$12.00	82.35%	70.59%
Copper King	\$25.00	\$20.00	\$5.00	80.00%	20.00%
Fillmore and Western	\$22.00	\$20.00	\$8.00	90.91%	36.36%
Grand Canyon Railway	\$65.00	\$65.00	\$30.00	100.00%	46.15%
Grapevine Vintage Railroad	\$20.00	\$18.00	\$10.00	90.00%	50.00%
Mount Hood Railroad	\$25.00	\$23.00	\$15.00	92.00%	60.00%
Nevada Southern	\$8.00	\$7.00	\$4.00	87.50%	50.00%
Rio Grande Scenic Railroad	\$39.00	\$35.00	\$25.00	89.74%	64.10%
Santa Fe Southern	\$32.00	\$27.00	\$18.00	84.38%	56.25%
Verde Canyon	\$54.95	\$49.95	\$34.95	90.90%	63.60%
Yreka Western	\$20.00	\$20.00	\$12.00	100.00%	60.00%
Averages				90.65%	52.26%

Source: Railroad Web sites

Operating Speeds

Passenger rail transit service is most effective when travel times between points are competitive with automobile travel times between the same points. However excursion trains routinely operate at speeds that would be unacceptably slow for most rail transit applications. For example, Grand Canyon Railway trains take over two hours each way to travel between Williams and Grand Canyon, a distance of 64 miles. Allowing for traffic congestion, delays at the National Park entrance, and so forth, the same trip can be traveled by automobile in 90 minutes or less. The Arizona Eastern is designated as “Class II” and passenger trains would be allowed to operate at up to 30 mph. The consultant believes that allowable speeds would not be a factor with respect to operation of an excursion train in the Study Area.

Initial Marketing Assessment

Marketing techniques used by the peer excursion railroads examined include maintenance of Web sites, links to area chambers of commerce and neighboring tourist attractions, links to Web sites maintained by rail advocates, “800” telephone numbers, and conventional print and electronic media advertising.

All of the railroads evaluated had Web sites. All were also listed in the current *Guide to North America’s Tourist Railways and Museums*. Some of the information included on the Web sites or in the *Guide* appeared to be out-of-date, incomplete, or inaccurate. In addition, some of the Web sites were difficult to navigate or understand, either through poor graphic design or faulty technical development.

Arizona’s existing railroads, Grand Canyon Railway and Verde Canyon Railway, have two of the more attractive and accessible sites. Significantly, the Web sites of the Rio Grande Scenic Railroad and Mount Hood Railroad, which are owned by the same corporation that owns Arizona Eastern Railway, are also nicely designed and easy to understand.

The trains themselves—as alluded to earlier—are self-promoting, rolling “billboards” proclaiming their existence and availability. Of course, if the train is a hodgepodge of mis-matched equipment in obvious need of painting or other maintenance, the effect can be negative. Here again, Arizona is blessed with two very image-conscious railroads with equipment that is as appealing to look at from a distance as it is enjoyable to ride.

Southern Arizona currently has no operating excursion railroad. While the Verde Canyon Railroad at Clarkdale is closer to many areas of metropolitan Phoenix than Globe, the same cannot be said of Tucson. In addition, a potential synergy exists between the railroad and the Casino. The consultant believes that continued pro-active coordination between the railroad, the San Carlos Apache Nation, and the Globe Main Street Program is essential to the success of the project.

Other potential marketing techniques include:

- Selling discounted multi-ride “commuter” tickets to Casino employees and Gila County residents as was discussed at the Stakeholder Workshop
- Packaging rail tickets with overnight stays at the Apache Gold Casino Resort and other Globe area attractions
- Pro-actively promoting the rail excursion in conjunction with the annual Tribal Pow-Wow and other Western heritage events
- Participating in railroad-themed trade shows in the Tucson and Phoenix metropolitan areas such as Scottsdale’s McCormick Railroad Park Rail Fair and the Sahuaro Central event at Adobe Mountain Park in Phoenix
- Encouraging the development of group tours from potential markets such as the senior-oriented recreational vehicle parks in Eastern Maricopa County

4. TRANSIT DEMAND AND EXCURSION RIDERSHIP ESTIMATES

This chapter describes two distinct processes. The first is an estimate of transit demand, and the second is an estimate of excursion train market—or potential ridership. The preceding chapter summarized the different types of excursion rail service. In addition, passenger rail service can provide peak-hour commuter service between the suburbs of a metropolitan area and the center of that area, or between the suburbs themselves. Passenger rail service can also provide regional service between two metropolitan areas and long-distance service connecting regions.

The character of these services may differ significantly from each other in terms of equipment, scheduling, fare structure, and other elements. At the same time, it is possible for a passenger rail service to serve both transportation and excursion functions. Many Amtrak routes, for example, traverse scenic areas and provide basic transportation between communities lacking air or bus connections as well as opportunities for persons wishing to view the scenery along the route. In some respects, the Grand Canyon Railway functions as a “tourist commuter” service carrying people between a “park-and-ride” in Williams and the Canyon.

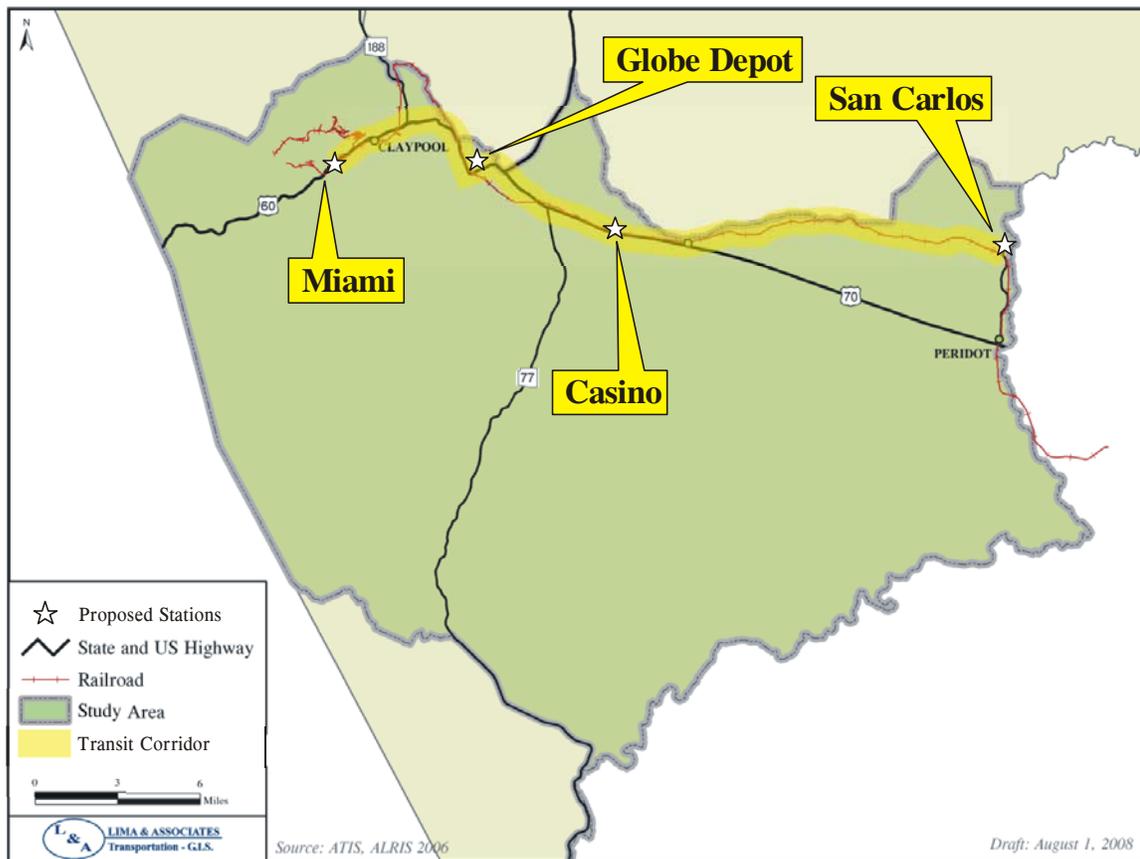
The consultant was tasked to assess the potential demand for a Miami-Globe-Casino-San Carlos rail service as a commuter or regional rail operation as well as a tourist attraction. First, the “transit” demand for the service is analyzed, using the same procedure that was used to estimate transit demand County-wide in the preceding *Gila County Small Area Transportation Study*. Next an analysis of Arizona tourist behavior is used to develop a sketch estimate of the potential annual market for an area excursion rail operation.

ESTIMATING TRANSIT DEMAND

In the Gila County Small Area Transportation Study (SATS), Transit Cooperative Research Program (TCRP) Report 3, *Workbook for Estimating Demand for Rural Passenger Transportation*, was utilized to estimate possible demand for transit service County-wide. This workbook provides a methodology for estimating transit demand for rural systems, using population data for the year of proposed service start-up and assumptions of service area size and route lengths.

The demand methodology outlined in TCRP Report 3 required that a hypothetical system be developed for analysis purposes. For the purposes of this report, the actual route connecting Miami, Globe, the Casino, and San Carlos was used. (See Figure 5) Note that the route is served by both the Arizona Eastern Railway and a parallel highway system consisting of US 60 between Miami and eastern Globe, US 70 from eastern Globe to the vicinity of the Casino, and Tribal Route 800 from east of the Casino to San Carlos. While rail transit service in a rural corridor would be unusual, the TCRP Report 3 methodology is not mode-specific and could equally apply to either rail or bus service.

FIGURE 5. TRANSIT CORRIDOR FOR DEMAND ESTIMATION



To achieve results from the demand estimation procedure consistent with those developed for the preceding SATS, a subset of the same 2030 travel analysis zones (TAZs) created for the SATS were used.

To conduct the demand estimation procedure, the following assumptions were made:

- The service area for the hypothetical system is defined as the TAZs that are traversed by any of the roadway segments depicted as being transit served
- Every resident of the universe of transit-served TAZs is a potential user of the system
- The percentages of County residents aged 65 and over, having mobility limitations, or living below the poverty level will be the same in 2030 as they were in 2000
- The population figures forecasted under the “Accelerated Growth” scenario in the SATS are used
- It was assumed that service would be provided twice daily between Miami, Globe, the Casino, and San Carlos, as this is the level of service that could be provided by rail given the existing operating parameters. Note that this procedure results in estimated demand for scheduled, fixed-route, twice daily bus service only. The

Globe-Miami area is already served by the Cobre Valley Community Transit (CVCT) dial-a-ride system. Estimating the future level of dial-a-ride demand in the Cobre Valley service area, or for adding a deviated fixed route element to the CVCT service, are beyond the scope of this study.

Documentation of the transit demand estimating process is provided in Appendix A.

Summary of Transit Demand Estimation

The demand methodology in TCRP Report 3 included both base and alternative methods of demand estimation. The consultant conducted both procedures to compare the results from each. The base and alternative methods of transit demand estimation resulted in daily estimates of 39 and 83 trips, respectively. Given the low service frequencies used in the hypothetical example, the lower estimate of 39 trips per day is probably more accurate.

ESTIMATING EXCURSION RIDERSHIP

No scientific methodologies for estimating excursion train ridership exist. For developing a sketch estimate of potential ridership for a Globe-based excursion train, the consultant relies on the findings of tourist-behavior research conducted for the Arizona Office of Tourism, together with empirical knowledge of excursion train marketing.

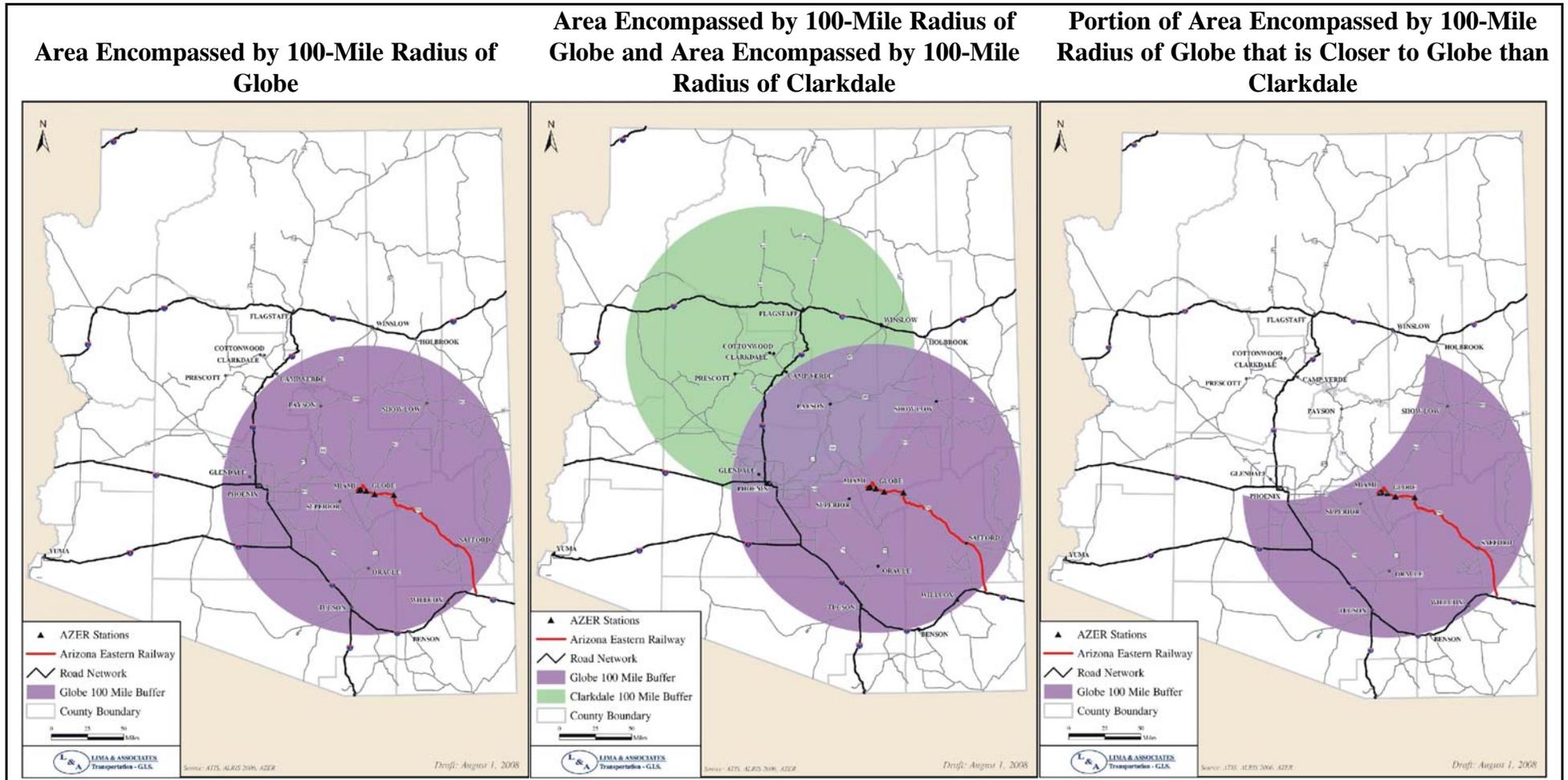
To mimic the approach recommended by the Transit Cooperative Research Program for estimating transit demand, two different methodologies for estimating potential excursion train ridership were used. One methodology is based on the number of potential riders within a 100-mile radius of Globe, and the other is based on the current traffic volumes of major highways serving the Globe area.

Estimating Potential Ridership within 100 Miles of Globe

In the 1970s, the Arizona Intra-State Tourism Committee commissioned a study of *In-State Travel Patterns of Arizona Residents* for the Arizona Office of Tourism. Advertising-related findings of this study, which pre-dates the Internet, are obsolescent. In addition, the study was conducted before either of Arizona's two popular excursion rail operations, Grand Canyon Railway and Verde Canyon Railroad, were operating, and "excursion rail" is not covered in the study. However the consultant believes that the basic habits of Arizona tourists, such as the finding that tourists planning to visit an attraction and return home in the same day ("day trip") prefer to travel 200 miles or less round trip.

Accordingly, the consultant assumes that the catchment area for a Globe-based excursion rail operation would be an area encompassed by a circle with a 100-mile radius centered on Globe. (See Figure 6) As Figure 6 shows, such a circle would overlap an identical circle centered on Clarkdale, where the Verde Canyon Railroad is based. Any Globe operation

FIGURE 6. DETERMINATION OF GLOBE-BASED EXCURSION TRAIN CATCHMENT AREA



that is implemented would likely be of a different character than the service operated out of Clarkdale and would possibly appeal to a different market niche. Nevertheless, in order to develop a conservative estimate of potential Globe train ridership, the overlapping portion was deleted from the catchment area.

After defining the extents of the catchment area, as shown in the right-hand panel of Figure 6, the year 2000 population residing within the catchment area was determined by identifying the census blocks lying within the area and summing the populations of the blocks. Next, the percent of Arizona’s total 2000 population represented by the population of the catchment area was calculated. Then, the resulting percentage was applied to the total number of leisure tourists within Arizona for 2006, the latest year for which such data is available. This calculation resulted in a universe of candidate annual excursion train riders of 2,015,624. A factor of two percent was applied to this universe to achieve an annual ridership estimate of 40,312 (See Table 7)

TABLE 7. SKETCH RIDERSHIP ESTIMATING PROCESS – METHODOLOGY I

Total population inside catchment area from Census 2000	1,365,277
Total population for entire state from Census 2000	5,130,632
Percent of state population inside catchment area	26.61%
Total Number of Domestic Leisure Visitors to Arizona**	24,200,000
Total Percent from Arizona**	31.30%
Total Number from Arizona	7,574,600
Multiplied by catchment area percentage	26.61%
Equals Universe of candidate annual train riders	2,015,624
Multiplied by two percent equals sketch annual ridership estimate one	40,312

**Source, Arizona Office of Tourism

Estimating Potential Ridership Based on Traffic Volumes of Highways serving Globe

As an alternate methodology for developing a sketch estimate of potential excursion train ridership, the consultant reviewed traffic volumes on US 60 between Globe and the metropolitan Phoenix area and traffic volumes of SR 77 between Globe and the metropolitan Tucson area. In order to screen out local traffic, such as travel between Phoenix and Apache Junction on US 60, for example, the figures from the roadway segment of each route showing the lowest average annual daily traffic volumes (AADT) were used. Table 8 presents the calculations used to arrive at a second annual ridership estimate of 60,043.

TABLE 8. SKETCH RIDERSHIP ESTIMATING PROCESS – METHODOLOGY II

Lowest AADT on US 60 from west**	6,625
Lowest AADT on SR 77 from south**	1,600
Total non-local AADT	8,225
Multiplied by 365 equals Universe of candidate annual train riders	3,002,125
Multiplied by two percent equals sketch annual ridership estimate 2	60,043

Source: Arizona Department of Transportation

Conclusion of Sketch Ridership Estimating Process

In both methodologies, a factor of two percent was applied to the universe of candidate annual train riders to arrive at conservative ridership estimates of 40,312 and 60,043 respectively. Of course a successful excursion rail operation can capture more than two percent of its potential riders. If one assumes, for example, that the annual visitation to the Grand Canyon represents the universe of potential ridership for the Grand Canyon Railway, the railway is actually capturing more than four percent of its potential riders. Many factors affect the percentage of its potential market that an excursion railroad—or any tourist attraction—is able to capture:

- The length of the “season” of operation. Grand Canyon Railway operates year round, however nearly all of the peer operations examined by the consultant operate half the year or less
- The appeal of the operation and the success of the marketing approaches
- The level of synergy between the railroad operation and adjacent tourist attractions. Ridership levels of the Globe operation might be significantly affected by the degree to which Apache Gold Casino proactively participates in marketing the service. Could the schedules of the buses serving the Casino from the Phoenix and Tucson areas, for example, be adjusted to accommodate the train operation or to “connect” with train schedules?
- The choice of operating practices that could broaden the appeal of the service. Grand Canyon Railway only operated steam locomotives between Memorial Day and Labor Day. An operation that employed steam locomotives during the winter would offer that experience to winter visitors and to other Arizonans during a period when Grand Canyon operates diesel-powered trains.

The consultant believes that a well-designed and marketed excursion rail operation in Globe could attract as many as 40,000 to 60,000 riders annually.

5. RAIL SERVICE SCENARIOS

Based on the results of the transit demand procedure documented in Chapter 4, the consultant did not pursue further the use of the rail line in the study area for the provision of transportation for transit-dependent persons. The comparatively low level of such demand suggests that, in the short term, continuation and/or expansion of the existing Cobre Valley Dial-a-Ride service would be a more feasible means of providing transit service. As demand warrants, the Dial-a-Ride service could be supplemented with deviated fixed-route transit service in the US 60 corridor, modeled after what was done in Cottonwood, for example. Detailed evaluation of such a concept is outside the scope of this project. Of course, some of the excursion rail scenarios described below could lend themselves to use as transportation, assuming that such service was purchased from the excursion train operator by a local agency. For the purposes of this project, this approach was not evaluated.

The following criteria were followed for the scenario and pro-forma development documented in this chapter as well as Chapter 6:

- An operating season was identified that would complement the existing operating season of the Rio Grande Scenic Railroad. That railroad is owned by the same holding company that owns Arizona Eastern and the possibility of sharing passenger equipment between the two operations exists.
- Two levels of service were examined: Weekends only and four-days-per-week.
- Draft scenarios were based on existing railroad operating conditions and track speeds.
- Railroad operating costs summarized in Chapter 2 were used. These costs were assumed to include operating crew labor and fringe (not including on-board excursion personnel), locomotive fuel, maintenance, and operating liability insurance. An estimate of insurance expense for the excursion train administration is included in the pro-formas in Chapter 6.
- The potential market for the excursion train, based on the sketch estimates documented in Chapter 4, is assumed to be 50,000 annually. Of this, 35,000 would be adults, 7,500 would be seniors aged 65 and over, and 7,500 would be children aged 12, and under.
- Census data was used to suggest the percentage split between adults, seniors, and children.
- Averages of peer operations were used to assume that fares for seniors aged 65 and over would be 90 percent of the adult fares and the fares for children aged 12 and under would be 50 percent of adult fares.

SCENARIO TIMETABLES

The consultant examined six excursion rail service scenarios per day of operation. These are

- Two round trips between Miami, Globe, the Casino, and San Carlos
- Three round trips between Miami, Globe, and the Casino
- Three round trips between Globe, the Casino, and San Carlos
- Four round trips between Globe and the Casino, as was done in the 2006 “Spike” demonstration
- One round trip dinner train between Globe, the Casino, and San Carlos with dinner served on board the train
- One round trip dinner train between Miami, Globe, and the Casino with appetizers served on board and a layover at the Casino for dinner and gaming.

Draft timetables for each scenario are shown in Tables 9-A through 9-F.

DAYS AND DATES OF OPERATION

The excursion operating season of Arizona Eastern’s corporate sibling, the Rio Grande Scenic Railroad, begins in May each year and extends through October. Arizona Eastern’s excursion season could run November through April, complementing the Rio Grande’s season and allowing for time to transfer shared passenger equipment and motive power between Alamosa, Colorado, the Rio Grande’s headquarters, and Globe. Figure 7 presents 2009 and 2010 AZER operating seasons based on this arrangement. The scheduling would provide 50 run days for a weekend-only schedule and 98 or 99 run days for a four-days-per-week schedule, avoiding Thanksgiving and Christmas as indicated.

PROPOSED FARE STRUCTURE

The rate charged per mile by excursion rail operations typically increases as the length of the trip decreases. This variance reflects the fixed costs related to operating an excursion train regardless of the length of the journey, as well as the concept that the “experience” is a large part of the service. Based on the analysis of adult fares charged by peer operations, Figure 8 compares the rate per mile and the round trip length.

**TABLE 9-A
TWO ROUND TRIPS BETWEEN
MIAMI, GLOBE, THE CASINO, AND SAN CARLOS**

			Stations MILES			
▼	▼			▲	▲	
8:00 AM	1:00 PM	Lv.	MIAMI 1.51	Ar.	12:35 PM	5:35 PM
8:06 AM	1:06 PM	Lv.	CLAYPOOL 9.38	Lv.	12:29 PM	5:29 PM
8:43 AM	1:43 PM	Lv.	GLOBE 6.52	Lv.	11:51 AM	4:51 PM
9:09 AM	2:09 PM	Lv.	CASINO 13.96	Lv.	11:25 AM	4:25 PM
10:05 AM	3:05 PM	Ar.	SAN CARLOS	Lv.	10:30 AM	3:30 PM

**TABLE 9-B
THREE ROUND TRIPS BETWEEN MIAMI, GLOBE, AND THE CASINO**

▼	▼	▼	Stations MILES	▲	▲	▲
11:00 AM	2:00 PM	5:00 PM	Lv. MIAMI 1.51	Ar.	1:39 PM	4:39 PM
11:06 AM	2:06 PM	5:06 PM	Lv. CLAYPOOL 9.38	Lv.	1:33 PM	4:33 PM
11:43 AM	2:43 PM	5:43 PM	Lv. GLOBE 6.52	Lv.	12:56 PM	3:56 PM
12:09 PM	3:09 PM	6:09 PM	Ar. CASINO	Lv.	12:30 PM	3:30 PM

**TABLE 9-C
THREE ROUND TRIPS BETWEEN GLOBE, THE CASINO, AND SAN CARLOS**

▼	▼	▼	Stations MILES	▲	▲	▲
11:00 AM	2:00 PM	5:00 PM	Lv. GLOBE 6.52	Ar.	1:51 PM	4:51 PM
11:26 AM	2:26 PM	5:26 PM	Lv. CASINO 13.96	Lv.	1:25 PM	4:25 PM
12:21 PM	3:21 PM	6:21 PM	Ar. SAN CARLOS	Lv.	12:30 PM	3:30 PM

**TABLE 9-D
FOUR ROUND TRIPS BETWEEN GLOBE AND THE CASINO**

				Stations						
				MILES						
10:00 AM	12:00 PM	2:00 PM	4:00 PM	Lv.	GLOBE	Ar.	11:26 AM	1:26 PM	3:26 PM	5:26 PM
				6.52						
10:26 AM	12:26 PM	2:26 PM	4:26 PM	Ar.	CASINO	Lv.	11:00 AM	1:00 PM	3:00 PM	5:00 PM

**TABLE 9-E
ONE ROUND TRIP DINNER TRAIN BETWEEN
GLOBE, THE CASINO, AND SAN CARLOS**

Saturday Schedule					Sunday Schedule				
Stations					Stations				
MILES					MILES				
5:00 PM	Lv.	GLOBE	Ar.	10:26 PM	12:00 PM	Lv.	GLOBE	Ar.	5:26 PM
6.52					6.52				
		CASINO	Lv.	10:00 PM			CASINO	Lv.	5:00 PM
5:26 PM	Lv.	CASINO	Ar.	7:25 PM	12:26 PM	Lv.	CASINO	Ar.	2:25 PM
13.96					13.96				
6:21 PM	Ar.	SAN CARLOS	Lv.	6:30 PM	1:21 PM	Ar.	SAN CARLOS	Lv.	1:30 PM

**TABLE 9-F
ONE ROUND TRIP DINNER TRAIN BETWEEN
MIAMI, GLOBE, AND THE CASINO**

Saturday Schedule					Sunday Schedule				
Stations					Stations				
MILES					MILES				
5:00 PM	Lv.	MIAMI	Ar.	10:09 PM	11:30 AM	Lv.	MIAMI	Ar.	5:09 PM
1.51					1.51				
5:06 PM	Lv.	CLAYPOOL	Lv.	10:03 PM	11:36 AM	Lv.	CLAYPOOL	Lv.	5:03 PM
9.38					9.38				
5:43 PM	Lv.	GLOBE	Lv.	9:26 PM	12:13 PM	Lv.	GLOBE	Lv.	4:26 PM
6.52					6.52				
6:09 PM	Ar.	CASINO	Lv.	9:00 PM	12:39 PM	Ar.	CASINO	Lv.	4:00 PM

FIGURE 7. PROPOSED OPERATING SEASON

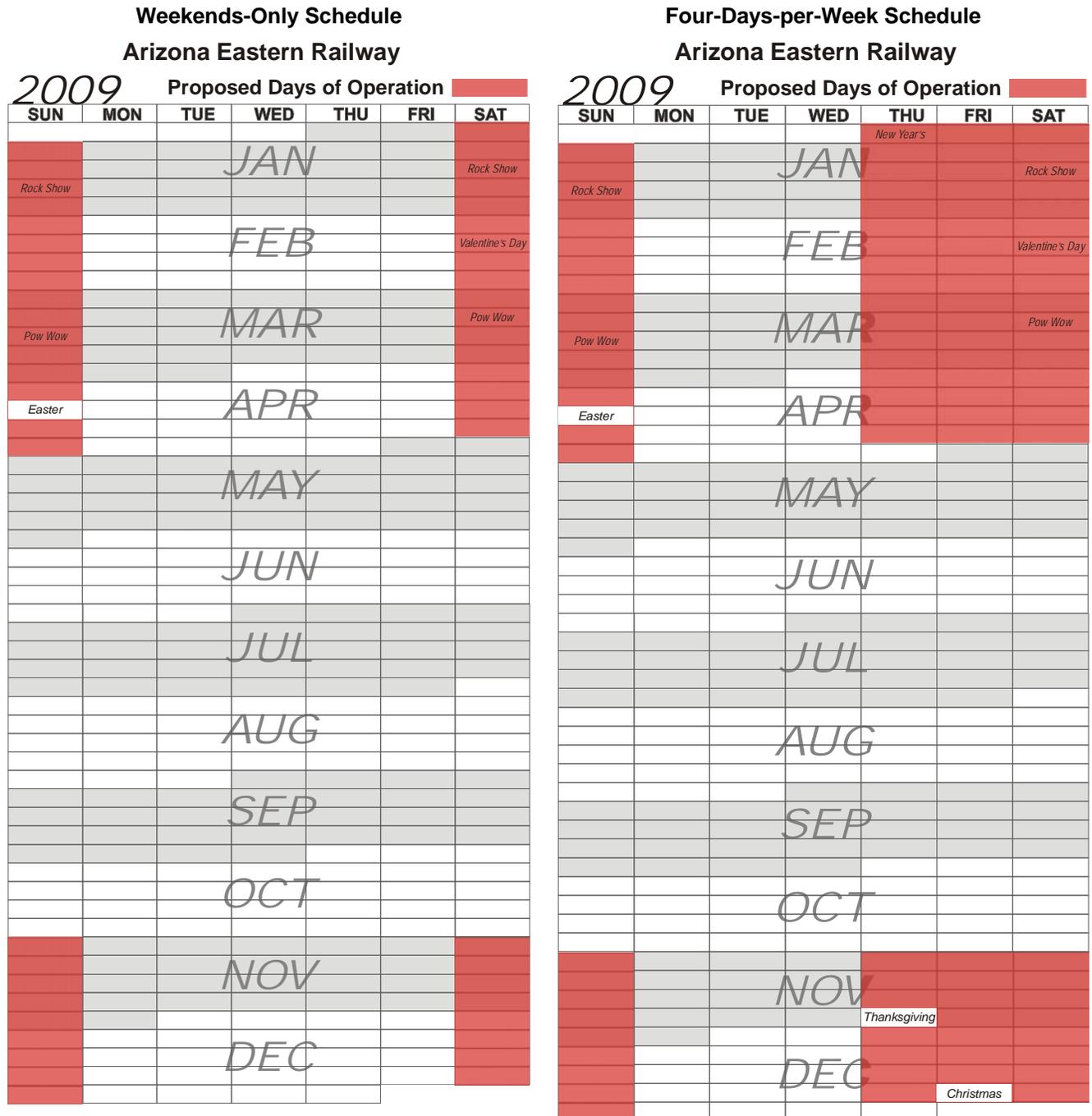


FIGURE 7. PROPOSED OPERATING SEASON (Continued)

**Weekends-Only Schedule
Arizona Eastern Railway**

2010 Proposed Days of Operation

SUN	MON	TUE	WED	THU	FRI	SAT
		JAN				
		FEB				
Valentine's Day		MAR				
Easter		APR				
		MAY				
		JUN				
		JUL				
		AUG				
		SEP				
		OCT				
		NOV				
		DEC				

**Four-Days-per-Week Schedule
Arizona Eastern Railway**

2010 Proposed Days of Operation

SUN	MON	TUE	WED	THU	FRI	SAT
		JAN			New Year's	
Valentine's Day		FEB				
Easter		MAR				
		APR				
		MAY				
		JUN				
		JUL				
		AUG				
		SEP				
		OCT				
		NOV			Thanksgiving	
		DEC				Christmas

FIGURE 8. EXCURSION RAIL ADULT FARES PER MILE COMPARED WITH LENGTH OF ROUND TRIP

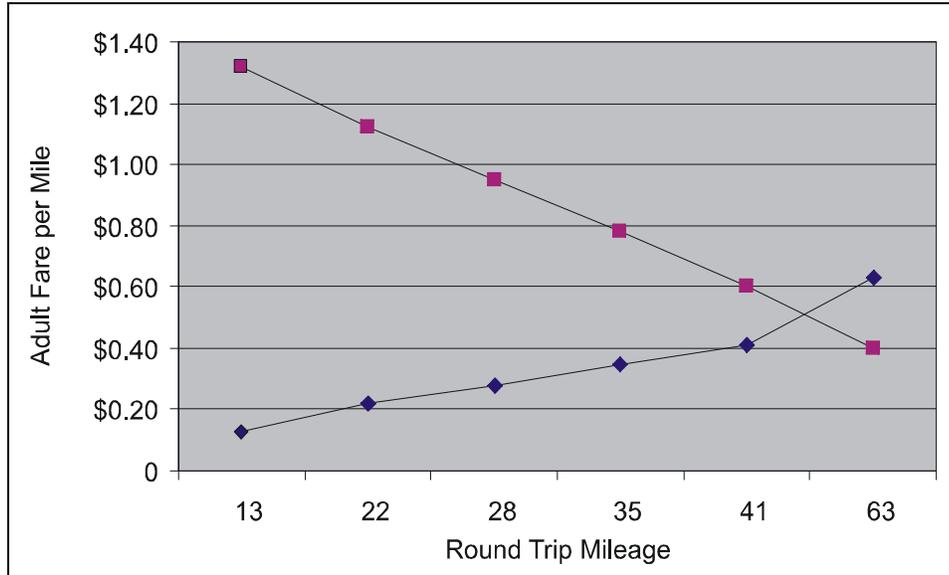


Table 10 lists proposed Arizona Eastern Railway route segments and per-mile rates charged by peer operations for trips of similar length.

TABLE 10. ARIZONA EASTERN RAILWAY ROUTE SEGMENTS AND PEER PER-MILE RATES

BETWEEN	and	Globe	Casino	San Carlos
Miami/	RT Miles	22	35	63
	Peer Fare/Mile	1.12	0.78	0.40
Globe	RT Miles		13	41
	Peer Fare/Mile		1.32	0.60
Casino	RT Miles			28
	Peer Fare/Mile			0.95

A draft fare structure was developed by calculating fares based on the route segment lengths and corresponding per-mile rates shown in Table 10. The adult fares for each segment were rounded and senior and child discounts of 10 percent and 50 percent respectively were applied. The results are shown in Table 11.

TABLE 11. REVISED FARE STRUCTURE

BETWEEN	and	Globe	Casino	San Carlos
Miami/ Claypool	Adults	\$25.00	\$25.00	\$25.00
	Seniors	\$22.50	\$22.50	\$22.50
	Children	\$12.50	\$12.50	\$12.50
Globe	Adults		\$20.00	\$25.00
	Seniors		\$18.00	\$22.50
	Children		\$10.00	\$12.50
Apache Gold Casino	Adults			\$25.00
	Seniors			\$22.50
	Children			\$12.50

Annual ridership estimates, together with the proposed operating season and the above fare structure, were used to develop operating pro-forma scenarios discussed in the following chapter.

6. DRAFT OPERATING PRO-FORMAS

The consultant developed two draft operating pro-formas. Both pro-formas assume four-days-per-week operation during the six month season. A weekend-only scenario does not pencil out using the revised fare structure without making unrealistic assumptions regarding daily ridership and equipment utilization. Table 12-A depicts a pro-forma based on the forecasted annual ridership. Table 12-B evaluates the minimum ridership needed to make the scenarios break-even for the four non-dinner train options.

REVENUES

Revenues for each scenario were based on the assumptions listed in Chapter 1. Assuming the use of a three-car consist with a seating capacity of 200 passengers, the revenues shown on Table 12-A were based on an average passenger occupancy of 70 percent. This percentage represents effectively “sold out season” conditions after allowing for last-minute “no shows” and “shorts”—or passengers riding less than the full route—in the case of scenarios including intermediate stops. In all likelihood, in order to attain such passenger volumes, the excursion train would need to add at least one extra car on “overflow” days, which, in turn, would increase the operating costs for that day by \$175 per car. In any event, once public response to the operation warranted it, the railroad might want to transfer a spare car from Colorado anyway for use in case one of the other cars became disabled or needed to be rotated through a maintenance program.

EXPENSES

Arizona Eastern Railway, by quoting per-diem cost estimates for the provision of the rail equipment and operating crews as documented in Chapter 2, has already addressed many of the key elements that would comprise an operating pro-forma. Other parameters that needed to be identified before developing the pro-formas include the excursion operation employees and administrative expenses. Draft scenarios shown to break even or better have the bottom lines highlighted in green.

Railroad Operating Costs

All of the scenarios take slightly longer than eight hours per day to complete. An average of nine hours per day was assumed. Hence the following railroad operating costs were assumed for each equipment configuration:

- One Diesel Locomotive: \$1,000 plus \$150 additional hour, or \$1,150 daily total
- Two Diesel Locomotives: \$1,300 plus \$150 additional hour, or \$1,450 daily total
- Steam Locomotive: \$3,000 plus \$150 additional hour, or \$3,150 daily total
- Passenger Car (each): \$175 per day

**TABLE 12-A OPERATING PRO-FORMA –
FORECASTED RIDERSHIP SCENARIO**

	Miami-San Carlos Excursion	Globe-Casino Excursion	Globe-San Carlos Excursion	Miami-Casino Excursion	Globe-San Carlos Dinner on Board	Miami-Casino Dinner at Casino
System Parameters						
Length of Round Trip	63	13	41	35	41	35
Potential Ridership						
Adults (70%)	24,872	49,745	37,309	37,309	12,436	12,436
Seniors (15%)	17,411	34,821	26,116	26,116	8,705	8,705
Children 12 and under (15%)	3,731	7,462	5,596	5,596	1,865	1,865
Potential Revenue						
Adults	\$ 435,267	\$ 696,427	\$ 652,901	\$ 652,901	\$ 391,740	\$ 348,214
Seniors	83,944	134,311	125,917	125,917	74,617	67,155
Children 12 and under	46,636	74,617	69,954	69,954	67,155	59,694
Total	\$ 565,847	\$ 905,355	\$ 848,771	\$ 848,771	\$ 533,513	\$ 475,063
Less Cost of Sales	56,585	90,536	84,877	84,877	53,351	47,506
Net Revenue	\$ 509,262	\$ 814,820	\$ 763,894	\$ 763,894	\$ 480,162	\$ 427,557
Excursion Train Fares						
Adults	\$25.00	\$20.00	\$25.00	\$25.00	\$45	\$40
Seniors (90% of Adult)	\$22.50	\$18.00	\$22.50	\$22.50	\$40	\$36
Children 12 and under (50% Adult)	\$12.50	\$10.00	\$12.50	\$12.50	\$36	\$32
Annual Service Days	98	98	98	98	98	98
Round Trips per Day	2	4	3	3	1	1
Equipment						
Cars per Train	3	3	3	3	3	3
Average Occupancy per Car	47	47	47	47	47	47
Employees						
Excursion Manager FTE	\$ 50,000	\$ 50,000	\$ 50,000	\$ 50,000	\$ 50,000	\$ 50,000
Administrative Professional PTE	16,000	16,000	16,000	16,000	16,000	16,000
Reservation Clerk PTE	16,800	16,800	16,800	16,800	16,800	16,800
Train Host/Narrator/Marketer	25,000	25,000	25,000	25,000	25,000	25,000
Snack Bar Attendant (1 per train)	10,976	10,976	10,976	10,976	10,976	10,976
Car Attendant (1 per car)	32,928	32,928	32,928	32,928	32,928	32,928
Fringe	75,852	75,852	75,852	75,852	75,852	75,852
Total Labor Cost	\$ 227,556	\$ 227,556	\$ 227,556	\$ 227,556	\$ 227,556	\$ 227,556
Seasonal Railroad Operating Costs						
One Diesel Locomotive	\$ 112,700	\$ 112,700	\$ 112,700	\$ 112,700	\$ 112,700	\$ 112,700
Two Diesel Locomotives	\$ 142,100	\$ 142,100	\$ 142,100	\$ 142,100	\$ 142,100	\$ 142,100
Steam Locomotive	\$ 308,700	\$ 308,700	\$ 308,700	\$ 308,700	\$ 308,700	\$ 308,700
Passenger Car (each)	\$ 51,450	\$ 51,450	\$ 51,450	\$ 51,450	\$ 51,450	\$ 51,450
Seasonal Equipment Costs						
Steam Locomotive	\$ 35,000	\$ 35,000	\$ 35,000	\$ 35,000	\$ 35,000	\$ 35,000
Passenger Car (each)	\$ 21,000	\$ 21,000	\$ 21,000	\$ 21,000	\$ 21,000	\$ 21,000
General and Administrative Costs						
Utilities	\$ 18,000	\$ 18,000	\$ 18,000	\$ 18,000	\$ 18,000	\$ 18,000
Telephone/Internet	1,200	1,200	1,200	1,200	1,200	1,200
Office Supplies	1,200	1,200	1,200	1,200	1,200	1,200
Advertising and Promotion	56,585	90,536	84,877	84,877	53,351	47,506
Sales Tax	45,834	73,334	68,750	68,750	43,215	38,480
Dues & Subscriptions	600	600	600	600	600	600
Postage	7,738	14,877	11,308	11,308	4,169	4,169
Professional Services	6,000	6,000	6,000	6,000	6,000	6,000
Insurance	5,000	5,000	5,000	5,000	5,000	5,000
Total General and Admin.	\$ 142,157	\$ 210,746	\$ 196,935	\$ 196,935	\$ 132,735	\$ 122,156
Total Expenses						
One Diesel Locomotive	\$ 554,862.70	\$ 623,452.08	\$ 609,641.06	\$ 609,641.06	\$ 545,441.04	\$ 534,861.56
Two Diesel Locomotives	\$ 584,262.70	\$ 652,852.08	\$ 639,041.06	\$ 639,041.06	\$ 574,841.04	\$ 564,261.56
Steam Locomotive	\$ 785,862.70	\$ 854,452.08	\$ 840,641.06	\$ 840,641.06	\$ 776,441.04	\$ 765,861.56
Projected Seasonal Profit (Loss)						
One Diesel Locomotive	\$ (45,600.31)	\$ 191,367.75	\$ 154,252.53	\$ 154,252.53	\$ (65,279.36)	\$ (107,305.01)
Two Diesel Locomotives	\$ (75,000.31)	\$ 161,967.75	\$ 124,852.53	\$ 124,852.53	\$ (94,679.36)	\$ (136,705.01)
Steam Locomotive	\$ (276,600.31)	\$ (39,632.25)	\$ (76,747.47)	\$ (76,747.47)	\$ (296,279.36)	\$ (338,305.01)

**TABLE 12-B OPERATING PRO-FORMA –
MINIMAL RIDERSHIP SCENARIO**

System Parameters	Miami-San		Globe-San	
	Carlos Excursion	Globe-Casino Excursion	Carlos Excursion	Miami-Casino Excursion
Length of Round Trip	63	13	41	35
Potential Ridership	28,048	31,046	24,872	24,872
Adults (70%)	19,633	21,732	17,411	17,411
Seniors (15%)	4,207	4,657	3,731	3,731
Children 12 and under (15%)	4,207	4,657	3,731	3,731
Potential Revenue				
Adults	\$ 490,833	\$ 434,650	\$ 435,267	\$ 435,267
Seniors	94,661	83,825	83,944	83,944
Children 12 and under	52,589	46,570	46,636	46,636
Total	<u>\$ 638,083</u>	<u>\$ 565,044</u>	<u>\$ 565,847</u>	<u>\$ 565,847</u>
Less Cost of Sales	63,808	56,504	56,585	56,585
Net Revenue	<u>\$ 574,275</u>	<u>\$ 508,540</u>	<u>\$ 509,262</u>	<u>\$ 509,262</u>
Excursion Train Fares				
Adults	\$25.00	\$20.00	\$25.00	\$25.00
Seniors (90% of Adult)	\$22.50	\$18.00	\$22.50	\$22.50
Children 12 and under (50% Adult)	\$12.50	\$10.00	\$12.50	\$12.50
Annual Service Days	98	98	98	98
Round Trips per Day	2	4	3	3
Equipment				
Cars per Train	3	2	2	2
Average Occupancy per Car	53	44	47	47
Employees				
Excursion Manager FTE	\$ 50,000	\$ 50,000	\$ 50,000	\$ 50,000
Administrative Professional PTE	16,000	16,000	16,000	16,000
Reservation Clerk PTE	16,800	11,200	11,200	11,200
Train Host/Narrator/Marketer	25,000	25,000	25,000	25,000
Snack Bar Attendant (1 per train)	10,976	10,976	10,976	10,976
Car Attendant (1 per car)	32,928	21,952	21,952	21,952
Fringe	75,852	67,564	67,564	67,564
Total Labor Cost	<u>\$ 227,556</u>	<u>\$ 202,692</u>	<u>\$ 202,692</u>	<u>\$ 202,692</u>
Seasonal Railroad Operating Costs				
One Diesel Locomotive	\$ 112,700	\$ 112,700	\$ 112,700	\$ 112,700
Two Diesel Locomotives	\$ 142,100	\$ 142,100	\$ 142,100	\$ 142,100
Steam Locomotive	\$ 308,700	\$ 308,700	\$ 308,700	\$ 308,700
Passenger Car (each)	\$ 51,450	\$ 34,300	\$ 34,300	\$ 34,300
Seasonal Equipment Costs				
Steam Locomotive	\$ 35,000	\$ 35,000	\$ 35,000	\$ 35,000
Passenger Car (each)	\$ 21,000	\$ 14,000	\$ 14,000	\$ 14,000
General and Administrative Costs				
Utilities	\$ 18,000	\$ 18,000	\$ 18,000	\$ 18,000
Telephone/Internet	1,200	1,200	1,200	1,200
Office Supplies	1,200	1,200	1,200	1,200
Advertising and Promotion	63,808	56,504	56,585	56,585
Sales Tax	51,685	45,769	45,834	45,834
Dues & Subscriptions	600	600	600	600
Postage	8,650	9,510	7,738	7,738
Professional Services	6,000	6,000	6,000	6,000
Insurance	5,000	5,000	5,000	5,000
Total General and Admin.	<u>\$ 156,143</u>	<u>\$ 143,783</u>	<u>\$ 142,157</u>	<u>\$ 142,157</u>
Total Expenses				
One Diesel Locomotive	\$ 568,848.67	\$ 507,475.37	\$ 505,848.70	\$ 505,848.70
Two Diesel Locomotives	\$ 598,248.67	\$ 536,875.37	\$ 535,248.70	\$ 535,248.70
Steam Locomotive	\$ 799,848.67	\$ 738,475.37	\$ 736,848.70	\$ 736,848.70
Projected Seasonal Profit (Loss)				
One Diesel Locomotive	<u>\$ 5,425.94</u>	<u>\$ 1,064.66</u>	<u>\$ 3,413.69</u>	<u>\$ 3,413.69</u>
Two Diesel Locomotives	\$ (23,974.06)	\$ (28,335.34)	\$ (25,986.31)	\$ (25,986.31)
Steam Locomotive	\$ (225,574.06)	\$ (229,935.34)	\$ (227,586.31)	\$ (227,586.31)

Employees

The daily operating cost figures provided by the Arizona Eastern include the employees needed to ensure the operation of the train itself including the engineer, conductor, and maintenance personnel. These personnel are those that are needed to operate a typical freight train. In addition, the consultant suggests that the following excursion operation personnel, at a minimum, are needed for a successful excursion train program.

Excursion Manager Full-time position would be responsible for hiring, training, and managing all excursion employees, strategic coordination with AZER management, marketing and promotion, reservations and ticketing. Manager would assist with conception and development of the on-board experience as well as matters related to passenger security and safety. Salary \$50,000 annually.

Excursion Administrative Professional Part time position would be responsible for bookkeeping and other record keeping, payroll and bill-paying, the management of any agency agreements and settlements with agents. Position would assist manager as needed. Would earn \$16,000 per season based on an annual salary of \$32,000.

Reservations and Ticket Clerk(s) Reservation-taking responsibilities would include answering inbound calls from vendors and customers regarding train reservations and availability. Position would require excellent people skills, phone skills, some computer experience, and problem-solving ability. Ticket Counter responsibilities would include greeting customers at ticket counter, issuing tickets. Wages would be \$14.00 per hour.

Train Host/Narrator Responsibilities would include acting as Passenger Conductor, supervising passenger boarding, seating, and ticket collection. Position would coordinate with both AZER operating crew and excursion ground personnel to facilitate safe and efficient operation. May be required to provide narrative during trip and make announcements over train's public address system. Position would require in-depth knowledge of area and of railroad and area history, together with public speaking and people skills. Train Host may assist with marketing. Wages per season would equal \$25,000.

Car Attendant (1 per car) Responsibilities would include interacting with passengers during trip, boarding passengers, collecting tickets, sharing knowledge of railroad and history of area while maintaining a safe environment for passengers. Wages would be \$14.00 per hour.

Snack Bar Attendant (1 per train) Responsibilities would include interacting with passengers during trip, setting up snack bar on a daily basis, serving customers, keeping inventory and daily sales sheets. This position would also include sharing knowledge of railroad and history of area while providing positive customer service. Wages would be \$14.00 per hour.

Depending upon the talents and abilities of those who apply for these positions, a car attendant of a weekends-only operation could also function as a reservations clerk during the week, for example. The pro-formas also provide for fringe benefits equal to 50 percent of the salary or wages for each employee.

General and Administrative Costs

The majority of the General and Administrative Costs shown are estimates based on empirical knowledge. Until more details of the operation are known, some of these are difficult to predict. For example, can the excursion train operation be headquartered in the historic Globe passenger depot—which would be the ideal location? If so, will the excursion be charged rent for use of the facility? In addition to liability insurance already carried by Arizona Eastern, what additional insurance expense will be required to cover exposure at the Miami, Globe, Casino, and San Carlos stops? What about liability coverage on Tribal land at the Casino and San Carlos?

Some of the administrative costs are shown as variable depending upon ridership levels. The following methodologies were used to estimate variable costs.

Advertising and Promotion is the same number as, and in addition to, Cost of Sales. The Cost of Sales figure assumes that an average commission of 10 percent will be charged on each ticket sold including travel agency commissions and credit card fees. As the operation's own clerks will sell some tickets for cash, adding Cost of Sales results in a more conservative revenue estimate. Advertising and Promotion increases with ridership because increased advertising is likely to attract more riders. This figure could also include additional commissions paid to ticket wholesalers, literature distribution services, and the cost of developing and printing the literature itself.

Sales Tax amount of 8.1 percent is applied to the projected gross revenue for each scenario. If viewed as a service, the operation may be exempt from some or all of the sales tax, with the exception of food, beverage, and gift shop revenue.

Postage is estimated as a base amount of \$100 per operating month plus the cost of mailing a first class letter (containing literature, pre-paid tickets, etc.) to each adult passenger.

Snack Bar Revenue and Food Product were not included in the pro-formas. The consultant assumes that modest net revenue might be made from selling food and beverages on trains, depending upon the exact schedule, equipment configuration and operating scenario chosen. However the revenue is unlikely to support the wages and fringe of the snack bar attendant. Food and beverage service can add to the passengers' experience and is intended to be an attractive feature of the operation rather than a profit center.

The ticket prices of the dinner train options were increased to reflect the cost of the dinners. The consultant assumes that the “dinner” segment of a dinner train operation would cover its costs, as the amount included in the price could be adjusted to reflect whatever menu were chosen.

Depot Gift Shop was not included in the pro-formas. Such a shop can become a profit center for the excursion operation, as well as part of the operation’s marketing program. Excursion rail passengers will pay retail equivalent or higher prices for caps, T-shirts, sweatshirts, and other apparel that provide them with souvenirs of their trip and also serve a marketing function when worn publicly. If the operation is headquartered in the Globe passenger depot, space might be available for a gift shop. Alternatively, the adjacent building used as the ticket office during the 2006 “Spike” demonstration trips could provide this function. A railroad-themed gift shop could be developed that could include the following:

- Model railroad items targeting serious hobbyists
- Toy train items such as “Thomas the Tank Engine” items for younger children
- Railroad calendars, photographs, and DVDs
- Books about railroads, Arizona, Native Americans, Globe, Gila County, and other local and regional topics
- Antique and replica railroad collectables
- Railroad-themed clothing apparel

As the purpose of the pro-formas is to evaluate the potential for various operating scenarios, the gift shop concepts were omitted for simplicity’s sake. However well-run gift shops are an effective component of most successful excursion train operations.

CONCLUSION

The shortest trip—the Globe-Casino schedule that is the most equivalent to the “Spike” demonstration trips—is the best financial performer using the revised fare structure. While the option of extending the operation to either Miami on the West or San Carlos or beyond on the East in the future should not be ruled out, the Casino and Downtown Globe are the most sensible termini in the short term. Moreover, the Globe-Casino route can be implemented with minimal capital cost. Track improvement would be required for extension to either Miami or San Carlos, and a wye or turntable would be needed at each end in order to operate a steam locomotive.

Both Miami and San Carlos have significant tourist potential, given the potential of Miami’s downtown and international appeal of Tribal destinations such as San Carlos. However, downtown Globe and the Casino are established attractions. The picturesque Globe passenger depot is an ideal terminal for an excursion train, although adequate parking may ultimately be an issue. In addition, locating the rail terminal at this location will draw additional tourists into downtown Globe, which will benefit other merchants in the area.

Neither of the dinner train options seems to make sense financially. The “dinner on board” option sounds appealing, but would need to charge a significantly higher fare in order to be profitable. This option would also be the most logistically complex to operate and would require the most up-front investment in time and money for personnel training, food and beverage licensing, and specialized equipment. The “dinner at the Casino” option could be offered anyway as an optional package. Having the equipment layover at the Casino—blocking the main line unless a siding were constructed for that purpose—is both wasteful and unworkable on a regular basis. While the full compliment of excursion personnel is on duty and on the payroll, the equipment should be kept moving.

Table 13-A shows the inaugural schedule and Table 13-B shows a recommended eight-trips-per-day schedule. While operating eight trips per day might appear excessive, it might eventually make sense logistically. At the slow speeds at which the train will be operating, with the relatively light load of two or three passenger cars, the amount of fuel consumed by the locomotive is much more closely related to the number of hours daily that the locomotive operates, as opposed to the total mileage operated. Diesel locomotives are typically left to idle for short periods between runs, so the difference in the amount of fuel consumed between a four-round-trip day and an eight-round-trip day could be nominal.

ADOT is planning extensive roadway work on US 60 west of Globe, which may delay excursion passengers driving up from the Phoenix area. More frequent schedules will mitigate the disappointment of any passengers who miss the schedule they had planned to ride.

Table 14 presents a pro-forma for the recommended operating scenario. Both four-trips-per-day and eight-trips-per-day options are shown although, as explained above, the difference in cost between the two is expected to be of little consequence.

The ridership projections for the two options have been adjusted to be consistent with the annual ridership projection of 50,000. This pro-forma is intended to be a “mature snapshot” of the established operation. Initial ridership is likely to be lower until the marketing efforts have had time to take effect. The railroad has indicated that much of the telephone reservations and ticketing will be handled by the existing Rio Grande Scenic Railroad operation, which will save significant clerical and administrative costs. Utilizing the Globe Main Street volunteer corps can to assist with ticketing, passenger loading, gift shop operation and so forth can further reduce labor costs.

TABLE 13-A. FOUR TRIPS DAILY—INAUGURAL SCHEDULE

Eastward				Westward							
				Stations							
9:30 AM	11:30 PM	1:30 PM	3:30 PM	Lv.	Globe	Ar.	10:50 AM	12:50 PM	2:50 PM	4:50 PM	
10:10 AM	12:10 PM	2:10 PM	4:10 PM	Ar.	Apache Gold Casino	Lv.	10:20 AM	12:20 PM	2:20 PM	4:20 PM	

Source: Arizona Eastern Railway, www.copperspike.com

TABLE 13-B. EIGHT TRIPS DAILY SCHEDULE

Eastward									
Lv.	Globe	10:00 AM	11:00 AM	12:00 PM	1:00 PM	2:00 PM	3:00 PM	4:00 PM	5:00 PM
Ar.	Apache Gold Casino	10:25 AM	11:25 AM	12:25 PM	1:25 PM	2:25 PM	3:25 PM	4:25 PM	5:25 PM

Westward									
Lv.	Apache Gold Casino	10:30 AM	11:30 AM	12:30 PM	1:30 PM	2:30 PM	3:30 PM	4:30 PM	5:30 PM
Ar.	Globe	10:55 AM	11:55 AM	12:55 PM	1:55 PM	2:55 PM	3:55 PM	4:55 PM	5:55 PM

TABLE 14. RECOMMENDED OPERATING SCENARIO PRO-FORMA

System Parameters	Globe-Casino	Globe-Casino
	Excursion 4 Trips Per Day	Excursion 8 Trips Per Day
Potential Ridership	47,628	49,392
Adults (70%)	33,340	34,574
Seniors (15%)	7,144	7,409
Children 12 and under (15%)	7,144	7,409
Potential Revenue		
Adults	\$ 666,792	\$ 691,488
Seniors	128,596	133,358
Children 12 and under	71,442	74,088
Total	<u>\$ 866,830</u>	<u>\$ 898,934</u>
Less Cost of Sales	<u>86,683</u>	<u>89,893</u>
Net Revenue	<u>\$ 780,147</u>	<u>\$ 809,041</u>
Employees		
Excursion Manager FTE	\$ 50,000	\$ 50,000
Administrative Professional PTE	16,000	16,000
Reservation Clerks PTE	16,800	16,800
Train Host/Narrator/Marketer	25,000	25,000
Snack Bar Attendant (1 per train)	10,976	10,976
Car Attendant (1 per car)	32,928	21,952
Fringe	75,852	70,364
Total Labor Cost	<u>\$ 227,556</u>	<u>\$ 211,092</u>
Seasonal Railroad Operating Costs		
One Diesel Locomotive	\$ 112,700	\$ 112,700
Two Diesel Locomotives	\$ 142,100	\$ 142,100
Steam Locomotive	\$ 308,700	\$ 308,700
Passenger Car (each)	\$ 51,450	\$ 34,300
Seasonal Equipment Costs		
Steam Locomotive	\$ 35,000	\$ 35,000
Passenger Car (each)	\$ 21,000	\$ 14,000
General and Administrative Costs		
Utilities	\$ 18,000	\$ 18,000
Telephone/Internet	1,200	1,200
Office Supplies	1,200	1,200
Advertising and Promotion	86,683	89,893
Sales Tax	70,213	72,814
Dues & Subscriptions	600	600
Postage	14,269	14,776
Professional Services	6,000	6,000
Insurance	5,000	5,000
Total General and Admin.	<u>\$ 203,165</u>	<u>\$ 209,483</u>
Total Expenses		
One Diesel Locomotive	<u>\$ 615,871.39</u>	<u>\$ 581,574.63</u>
Two Diesel Locomotives	<u>\$ 645,271.39</u>	<u>\$ 610,974.63</u>
Steam Locomotive	<u>\$ 846,871.39</u>	<u>\$ 812,574.63</u>
Projected Seasonal Profit (Loss)		
One Diesel Locomotive	<u>\$ 164,275.25</u>	<u>\$ 227,466.33</u>
Two Diesel Locomotives	<u>\$ 134,875.25</u>	<u>\$ 198,066.33</u>
Steam Locomotive	<u>\$ (66,724.75)</u>	<u>\$ (3,533.67)</u>

Service Inaugural

The consultant attended the service inaugural on December 13, 2008, a proud moment for the many stakeholders who worked to make the concept a reality. After a ribbon-cutting ceremony, those present boarded the Copper Spike for a round trip to the Apache Gold Casino and return.

En route, passengers enjoyed the scenic views of the Pinal Mountains and the surrounding desert from the dome car and were entertained by a Native American flutist who had also performed for the ribbon-cutting ceremony.

The Arizona Eastern officials present indicated that the railway intends to introduce a steam locomotive to the route as soon as possible. The locomotive planned to be used is a Heisler, a type of logging locomotive that can operate in either direction and does not need to be turned on a wye. Moreover, railroad officials are optimistic that the operating costs of operating the steam locomotive are lower than projected because, unlike a diesel, a steam locomotive can consume reclaimed motor oil and other types of fuel that are less expensive per gallon than diesel.

Information regarding schedules, fares, and themed events such as Valentines Day trips can be obtained from the operation's Web site at www.copperspike.com.



APPENDIX A. ESTIMATING TRANSIT DEMAND

ESTIMATING TRANSIT DEMAND

The TCRP estimations were developed based on specific population groups within the hypothetical service area presented in Figure 5. 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 A-1 shows the total 2030 forecasted populations for each group in the hypothetical service area.

TABLE A-1. 2030 POPULATION OF SERVICE GROUPS IN SERVICE AREA

Service Group	2030 AG* Population
Persons aged 65 or over	5,432
Persons aged 16 to 64 with mobility limitations	3,526
Persons aged 64 or under, residing in households with incomes below the poverty level	4,697

Source: Lima & Associates, Inc.

*Gila County Small Area Transportation Study Accelerated Growth Scenario

The TCRP workbook also requires estimations of vehicle miles per year, and subsequently vehicle miles per square mile. These estimations are used to understand the level, or amount of transit that will be available to a defined service area. Preliminary assumptions for the number of trips per day, service days per year, and length of the transit routes were also made. It was assumed that service would be provided twice daily between Miami, Globe, the Casino, and San Carlos. These trips would result in 112 vehicle miles per day. Assuming that service was provided six days per week, or 312 service days per year, the annual vehicle miles for the hypothetical system would be 34,944. Table A-2 shows the process used for calculating the vehicle miles per square mile.

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

Calculations	Data
Estimated vehicle miles per day =	112
Estimated service days per year =	X 312
Estimated vehicle miles per year =	34,944
Size of service area (square miles) =	524
vehicle miles / service area =	34,944 / 512
Vehicle miles per square mile =	67

Source: Lima & Associates, Inc.

The calculations from Table A-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 A-3 shows the calculation of the service factors needed for calculating the estimate of transit demand.

TABLE A-3. 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	67	2.682	376	1,000,000	0.000555694
Mobility Limited	67	1.57	1010	1,000,000	0.00111519
Below Poverty	67	2.45	525	1,000,000	0.00068915

Source: Lima & Associates, Inc.

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 A-4 shows the formula provided in the TCRP workbook, which includes a standard factor, population of each group, and the service factor. Table A-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 Miami-Globe-San Carlos route of 12,165 trips, an average of about 39 trips per day (assuming 312 days of service).

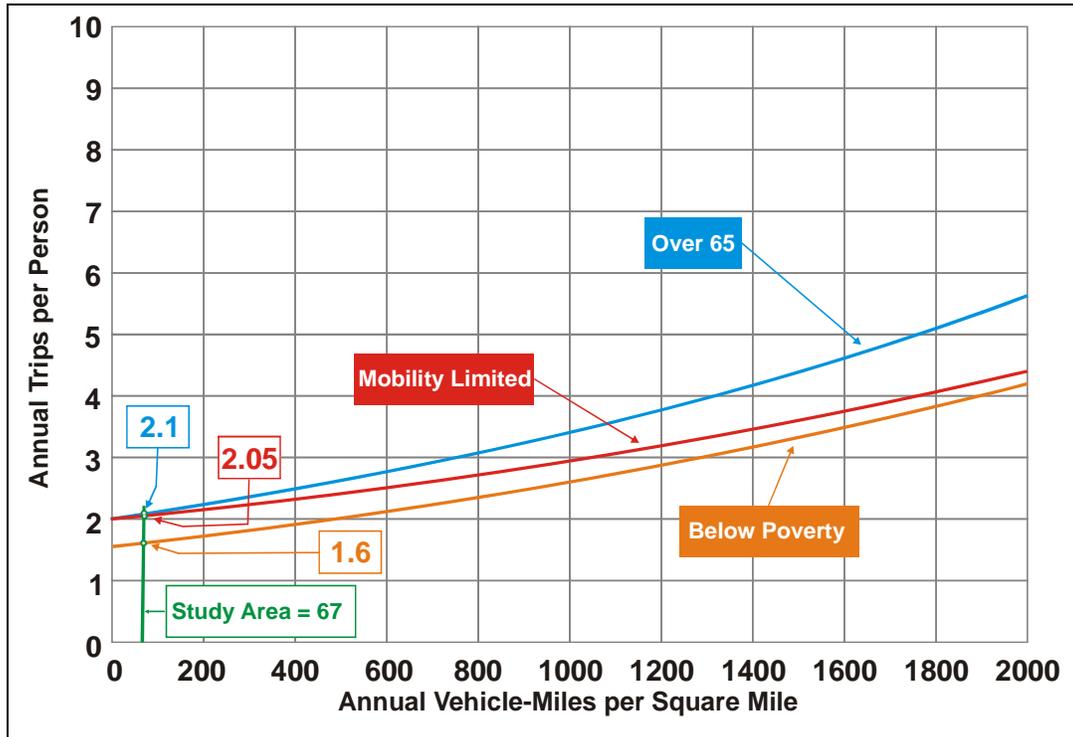
TABLE A-4. ESTIMATION OF TRANSIT DEMAND

Population Group	TCRP factor	x	Population	x	Service Factor	=	Estimated Annual Demand
Over 65	1,200	x	17,790	x	0.000555694	=	3,562
Mobility Limited	1,200	x	11,740	x	0.00111519	=	4,718
Below Poverty	1,200	x	15,641	x	0.00068915	=	3,884
Total Estimated Annual Transit Demand =							12,165

Source: Lima & Associates, Inc.

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 A-2) against annual trips per person as shown in Figure A-1.

FIGURE A-1. TRIP RATES FOR ALTERNATIVE ESTIMATION PROCEDURE



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

The estimated trip rates for the hypothetical Miami-Globe-San Carlos service based on 68 vehicle miles per square mile for each population group are overlaid on the chart taken from the TCRP workbook, and shown above in Figure A-1.

The estimated trip rates taken from Figure A-1 are used to estimate the demand for each population group as shown in Table A-5. The total estimated demand, using this alternative method, is 25,962 annual trips, or 83 trips per day (assuming 312 service days).

TABLE A-5. ESTIMATION OF TRANSIT DEMAND - ALTERNATIVE METHOD

Population Group	Population in Service Area	Trip Rate (from Figure A-1)	Estimated Demand (Pop. x Trip Rate)
Over 65	5,342	2.1	11,219
Mobility Limited	3,526	2.05	7,227
Below Poverty	4,697	1.6	7,515
Total Estimated Trip Demand =			25,962

Source: Lima & Associates, Inc.

REFERENCES

- Abilene & Smoky Valley Railroad, www.asvrr.org.
- Arizona Eastern Railway, Interview with CEO Ed Ellis, February 18, 2008.
- Arizona Office of Tourism and Arizona Intra-State Tourism Committee, *In-State Travel Patterns of Arizona Residents*, Young, Warrick, Cunningham & Co., with Market Verdicts, Inc., and Taylor Advertising and Public Relations, ca. 1976.
- Arizona Office of Tourism, *1998 Summary Report*, D. K. Shifflet & Associates Ltd., McLean Virginia.
- Arizona Office of Tourism, *The Arizona Tourism and Travel Industry – 1979-1980*, Arizona State University Bureau of Business and Economic Research, December 1980.
- Austin Steam Train Association, www.austinsteamtrain.org
- Copper King Express, www.copperkingexpress.com.
- Fillmore and Western Railway, www.fwry.com.
- Florence Industrial Development Authority, *Florence-Gila River Scenic Railway: A Feasibility Study*, Southwestern Field Studies, January 1998.
- Gila County Public Works Department, *Gila County Small Area Transportation Study*, Lima & Associates with Tetra Tech, Inc., and Partners for Strategic Action, October 2006.
- Grand Canyon Railway, www.thetrain.com.
- Grapevine *Vintage* Railroad, www.gvrr.com.
- Great Scenic Railway Journeys: The Guide to North America's Tourist Railways and Museums*, Wide Eye Publications, Winston Salem, North Carolina, 2008
- Mount Hood Railroad, www.mthoodrr.com.
- Nevada Southern Railway, www.nevadasouthern.com.
- Rio Grande Scenic Railroad, www.riograndescenicrailroad.com.
- Santa Fe Southern Railway, www.sfsr.com.
- Transit Cooperative Research Program (TCRP) *Report 3, Workbook for Estimating Demand for Rural Passenger Transportation*.
- Verde Canyon Railroad, www.verdecanyonrr.com
- Yreka Western Railroad, www.yrekawesternrr.com.