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SHORT-RANGE TRANSIT PLAN
FOR THE PHOENIX URBANIZED AREA

Fiscal Years 1982-1986

This report was prepared by the Maricopa Association of Governments in cooperation with, and financed in part by, the U.S. Department of Transportation Urban Mass Transportation Administration.

Grant No. AZ-09-8005

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MARICOPA ASSOCIATION OF GOVERNMENTS:

ARIZONA DEPARTMENT OF TRANSPORTATION
MARICOPA COUNTY
CITY OF AVONDALE
TOWN OF BUCKEYE
CITY OF CHANDLER
TOWN OF EL MIRAGE
TOWN OF GILA BEND
TOWN OF GILBERT
TOWN OF GUADALUPE
CITY OF GLENDALE
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TOWN OF PARADISE VALLEY
CITY OF PEORIA
CITY OF PHOENIX
CITY OF SCOTTSDALE
TOWN OF SURPRISE
CITY OF TEMPE
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MAG COMMITTEE ON TRANSIT:

BEVERLEY MILLER, ADMINISTRATIVE ASSISTANT, CITY OF GLENDALE
ARNOLD HARRING, TRANSPORTATION SUPERVISOR, CITY OF MESA
CHESTER COLBY, PUBLIC TRANSIT ADMINISTRATOR, CITY OF PHOENIX
DON LARSON, TRANSIT MANAGER, CITY OF SCOTTSDALE
JAMES CASEY, ASSISTANT TO THE CITY MANAGER, CITY OF TEMPE
BILL ARNETT, OWNER/GENERAL MANAGER, YELLOW AND CHECKER CAB COMPANIES

MAG TRANSIT STAFF: BARBARA GROBART
MARILYN KING
IRWIN MALAMUD

UNDER THE SUPERVISION OF KATHRYN HEFFERNAN,
PUBLIC TRANSIT ADMINISTRATION

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CHAPTER 1

INTRODUCTION

This document represents the FY 1980/81 update of the Short-Range Transit Plan for the Phoenix, Arizona urbanized area. It describes a five-year plan to guide improvements of the public transportation system. The planning aspects of this report will be incorporated as the transit component of the transportation systems management (TSM) element into the regional transportation plan. The priorities and implementation staging aspects of this transit plan also appear in the regional Transportation Improvement Program (TIP).

This document was prepared by the transit planning staff of the Maricopa Association of Governments (MAG) and the City of Phoenix Public Transit Administration with significant input from the cities of Glendale, Mesa, Scottsdale and Tempe as well as Maricopa County. The entire document was reviewed and approved by the MAG Regional Council, representing all of the member agencies.

The balance of the report contains the following chapters:

Chapter 2: Study Area. This chapter includes a description of the study area in terms of its land use and socioeconomic characteristics such as population, income distribution, and employment. In addition to helping to define the overall nature of the urbanized area, these factors are prime determinants of travel volumes and patterns.

Chapter 3: Existing Transit Services. The various components of the area's transit system are presented in terms of their physical and operating characteristics. Both fixed-route and paratransit services are reviewed.

Chapter 4: Status of Transportation Improvement Program (TIP) Projects. This chapter reports on the implementation schedule for transit projects identified in previous years and serves as the link between this Short-Range Transit Plan and the region's TIP.

Chapter 5: Evaluation of the Existing Transit System. An analysis of existing conditions is the subject of this chapter. Local goals and objectives are discussed first. The performance of the transit system is evaluated and areas for future improvement are identified. A discussion of financial constraints completes the chapter.

Chapter 6: Five-Year Transit Plan. This chapter presents the list of projects to be implemented over the next five years. These projects include improvements in the areas of service, operations, marketing, and capital facilities and equipment.

CHAPTER 2

STUDY AREA

The land-use patterns and socioeconomic characteristics of the study area are important considerations in the provision of public transportation services.

2.1 LAND USE

The study area of this report corresponds to the Maricopa Association of Governments' (MAG) Urban Planning Area. This study area encompasses approximately 1,575 square miles of Maricopa County, as shown in Figure 1. This area includes the 1,200 square-mile MAG Primary Planning Area which is more urbanized in nature.

The 1980 Census shows that, since 1970, Maricopa County has grown from 971,228 persons to 1,508,030 persons -- a gain of 55.3 percent. Over 55 percent of the total population of the state now resides in this county. Table 1 shows the relative size of cities, towns, and other places in the MAG region.

The overall population density of the study area is approximately 1,257 persons per square mile, but the population is distributed unevenly throughout the area. Large parcels of agricultural or vacant land with virtually no population are interspersed with residential, commercial and industrial uses. A large amount of land is also held as mountain preserve.

2.1.1 DEVELOPMENT PATTERNS IN THE MAG REGION

The Guide for Regional Development and Transportation is a policy plan adopted by MAG that is meant to be a framework for coordinating the physical planning activities of the region. It is the basis of MAG's regional planning activities and also provides guidance for the use of state and federal programs in the region.

The Regional Development Guide designates certain nodes within the MAG Urban Planning Area. Nodes are defined as regional activity centers. They are districts containing concentrations of regionally-significant urban activities and facilities which serve major sub-areas and populations. Nodes are multipurpose zones with an intensive mix of urban development including governmental, retail, service, and entertainment facilities as well as higher density housing and employment. Other areas are designated as activity centers because they carry a strong identity within an outlying community as a focal point for local activities, services and facilities.

The Regional Development Guide also designates major employment areas. These are locations within the urban area which contain, or are projected to contain, high levels of employment. These include areas of concentrated industrial, governmental and financial employment activity. The potential and scale of the development within these areas will be dependent upon local land use and market conditions. Some major employment areas are centered around downtown Phoenix, west Phoenix between Buckeye and McDowell Roads, the Grand Avenue corridor, the Tempe industrial park, Chandler, the South Mountain area near Interstate 10, and the industrial parks of north Phoenix located near the Black Canyon Freeway (Interstate 17).

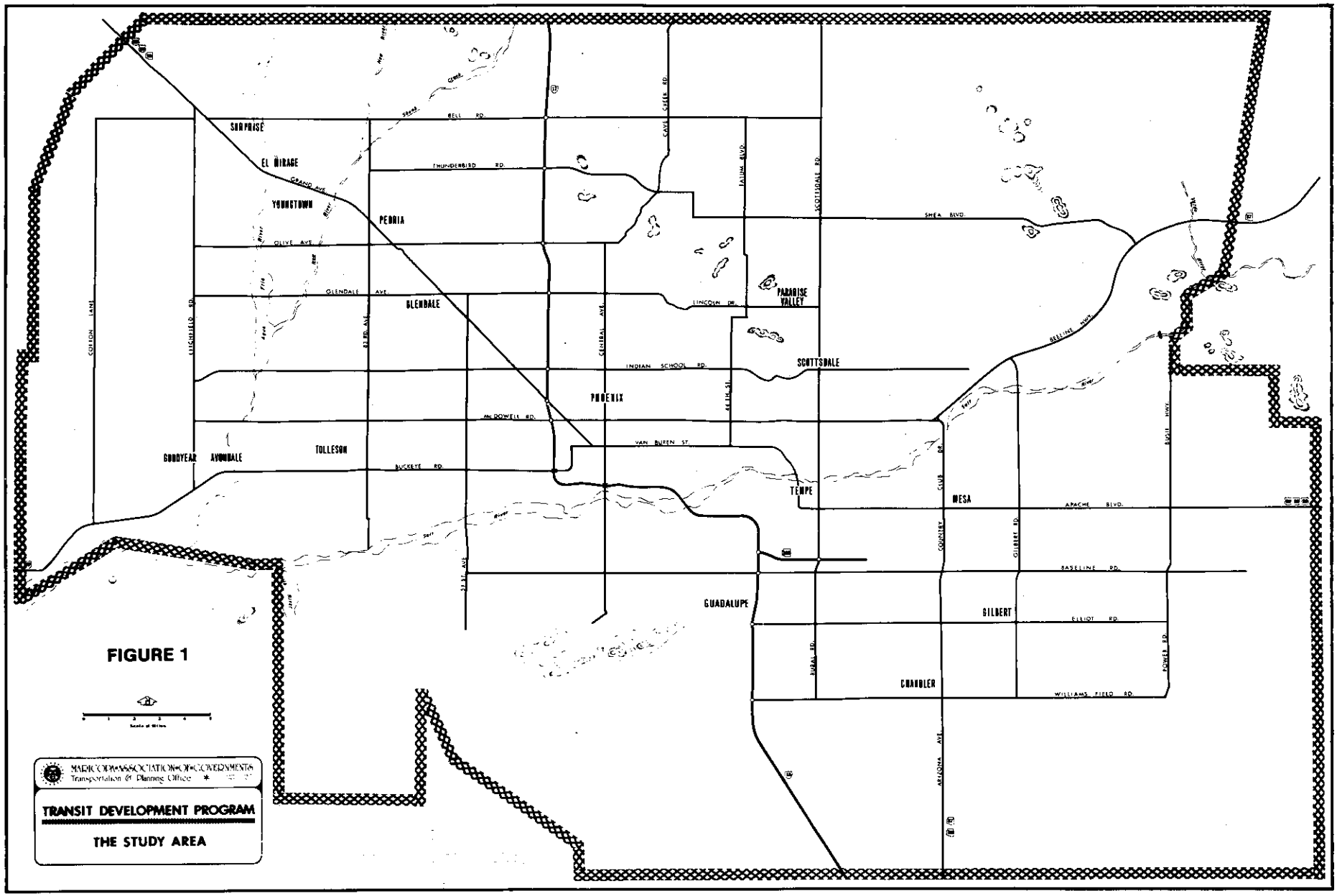


TABLE 1

1980 CENSUS POPULATIONS

Phoenix	789,704
Mesa	152,453
Tempe	106,743
Glendale	96,988
Scottsdale	88,364
Sun City	40,664
Chandler	29,673
Peoria	12,251
Paradise Valley	10,832
Avondale	8,134
Gilbert	5,717
Luke AFB	4,515
Guadalupe	4,506
Tolleson	4,433
Ahwatukee	4,382
El Mirage	4,307
Sun City West	3,741
Surprise	3,723
Litchfield Park	3,657
Wickenburg	3,535
Williams AFB	3,435
Buckeye	3,434
Cashion	3,014
Fountain Hills	2,771
Goodyear	2,747
Youngtown	2,254
Sun Lakes	1,944
Gila Bend	1,585
Carefree	986
Remainder of Maricopa County	107,538
TOTAL FOR MARICOPA COUNTY	1,508,030

Development in the Phoenix urban area does not exhibit the distinctive radial pattern of other metropolitan areas such as New York or Chicago. This is due partly to the lack of freeways, which in those other cities provide well-defined travel corridors. The other significant difference is that Phoenix is not surrounded by "bedroom" communities (with the exception of Paradise Valley). The other cities in the Valley, while maintaining strong economic ties to Phoenix in most cases, have their own employment bases and can provide services, shopping, recreational and cultural facilities for their residents. The location of regional activity centers, employment concentrations, and other land uses are indicated in Figure 2.

2.1.2 DEVELOPMENT PLANS FOR THE CITY OF PHOENIX

The City of Phoenix is the largest municipality in the Valley and has a gross population density of approximately 2,430 persons per square mile. In a few intensely-developed parts of the City, the gross population density is 9,000 to 10,000 persons per square mile.

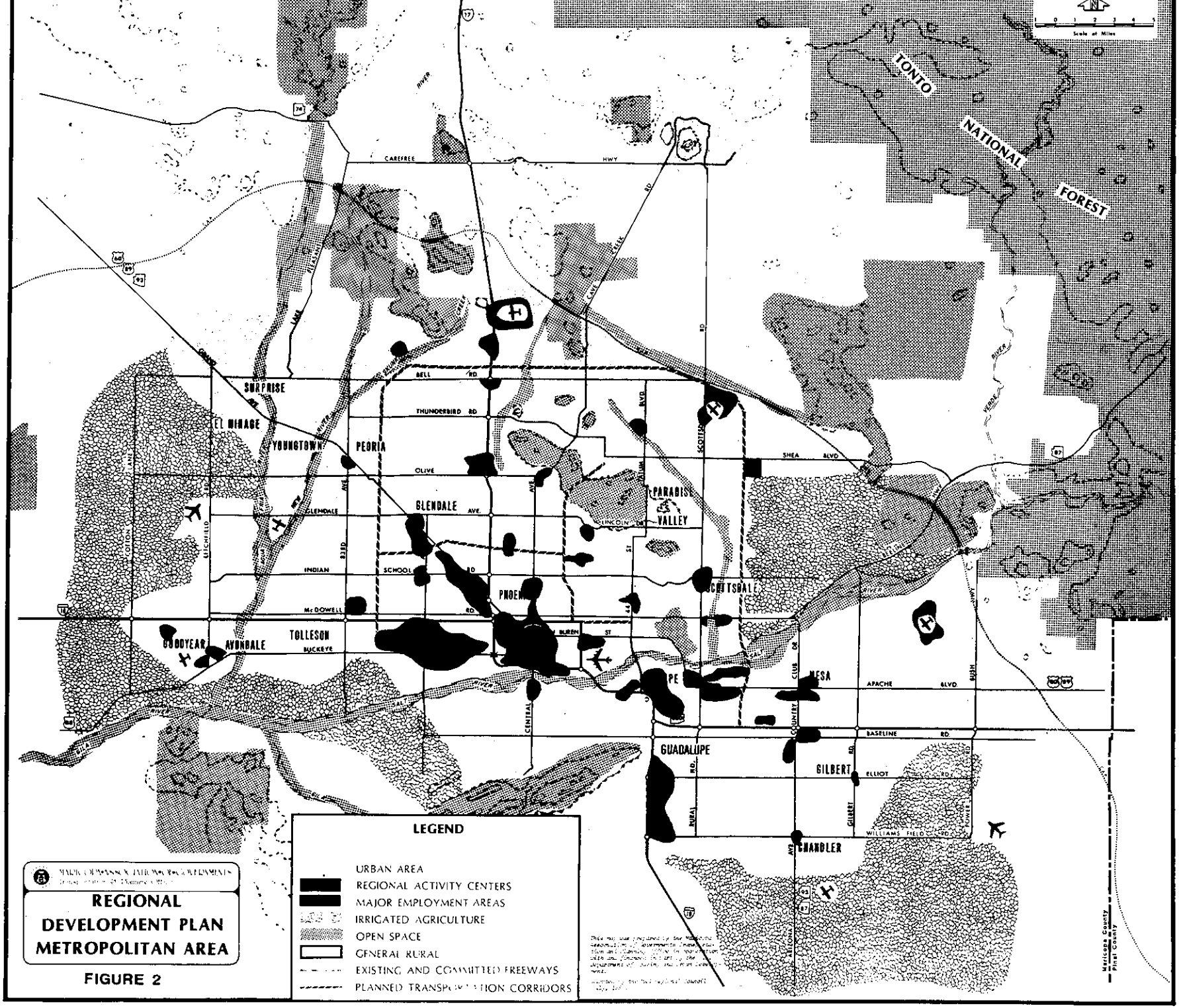
On July 31, 1979, the City Council adopted the Phoenix Concept Plan 2000. This Plan is a conceptual guide for future land use in Phoenix. Because land use and transit are so closely related, it is important to understand the nature of the development plan for Phoenix which the City Council has endorsed.

The Phoenix Concept Plan 2000 defines the conceptual intent for future land use in the city. The unifying element of the 2000 Plan is the concept of urban villages. An urban village will contain a mix of housing types, a variety of jobs, and shopping, recreation and education facilities. This village configuration should help satisfy individuals' psychological needs to belong to an identifiable community with a sense of control over their environment.

Each urban village will have a clearly identifiable center (core), gradient, and boundary (periphery). The core will contain the most intense land uses and will be the aesthetic and functional focal point of the village. Employment, commercial, cultural, and high-density residential uses should be concentrated there. Whenever possible, the environment should be designed to encourage pedestrian traffic. From the core to the periphery, land use intensity will decline; this area is known as the gradient.

Low-density residential neighborhoods, agricultural lands, and open space are examples of the types of land uses which should be found in the periphery. If more intense uses occur, the average intensity of land uses in the periphery should be less than the average intensity of the core.

The character of each urban village will be unique. Some might be rural or suburban while others will be highly urban in nature. Although urban villages will provide for most of their residents' needs, they will also be a part of the larger metropolitan Phoenix fabric. Certain regional activities such as the Phoenix Civic Plaza or Arizona State University will not be duplicated.



The City of Phoenix Planning Area encompasses an area of about 430 square miles. This area includes all lands which the City Council has determined to be appropriate for annexation through the year 2000. This 430 square-mile area has been divided into nine urban villages; two proposed villages (A and B) are specific subareas of Urban Village 9 in south Phoenix. The Phoenix Concept Plan 2000 is shown in Figure 3.

Together with Concept Plan 2000, the City is also attempting to implement the Downtown Redevelopment Plan which seeks to make downtown Phoenix a more dynamic activity center. As the designated core of Urban Village 8, the downtown Phoenix area is likely to be one of the strongest and most attractive of the village cores.

The Downtown Redevelopment Plan is an essential part of a comprehensive program of reconstruction and revitalization. It provides a broad framework for upgrading the downtown area through the establishment of:

- -- Project boundaries.
- -- Basic development and improvement objectives.
- -- A general land-use plan.
- -- A range of actions which may be taken to implement the plan.
- -- A procedure and program for plan implementation.

The preparation of the Downtown Redevelopment Plan is a first and important step in the improvement and revitalization process. The plan provides the basis for initiation and coordination of a variety of public and private actions which should lead to substantial improvement and produce an attractive, vital area which will be of major benefit to Phoenix and to the region.

2.2 SOCIOECONOMIC CHARACTERISTICS

Detailed information from the 1980 Census data will not be available until the end of 1981 or early 1982. Therefore, unless otherwise indicated, the statistics cited in this section are based on the 1975 Special Census, which are the latest available data. However, it should be cautioned that the 1980 Census data may well show significant changes from the 1975 patterns.

Employment. Of the total employment of 440,200 persons in Maricopa County, 53 percent (or 233,500) are employed within the transit service area. As Figure 4 illustrates, employment is concentrated in a band across central Phoenix and east into Scottsdale. The largest sectors of employment are retail/wholesale trade (25.6%), service (18.9%), government (18.2%), and manufacturing (16.2%).

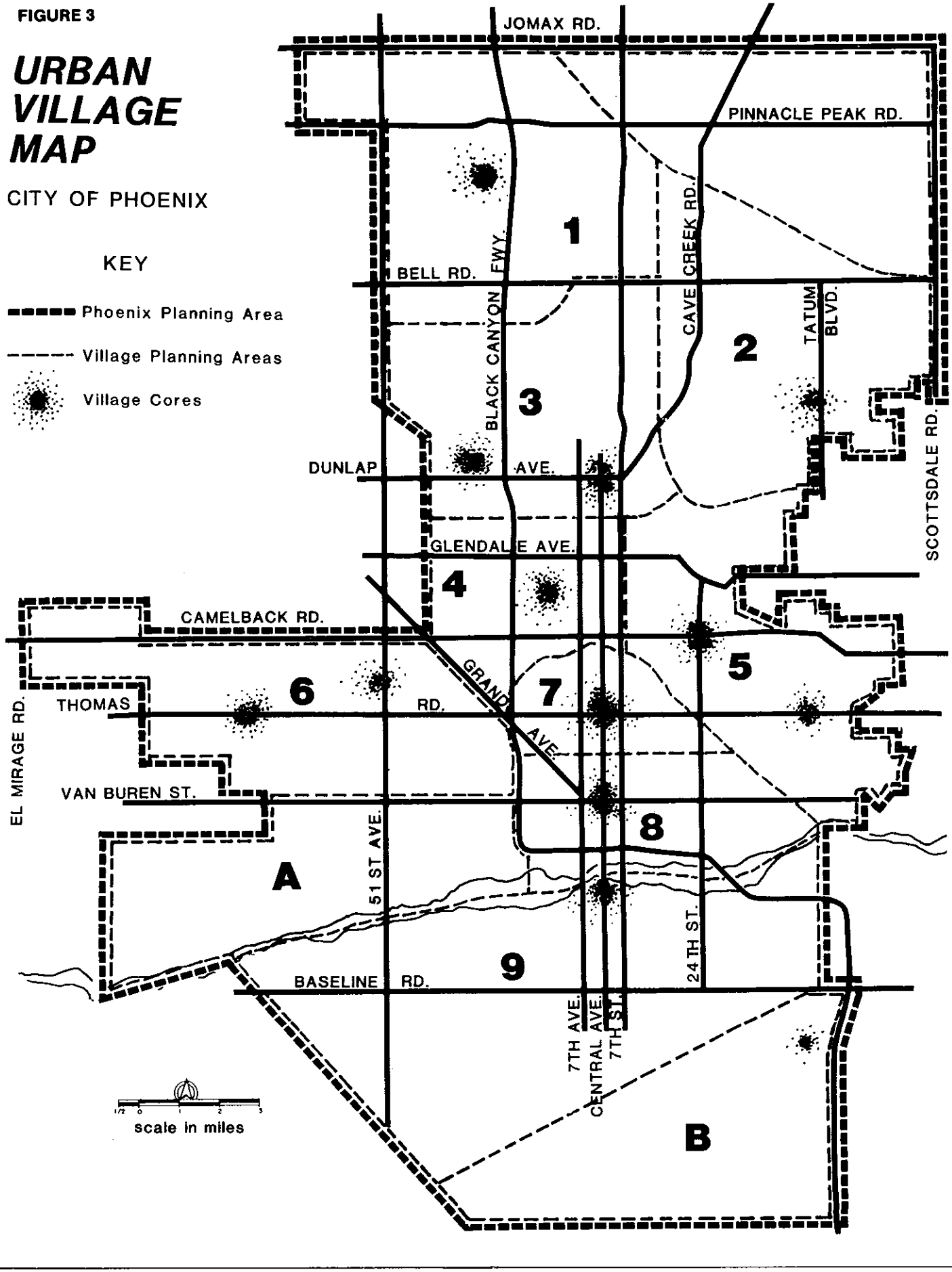
Elderly Population. Elderly residents of Phoenix live primarily within an "L"-shaped corridor. This area occupies the central corridor and the east central area of the City, as indicated in Figure 5. The residences in this area are older single-family and multi-family units. The elderly residing in this area are generally relatively long-time residents.

The area's highest concentration of persons 65 years of age and older is found in the Sun City/Youngtown area. Concentrations of elderly are also found in the east Mesa area near Gilbert Road and Apache Boulevard. These concentrations of elderly live primarily in new retirement communities comprised of single-family dwelling units and mobile homes.

FIGURE 3

URBAN VILLAGE MAP

CITY OF PHOENIX



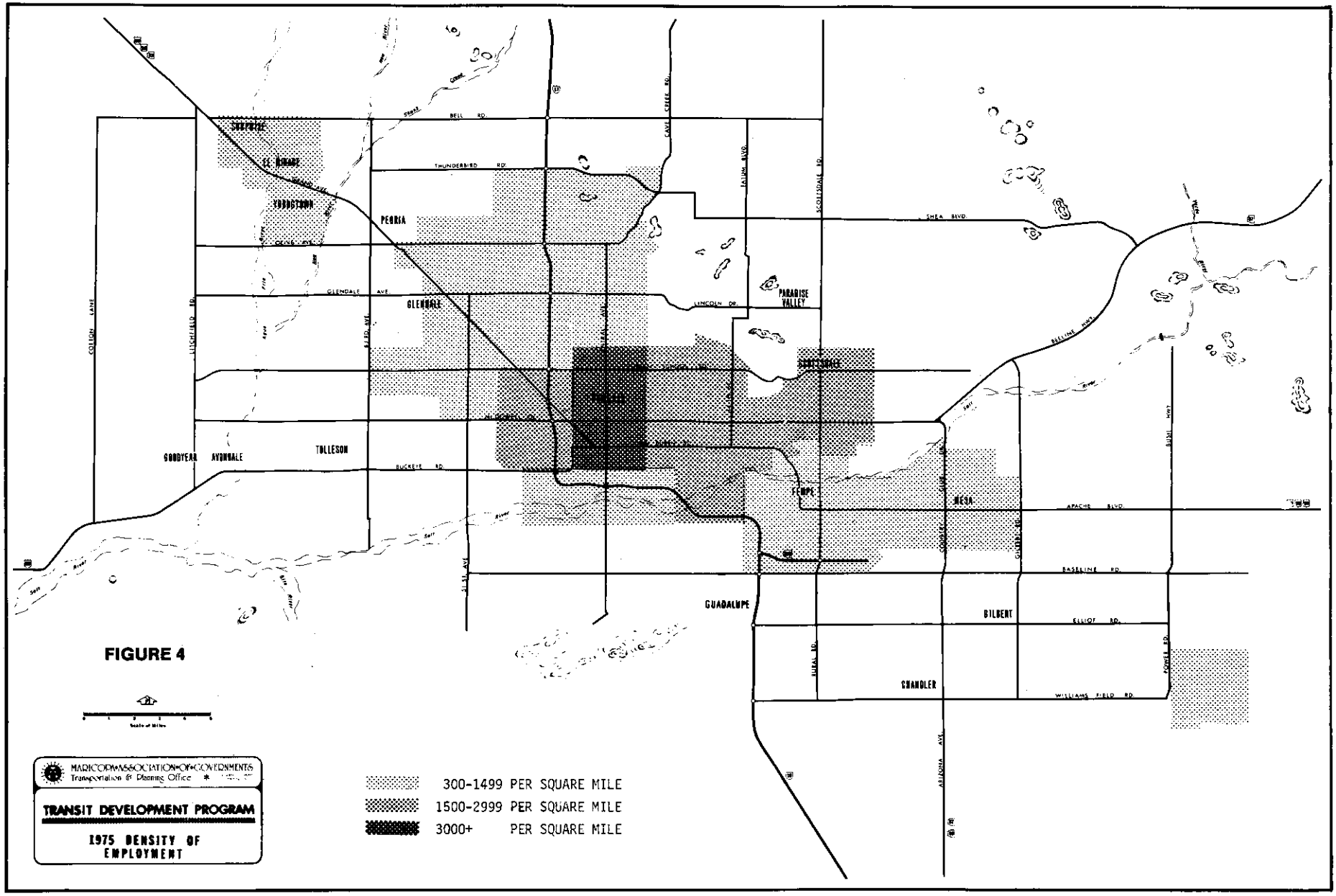


FIGURE 4

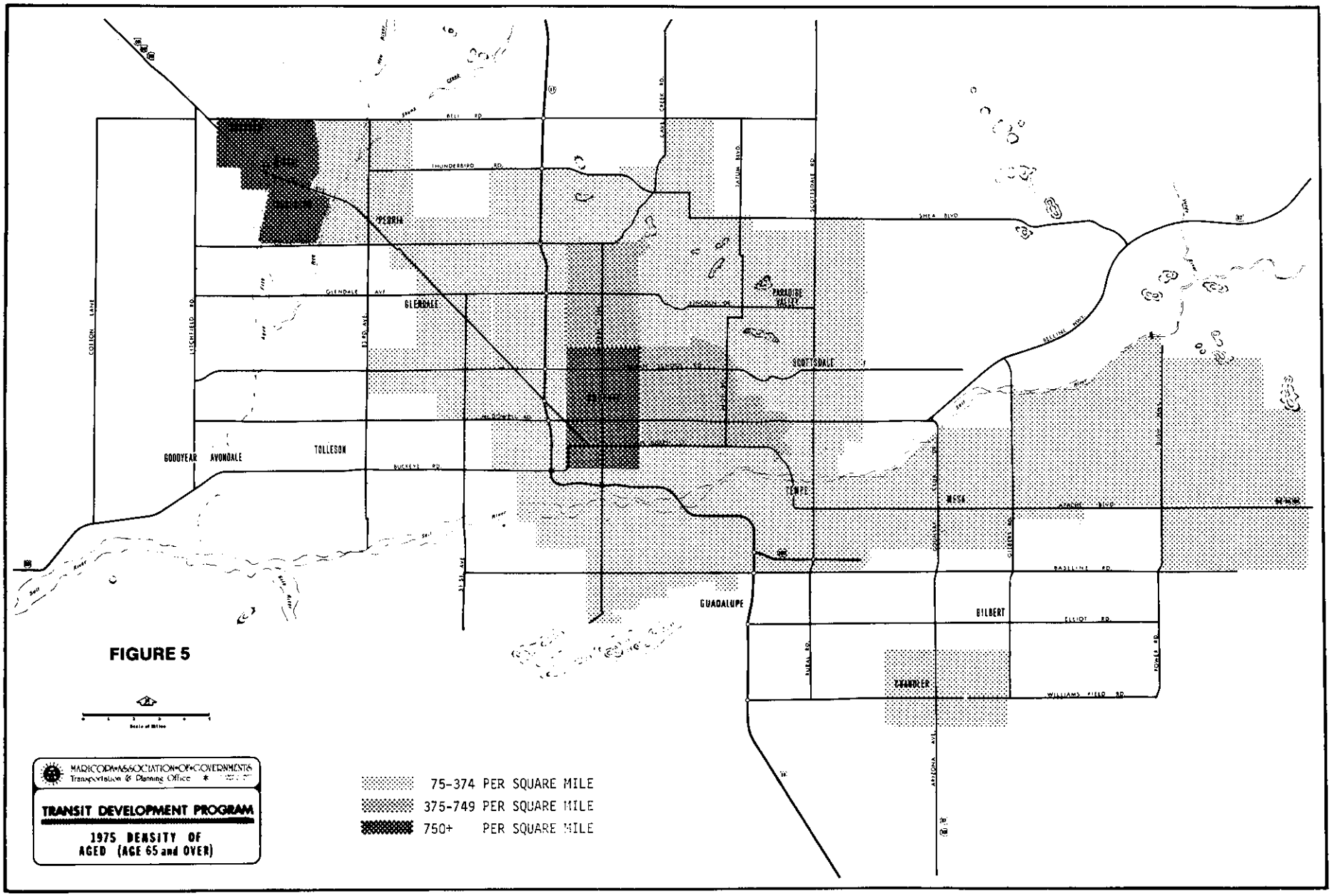


FIGURE 5

Within the City of Phoenix, more transit service is provided within the "L"-shaped area where the elderly are concentrated than to any other portion of the City. Currently, no Phoenix Transit service is available in the Sun City area. However, Sun City Bus Lines, a service provided by the private developer of Sun City, operates a local circulation system within that retirement community. A similar service is also provided in Sun City West. Current ridership on these two systems is approximately 1,000 passengers per month. Limited service is also provided by the Maricopa County/Red Cross Special Transporation Services program. The City of Mesa is served by the Mesa Shared-Ride Taxi Program.

Low-Income Families. As shown in Figure 6, the density of families below poverty level is highest in downtown Phoenix. Secondary concentrations are found in south Phoenix, east Phoenix, and Glendale.

A high level of transit and paratransit services are provided throughout the downtown east Phoenix, and south Phoenix areas. The Glendale Dial-A-Ride serves a 14.5 square-mile area which contains 90% of the families with incomes below the poverty level in that city. One transit route also serves south Glendale.

Minorities. Figure 7 shows that the major concentrations of minority groups are in the south and southwest portions of the City of Phoenix. In the 1970 census, the minority population comprised 19% of the total population. Nearly 15% of the total population was Hispanic, over 3% was black, and over 1% was American Indian. Their median family incomes were substantially less than the overall median family income of the Phoenix area. Auto ownership was also lower than the average. Table 2 presents a statistical profile for major minority groups based on 1970 census data.

The 1980 Census shows that blacks make up 4.9% of the total population of Phoenix while Hispanics now comprise 15.1%.

More than 40% of the fixed-route transit system's existing routes serve areas where a high percentage of minorities live.

Handicapped Population. Figure 8 shows that the highest concentration of handicapped individuals live in the downtown area of Phoenix. Secondary concentrations are found in wide bands across central Phoenix, north central Phoenix, and Glendale.

All of these areas presently have fixed-route transit service as well as some form of paratransit service.

2.3 TRAVEL PATTERNS

The geographic locations of residences and major activity centers determine the predominant travel patterns of an area. The transit system must deal with dispersed origins and destinations -- a product of the Valley's overall auto-orientation.

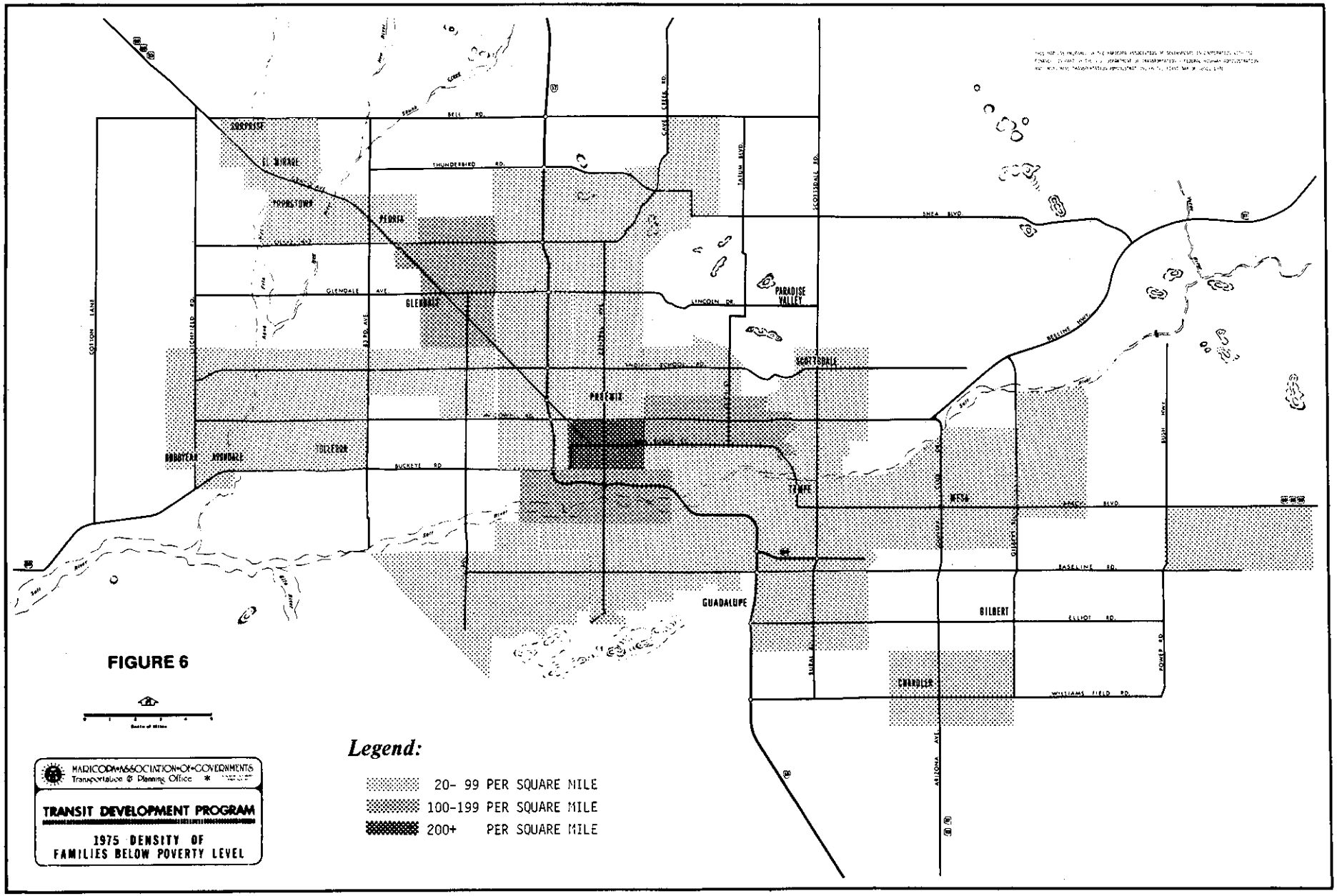


FIGURE 6

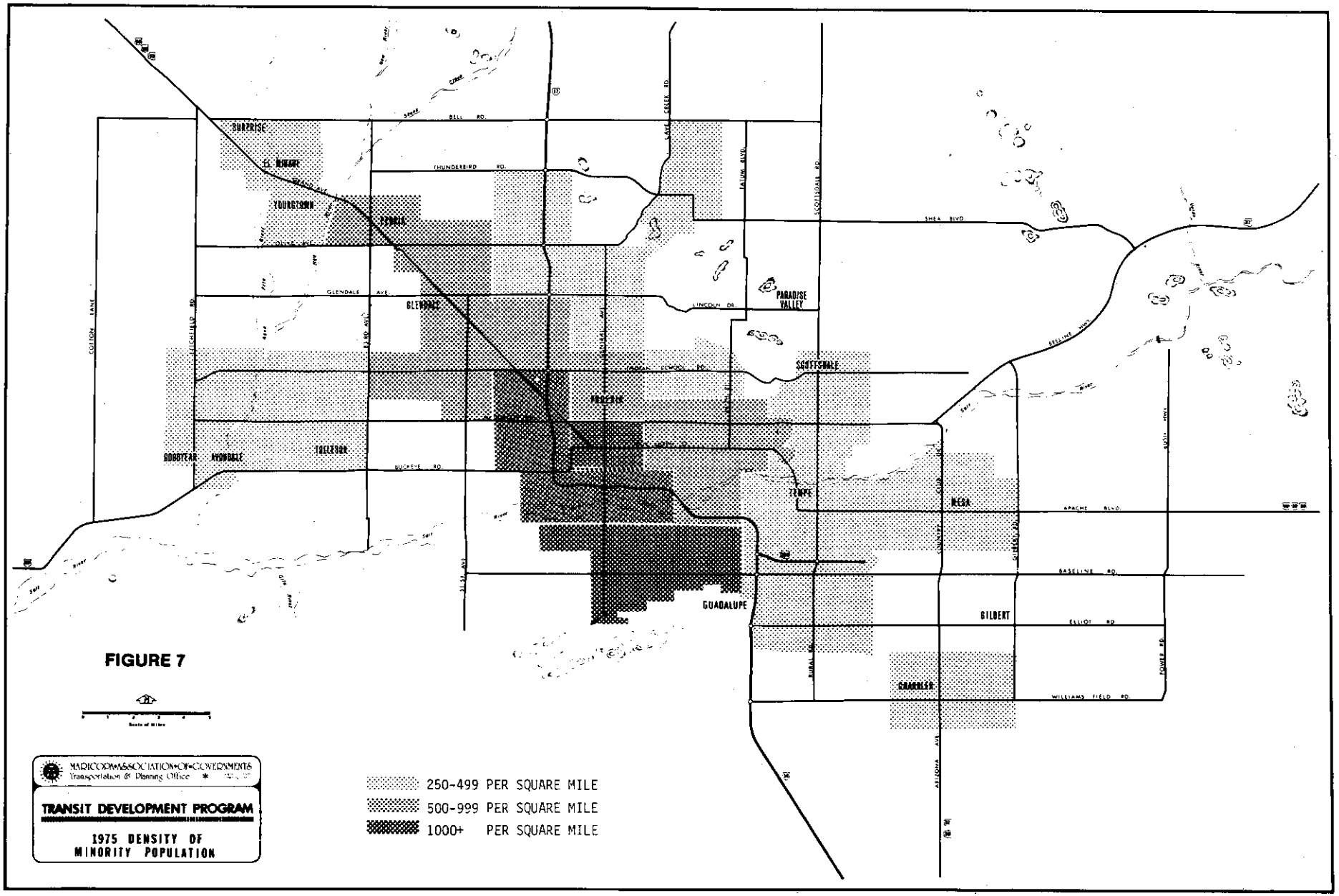
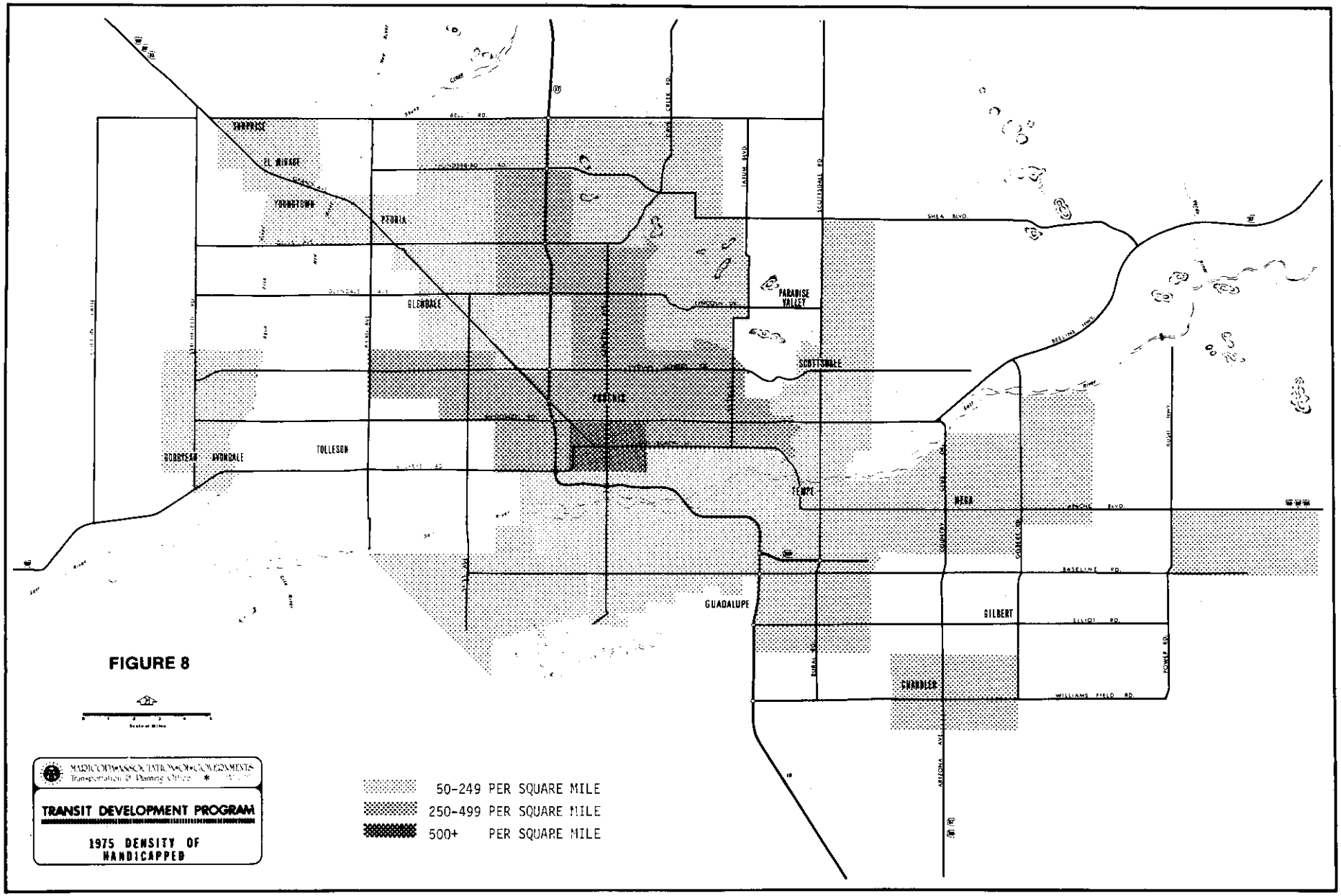


TABLE 2

ECONOMIC STATISTICS FOR MINORITY POPULATION

Population Statistics	Number of Persons	Percent of Total Population
Total Population	968,487	100.0%
Hispanic	140,607	14.5
Black	32,876	3.4
American Indian	10,127	1.0
Asian or Pacific Islander	5,627	0.5
Median Income		
Median Family Income		$ 9,856
Median Family Income: Hispanics		7,490
Median Family Income: Blacks		5,719
Median Family Income: American Indians		5,442
Auto Availability Characteristics		
Total Number of Occupied Housing Units (OHU)		302,663
OHU With No Auto Available		26,571
Percent of Total OHU With No Auto Available		9.77%
Total Number of OHU (Hispanic)		32,586
OHU With No Auto Available		4,577
Percent of OHU With No Auto Available		14.04%
Total Number of OHU (Black)		9,100
OHU With No Auto Available		2,326
Percent of OHU With No Auto Available		25.56%
Total Number of OHU (American Indian)		2,146
Total OHU With No Auto Available		653
Percent of OHU With No Auto Available		30.4%

ALL FIGURES ARE BASED ON 1970 CENSUS DATA AND INCLUDE ALL OF MARICOPA COUNTY.



2.3.1 AUTO ORIENTATION

The Phoenix urban area is automobile-oriented. Its land use pattern was designed for the automobile, which was in its heyday during the Valley's development. Wide rights-of-way, a grid pattern of streets, multiple nodes and generally low densities testify to the automobile's influence.

The ease of traveling by automobile throughout the Valley is enhanced by the generally efficient timing of traffic signal lights, an abundance of separate left-turn lanes and other traffic engineering improvements -- all of which lend little incentive to potential transit riders to take the bus.

2.3.2 IMPACT ON THE TRANSIT SYSTEM

The Phoenix urban area displays a multi-nodal development pattern and a grid-type arterial street system. Historically, however, the public transit system has had a radial route structure oriented toward downtown Phoenix. This radial system was unrelated to land use and the multi-nodal pattern of development. It forced patrons to travel to downtown Phoenix to transfer; this often took them miles out of their way and was cost-inefficient as well.

Since 1971, when the City of Phoenix assumed responsibility for the transit system, a goal has been to convert the radial system to a modified grid system. A basic system of north-south and east-west local routes would be supplemented by commuter express routes from outlying areas and door-to-door demand-response service in the more sparsely populated areas of Phoenix.

There are certain "natural" destinations for transit routes such as educational institutions, major employers and shopping centers. Transit service to and from all of these major traffic generators is very important. Although downtown Phoenix is a strong magnet for employment, for instance, there are numerous other employment centers in the Valley, such as the North Black Canyon industrial area, the Tempe industrial park, and lower Buckeye Road. To effectively serve these other areas, a grid-type transit system is logical.

The long-range (year 2000) transit plan calls for a modified grid system containing both crosstown and cross-Valley routes. In the central city, the most intensely developed part of Phoenix, there would be a 10-15 minute frequency of service. As one travels outbound, the frequency would decrease from 20-30 minutes to 45-60 minutes.

The reason it is called a "modified" grid system is recognition of the many activity centers that should receive an even higher level of transit service. Several of the cores of intense development attract people from all parts of the urban area and are served by many transit routes, in effect becoming mini-terminals. For example, the core of Phoenix Urban Village 3 is Metrocenter, a regional shopping center located in northwest Phoenix. Metrocenter has a park-and-ride lot for commuters and is served by four express routes (#91, #92, #95 and #96) and four local routes (#3, #5 West, #29 and #41).

The public transit system is now more responsive to land use patterns than it was in the early 1970's and is constantly refining its services to better serve those nodes of greatest activity and highest demand.

CHAPTER 3

EXISTING TRANSIT SERVICES

On March 1, 1971, the City of Phoenix assumed responsibility for the provision of public transit. Although some regional service was provided, it was not until Fiscal Year 1975/76 that contractual arrangements between other Valley cities and the City of Phoenix were formalized. Under these arrangements, other Valley cities authorize the level of transit service to be provided in their cities and pay for it.

The City of Phoenix is the urbanized area's designated recipient for operating and capital grants from the Urban Mass Transportation Administration (UMTA) under the Section 5 program; the City also submits the Section 3 capital grants for the urban area. However, the Maricopa Association of Governments (MAG) is the designated recipient for UMTA planning assistance (Section 8 grants) because it is the metropolitan planning organization (MPO).

The City of Phoenix Public Transit Administration is responsible for general supervision of the City's contractual operators (Phoenix Transit and Arnett Cab), liaison with other cities, development of budgets and preparation of grant applications, grant management, procurement, and some marketing functions. It also makes recommendations directly to the Phoenix City Council regarding service changes, fare adjustments, and capital improvements. Three MAG employees have been permanently outstationed at the Public Transit Administration's office in order to represent other Valley cities and to bring a regional perspective to the transit planning process.

The City of Phoenix contracts with a private firm, American Transit Corporation (Phoenix Transit Division), to operate the fixed-route transit service. Phoenix Transit personnel perform all operations, maintenance, and scheduling functions as well as most information dissemination activities. Glendale, Mesa, Scottsdale, and Tempe are also being served by Phoenix Transit through contractual arrangements with the City of Phoenix. Operating costs for routes traveling through two or more cities are shared on a per-mile basis with each city paying for the mileage operated within its boundaries. One exception is the mileage in Mesa on Route #60. The fares collected in Mesa are designed so that farebox revenues cover the cost of the service and no operating support from the City of Mesa is required.

Specific policies regarding the type of service provided, service levels, and fares are established by individual city councils. The cities coordinate with each other and have traditionally been able to resolve potential conflicts.

The organizational structure of the Phoenix Public Transit Administration is illustrated by Figure 9.

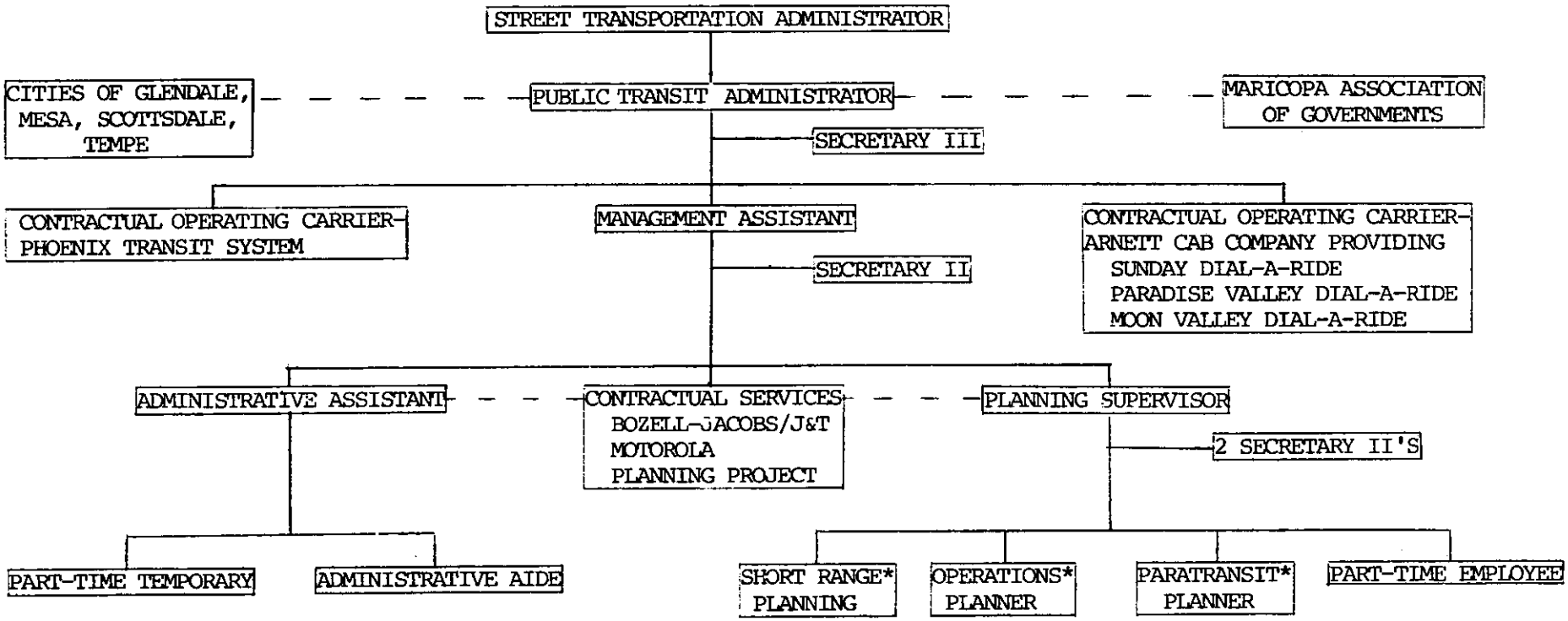
3.1 FIXED-ROUTE SERVICE

Phoenix Transit System provides fixed-route scheduled transit service for the cities of Phoenix, Glendale, Mesa, Scottsdale and Tempe.

FIGURE 9

ORGANIZATION CHART - PUBLIC TRANSIT ADMINISTRATION

FY 1980/81



* MAG Employees - Outstationed with Public Transit

3.1.1 SERVICE AND OPERATING CHARACTERISTICS

The major public transportation provider in the Phoenix urban area is the City of Phoenix Transit System, which provides fixed-route, scheduled service over local and express routes in the cities of Phoenix, Glendale, Mesa, Scottsdale, and Tempe. The transit system provides over 27,300 vehicle-miles of service each weekday and 10,490 vehicle-miles of service on Saturday. (These figures do not include seasonal or charter service.) Fixed-route service is not provided on Sunday.

Phoenix Transit has a system of 47 routes -- 33 local and 14 express. Buses on local routes make scheduled stops at bus stop signs along a fixed route. Patrons pay a base fare and may board and deboard the bus at any of these stops. Express routes offer a premium service to commuters traveling from their residences in outlying areas to major employment centers. Express buses stop only at a few designated places at each end of the route to pick-up and discharge passengers. No intermediate stops are made. A 30 percent higher fare is charged patrons of express routes because of the higher quality of service (faster travel time).

Phoenix Transit also operates some special seasonal routes. These are routes that operate only during certain times of the year. Service is provided to and from Phoenix Greyhound Park, Apache Greyhound Park (in Apache Junction), or Black Canyon Greyhound Park (in Black Canyon City) during their respective racing seasons. The one-way fare is $1.00 to Phoenix Greyhound Park and $2.50 to each of the other dog tracks. From October 8, 1980 to May 10, 1981, direct service to and from Turf Paradise -- a horse racing track located in north Phoenix -- was operated. A fare of $1.00 was charged.

The Sun Bus was operated in Scottsdale between November 17, 1980 and April 25, 1981. This seasonal route connects major hotels and resorts in the Scottsdale/Paradise Valley area with Scottsdale's shopping areas. It is unique in that passengers pay no fares; the entire cost is borne by the Fifth Avenue Merchants Association.

Service Area. During FY 1980/81, approximately 166 square miles of the urbanized area were within one-quarter mile of a scheduled bus route (excluding the Palo Verde express routes and seasonal bus routes). Less than one-third of the urbanized area's 1980 population is within the service area.

Days and Hours of Service. The City of Phoenix Transit System operates fixed-route scheduled service Monday through Saturday. Weekday service is provided for approximately 14 hours from 5:15 a.m. to 7:15 p.m., although the exact hours vary by route and a few routes run as late as 9:00 p.m. On Saturday, service is provided for approximately 14 hours from 5:40 a.m. to 7:55 p.m., again with variations by route.

The earliest trip is on Route #3E (Van Buren Crosstown), which leaves the downtown terminal at 5:15 a.m. Route #22 (Camelback Crosstown) has the last trip, leaving the Arizona State University campus at 7:20 p.m. The express route trips generally begin between 6:00 - 7:30 a.m. and 4:00 - 5:30 p.m.

The daily transit service hours are divided into time periods according to the frequency of service and passenger volume. The a.m. peak period is that period in the morning when additional services are provided to handle higher passenger volumes. The Phoenix Transit System defines its a.m. peak period as 6:00 a.m. - 9:00 a.m. The p.m. peak period is that period in the afternoon and/or evening when additional services are provided to handle higher passenger volumes. Phoenix Transit defines its p.m. peak period as 3:00 p.m. to 6:15 p.m.

The period between the end of the a.m. peak and beginning of the p.m. peak is defined as midday. Midday is the period when headways (the time between successive buses on a route) are considered normal. During peak periods, scheduled headways are reduced (i.e., the frequency of service is increased).

Frequency of Service. The frequency of bus service is one of the primary measures used to gauge the level of transit service being provided. Generally, the more frequently the buses run, the better is the level of service. On local routes, this frequency is measured as a headway, which is the time interval between transit vehicles traveling in the same direction on the same route.

Because express routes generally operate for only a few hours during the day, headways are not used to measure the frequency of service for these routes. Instead, the total number of trips provided indicates the level of service for express routes.

As the 1980 On-Board Origin and Destination Survey of Phoenix Transit System shows, about 59 percent of the transit system's riders are carried between the hours of 6-9 a.m. and 3-6 p.m. To accommodate this demand, the frequency of service is highest during those times, as shown in Table 3.

The most frequent service is found on Route #5 (North Central Avenue). Route #5 has a western branch that serves Metrocenter and an eastern branch that serves Paradise Valley Mall. These branches have 24-minute headways while the trunk portion -- Central Avenue between Dunlap Avenue and downtown Phoenix -- has 12-minute headways during the midday. Route #5 also has the highest frequency of service during the a.m. and p.m. peak periods with 5-minute and 8-minute headways, respectively, on the trunk portion of the route.

Of the express routes, the Superstition Expresses (Routes #93 and #94) have the greatest frequency of service of the express routes with 8 a.m. trips and 11 p.m. trips.

Round-Trip Mileage by Route. On local routes there is a wide range between the miles traveled on the longest and shortest round trips. Route #1 (Roeser Road/24th Street/Glendale Avenue) has a round trip of 54 miles while Route #12 (South 15th Avenue) has a round trip of 5 miles. The Palo Verde express routes from Thomas Mall and Metrocenter have the highest round trip mileages at 126 and 125 miles, respectively. The longest express route entirely within the metropolitan area is Route #97 (Paradise Valley Express) at 42.3 miles.

Round-trip mileages for all routes are also presented in Table 3.

TABLE 3

FY 1980/81 ROUTE AND SERVICE INFORMATION - PHOENIX TRANSIT SYSTEM

Route No.	Route Name	Round Trip Miles	ROUND TRIP TIMES AND MILES PER HOUR: A.M. Peak Min.	A.M. Peak Mph.	Midday Min.	Midday Mph.	P.M. Peak Min.	P.M. Peak Mph.	Time of First Trip	Time of Last Trip	Headway Pk/Midday (Min.)	Daily Trips
1	Roeser Rd. - 24 St. - Glendale Ave.	54	190	17.05	190	17.05	190	17.05	5:26 A.	6:15 P.	30/30	26.5
3E	East Van Buren - Granite Reef Rd.	26	85	18.35	85	18.35	85	18.35	5:15 A.	5:45 P.	30/60	19.0
	- Zoo	20	80	15.00	80	15.00	80	15.00	8:45 A.	2:45 P.	NA/60	7.0
	- 32 St.	17	85	12.00	85	12.00	85	12.00	6:30 A.	5:30 P.	60/60	13.0
	- 44 St.	18	85	12.71	85	12.71	85	12.71	7:00 A.	7:15 P.	60/60	12.0
3W	West Van Buren - 35 Ave. Metrocenter	28.8	96	18.00	96	18.00	96	18.00	6:00 A.	5:05 P.	2 AM/2 PM	5.5
	- 35 Ave. Greenway Rd.	36.4	126	17.33	126	17.33	126	17.33	7:30 A.	7:15 P.	NA/60	10.5
	- 47 Ave. Thunderbird Rd.	39	124	18.87	124	18.87	124	18.87	7:00 A.	6:00 P.	NA/60	10.0
	- 43 Ave. Metrocenter	30.8	108	17.11	108	17.11	108	17.11	5:50 A.	5:45 P.	60/60	13.0
	- 43 Ave. Greenway Rd.	32.8	113	17.42	113	17.42	113	17.42	6:15 A.	6:15 P.	60/60	12.0
5E	North Central - P.V. Loop	32	131	14.66	N/A	N/A	131	14.66	5:20 A.	5:37 P.	30/NA	7.5
	- P.V. Mall via Shea Blvd.	36	119	18.15	119	18.15	119	18.15	7:00 A.	4:00 P.	NA/24	11.0
	- P.V. Mall via Thunderbird	36	119	18.15	119	18.15	119	18.15	7:24 A.	7:15 P.	NA/24	9.0
	- State Capitol Extension	3	16	11.25	N/A	N/A	16	11.25	6:11 A.	5:37 P.	4 AM/6 PM	4.5
5W	North Central - Metrocenter via Peoria Ave	27	88	18.41	88	18.41	88	18.41	6:13 A.	3:36 P.	24/24	10.0
	- Metrocenter via Hatcher	27.5	107	15.42	107	15.42	107	15.42	6:18 A.	5:08 P.	24/24	11.5
	- Metrocenter via Dunlap Ave	28	95	17.68	95	17.68	95	17.68	7:48 A.	3:48 P.	NA/60	8.5
	- Mountain View Rd. & 7 St.	19	78	14.62	N/A	N/A	78	14.62	6:52 A.	5:00 P.	3 AM/2 PM	3.5
	- Corporate Trips Extension	1	6	10.00	N/A	N/A	6	10.00	6:42 A.	4:33 P.	30/NA	3.0
	- State Capitol Extension	3	16	11.25	N/A	N/A	16	11.25	7:32 A.	7:32 A.	1/NA	1.0
6	West Camelback - Regular Route	20	N/A	N/A	74	16.22	N/A	N/A	1:58 P.	3:03 P.	NA/2	2.0
	- State Capitol Extension	23	52	26.54	N/A	N/A	62	22.26	6:28 A.	5:10 P.	30/NA	3 A/3 P
7	North 7 St. - Regular Route	20.5	70	17.57	70	17.57	70	17.57	5:53 A.	6:15 P.	30/30	19.0
	- Union Hills Dr. Extension	32.5	96	20.31	N/A	N/A	96	20.31	5:40 A.	5:40 P.	30/NA	4.0
	- State Capitol Extension	3	16	11.25	N/A	N/A	16	11.25	6:52 A.	5:05 P.	2 AM/1 PM	2 A/1 P
8	North 19 Ave. - Cactus Rd.	30	100	18.00	100	18.00	100	18.00	5:45 A.	6:15 P.	30/60	15.0
	- Thunderbird Rd.	30	88	20.45	88	20.45	88	20.45	6:20 A.	2:40 P.	120/120	6.5
	- Union Hills Dr.	34	108	18.89	108	18.89	108	18.89	6:19 A.	7:15 P.	60/120	9.5
	- Honeywell	30	100	18.00	N/A	N/A	100	18.00	6:00 A.	6:00 A.	1/NA	1.0
	- Honeywell via Cactus Rd.	31	108	17.22	N/A	N/A	108	17.22	6:35 A.	4:15 P.	2 AM/3 PM	2.5
	- Sperry Flight Systems	38	133	17.14	N/A	N/A	133	17.14	6:45 A.	3:40 P.	1 AM/1 PM	2.0
9	North 16 Street	18	80	13.50	75	14.40	75	14.40	6:05 A.	6:15 P.	30/30	25.5
10	North 7 Avenue	18.5	71	15.60	71	15.60	71	15.60	6:05 A.	6:15 P.	30/30	24.5
12	South 15 Avenue	5	25	14.40	25	14.40	25	14.40	5:45 A.	6:15 P.	30/60	20.5
13	West Southern Avenue	20	62	19.35	67	17.91	67	17.91	6:15 A.	6:15 P.	60/60	13.0
14	East Broadway Rd. - 48 St.	21	68	18.53	68	18.53	68	18.53	5:56 A.	7:15 P.	60/60	16.0
	- 40 St.	17	66	15.45	66	15.45	66	15.45	5:50 A.	6:15 P.	60/60	12.5
	- Cabot Extension	2	4	30.00	N/A	N/A	4	30.00	6:13 A.	4:54 P.	4 AM/2 PM	4 A/2 P
15	East Southern Avenue	20.5	72	17.08	72	17.08	72	17.08	5:35 A.	7:49 P.	20/30	21.0
	- Comm. College Extension	2	6	20.00	6	20.00	6	20.00	6:35 A.	7:49 P.	60/60	6.5
	- State Capitol Extension	3	14	12.86	N/A	N/A	14	12.86	6:18 A.	5:37 P.	4 AM/5 PM	4 A/5 P
16	South Central - Dobbins Rd.	14	57	14.73	57	14.73	57	14.73	5:54 A.	6:15 P.	60/60	14.0
17	East Mohave St. - Sky Harbor Airport	11	50	13.20	50	13.20	47	14.04	5:33 A.	6:13 P.	30/30	26.0
18	East McDowell Rd. - Scottsdale	30	118	16.27	123	15.06	115	15.65	5:15 A.	6:15 P.	30/60	20.0
	- Comm. College Extension	2	7	17.14	7	17.14	N/A	N/A	5:45 A.	5:03 P.	30/60	14.5
	- State Capitol Extension	3	16	11.25	N/A	N/A	16	11.25	6:35 A.	5:07 P.	1 AM/1 PM	1 A/1 P
21	North 20 Street	14	56	15.00	56	15.00	56	15.00	5:45 A.	6:15 P.	60/60	13.0
22	Camelback Rd. - Scottsdale Rd. - A.S.U.	45	178	15.17	178	15.17	178	15.17	5:52 A.	7:20 P.	30/30	26.0
24	West Adams - State Capitol	11	42	15.71	N/A	N/A	37	17.83	7:00 A.	5:05 P.	30/NA	5.0
25	East Buckeye	6	28	12.85	28	12.85	28	12.85	6:10 A.	5:40 P.	30/30	22.0
	- Cabot Extension	6	24	15.00	N/A	N/A	24	15.00	6:40 A.	4:06 P.	2 AM/2 PM	2 A/2 P
27	East Roosevelt Rd.	20	81	14.81	81	14.81	81	14.81	5:45 A.	6:15 P.	30/30	19.0
28	West Buckeye Rd. - Durango St.	10	42	14.28	42	14.28	50	12.00	6:11 A.	6:15 P.	60/60	11.5
	- Lincoln St.	12	47	15.31	45	16.00	42	17.14	6:15 A.	6:15 P.	60/30	12.5
	- County Extension	4	13	18.46	N/A	N/A	13	18.46	6:45 A.	5:09 P.	2 AM/3 PM	2 A/3 P
29	North 15 Avenue	29	102	17.05	102	17.05	107	16.26	5:50 A.	6:15 P.	30/30	25.5
	- State Capitol Extension	3	8	22.50	N/A	N/A	8	22.50	6:52 A.	5:10 P.	1 AM/1 PM	1 A/1 P
30	West McDowell Rd.	20.5	78	15.77	78	15.77	78	15.77	5:30 A.	6:15 P.	30/30	26.0
31	North 12 Street	19	70	16.29	N/A	N/A	66	17.27	6:30 A.	5:07 P.	30/NA	5.5
	- State Capitol Extension	3	16	11.25	N/A	N/A	16	11.25	7:01 A.	5:07 P.	1 AM/1 PM	1 A/1 P
34	Grand Avenue - Glendale	34	109	18.72	106	19.25	100	20.40	5:49 A.	6:15 P.	60/60	15.5
41	North 27 Avenue - Sweetwater Ave.	34	113	18.05	113	18.05	116	17.59	5:55 A.	5:40 P.	60/60	12.0
	- Greenway Rd.	32	120	16.00	116	16.55	114	16.84	6:50 A.	6:15 P.	60/60	11.5
	- Metrocenter	24	78	18.46	N/A	N/A	N/A	N/A	5:41 A.	5:41 A.	1/NA	.5

TABLE 3

FY 1980/81 ROUTE AND SERVICE INFORMATION - PHOENIX TRANSIT SYSTEM (Cont.)

Route No.	Route Name	Round Trip Miles	ROUND TRIP TIMES AND MILES PER HOUR A.M. Peak Min.	A.M. Peak Mph.	Midday Min.	Midday Mph.	P.M. Peak Min.	P.M. Peak Mph.	Time of First Trip	Time of Last Trip	Headway Pk/Midday (Min.)	Daily Trips
48	Thomas Road Crosstown - 56 St./75 Ave.	33	115	17.21	115	17.21	115	17.21	5:21 A.	5:59 P.	30/30	20.5
	- 44 St./83 Ave.	31	112	16.60	112	16.60	112	16.60	5:32 A.	6:10 P.	30/30	21.5
	- 83 Ave. - Terminal	25	90	16.66	N/A	N/A	90	15.33	6:00 A.	5:18 P.	1 AM/2 PM	1 A/2 P
	- 75 Ave. - Terminal	23	90	15.33	N/A	N/A	90	15.33	6:19 A.	5:06 P.	3 AM/1 PM	3 A/2 P
	- 44 St. - Terminal	16	72	13.33	N/A	N/A	72	13.33	6:26 A.	5:25 P.	1 AM/2 PM	1 A/2 P
	- 56 St. - Terminal	18	72	15.00	N/A	N/A	72	15.00	6:18 A.	5:10 P.	3 AM/2 PM	3 A/2 P
54	Osborn Crosstown Regular Route	17	57	17.89	57	17.89	57	17.89	6:20 A.	5:50 P.	30/30	23.5
58	Indian School Crosstown - 44 St/83 Ave.	32.4	127	15.30	127	15.30	127	15.30	6:00 A.	6:58 P.	30/30	19.0
	- 73 Ave./Civic Ct	36.7	133	16.56	133	16.56	133	16.56	6:15 A.	6:33 P.	30/30	19.5
	- 83 Ave./Terminal	26.5	107	14.85	N/A	N/A	107	14.85	5:40 A.	5:23 P.	4.5/NA	1.5 A/3 P
	- 75 Ave./Terminal	25.4	111	13.72	N/A	N/A	111	13.72	5:36 A.	5:05 P.	4/NA	3 A/1 P
	- Scottsdale-Term.	25.0	78	19.23	N/A	N/A	78	19.23	5:50 A.	5:10 P.	4.5/NA	3 A/1.5 P
	- 44 St. - Term.	21.8	78	16.76	N/A	N/A	78	16.76	5:40 A.	4:55 P.	4/NA	1.5 A/2.5 P
	- Motorola Exten.	2.2	7	18.85	N/A	N/A	7	18.85	7:05 A.	5:17 P.	4/NA	2 A/2 P
60	Washington-Main Regular Route	33.6	82	24.58	90	22.40	90	22.40	5:15 A.	5:50 P.	30/60	24
	- State Capitol Extension	3	16	11.25	N/A	N/A	16	11.25	6:48 A.	5:40 P.	4 AM/4 PM	4 A/4 P
	- Garrett Corp. Extension	2	5	24.00	N/A	N/A	2	24.00	7:28 A.	4:41 P.	1 AM/1 PM	1 A/1 P
87	North Black Canyon - 59 Avenue	49	130	22.61	N/A	N/A	130	22.61	6:08 A.	4:05 P.	1/NA	1 A/1 P
88	North Black Canyon - 43 Avenue	45	121	22.31	N/A	N/A	121	22.31	6:12 A.	4:05 P.	1/NA	1 A/1 P
89	North Black Canyon - 35 Avenue	43	119	21.68	N/A	N/A	119	21.68	6:10 A.	4:05 P.	1/NA	1 A/1 P
81	Palo Verde - Metrocenter	125	82(1)	45.73	N/A	N/A	100(1)	37.50	5:00 A.	3:40 P.		1 A/1 P
82	Palo Verde - Thomas Mall	126	97(1)	38.96	N/A	N/A	100(1)	37.80	4:55 A.	3:40 P.		1 A/1 P
83	Palo Verde - Indian School Road	95	72(1)	39.58	N/A	N/A	90(1)	31.66	5:10 A.	3:30 P.		1 A/1 P
86	South Phoenix Express	15	56	32.00	N/A	N/A	52	34.61	7:22 A.	5:10 P.		2 A/2 P
90	North Scottsdale Express	36	106	20.38	N/A	N/A	106	20.38	6:27 A.	5:05 P.		2 A/2 P
91	Roadrunner Express	31	90	20.67	N/A	N/A	100	18.60	5:58 A.	5:09 P.		4 A/4 P
92	Roadrunner Express	32	96	20.00	N/A	N/A	96	20.00	6:00 A.	5:35 P.		4 A/3 P
	- Garrett Corp. Extension	12	31	23.23	N/A	N/A	31	23.23	6:28 A.	4:20 P.		1 A/1 P
93	Superstition Express	30.6	109	16.84	N/A	N/A	109	16.84	5:43 A.	5:06 P.		4 A/5 P
94	Superstition Express	33.7	80	22.98	N/A	N/A	88	22.98	6:05 A.	5:08 P.		4 A/5 P
93/94	Superstition Express Combination	19.6(1)	N/A	N/A	N/A	N/A	61(1)	19.28	N/A	5:37 P.		0 A/1 P
95	Roadrunner Express - Bell Road	38.6	104	22.27	N/A	N/A	104	22.27	6:04 A.	5:08 P.		1 A/1 P
96	Roadrunner Express - Cactus Road	36.0	82	26.34	N/A	N/A	82	26.34	6:35 A.	5:06 P.		2 A/2 P
97	Paradise Valley Express	42.3	123	20.63	N/A	N/A	123	20.63	6:21 A.	5:35 P.		3 A/4 P
98	Paradise Valley Express	37.3	114	19.63	N/A	N/A	114	19.63	6:33 A.	5:07 P.		2 A/2 P
99	South Scottsdale Express	26	75	20.80	N/A	N/A	75	20.80	6:42 A.	5:06 P.		2 A/2 P

(1) One-way only

Round-Trip Travel Times by Route. During all time periods of the day, the longest round-trip travel time is 190 minutes on Route #1 (Roeser Road/24th Street/Glendale Avenue), which is also the longest local route in terms of miles. The shortest round-trip travel time is 25 minutes for Route #12 (South 15th Avenue), which also has the shortest route mileage.

There is not a similar correlation between travel times and route mileage for the express routes. For instance, Route #97 (Paradise Valley Express) has the highest round-trip travel time (123 minutes) but a round-trip mileage of only 42.3 miles. This contrasts sharply with Route #82 (Palo Verde Express) which has a one-way trip of 63 miles but a travel time of only 97 minutes. This difference is due to the fact that the Paradise Valley Express travels entirely on arterial streets through more densely-populated urban areas while the Palo Verde Express travels primarily on the Interstate-10 freeway through a rural area.

Table 3 provides round-trip travel times for each route for midday and both peak periods.

Average Speed. The average (unweighted) travel speed on all local routes is consistent throughout the day: 16.78 miles per hour during the a.m. peak period, 16.67 miles during midday, and 16.70 miles per hour during the p.m. peak period. However, there are wide variations by route and by time of day.

During the a.m. peak period, Route #6 (West Camelback) has the highest average speed of 26.5 miles per hour, although the 2-mile long Cabot & Cabot Industrial Park extension of Route #14 (East Broadway) has the highest average speed on a particular segment of route (30 miles per hour). The 32nd Street branch of Route #3E (Van Buren Crosstown) has the slowest average speed of 12 miles per hour during the a.m. peak. At 10 miles per hour, the corporate trips extension of Route #5W (North Central Avenue) has the slowest average speed for a particular route segment.

During the midday, Route #60 (Washington/Main) has the highest average speed of 22.4 miles per hour. The 32nd Street branch of Route #3E (Van Buren Crosstown) has the slowest average speed at 12 miles per hour.

During the p.m. peak period, the highest average speed of 22.6 miles per hour is on Route #87 (North Black Canyon/59th Avenue) while the highest speed on a particular route segment (30 miles per hour) is found on the Cabot & Cabot Industrial Park extension of Route #14 (East Broadway). The slowest average speed is found on the 32nd Street branch of Route #3E (Van Buren Crosstown). Table 3 provides more detailed average speed information by route.

Vehicle Requirements. During the a.m. peak hour period, a total of 165 buses are required on local routes to handle the passenger volumes. An additional 36 buses are required for express routes, so a total of 201 buses are in service during the a.m. peak period.

Route #48 (Thomas Road Crosstown) and Route #5 (North Central Avenue) require the most vehicles with 15 and 14 buses respectively. Routes #48 and #5 both require 18 buses during the p.m. peak period, which is the highest bus assignment for that time. In the midday period, Route #5 has the greatest frequency and also the highest bus assignment with 10 vehicles required.

Express routes are operated during the a.m. and p.m. peak periods to provide additional seats for commuters. During the a.m. peak period, 36 buses are used to provide express service; 35 buses provide p.m. peak express service.

The only midday express route bus assignments are for Routes #81, #82, and #83 which travel to the Palo Verde Nuclear Generating Station, approximately 30 miles west of Phoenix. It is more cost-efficient for the three buses to stay at the site during the day than to travel back and forth to Phoenix.

Additional information about bus assignments is provided in Table 4.

Spare Ratio. The spare ratio is the proportion of buses in the fleet remaining after bus route assignments are made. The Urban Mass Transportation Administration (UMTA) recommends a fleet spare ratio of no less than 10 percent. The Phoenix Transit System spare ratio varies by time period. The a.m. peak ratio of spares is 18 percent, and the p.m. peak period is about 14 percent. The spare ratio is about 56 percent during the midday period. The City of Phoenix Transit System has developed a bus acquisition and expansion program with intentions of maintaining an overall system spare ratio of 12 percent, as shown in Table 5.

TABLE 5

BUS FLEET COMPOSITION AND SPARE RATIO:
PLANS FOR FY 1981-86

Fiscal Year	New Buses	Retained	Retired	Total Fleet[1]	Spare Ratio[2]
1980/81	15	230	0	245	.13
1981/82	21	245	0	266	.12
1982/83	10	266	0	276	.12
1983/84	32	276	0	308	.12
1984/85	50	308	0	358	.12
1985/86	50	358	0	408	.12

[1] Includes stockpiled buses.

[2] Active fleet only, excludes stockpiled buses.

Older buses not required for scheduled service or spares will be stockpiled.

TABLE 4

VEHICLE REQUIREMENTS

Route	Number of Vehicles Required A.M. Peak	Midday	P.M. Peak
#1	8	6	10
3E	10	7	10
3W	11	8	12
5	14	10	18
6	3	0	5
7	5	3	4
8	8	5	9
9	3	3	4
10	4	3	3
12	2	1	1
13	2	1	2
14	5	3	6
15	5	3	5
16	3	1	1
17	2	2	3
18	7	3	7
21	1	1	1
22	9	7	7
24	2	0	3
25	2	1	2
27	3	2	3
28	2	2	2
29	4	4	4
30	3	3	3
31	4	0	3
34	4	2	4
41	4	4	4
48	15	8	18
54	2	1	2
58	11	8	12
60	4	2	5
87	1	0	1
88	1	0	1
89	1	0	1
Total for local routes	165	104	176
81	1	1	1
82	1	1	1
83	1	1	1
86	2	0	2
90	2	0	2
91	4	0	4
92	5	0	4
93	5	0	4
94	5	0	4
93/94	0	0	1
95	1	0	1
96	2	0	2
97	3	0	4
98	2	0	2
99	2	0	2
Total for express routes	36	3	35
Total for all routes	201	107	211

Fare Structure. Table 6 shows the fare structure for Phoenix Transit System. Effective as of June 2, 1980, when the basic adult fare on Phoenix Transit System buses was increased from 40¢ to 50¢.

According to the 1980 On-Board Origin and Destination Survey of Phoenix Transit System, only 28 percent of transit users pay the full adult cash fare. Transfers accounted for 16 percent of the total ridership.

TABLE 6

PHOENIX TRANSIT SYSTEM
FARE STRUCTURE
(Effective June 2, 1980)

LOCAL SERVICE	Phoenix & Glendale	Scottsdale	Tempe	Mesa
Adult	$ .50	$ .60	$ .50	$1.00
Elderly, Handicapped & Children (6-11 years)	.25	.30	.25	.50
10-Ride Ticket Book	4.50	4.50 *	4.50	N/A
20-Ride Student Ticket Book (under 21 years)	6.00	6.00	N/A	N/A
EXPRESS SERVICE				
Adult	.65	.75	.75	N/A
10-Ride Ticket Book	6.00	6.00 *	6.00	N/A
Children (6-11 years)	.30	.35	.30	N/A
PASSES				
Monthly Pass	20.00	20.00	20.00	N/A
Annual Pass	180.00	180.00	180.00	N/A

* Must add 10¢ to farebox with each ticket.

Ridership. From July, 1980 through May, 1981, Phoenix Transit System carried an average of 41,546 revenue passengers per day, a 1 percent decrease in average daily ridership compared to the same time period in FY 1979/80. This loss in ridership is attributable to the fare increase.

3.1.2 CAPITAL FACILITIES AND EQUIPMENT

This section provides a brief description of the capital facilities and equipment associated with the fixed-route transit system.

Revenue Vehicles. The Phoenix Transit System has an operating fleet of 245 air-conditioned buses. (Two additional buses are used for training and demonstration purposes.) This represents an increase of nearly 100 percent in the fleet size since 1975, as indicated in Table 7.

TABLE 7

GROWTH OF PHOENIX TRANSIT SYSTEM BUS FLEET

YEAR	NUMBER OF BUSES
1970	95
1971	91
1972 - 1974	89
July 1974 - April 1975	110
May 1975 - August 1975	125
Sept. 1975 - Dec. 1975	134
Jan. 1976 - June 1978	181
July 1978 - May 1981	230
June 1981	245

A total of 175 new buses have been purchased in the last five years with UMTA assistance. The average age for all buses in the fleet is 8.1 years.

There are 53 buses listed in Table 8 that would be considered candidates for replacement or rehabilitation by most operators in the transit industry (built prior to 1965). If all of these buses were excluded from the fleet, the average age of the remaining buses would be 5.0 years, far better than the industry average of seven years. If only those buses that were 12 years and older were retired from active service over the next five years, a total of 62 buses would be needed for replacement purposes. If these were purchased uniformly over the period, a minimum replacement purchasing policy of 12-13 buses per year over the next five years would be needed.

Wheelchair lifts are provided on 15 of the current General Motors RTS-04 buses. Current planning does not call for retrofitting any coaches of the present fleet with wheelchair lifts, but all buses purchased since 1979 are wheelchair lift-equipped. By August 1981, wheelchair-bound persons will have a choice of using regular bus service on selected transit routes or demand-response service throughout the City.

Maintenance Facilities. The present transit maintenance facilities are located at 301 West Watkins Road and at 2010 West Desert Cove Avenue.

TABLE 8

EXISTING BUS FLEET
PHOENIX TRANSIT SYSTEM

QUANTITY	YEAR BUILT	MANUFACTURER (1)	MODEL	NO. OF SEATS	AGE	WHEELCHAIR ACCESSIBILITY
15(2)	1981	GMC	T80204	44	0	Yes
37(2)	1979	GMC	T8H203	45	2	No
20(2)	1978	AMG/MAN	SG220182	69	3	No
15(2)	1975	AMG	9640A	51	6	No
33(2)	1975	AMG	9640A	47	6	No
15(2)	1975	FLX	53096-8-1	47	6	No
4	1974	GMC	T8H5308	53	7	No
40(2)	1973	FLX	53096-8-1	47	8	No
6	1969	GMC	T6H14521	45	12	No
4	1968	GMC	T6H4521	45	13	No
5	1966	GMC	TDH4519	45	15	No
14	1961	GMC	TDH4517	45	20	No
12	1960	GMC	TDH5302	53	21	No
3	1959	GMC	TDH4517	45	22	No
9	1957	GMC	4512	45	24	No
7	1956	GMC	4512	45	25	No
2	1955	GMC	4512	45	26	No
4	1952	GMC	4509	45	29	No

TOTAL FLEET: 245 Buses

AVERAGE AGE: 9.0 Years

TOTAL SEATING CAPACITY: 11,884

AVERAGE SEATING CAPACITY: 48 Seats Per Bus

PERCENT AIR CONDITIONED: 100%

(1) Manufacturer: AMG - AM General Corporation

FLX - The FIxible Company

GMC - General Motors Corporation

AMG/MAN - AM General Corporation & M.A.N. Company of West Germany

(2) Purchased by the City of Phoenix through an UMTA capital grant

The Watkins Road site is located about 1.5 miles south of downtown Phoenix. It is close to downtown Phoenix and provides easy access to the Maricopa and Black Canyon Freeways. The functions performed at the Watkins Road Facility include servicing of buses and heavy maintenance. This facility is owned by Phoenix Transit System, not the City of Phoenix.

In March 1981, the City of Phoenix opened the North Transit Maintenance Facility at 2010 West Desert Cove Avenue, one block west of 19th Avenue between Peoria Avenue and Cactus Road. The total cost for the facility was $4,675,370. Federal aid provided $3,740,296 (80 percent), and the City of Phoenix provided the remaining $935,074 (20 percent) from 1975 transit bonds.

At the North Facility, light maintenance functions such as tire repair, engine tune-ups, and cleaning are performed. Operations functions such as storage and dispatching are shared with the Watkins Road Facility. The nine-acre North Facility includes 33,080 square feet inside the main building for light maintenance and operations; 4,000 square feet for fueling and cleaning of the buses; and 4,000 square feet for washing and inspections. Only 95 buses of the present 245-bus fleet operate out of the facility currently, but the facility has the capacity to handle 250 buses to accommodate future growth of the transit system.

The North Facility has 11 service bays and 187 parking stalls. Fifty-seven of the stalls are under a shade canopy designed to allow the interior of buses to remain 10° to 20° cooler than they would be if left out in the summer sun. This allows the buses to cool down more quickly for afternoon trips.

The North Facility helps to reduce "deadhead" (non-revenue) miles. It is estimated that 778 daily miles of deadhead mileage were eliminated (saving approximately 233 gallons of diesel fuel each day) when the new facility opened.

Presently under construction is the Heavy Transit Maintenance Facility located at 23rd Avenue and Lower Buckeye Road. This facility is scheduled to open in March 1982 and will replace the Watkins Road Facility. The Heavy Maintenance Facility will provide the necessary space and equipment to perform all major repair work for a 500-bus fleet.

Downtown Phoenix Bus Terminal. The downtown terminal is the focal point of the fixed-route transit system with all but four crosstown routes (Routes #22, 48, 54, and 58) serving the terminal.

The terminal site is on the southeast corner of the intersection of First Street and Washington Street. The 4,000 square feet building contains facilities for ticket sales, dissemination of route information, and seating for 64 people. The central dispatching console for the transit mobile radio system is also located there.

Present outdoor amenities include two double passenger shelters and ten benches. Shaded areas north and south of the terminal building are provided by extending the roof rafters beyond the ends of the building and covering them with shade fabric. Seating is available within the shaded areas as well as inside the building.

Park-and-Ride Lots. There are a total of 22 formal park-and-ride facilities in the urban area. Three are located on public land (e.g. City or State property), three are located in parking lots owned by non-profit organizations (e.g. churches, civic clubs), and sixteen are part of privately-owned shopping center parking lots. The park-and-ride lots are used primarily by bus riders, but there are a number of carpoolers who also use the lots. Table 9 is a current listing of all park-and-ride lots. The locations of these lots are shown in Figure 10.

Street Furniture. Nearly 3,000 bus stops are currently located along Phoenix Transit routes. Approximately 650 of these bus stops have benches and another 95 have shelters with benches.

Construction of additional shelters to provide shade for patrons at park-and-ride facilities and near human service agencies is planned for 1982. A new design for the shelters is being prepared that will be more compatible with the urban fabric and will be accessible to wheelchair patrons.

Within the City of Phoenix, benches located at bus stops without shelters are of two designs. One design has wooden seats and backs with heavy concrete legs. The other design is a one-piece streamlined concrete bench (without back support) painted with graffiti-resistant white acrylic paint. Through the bus stop maintenance program (carried out by a three-man crew from the Phoenix Street Maintenance Department), benches are refinished on a regular basis. Deteriorated benches are removed and replaced with refinished benches. This program of salvage, refurbishment, and replacement has minimized the need for replacement benches and has allowed new benches to be located at bus stops that formerly did not have any passenger amenities.

In 1980 the Phoenix City Council approved paid interior bus card and bus bench advertising. The interior advertising will be on all buses and the bench advertising will be on all benches located in commercial and industrial areas of Phoenix. The other cities have not yet decided if they will begin to allow bus bench advertising.

3.2 PARATRANSIT SYSTEMS FOR THE GENERAL PUBLIC

Five paratransit systems provide demand-response service to the general public. The City of Phoenix contracts for the operation of the Paradise Valley Dial-A-Ride, Moon Valley Dial-A-Ride, and Phoenix Sunday Dial-A-Ride. The City of Glendale operates the Glendale Dial-A-Ride and the City of Mesa contracts for the operation of the Mesa Shared-Ride Taxi Service.

3.2.1 PARATRANSIT SERVICES OPERATED BY THE CITY OF PHOENIX

The City of Phoenix contracts for two paratransit systems in limited service areas on weekdays and for city-wide demand-response service on Sundays.

TABLE 9

FORMAL PARK-AND-RIDE LOTS

	Name	Location	Approximate Number of Spaces	Transit Routes: Express	Transit Routes: Local
Phoenix					
1.	MetroCenter	Black Canyon Freeway, S.W. of Peoria Ave., S.W. corner of shopping center	175+	#91, 92 95, 96	#3, 5 West, 29, 41
2.	K-Mart Shopping Center	35th Ave., S.E. of Greenway Rd.	20	92	3
3.	Crossroads United Methodist Church	Northern Ave., S.E. of Central Avenue	30		5 East, 5 West
4.	Woolco/Fry's Shopping Center	Cave Creek Rd., N.W. of Cactus Rd.	15		5 East
5.	K-Mart/Lucky Shopping Center	32nd St., S.E. of Cactus Rd.	15	97, 98	5 West
6,	Mitchell's Village Center	32nd St., S.E. of Thunderbird Rd.	20	97, 98	5 East
7.	Paradise Valley Mall	Tatum Blvd., N.W. of Cactus Rd., S.E. corner of shopping center	75+	98	5 East
8.	Southern Business Park	Southern Ave., N.W. of 16th St.	20		15
9.	Thunderbird Lodge #48	Baseline Rd., N.W. of Central Ave.	20+	86	16
10.	St. Catherine's Church	Central Ave., N.W. of Alta Vista Rd.	20	86	16
Mesa					
1.	Robson Rd.	Robson Rd., S.E. of Ist St.	20		60
Scottsdale					
1.	Trinity Church Assembly of God	7300 Via Paseo Del Sur, McCormick Ranch	20	90	
2.	Camelback-Miller Plaza	Miller Rd., S.W. of Camelback Rd.	15	90	
3.	Scottsdale Village	Thomas Rd., S.W. of 68th St.	15	90	18
4.	Smitty's Big Town	McDowell Rd., N.W. of Granite Reef Rd.	20	99	3
5.	Los Arcos Mall	McDowell Rd., S.E. of Scottsdale Rd.	15	99	3, 22
Tempe					
1.	GEMCO Shopping Center	Baseline Rd., N.E. of McClintock Rd.	5	93	
2.	Tempe Library	Southern Ave., S.W. of Rural Rd.	5	93	
3.	Tempe Municipal Lot	7th St., S.E. of Maple Ave.	20		22, 60
4.	Dooley's	Apache Blvd., N.E. of Terrace Rd.	20		60
5.	Superstition Freeway Interchange	Price Rd., N.E. of Southern Ave.	70	93	
6.	Danelle Plaza	Mill Ave., S.W. of Southern Ave.	6	94	

LIST CURRENT AS OF MARCH, 1981

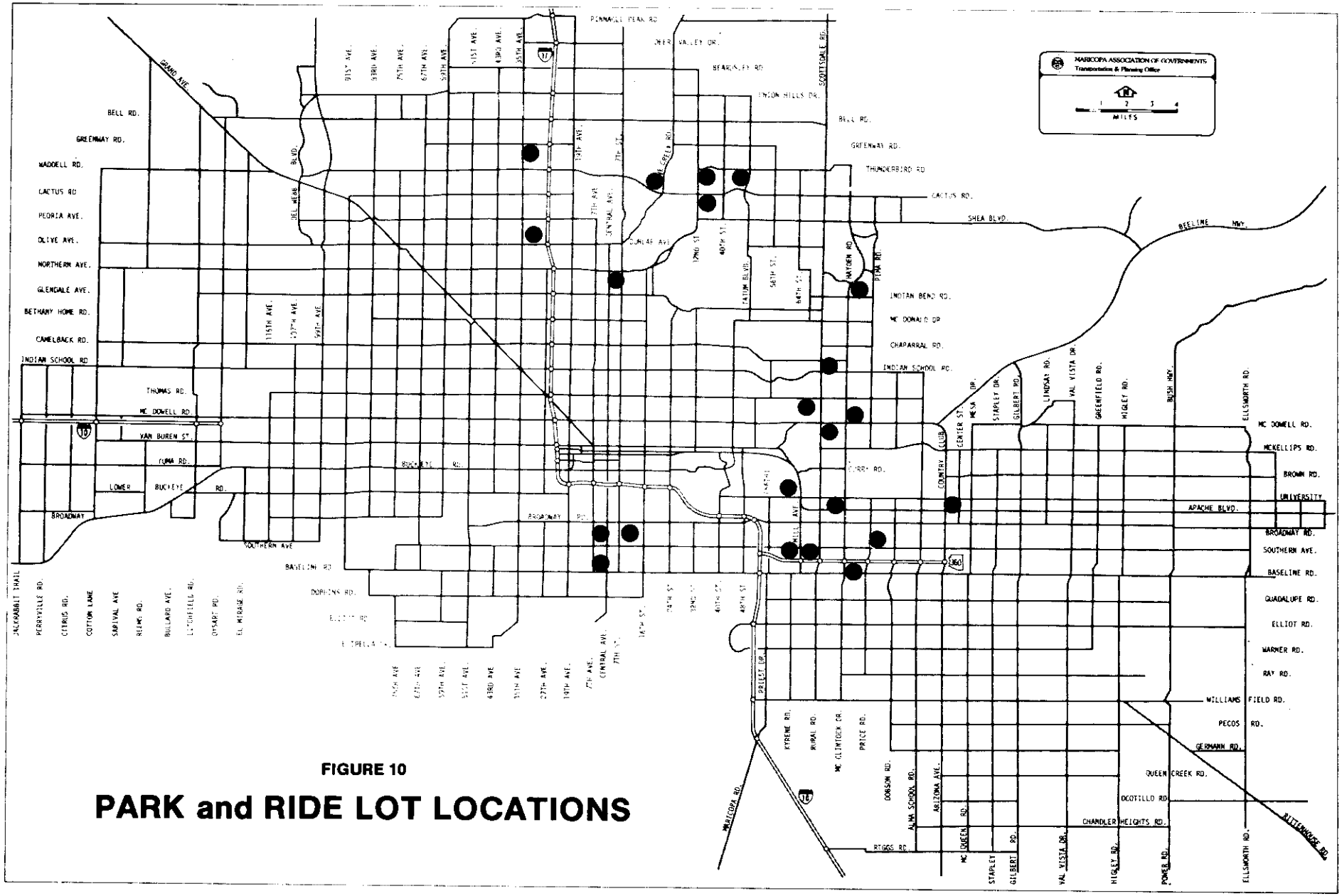


FIGURE 10

PARK and RIDE LOT LOCATIONS

Moon Valley and Paradise Valley Dial-A-Rides

Paradise Valley and Moon Valley Dial-A-Rides provide door-to-door, demand response transportation for the general public. They serve less densely-populated areas of Phoenix where fixed-route scheduled bus service would be inappropriate.

The Moon Valley and Paradise Valley service areas are shown in Figures 11 and 12 respectively. The two service areas abut each other and free transfers can be made between the two systems. Transfers to Phoenix Transit buses are also free of charge. Hours of operation for both systems are Monday through Friday, 7:30 a.m. to 5:00 p.m.

The fare structure for both the Paradise Valley and Moon Valley Dial-A-Rides is as follows:

Adult (12 through 59 years) . . . . . $ 1.00
Senior (60 years and Over), Handicapped, and
Child (6 through 11 years) . . . . . $ .25
Child (5 years and under) . . . . . Free
Student (12 through 20 years). . . . . $10.00 for a 20-ride ticket

The City of Phoenix contracts with Arnett Cab Service, Inc. to provide both dial-a-ride services. Vehicles include three 5-passenger Checker Marathon taxicabs and one 11-passenger Dodge maxi-van equipped with a wheelchair lift. The van, which is stationed in Paradise Valley, is used to transport wheelchair-bound Moon Valley Dial-A-Ride patrons when necessary.

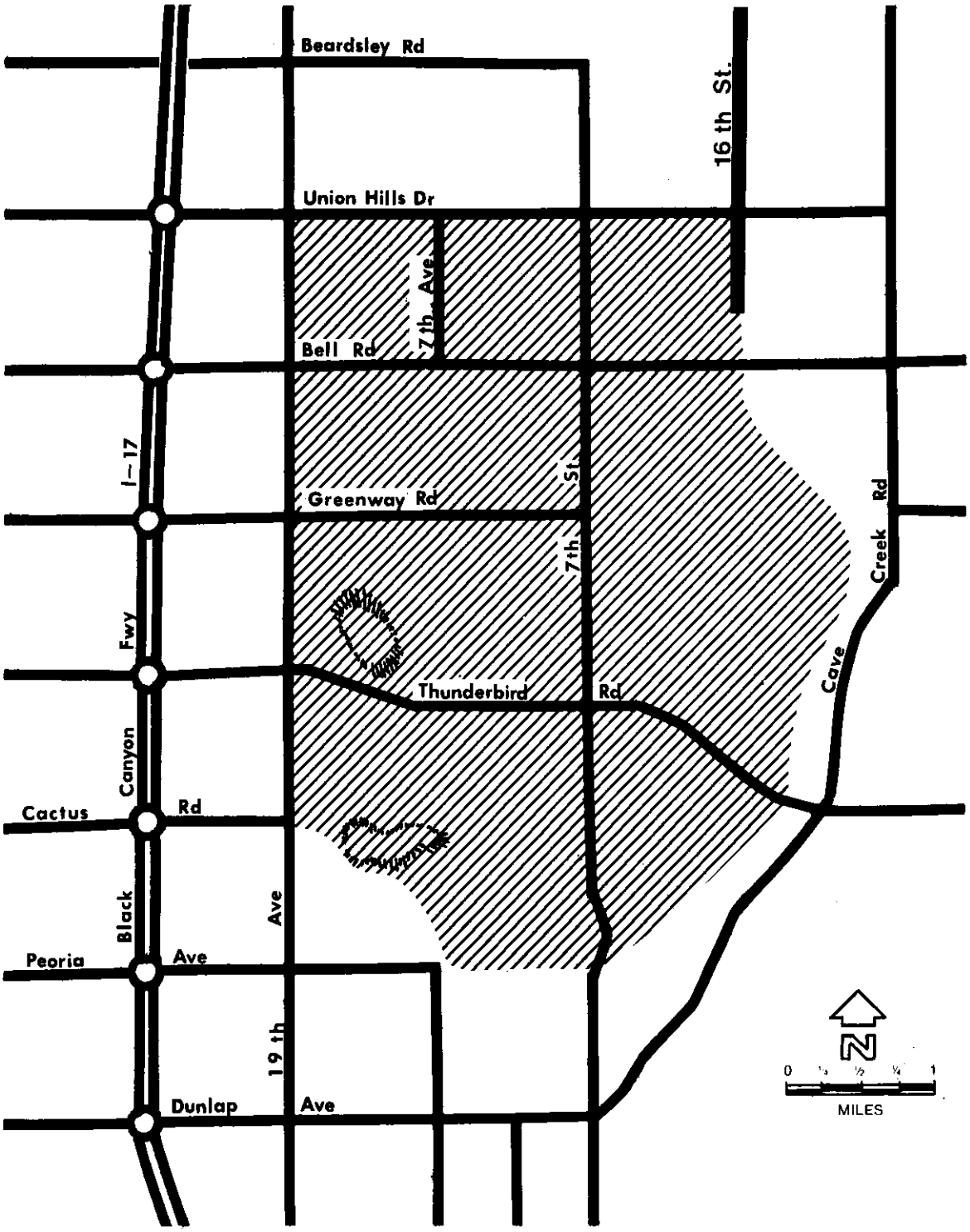
About 190 people per day currently use Paradise Valley Dial-A-Ride -- up from 160 per day last year. According to a survey taken on February 18-19, 1981, 35 percent of these riders make transfers to either the Moon Valley Dial-A Ride or the Phoenix Transit System. Approximately 35 percent of the riders surveyed were elderly or handicapped. Primary trip purposes were for work and shopping.

Moon Valley Dial-A-Ride is a new service that began operations on January 19, 1981 and is used by about 16 people per day. A survey taken on February 20 and 23, 1981 indicated that about 5 percent of the Moon Valley riders were elderly or handicapped. The primary trip purpose was to and from school.

Total FY 80/81 operating expenses for the Paradise Valley Dial-A-Ride are estimated to be $141,800 (based on data for the first eleven months of the year). Estimated farebox revenues are $16,400 or approximately 12 percent of operating expenses. Actual operating expenses for the first nineteen weeks of operation (January 19 - May 31, 1981) for the Moon Valley Dial-A-Ride were $10,588. Revenues for the same period were $303, or less than three percent of expenses.

FIGURE 11

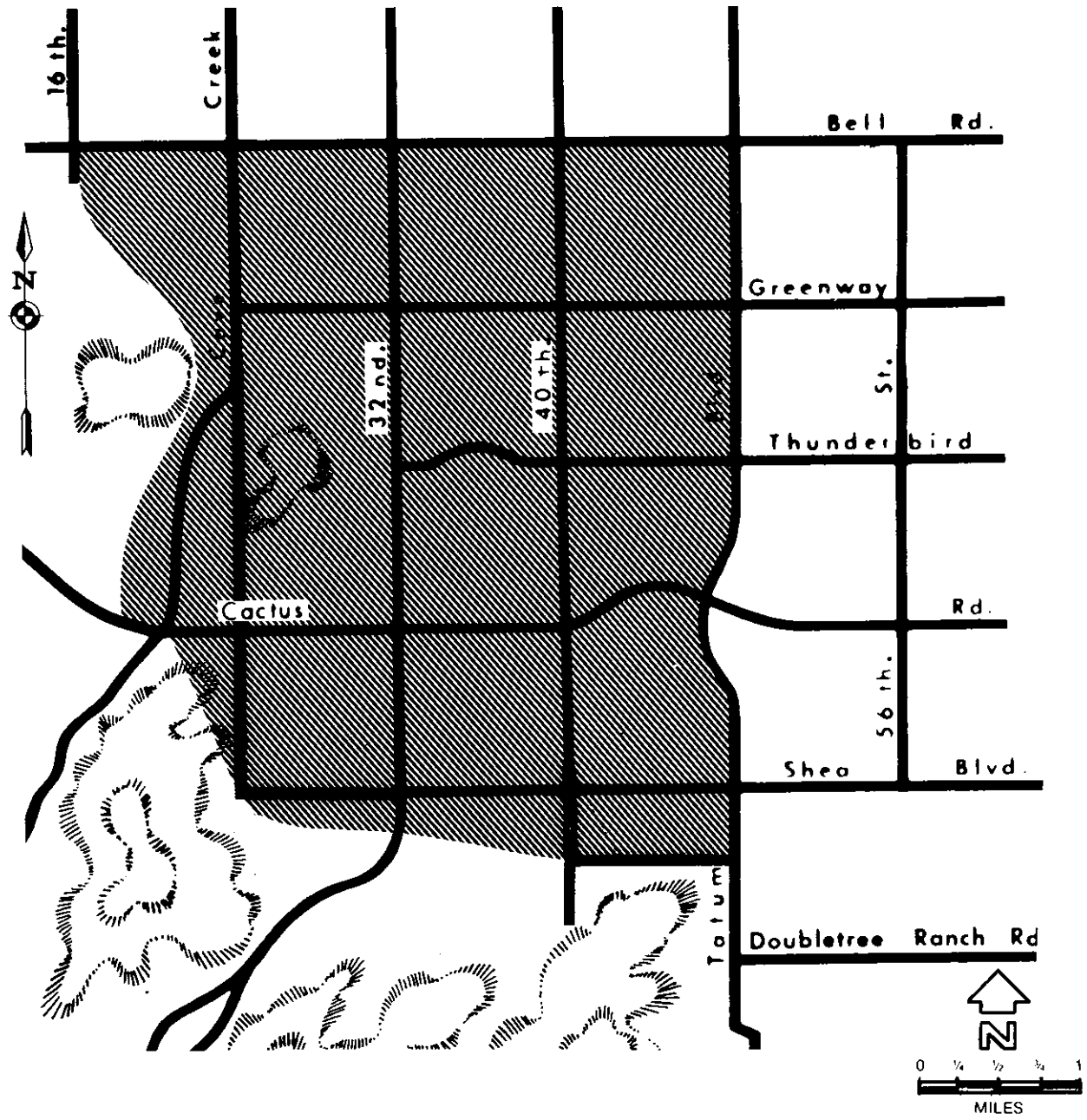
City of PHOENIX



MOON VALLEY
Dial-a-Ride Service Area

FIGURE 12

City of PHOENIX



PARADISE VALLEY
Dial-a-Ride Service Area

Sunday Dial-A-Ride

Phoenix Sunday Dial-A-Ride began operations on August 31, 1980. Fixed-route transit service is not provided on Sundays but the Phoenix Sunday Dial-A-Ride provides door-to-door demand-response transportation between the hours of 8:00 a.m. to 3:00 p.m. Sunday Dial-A-Ride is open to the general public for all trip purposes.

The Sunday Dial-A-Ride service area includes the entire City of Phoenix (Figure 13). The service area is divided into ten zones. The passenger pays a base fare for the initial zone and an additional fare for each zone traversed. The Sunday Dial-A-Ride fare structure is as follows:

	Adult (12 to 64 Year Old)	Senior (65 or Older), Handicapped, or Child (11 and Younger)
Base Fare	$ 1.00	.50¢
Zone Fare	.25¢	.10¢

Arnett Cab Service, Inc. provides up to 19 taxicabs and one wheelchair lift equipped van for Sunday Dial-A-Ride through a contract with the City of Phoenix. A van is also available as a back-up vehicle.

About 250-300 people use the dial-a-ride each Sunday. Results of a passenger survey taken January 11, 1981 show that almost 60 percent of the patrons are elderly or handicapped and use discount fares. Incomes of $10,000 or less were reported by 64 percent of the respondents. Trips to and from church and shopping were the most common types of trips. However, about 9 percent of respondents said they used the service to go to or from work.

From August 31, 1980 to May 31, 1981, Sunday Dial-A-Ride operating expenses were $73,780. Farebox revenues were $6,168 or 8.4 percent of operating expenses.

3.2.2 GLENDALE DIAL-A-RIDE

Glendale Dial-A-Ride is the major public transportation provider in that city. The general public is served between the hours of 7:30 a.m. and 5:00 p.m., Monday through Friday. Figure 14 shows the 14.5 square-mile service area. All low-income and minority areas of the city are included as well as 90 percent of the elderly residing in Glendale.

A fare increase for the Glendale Dial-A-Ride went into effect on January 1, 1981:

	Adult	Handicapped	Elderly (60 or Older)	Children (Under 40 Inches in Height)
Previous	50¢	25¢	25¢	---
Current	$1.00 in cash or 2 40¢ tokens	50¢ in cash or 1 40¢ token	50¢ in cash or 1 40¢ token	10¢ each

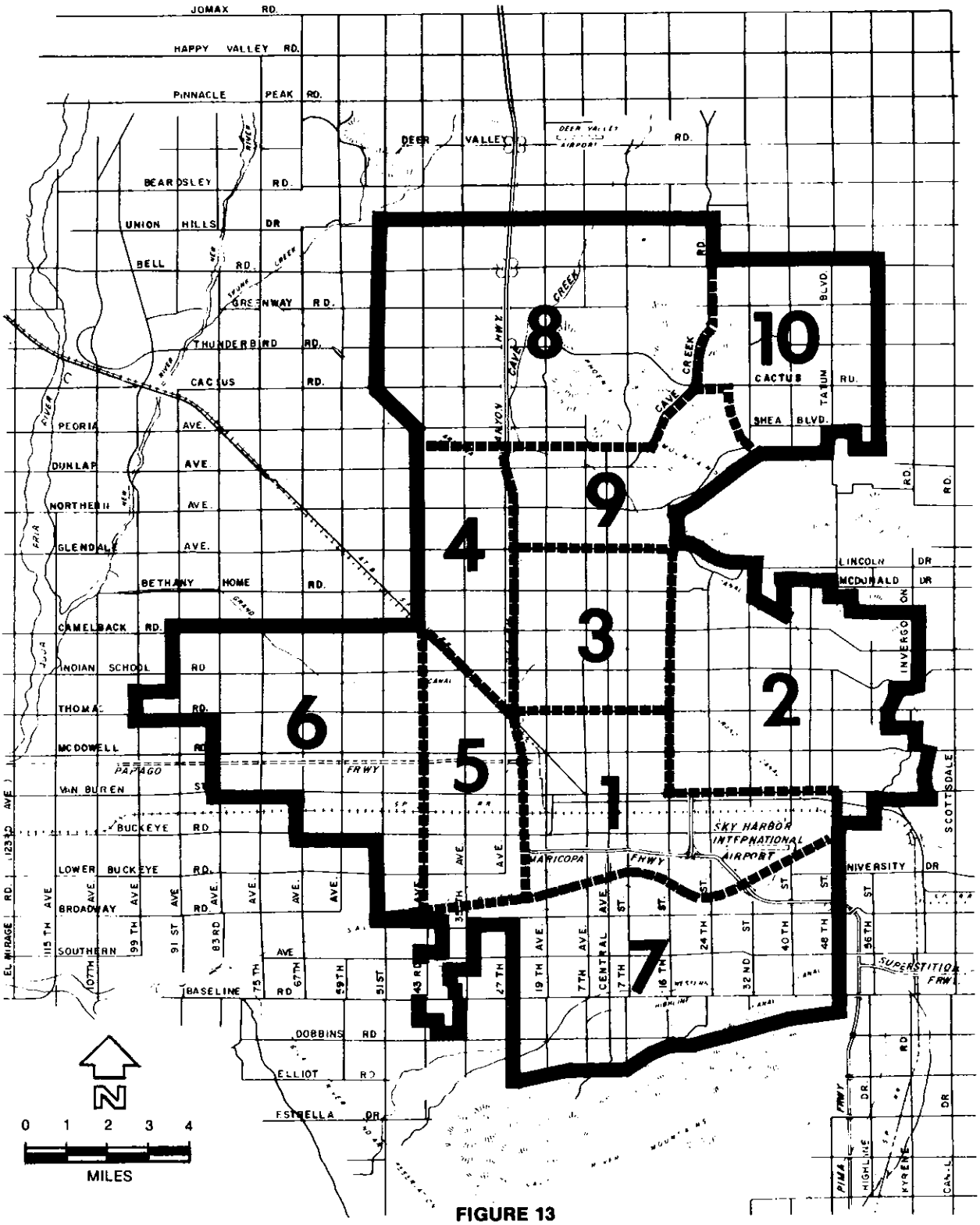


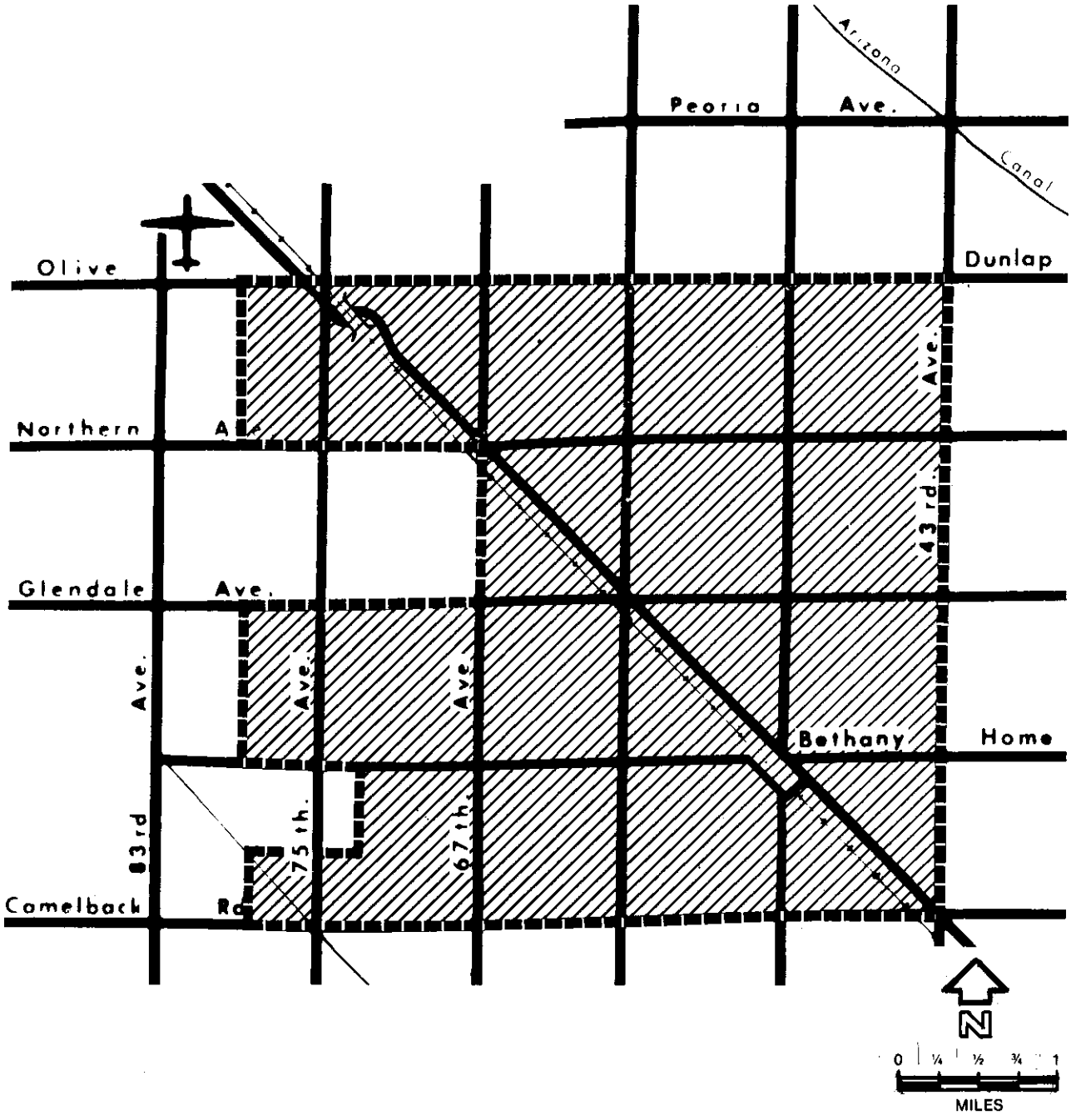
FIGURE 13

CITY OF PHOENIX
SUNDAY DIAL-A-RIDE

SERVICE AREA **ZONES**

FIGURE 14

City of GLENDALE



Dial-a-Ride Service Area

Glendale Dial-A-Ride is currently participating in a federally-funded demonstration project to determine the feasibility of implementing a checkpoint pick-up system. Parts of northern Glendale, currently without transit service, comprise the study area. This study area is more sparsely populated, housing is newer, and the average income of residents is higher than that found in the current dial-a-ride service area.

If the six-month study shows that the checkpoint system appears feasible, it will be tested for one year. Upon the successful conclusion of this test, a computerized checkpoint dispatch, passenger information and fare collection program would be developed.

The Glendale Dial-A-Ride fleet consists of 7 mini-buses and one wheelchair lift-equipped van. Ten new lift-equipped mini-buses have been purchased and will go into service before July 1, 1981. All Glendale Dial-A-Ride vehicles are equipped with fareboxes, 2-way radios and air conditioning.

Preventive maintenance and repair services are done in the City of Glendale automotive shop. Preventive maintenance checks are conducted at 1,000-mile intervals. Repairs are done on an as-needed basis.

Ridership during the third quarter of 1981 decreased by 15 percent overall. This decrease is attributable to the fare increase that was initiated last January. While ridership decreased, revenues increased 65 percent.

The average daily ridership for the third quarter of 1981 was 715 passenger trips per day. About 15 trips per day are made on the system by individuals in wheelchairs. With fewer people riding, the average wait time decreased by nine minutes and the average ride time decreased by two minutes. Productivity was also down from 8.3 to 7.3 passengers per vehicle hour.

The 1981 third quarter ridership survey showed the following trip purposes:

	Percent of Respondents
Grocery Shopping	26%
Recreation	20%
Miscellaneous[1]	15%
Other Shopping	14%
Business	11%
School or Work	8%
Medical	6%
	100%

(1) Includes going home, visiting or transferring to Phoenix Transit System.

Total FY 80/81 operating expenses for the Glendale Dial-A-Ride are estimated to be $402,800 (based on data for the first ten months of the year). Farebox revenues for the same period are estimated at approximately $53,000 or 13 percent of the operating expenses.

3.2.3 MESA SHARED-RIDE TAXI SERVICE

Mesa Shared-Ride Taxi Service is the major public transportation provider in the City of Mesa in terms of ridership and area covered. The general public is served seven days a week between the hours of 7:30 a.m. to 5:30 p.m. Figure 15 shows the 72 square-mile service area covering the entire city. The service area is divided into seven zones.

The Mesa City Council, after a public hearing, adopted a new fare structure in November, 1980:

	Adult Base Fare	Adult Zone Fare	Base Fare For Children 6-11, Handicapped, Elderly	Zone Fare For Children 6-11, Handicapped, Elderly	Children Under 5 Years
Previous	$1.00	.40¢	35¢	25¢	Free
Current	$2.00	.50¢	$1.00	30¢	Free

The current average fare paid is 62¢; approximately 85 percent of the riders pay the reduced fares for the elderly and handicapped. The overall system load factor is 3.6 passengers per vehicle-hour.

The Mesa Shared-Ride Taxi Service is provided through a contract with Arnett Cab Service, Inc. Arnett Cab provides a maximum of 23 air-conditioned Checker Marathon taxis and one van equipped with a wheelchair lift under this contract. Public acceptance of the taxicabs is excellent as many elderly and/or disabled persons find the low step height and auto seating characteristics preferable to a van or mini-bus. Maintenance is performed on the vehicles by the contractor.

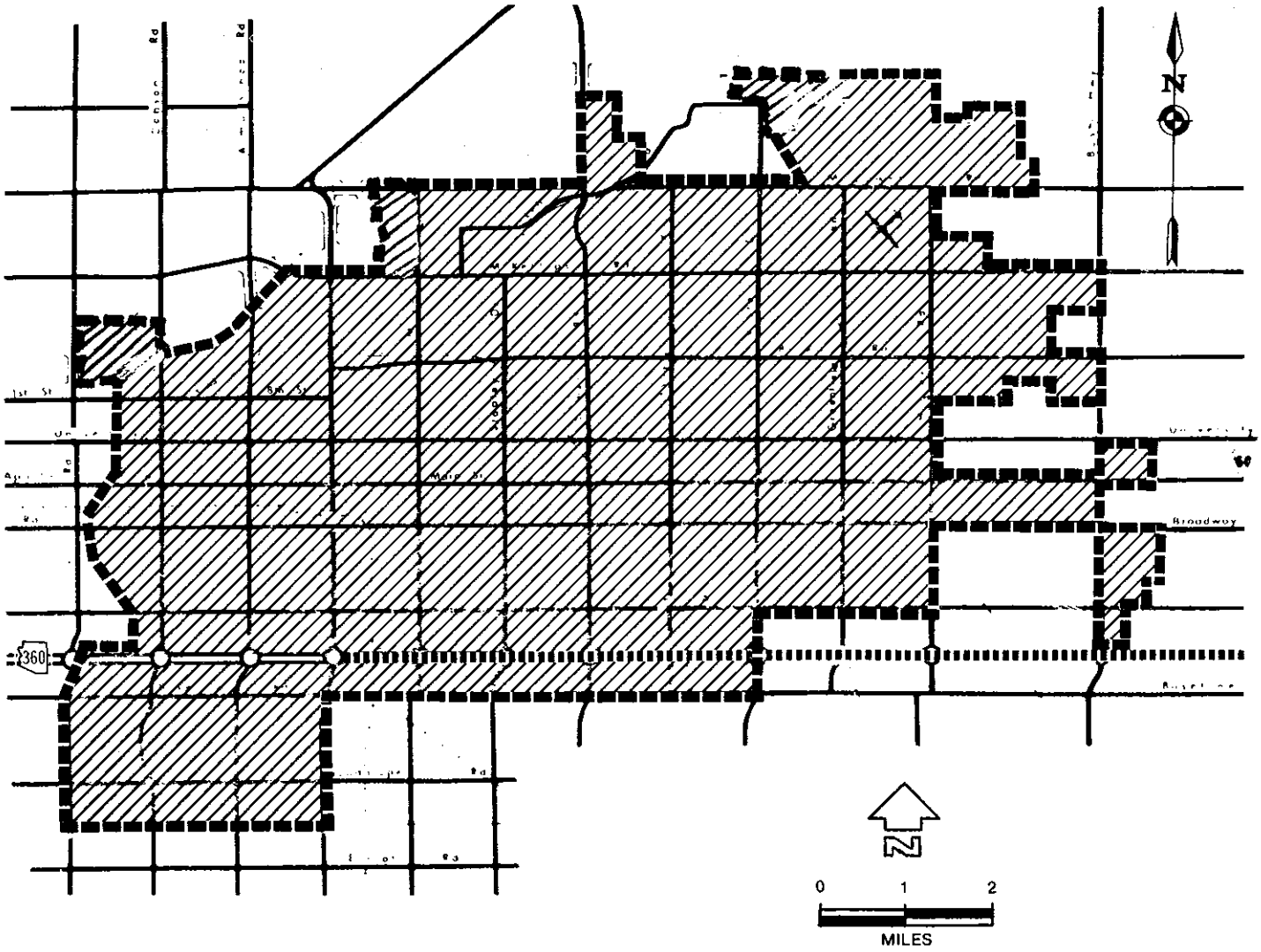
The number of vehicles in service at any one time varies according to passenger demand. Usually 17 vehicles are in service on weekdays and Saturday, but 9 on Sunday.

Table 10 compares ridership figures for FY 1979/80 and FY 1980/81. The last fare increase (in November 1980) has considerably slowed the rate of growth in ridership. Wheelchair-bound patrons account for approximately two percent of all trips made on the Mesa Shared-Ride Taxi Service.

Results of a passenger survey taken during June 3-5, 1980 show that 54.6 percent of Mesa Shared-Ride Taxi passengers are 65 years of age or older (some of whom may be handicapped) and 25.4 percent are handicapped but under 65 years of age. Trip purposes are predominantly for shopping or medical appointments. Only nine percent of survey respondents said they used the service for work trips.

Figure 15

City of Mesa



Shared-Ride Taxi Program Service Area

TABLE 10

MESA SHARED-RIDE TAXI SERVICE MONTHLY RIDERSHIP

Month	FY 79/80	FY 80/81	Percent Change
July	9,131	13,682	+49.8%
August	10,718	16,109	+50.3
September	10,906	14,309	+31.2
October	10,703	15,012	+40.3
November	10,719	11,061	+ 3.2
December	12,022	13,639	+13.5
January	13,539	11,991	-11.4
February	13,094	12,823	- 2.1
March	15,241	11,838	-22.3
April	13,857	13,114	- 5.4
May	14,230	11,116	-21.9
June	13,546	N.A.	
TOTAL PASSENGERS	147,706		

The contract rate for taxicabs is $14.48 per vehicle-hour on Monday through Saturday and $15.79 per vehicle-hour on Sundays and holidays. The contract rate for the wheelchair van is $16.48 per vehicle-hour on Monday through Saturday and $7.79 per vehicle-hour on Sundays and holidays.

The City of Mesa Budget Department has estimated that FY 80/81 operating expenses for the Mesa Shared-Ride Taxi Service will be approximately $753,000, while farebox revenues for the same period are estimated at 136,100. Passenger revenues will therefore cover about 18 percent of the operating costs. Future fare increases are expected in order to increases this recovery ratio.

3.3 SPECIALIZED TRANSIT SERVICES

The specialized transit services discussed in this section are the Maricopa County Human Resources Department/American Red Cross Special Transportation Services, the City of Phoenix Human Resources Department(HRD)Reserve-A-Ride, and the Scottsdale Human Resources Mobility Program. Each of these systems is restricted to elderly, handicapped, and in some cases, low-income individuals. Also, all three systems have some restrictions on trip purposes.

3.3.1 MARICOPA COUNTY HUMAN RESOURCES DEPARTMENT/AMERICAN RED CROSS SPECIAL TRANSPORTATION SERVICES

The Special Transportation Services program provides both intercity and intracity transportation to low-income, elderly (60 years of age or older), and/or handicapped individuals in and around a 20-jurisdiction target area in Maricopa County (see Figure 16). This service is provided Monday through Friday between the hours of 8:00 a.m. and 4:30 p.m. To use the Special Transportation Services, reservations are made up to two weeks, but not less than 24 hours, in advance. There is no fare, but some people make a small donation in appreciation of the service.

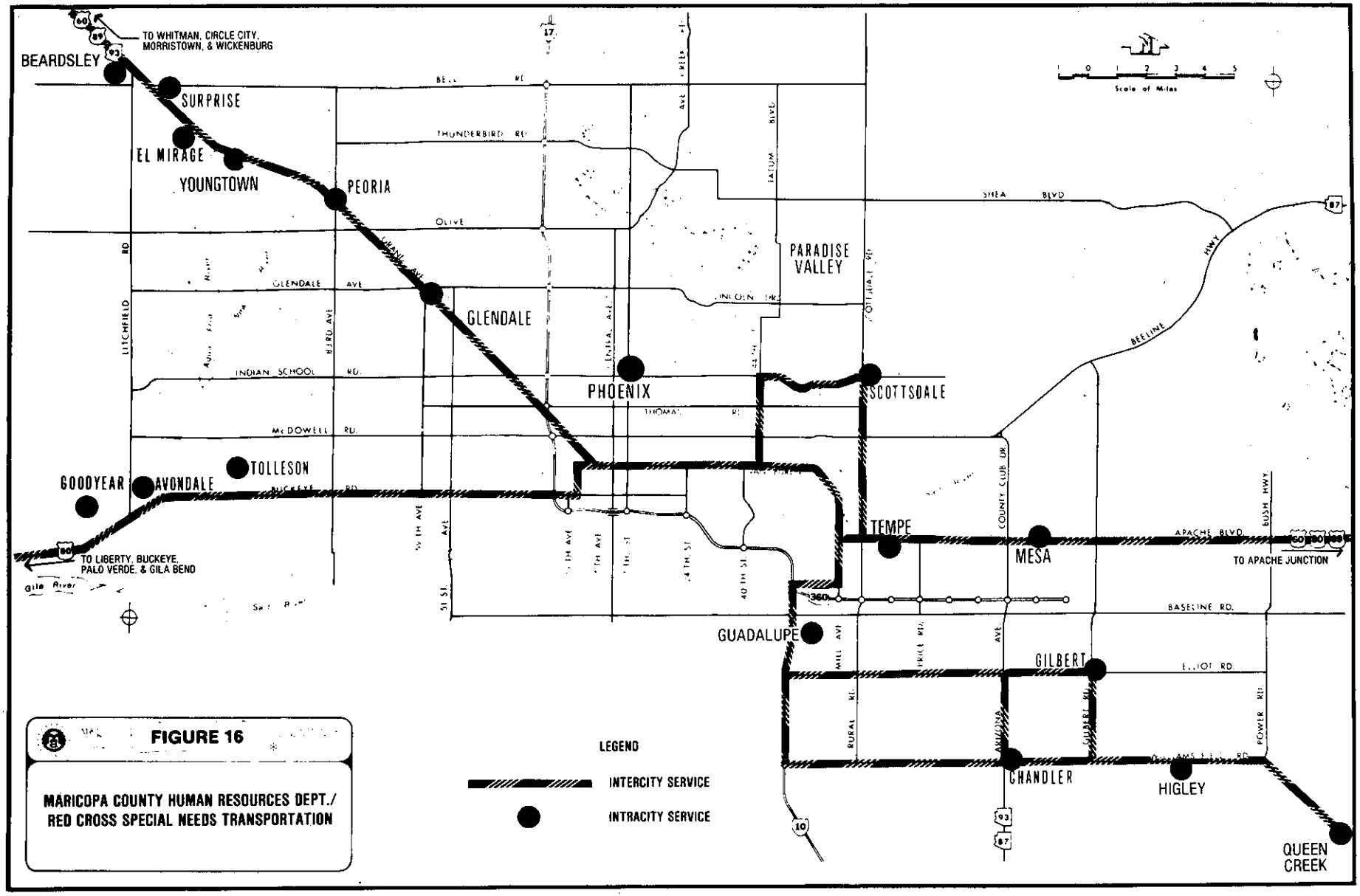


FIGURE 16

MARICOPA COUNTY HUMAN RESOURCES DEPT./ RED CROSS SPECIAL NEEDS TRANSPORTATION

The program began on a limited basis on March 1, 1980 as a demonstration project. The service was expanded county-wide when it was shown that the program provided more trips for the same cost than the two systems operated individually by the County and the Red Cross. The Maricopa County Human Resources Department now serves as an umbrella fiscal agent gathering funds from all sources available such as Head Start, Title XX (Social Security Act), Older Americans Act, revenue sharing, Community Service Administration, and others. The American Red Cross serves as the operator of the service, supervising all reservations and scheduling activities, staffing the vehicles with volunteer drivers, and supervising the maintenance and utilization of the vehicles.

The fleet consists of 45 vans, eight of which are equipped with wheelchair lifts. Forty-one vans are used in daily service and the remaining four are kept as spares. The Red Cross owns 25 of the vehicles and leases the remaining 20 from the Maricopa County Human Resources Department.

A schedule of preventive maintenance and routine servicing for these vans is followed by the Red Cross. Maintenance is performed at local service stations for vehicles assigned to outlying areas, and by the maintenance supervisor for vehicles stationed nearer the main office. Repairs are on an as-needed basis.

Trip purposes are restricted to medical and social service agency trips. Trips are also provided for Head Start and summer youth programs. Total annual ridership for FY 1980/81 is expected to be about 204,500 passengers (based on data for the first eleven months of the year).

Total operating expenses for FY 80/81 are estimated to be $183,700 (based on data for the first eleven months of the year). Revenue from donations is expected to be $8,200. This would give a farebox recovery ratio of approximately four percent.

3.3.2 THE CITY OF PHOENIX HUMAN RESOURCES DEPARTMENT RESERVE-A-RIDE

Reserve-A-Ride is a specialized service that operates Monday - Friday, from 8:00 a.m. to 5:00 p.m. Patrons must notify the dispatch office a minimum of 24 hours in advance to schedule trips and trips can be scheduled up to a week in advance. A few trips of purely demand-response nature are made in emergencies or when capacity permits. Although no fare is charged, a donation of 25¢ per trip is requested.

Clientele includes senior citizens sixty (60) years or older who possess a Transit Reduced Fare Authorization Card for Elderly or a Golden Senior Discount Card. Handicapped individuals regardless of age must possess a certified handicapped identification card, such as the Transit Reduced Fare Authorization Card for Handicapped.

Prospective clients can register for their identification card at any of several certifying agencies. Clients must register in person. Transportation arrangements for registration can be made with the Reserve-A Ride dispatch office.

Handicapped clients under sixteen (16) years of age must be accompanied by an adult. Except for the handicapped requiring wheelchair lift-equipped buses, clientele must be ambulatory and require a minimum of assistance to board and alight from buses.

Figure 17 shows the HRD Reserve-A-Ride service area. The service area covers the highest concentrations of elderly persons in Phoenix and about 90 percent of the handicapped population concentrations. Areas of minority concentration are covered as well. Some parts of Phoenix do not receive service due to funding restrictions. When the Moon Valley Dial-A-Ride started service, Reserve-A-Ride ceased operations in that area of the City so that these paratransit services were not duplicated.

The Reserve-A-Ride area is divided into 3 sections as follows:

Section 1 - Bell Road to Glendale Avenue
Section 2 - Glendale Avenue to Indian School Road
Section 3 - Indian School Road to Baseline Road

Reserve-A-Ride will carry patrons across section boundaries, but will take patrons in sections 1 and 2 no further south than Jefferson Street.

HRD Reserve-A-Ride operates 17 mini-buses and vans, including 4 wheelchair lift-equipped vehicles. Three new wheelchair lift-equipped mini-buses were purchased in FY 1980/81 for delivery by September, 1981. The City of Phoenix Equipment Maintenance Division provides all needed maintenance functions for the vehicles.

HRD has purchased a minicomputer to store data needed for monthly and yearly management reports. In UMTA Grant No. AZ-05-0010, funding for the purchase of additional hardware and software is being requested. This would allow HRD to expand its client registration and scheduling capabilities. The City and Maricopa County intend to exchange data and software in order to reduce program development costs and improve efficiency.

Approximately 14,000 passengers per month use Reserve-A-Ride. Productivity is 6.25 passengers per vehicle-hour. Due to funding restrictions, trips are prioritized by purpose, with medical and social service agency trips being the highest priority. Some shopping trips are also provided on a space-available basis.

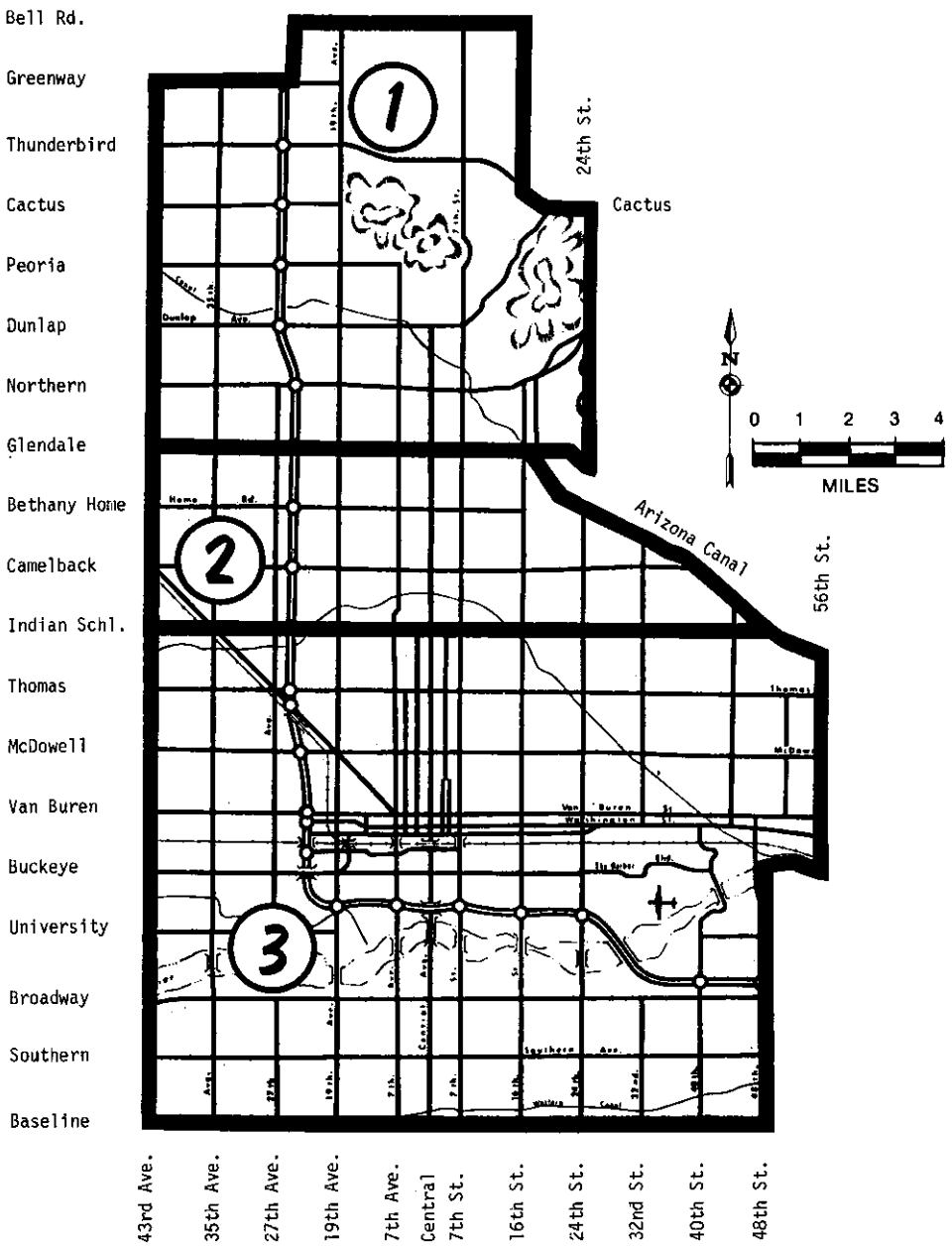
Total operating expenses for HRD Reserve-A-Ride in FY 1980/81 are estimated at $430,000. Revenue from donations is projected to be $10,000 or 2.3 percent of operating expenses.

3.3.3 SCOTTSDALE HUMAN SERVICES MOBILITY PROGRAM

The Scottsdale Human Services Mobility Program is a project funded entirely by the City of Scottsdale; no federal funds are involved. The service is restricted to people who are residents of Scottsdale, at least 60 years of age or handicapped, and unable to drive. Riders must register in person at the Scottsdale Senior Center and over 950 persons have registered to date.

FIGURE 17

City of PHOENIX



Human Resources Department (HRD) Reserve-a-Ride Service Area

◯	**Service Zones**

The Mobility Program is available to all handicapped people unable to drive except those requiring special handling from the driver; the person must be able to get into the vehicle without assistance. If necessary, the driver will fold a wheelchair for transport to be placed either in the trunk or alongside the passenger. To be eligible, registrants must verify their handicaps through a doctor's written statement, proof of receipt of a handicap aid, or possession of a handicapped driver's license or parking permit.

An individual may not make more than one reservation per day. The only trip purposes which are not allowed are personal social visits and purely recreational pursuits. Trips are provided to Phoenix Transit bus stops in Scottsdale.

The service area of the Scottsdale Human Services Mobility Program encompasses a 16 square-mile area of Scottsdale and two additional locations outside this service area -- Scottsdale Community College and a nutrition site in Tempe. Figure 18 is a map of the existing service area. All concentrations of lower income and minority populations in Scottsdale are within this service area.

The service area is divided into two zones. A one-way trip costs 50¢ if made within a single zone but an additional 25¢ is charged if zonal boundaries are crossed. The Human Services Mobility Program operates Monday through Friday, 9:00 a.m. until 5:00 p.m.

Arnett Cab Service, Inc. provides two taxicabs for the Human Service Mobility Program. Monthly ridership has increased by 52 percent over the last year -- growing from 679 passengers in May 1980 to 1,034 passengers in May 1981.

The predominant trip purposes are medical, shopping, and trips to senior centers. The typical patron is a woman, approximately 70 years of age, living alone, renting her living quarters, and with no auto available.

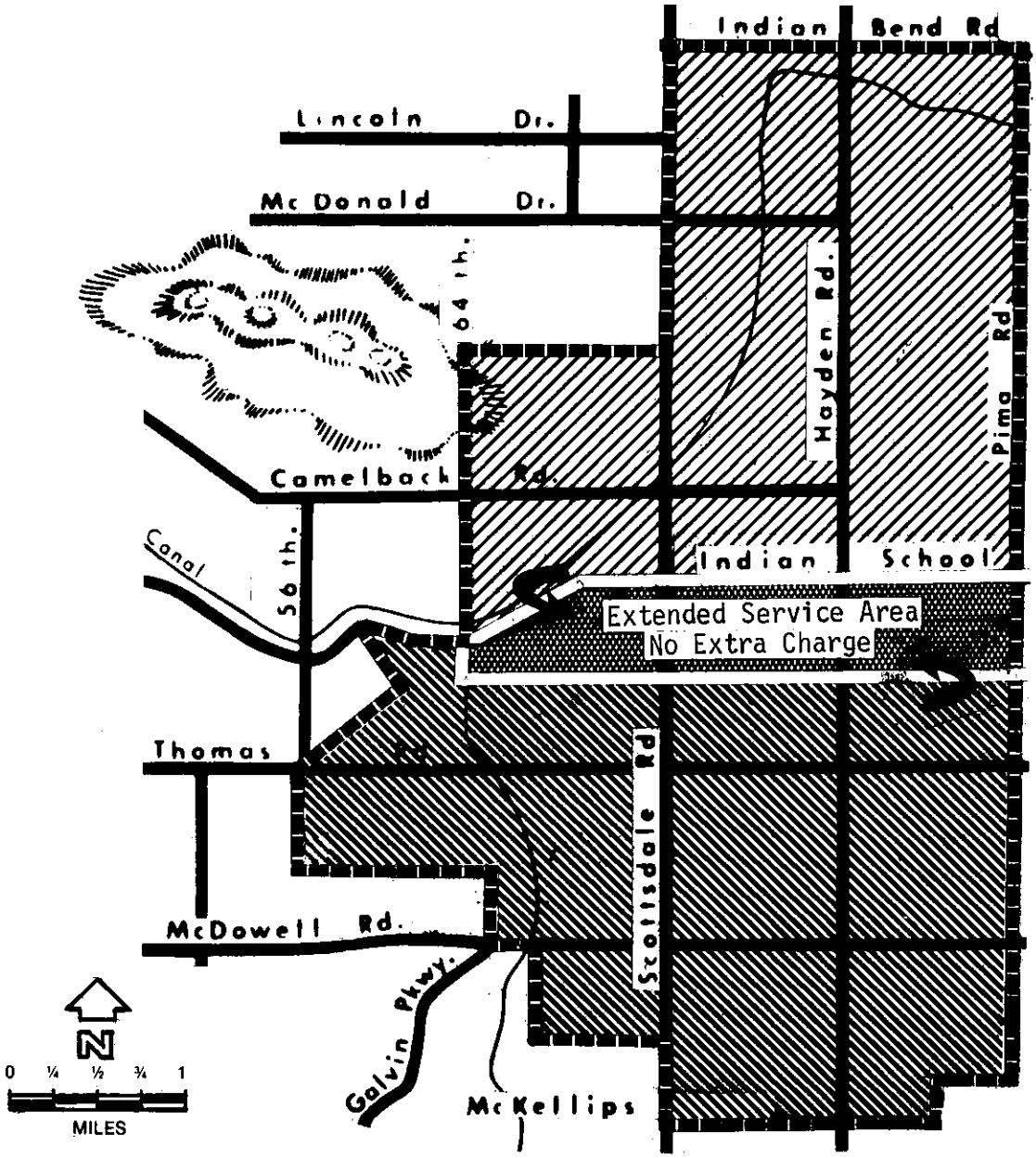
Operating support from the City of Scottsdale is expected to be about $34,000 in FY 1980/81. Contract costs with Arnett Cab have increased from $4.75 per vehicle-hour last year to $8.25 per vehicle-hour. At the same time, however, the cost to the City per person-trip has decreased from over $6.00 per trip when the service first started in September 1979 to less than $4.00 per trip currently due to increased ridership. Under the terms of the contract with the City of Scottsdale, Arnett Cab retains all fares collected in addition to receiving the contract hourly rate. Passenger revenues are expected to be approximately $5,600 in FY 1980/81 (based on data for the first 11 months of the year).

3.4 OTHER TRANSPORTATION PROVIDERS

In addition to the publicly-operated transportation services discussed previously, there are many private transportation companies currently operating in the Phoenix area.

FIGURE 18

City of SCOTTSDALE



HUMAN SERVICES MOBILITY PROGRAM
Service Area

Fare Zone 1
Fare Zone 2

Table 11 presents a list of all current holders of Arizona Corporation Commission franchises in the Phoenix area. A wide variety of services are offered ranging from chauffeur-driven limousines to interstate bus routes.

Deregulation of the intrastate transportation industry was approved by the voters of Arizona in November 1980, and is scheduled to take effect on July 1, 1982. It is not known at this time what impact deregulation will have on public transportation in the Phoenix area. There is a concern that private intercity carriers may discontinue service to outlying communities thereby increasing the pressure to extend public transit services to the smaller communities located on the fringes of the urbanized area. On the other hand, private entrepreneurs may enter the market place and siphon riders from existing public transit routes. It is likely that deregulation of surface transportation, like deregulation of the airlines, will have both positive and negative effects.

Human Service Agency Transportation

There are over 40 transportation systems transporting elderly and handicapped clients of various human service agencies in Maricopa County.

The MAG Regional Council has adopted a plan and program of transportation improvements for the elderly and handicapped. The first recommendation implemented was the establishment of a transportation coordination program administered through the Community Council. The program is a share-a-ride/share-a-vehicle mechanism which supplies a transportation alternative for human service agency clients. The rides are free to the individual clients of member agencies, as the trip costs are covered by the participating agencies with the Community Council serving as the overall coordinator.

Currently there are 38 organizations taking part in the project, as indicated in Table 12. It is important to note that the system currently serves only those elderly and handicapped who are clients of participating human service agencies. Trip reservations cannot be made by individuals directly, but only through their respective human service agencies.

Section 16(b)(2) Program

The Section 16(b)(2) program of the Urban Mass Transportation Administration (UMTA) provides capital assistance to private, not-for-profit agencies for the transportation of elderly and handicapped persons. UMTA will contribute 80 percent of the cost for approved projects and the agency provides the remaining 20 percent.

The Arizona Department of Transportation (ADOT) is the designated agency to receive, distribute, and administer the Section 16(b)(2) program in this state. However, the local councils of governments (MAG in the Phoenix area) perform the grant review and prioritization process.

TABLE 11

ARIZONA CORPORATION COMMISSION
INTRASTATE TAXI & PASSENGER SERVICE
- PHOENIX AREA -
June 16, 1981

COMPANY	TYPE OF SERVICE	GEOGRAPHIC AREA
AGAN'S BUS LINES 2 N. 56th St. Phoenix, AZ 85034	School Transportation	Statewide, except no intra-county service in Cochise, Pima & Santa Cruz
AIRPORT TRANSPORTATION CO. 4647 E. University Phoenix, AZ 85034	Airport limousine	Between Phoenix resorts & hotels & Sky Harbor Airport
ANDERSON AGENCY LTD. 236 E. Hatcher Road Phoenix, AZ 85020	Passenger transportation for security purposes	Statewide
ARIZONA BUS LINES, INC. 814 W. Jefferson St. Phoenix, AZ 85007	Intercity	Between Ajo & Phoenix. No service locally between Gila Bend and Phoenix
	Charter Car Service	Statewide
ARIZONA BUS TOURS 10777 Grand Avenue Sun City, AZ 85351	Tours	Statewide
BUCK'S SUPERSTITION MOUNTAIN TOURS 5320 E. Evans Drive Scottsdale, AZ 85254	Tours	Maricopa County & Superstition Mountain area
CANYONEERS, INC. P.O. Box 2997 Flagstaff, AZ	Tours	Statewide
CAREFREE TRANSPORTATION CO. P.O. Box 2222 Carefree, AZ 85377	Taxi and Tours	Within 25 miles of base at Carefree, AZ
	Intercity	Between Carefree & Cave Creek
CENTRAL ARIZONA TOURS P.O. Box 128 Casa Grande, AZ 85222	Tours	Pinal County to Scottsdale, AZ
CHECKER CAB COMPANY 1602 S. 2nd Street Phoenix, AZ 85201	Taxi	Within 50 miles of Maricopa and within 25 miles of Mesa
CHERRY CREEK TOURS 5959 W. Olive Ave. #64 Glendale, AZ 85302	Tours	Maricopa County to & throughout the Mesa District of the Tonto National Forest
COURTESY CAB CO. 1602 S. 2nd St. Phoenix, AZ 85004	Taxi	Chandler and vicinity
	Intercity	Between Chandler & Maricopa
CUNNINGHAM, FRANK 3818 E. Yucca Phoenix, AZ 85028	Chauffeur-driven limousine	Maricopa County
DESERT MOUNTAIN TOUR COMPANY 10110 E. Jenan Dr. Scottsdale, AZ 85260	Tours	Within 35 miles of Scottsdale
FLAGSTAFF TRANSPORTATION CO. 1421 South Milton Road Flagstaff, AZ 86001	Airport limousine	Between Phoenix Sky Harbor Airport & Flagstaff
GREYHOUND LINES, INC. 525 E. Washington Phoenix, AZ 85004	Intercity	Statewide
	Tours	Statewide
LET'S SEE 229 W. Winged Foot Rd. Phoenix, AZ 85023	Tours	Salt River Valley
M.S.I. CORPORATION 1016 South 23rd St. Phoenix, AZ	Chauffeur-driven limousine	Statewide
MCQUARRIE SERVICES 4614 N. 7th St. Phoenix, AZ 85014	Chauffeur-driven limousine	Statewide
MOGOLLON STAGE LINES, INC. P.O. Box 501 Payson, AZ 85541	Intercity	Between Phoenix & Winslow. No local service between Phoenix, Tempe and Mesa.
SCENIC TOURS OF ARIZONA P.O. Box 17101 Fountain Hills, AZ 85268	Tours	Statewide
SKY HARBOR TRANSPORTATION CO. 156 E. Mohave Phoenix, AZ 85004	Airport limousine	Between Phoenix resorts & hotels & Sky Harbor Airport.
SONORAN STAGE, LTD. P.O. Box 923 Phoenix, AZ 85001	Tours	Statewide
STAGE LINE TOURS 1317 E. Gurley St. Prescott, AZ 86301	Tours	Between Prescott & Sky Harbor Airport

TABLE 11 (cont.)

ARIZONA CORPORATION COMMISSION (Cont.)
INTRASTATE TAXI & PASSENGER SERVICE
- PHOENIX AREA -
June 16, 1981

COMPANY	TYPE OF SERVICE	GEOGRAPHIC AREA
SUN VALLEY BUS LINES, INC. 600 E. Jefferson Phoenix, AZ 85004	Intercity	Between Phoenix, Chandler Williams Field, Mesa, Gilbert and Guadalupe. Between Phoenix & other Arizona cities.
	Charter	Statewide
TANNER GRAY LINES OF PHOENIX 600 E. Jefferson Phoenix, AZ 85004	Tours	Statewide
TOURS ON THE TOWN 6767 N. 7th St., #105 Phoenix, AZ 85014	Tours	Maricopa County
TOLLESON WEST SIDE TAXI 604 E. Western Ave. Tolleson, AZ	Taxi	Within 25 miles of Tolleson. No return trips from Phoenix or Glendale except of passengers originating in pick-up area.
TRAILWAYS, INC. 433 E. Washington Phoenix, AZ 85004	Intercity, Charter	Statewide, except no local service between Phoenix and Flagstaff.

COMPANY	TYPE OF SERVICE	GEOGRAPHIC AREA
VILLAGE CAB COMPANY 3443 N. Central Ave. Suite 1015 Phoenix, AZ	Taxi	Within 25 miles of Scottsdale.
W A TAXI, LIMOUSINE, TOURS & BUS SERVICE P.O. Box 775 Wickenburg, AZ 85358	Airport limousine	Between Wickenburg & Sky Harbor Airport. No pick-ups or deliveries within 25 miles of the City of Phoenix, nor in Peoria, Sun City, Sun City West, or Surprise.
DEL E. WEBB DEVELOPMENT CO. P.O. Box 1705 Sun City, AZ 85351	Fixed-route transit	Within Sun City and Sun City West
YELLOW CAB COMPANY OF PHOENIX 156 E. Mohave Phoenix, AZ 85004	Taxi, Delivery Service	Phoenix & vicinity
	Tours	Phoenix & vicinity
	Taxi	Within 20 miles of Glendale. No back haul within City of Phoenix limits.

TABLE 12

PARTICIPANTS IN COMMUNITY COUNCIL TRANSPORTATION
COORDINATION PROGRAM
(Current as of July 1, 1981)

Trip Buyers	Trip Suppliers
Adult Protective Services	Arizona Foundation for the Handicapped
Alpha Omega	*Casa de Amigos
Arizona Industries for the Blind	Department of Economic Security (DES): Developmental Disabilities and Mental Retardation Services
Arizona Recreation for the Handicapped	Easter Seal Society
Arizona State Hospital	Foundation for Senior Adult Living
Bethany Ranch Home	Human Resources Department - City of Phoenix
Camelot Manor	*Mesa Association for Retarded Citizens
Disabled Children Program - Supplemental Security Income (SSI)	*Phoenix Center for the Blind
El Rinconcito	*Phoenix Indian Center
Friendly House	Red Cross
Garden Park Enterprise	Salvation Army
Guidepost	Scottsdale Foundation for the Handicapped
Handicapped Encounter Christ	Yellow Cab
Kidney Foundation	
Manor Corporation	
Memorial Towers	
Mesa Lutheran Hospital	
Rainbow Retreat	
Scottsdale Foundation for Blind Children	
Scottsdale Senior Center	
Tempe Center for the Handicapped	
United Cerebal Palsy	
Valley of the Sun School	
Vocational Rehabilitation	
Valley Big Brothers	

*Buyers and Sellers

In May 1981, the MAG Ad Hoc UMTA 16(b)(2) Committee evaluated all requests for 16(b)(2) funding submitted by area agencies for FY 1981/82. The five committee members were chosen to represent a cross-section of specialized transportation interests: elderly and handicapped persons, eastern and western sections of Maricopa County, and the City of Phoenix.

Each of the 20 applicant agencies was rated according to the specific evaluation criteria listed below:

1. Experience - extent to which applicant demonstrates experience in providing transportation to the elderly or the severely disabled (e.g., request for replacement vehicles.).

2. Cost-Effectiveness - degree to which applicant has successfully shown participation in the 16(b)(2) program to be the most cost-efficient method for the applicant to provide transportation.

3. Interagency Coordination - extent to which applicant is willing to coordinate use of its vehicle(s) with other agencies (e.g., participation in the Community Council Transportation Coordination Program).

4. General Use - degree to which applicant's transportation service is offered to the general elderly and handicapped population rather than as a support service for the applicant's clients to travel to its fixed facilities and services.

In addition, agencies had to show that they had the financial resources necessary to operate any vehicles awarded to them.

The committee's rankings were approved by the MAG Regional Council and sent to ADOT. ADOT recently notified MAG that it has allocated enough money to Maricopa County to fund approximately eight vehicles. The following four agencies, which were MAG's highest priorities, will be included in ADOT's grant application to UMTA for program year AZ-16-0006:

Agency	Number of Vehicles	Total Project Cost	Local Match Required
American Red Cross - Central Arizona Chapter	4	$ 61,400	$12,280
Easter Seal Society	2	37,600	7,520
Arizona Training & Evaluation (AZTEC)	1	18,800	3,760
Community Mental Health	1	18,800	3,760
	8	$136,600	$27,320

If additional monies or vehicles become available, the Easter Seal Society will receive first consideration for the additional vehicles.

Section 18 Program

The Section 18 program of the Urban Mass Transportation Administration (UMTA) provides capital and/or operating assistance to public transportation systems operating in small cities (less than 50,000 population) or in rural areas. One project in Maricopa County, a transit system operated by the Salt River Pima-Maricopa Indian Community (SRP-MIC), has been approved for Section 18 funding.

The SRP-MIC is currently operating two vans (9- and 12-passenger vehicles) and is in the process of purchasing a mini-bus (20 passengers) so that three fixed-routes can be driven daily. These three vehicles will carry passengers between the reservation and nearby places of employment (and shopping areas) in Scottsdale, Mesa, and Phoenix during peak periods. The three routes are described below:

Route #1 serves the west side of the reservation and connects with the Phoenix Transit System in Scottsdale so that transfers can be made.

Route #2 will serve the east side of the Indian community, including residences located south of the Salt River in Tempe and Mesa.

Route #3 provides local circulation within the reservation boundaries and serves the Bureau of Indian Affairs (BIA) office, the Community Center, and social service/educational programs.

During midday, the three vehicles will be used to provide demand-response service originating from tribal headquarters.

The SRP-MIC Section 18 project provides operating support to run the transit system for a twelve-month period (April 1981 - March 1982). The operating deficit will be shared by the federal government and the Indian community on a 50/50 basis.

CHAPTER 4

STATUS OF TRANSPORTATION IMPROVEMENT PROGRAM (TIP) PROJECTS

The Transportation Improvement Program (TIP) for the Phoenix metropolitan area is a five-year multi-modal program of regional transportation improvements for highways, airports, bikeways, and transit. The TIP consists of projects drawn from the long-range transportation plan (the Regional Development Guide), the Transportation Systems Management Plan, the Regional Airport System Plan, the Short-Range Transit Plan, and the major street maintenance needs of various jurisdictions. The projects are merged together into a short-range program directed at improving the overall efficiency of the existing transportation system while incrementally advancing long-range plans. The TIP is updated annually.

This chapter provides a brief review of the status of selected transit projects included in the region's Transportation Improvement Program (TIP).

4.1 STATUS OF TRANSIT PROJECTS IN FY 1981-85 TIP

These projects were programmed for FY 1980/81 in last year's TIP

4.1.1 SUPPORT OF FIXED-ROUTE SERVICE

The following route changes were implemented during FY 1980/81. Figure 19 indicates those routes that underwent major changes during that time.

New Routes. Three new express routes were added in FY 1980/81:

1) Route #90 (North Scottsdale Express) - This new route provides, for the first time, express service from north Scottsdale (the McCormick Ranch area) to downtown Phoenix. Previously, residents of this area had to use a local route (Route #18) for this trip. Route #18 was chronically overloaded during the peak periods. Route #90 has relieved the overcrowding problems on Route #18 and provided residents of Scottsdale and east Phoenix with a much shorter travel time to downtown Phoenix. Approximately 140 passengers per day are carried on the two a.m. and two p.m. trips. Three park-and-ride lots were established along the route.

2) Route #99 (South Scottsdale Express) - The reason for the implementation of this route was similar to that of Route #90. The South Scottsdale Express provides a faster, more convenient trip to downtown Phoenix and relieves overcrowding on local Route #3. Two a.m. and two p.m. trips are made on this route and approximately 100 passengers per day are carried. Two park-and-ride lots were established along Route #99.

3) Route #86 (South Phoenix Express) - This route is the first express route serving the south Phoenix area. Two a.m. and two p.m. trips are provided. The route was designed to reduce overcrowding on local routes during peak periods. Two park-and-ride lots were established along the route to encourage passengers to park their vehicles and use the new service. However, recent counts indicate only 31 passengers per day are being carried on Route #86.

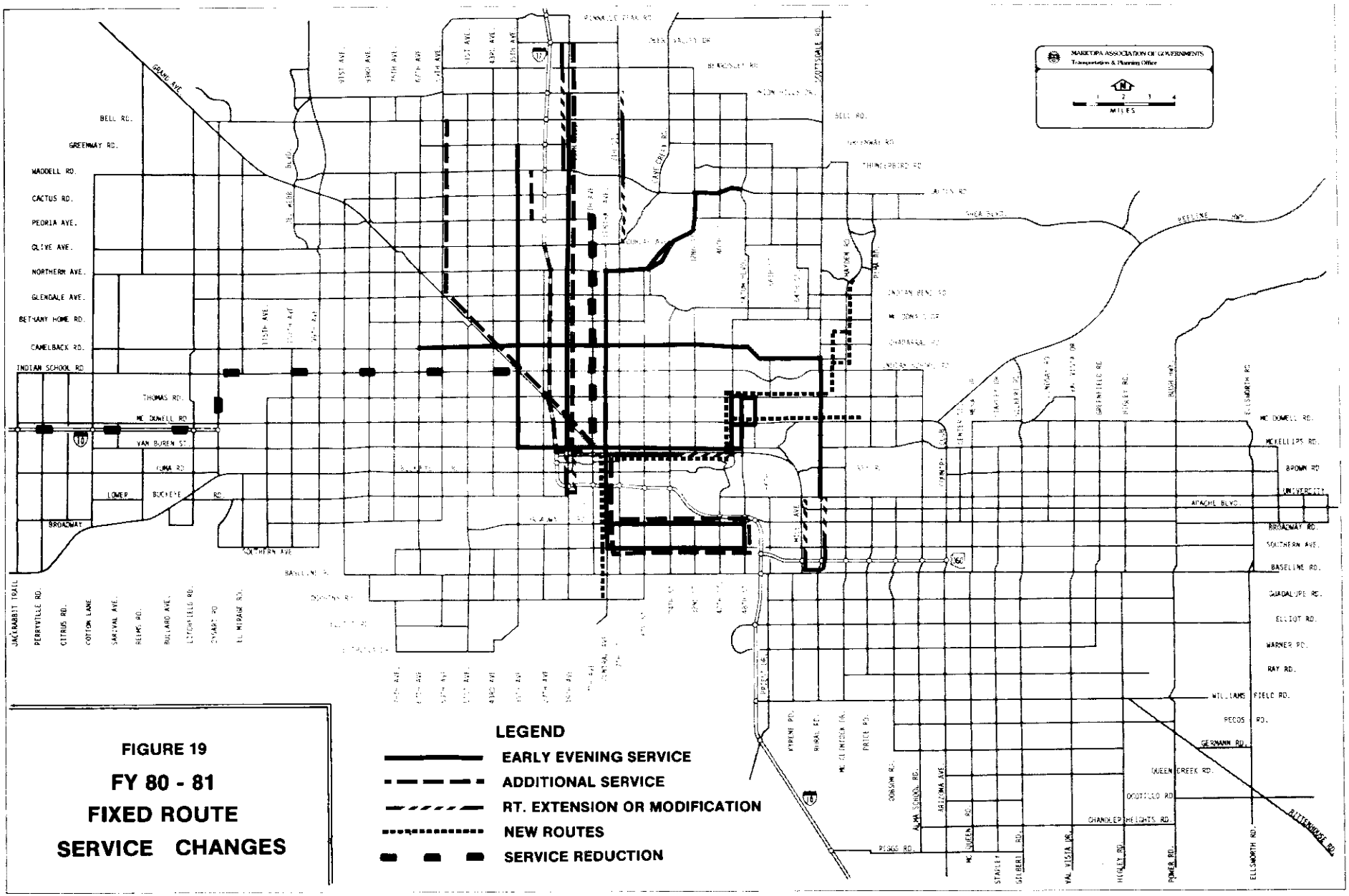


FIGURE 19

FY 80 - 81

FIXED ROUTE

SERVICE CHANGES

IMPACT: The Cities of Phoenix and Scottsdale worked closely together to develop Routes #90 and #99 in response to specific identified needs. The relatively high ridership of these new routes shows that the fast, convenient service is appreciated by patrons, despite the higher express fare.

Route #86 has been less successful in attracting riders. However it has only been operating for six months, which is too short a time to measure its full ridership potential.

Route Extensions or Modifications. Several routes were extended to provide transit service to areas previously not served:

1) Route #58 (Indian School Crosstown) - A route extension was added during rush hours to provide service for employees of the Motorola facility at 52nd Street and McDowell Road.

2) Route #8 (North 19th Avenue) - This route was extended north along 19th Avenue to serve the Deer Valley industrial area. One a.m. trip and one p.m. trip provide service to the area. Sperry Flight Systems is the major employer there, and most of the passengers are employees of that firm. A recent count shows 14 passengers using the route extension.

3) Route #17 (East Mohave/Sky Harbor) - A modification of this route now makes it possible for passengers boarding the bus at Sky Harbor Airport to travel directly to the two major hotels in the downtown area without transferring at the downtown terminal.

4) Route #28 (West Buckeye) - An extension of this route was developed to serve State and City employees working in the southwest area of Phoenix.

5) Route #22 (Camelback Crosstown) - An experimental extension of this route was inaugurated in January 1981. The extension was designed to provide more intra-city transit service for Tempe residents by linking the residential areas of south Tempe with Arizona State University and community facilities such as the library and recreation center. However, ridership was lower than hoped for (only 45 passengers per day) and the extension was discontinued at the end of the one-semester trial period.

6) Route #7 (North 7th Street) - This route is now extended on a.m. and p.m. peak period trips northward to Union Hills Drive. This additional service provides residents of a newly developing area with direct service to downtown Phoenix. Passenger counts show 97 passengers per day boarding and deboarding on the extended segment.

7) Route #60 (Washington/Main) - A modification of one a.m. and one p.m. peak-hour trip was made to serve Garrett Corporation (formerly AiResearch Corporation), the largest employer along the route. This allows employees working in Garrett's complex to have direct access from Route #60 to the company's shuttle bus service. Ridership surveys show approximately 20 passengers using the service each work day.

8) Route #92 (Roadrunner Express) - In FY 1979/80, Route #92 was extended to serve the Main Post Office at 16th Street and Buckeye Road. The extension did not attract many riders (only 6 passengers per day). In March 1981, the post office extension was deleted and a new extension was added (on one a.m. and one p.m. trip) to serve Garrett Corporation employees. Route checks now show an average of 20 passengers using the extension each day.

IMPACT: These route extensions and modifications were developed in response to specific identified needs. They are examples of the transit system's efforts to tailor routes to serve particular market segments and to work closely with major employers in developing routes and schedules.

Additional Service. In order to handle increased passenger loads, additional trips were added to some routes. The following routes had additional rush-hour service added during FY 1980/81:

1) Route #91 (Roadrunner Express) - Provides commuter service from northwest Phoenix to the downtown area and the State Capitol complex.

2) Route #8 (North 19th Avenue) - Additional trips were added to provide 15-minute frequency during peak periods.

3) Route #14 (East Broadway) - Two additional trips from 48th Street and Broadway were added during the a.m. peak and two trips from the downtown terminal were added in the p.m. peak.

4) Route #15 (East Southern Avenue) - Two a.m. trips and two p.m. trips were added to the schedule. One of the a.m. and one of the p.m. trips provide limited service, i.e. non-stop service between the intersections of Central Avenue/Buckeye Road and Southern Avenue/32nd Street.

5) Route #34 (Grand Avenue/Glendale) - An additional trip was added to accommodate the increasing number of commuters traveling between the cities of Glendale and Phoenix.

IMPACT: The additional trips have relieved some of the overcrowding on these routes by providing additional capacity.

Early Evening Service. The phase-in of early evening service began August 25, 1980 with five routes having 7:15 p.m. trips added to their schedules. The routes chosen had high passenger volumes during the day. All but Route #22 (Camelback Crosstown) pass through the downtown Phoenix area. Passenger counts on the 7:15 p.m. trips are being monitored to determine if there is enough demand to increase the amount of fixed-route evening service being provided.

The routes with 7:15 p.m. trips are:

1) Route #3 East (Van Buren Crosstown) - Travels along Van Buren from the downtown area to 48th Street, north on 48th Street to Thomas Road, west to 44th Street, south to Van Buren and returns to the downtown area. Recent passenger counts show approximately 40 riders on the 7:15 p.m. trip.

2) Route #3 West (Van Buren Crosstown) - Travels west on Van Buren from the downtown terminal to 35th Avenue, north to Greenway Road, and returns via the same route. This route serves both commercial/industrial areas and middle-income residential areas. Approximately 20 passengers per day are carried on the 7:15 p.m. trip.

3) Route #5 East (North Central/Paradise Valley) - Travels north on North Central Avenue to Northern Avenue, northeast along Dreamy Draw, east on Cactus Road to Paradise Valley Mall, and returns via the same route. This route includes the central business corridor as well as middle-income residential areas. Ridership has been low; a recent count shows 11 passengers on the 7:15 p.m. trip.

4) Route #8 (North 19th Avenue) - Travels north on 19th Avenue from the downtown terminal to Union Hills Drive and returns via the same route. This route serves lower to middle-income neighborhoods, including many apartment complexes. Approximately 25 passengers are now using the 7:15 p.m. trip.

5) Route #14/15 (South Central/East Broadway/East Southern) - Travels south from the downtown terminal on Central Avenue, east on Broadway, south on 48th Street, west on Southern Avenue, and returns via Central Avenue. This trip is a combination of two separate routes and serves some low-income neighborhoods which have a high percentage of minorities. Recent passenger counts show 40 riders on the early evening trip.

6) Route #22 (Camelback Crosstown) - Travels north on Scottsdale Road from Arizona State University in Tempe through Scottsdale, and west on Camelback Road to 67th Avenue. Route #22 does not have a return trip in the evening. This route is used primarily by Arizona State University students going home after classes. Approximately 30 passengers use the 7:15 p.m. trip.

IMPACT: The additional trips have provided citizens with an opportunity to use public transit during the day to get to their destinations and have given them the option of using transit in the early evening to return home. The 7:15 p.m. trips are averaging 28 passengers per bus. Route #5 East has had the fewest passengers utilizing the service and Route #3 East the greatest.

Service Reductions. Ridership on transit routes is constantly monitored in order to make the most efficient use of available resources. Low ridership caused the following reductions in service during FY 1980/81:

1) Route #10 (North 7th Avenue) - The extension of this route between Metrocenter and 7th Avenue/Dunlap was eliminated due to low ridership. It duplicated service on Route #5 West, which continues to be provided.

2) Route #24 (West Adams/State Capitol) - The number of trips being provided on this route was reduced by four due to low ridership. Three other routes offer the same connection as Route #24 between downtown Phoenix and the State Capitol.

3) Route #83 (Palo Verde) - One trip per day on this route was eliminated. Route #83 carries construction workers to and from the Palo Verde Nuclear Power Plant, 30 miles west of Phoenix. This service is provided on a break-even basis and it was decided to reduce service rather than increase fares in response to declining ridership.

4) Route #84 (Palo Verde) - This route was eliminated entirely for the same reaons given under Route #83 above.

IMPACT: The elimination of unproductive trips allows the transit system to reallocate its resources to other areas where more people can be served.

4.1.2 SUPPORT OF PARATRANSIT SERVICES

The following changes to paratransit services were implemented during FY 1980/81:

Maricopa County Project 81312.2: Support Demand-Response Service for Elderly and Handicapped. Following a successful pilot program, the Maricopa County Human Resources Department (HRD)/Red Cross Special Transportation Services program was expanded county-wide in July 1981. Both intercity and intra-community service are provided.

IMPACT: The Special Transportation Services program provides mobility for many transportation-disadvantaged persons (low-income, elderly, and handicapped individuals) within a large part of Maricopa County. This unique example of public/private cooperation has made it possible to provide transportation to more people (in a large geographic area) at little or no increased cost.

Glendale Project 81212.1: Support Dial-A-Ride. The Glendale Dial-A-Ride continued to provide door-to-door service for residents of that city. Although it had been planned to expand the Dial-A-Ride service area in FY 1980/81 to include the entire city, financial constraints made this impossible. Three additional square miles in north Glendale were added to the service area in June 1981, however.

A study to determine the feasibility of establishing a checkpoint pickup system is now underway. This could help improve vehicle productivity and allow more people to be served. Upon completion of the study, additional geographic expansion of the service area will be considered.

Dial-A-Ride fares were increased in FY 1980/81 to bring in additional revenue.

IMPACT: The Glendale Dial-A-Ride program provides intra-city transportation for Glendale residents and serves as a complement to the limited fixed-route service available (Route #34).

Mesa Project 81412.1: Support Shared-Ride Taxi. The City of Mesa continued the Shared-Ride Taxi Program, which is the major transportation provider in that city. Although the service is offered to the general public, a survey conducted in June 1980 indicated that approximately 55 percent of the passengers are 65 years of age or older and 25 percent are handicapped.

Program changes in FY 1980/81 included expansion of the service area to serve newly-annexed areas of the city and the institution of higher fares which was necessary to increase the percentage of costs covered by revenues.

IMPACT: The Shared-Ride Taxi Program continues to provide Mesa residents with a public transportation alternative.

Phoenix Project 81512.1: Support Paradise Valley, Moon Valley, and Sunday Dial-A-Rides. The Paradise Valley Dial-A-Ride continued to provide door-to-door service within the 17 square-mile Paradise Valley section of Phoenix. Average daily ridership increased by 20 percent in FY 1980/81.

The Moon Valley Dial-A-Ride began operating in a 12 square-mile area of Phoenix on January 19, 1981. Hours of service and other operating characteristics are similar to those for the Paradise Valley Dial-A-Ride.

The Phoenix Sunday Dial-A-Ride began operating on August 31, 1980. This city-wide service is open to the general public, although 60 percent of the passengers are elderly or handicapped, according to a recent survey.

IMPACT: The Paradise Valley and Moon Valley Dial-A-Rides have proven to be a less costly way of providing public transportation in sparsely-populated areas of the City where fixed-route transit service is not warranted.

Operating fixed-route transit service is not cost-efficient on Sundays when transit demand is small. The Sunday Dial-A-Ride is a way of providing mobility for 250-300 Phoenix residents each week who might not have other transportation available.

Phoenix Project 81512.2: Support HRD Reserve-A-Ride for Elderly and Handicapped. The City of Phoenix Human Resources Department (HRD) continued to operate the Reserve-A-Ride program as in the previous year. Plans to expand the service area west to 51st Avenue had to be postponed due to budget restrictions.

IMPACT: Reserve-A-Ride provides mobility for many elderly and handicapped Phoenix residents who have no other means of transportation. Many of these individuals are unable to use the existing fixed-route transit service.

Scottsdale Project 81612.2: Human Services Mobility Program. The City of Scottsdale continued to fund the Human Services Mobility Program which provides door-to-door service for elderly and handicapped individuals. In FY 1980/81, the 16 square-mile service area was modified to include trips to Scottsdale Community College and a nutrition site for senior citizens in Tempe. Ridership and productivity increases helped to reduce the per-passenger cost of the program.

IMPACT: The Human Services Mobility Program provides mobility for many elderly and handicapped residents of Scottsdale, many of whom are unable to use the existing fixed-route transit service.

4.1.3 CAPITAL IMPROVEMENT AND OTHER PROJECTS

This section provides a brief overview and status report of capital projects identified for FY 1980/81 in the FY 1981-85 TIP.

Maricopa County Project 81321.4-5: 6 Vans. Grant approval from UMTA pending (AZ-05-0010). These vans will be used for transporting low-income, elderly, and handicapped persons under the Special Transportation Services program.

Maricopa County Project 81321.4-3: 6 Vans. Grant approval from UMTA pending (AZ-03-0011). These vans will be used for transporting low-income, elderly, and handicapped persons under the Special Transportation Services program.

Glendale Project 81221.3-3: 3 Mini-Buses. Grant approval from UMTA pending (AZ-03-0011). These vehicles will be used to provide dial-a-ride service.

Glendale Project 81222.1-3: 3 Fareboxes. Grant approval from UMTA pending (AZ-03-0011). These fareboxes will be installed on the new mini-buses.

Glendale Project 81224.1-3: 4 Bench/Shelter Units. Grant approval from UMTA pending (AZ-03-0011).

Glendale Project 81224.2-3: 6 Benches. Grant approval from UMTA pending (AZ-03-0011).

Glendale Project 81221.3-5: 3 Mini-Buses. Grant approval from UMTA pending (AZ-05-0010). These vehicles will be used to provide dial-a-ride service.

Glendale Project 812221.5-5: 1 Supervisory Vehicle. Grant approval from UMTA pending(AZ-05-0010).

Glendale Project 81223.2-5 and 81223.3-5: Radio Equipment. Grant approval from UMTA pending (AZ-05-0010). A base station and second channel conversion are included.

Glendale Project 81226.0-5: Office Furniture and Equipment. Grant approval from UMTA pending (AZ-05-0010).

Glendale Project 81213 PH.I: Paratransit Demonstration Project. The purpose of this project is to evaluate the feasibility of establishing a checkpoint paratransit system in north Glendale. Dave Systems, Inc. was awarded a six-month contract to conduct Phase I of the study, which is now underway.

Phoenix Project 81521.1-3: 41 Transit Buses. Grant approval from UMTA pending (AZ-03-0011 with Section 5 component). Due to budget restrictions, the number of buses has been reduced to nine (9). Buses will be ordered in FY 1981/82.

Phoenix Project 81521.2-3: 10 Articulated Buses. Grant approval from UMTA pending (AZ-03-011). Buses will be ordered in FY 1981/82.

Phoenix Project 81522.1-3: 55 Electronic Fareboxes. Grant approval from UMTA pending (AZ-03-0011 with Section 5 component). Due to budget restrictions, the number of fareboxes has been reduced to 22.

Phoenix Project 81523.1-3: 53 Radios. Grant approval from UMTA pending (AZ-03-0011). Due to restrictions, the number of radios has been reduced to 24.

Phoenix Project 81523.0-3: Bus Spare Parts. Grant approval from UMTA pending (AZ-03-0011 with Section 5 component).

Phoenix Project 81527.5-3: 3 Mini-Terminals. Grant approval from UMTA pending (AZ-03-0011). The City is now engaged in negotiations to obtain the necessary land for these terminals. The developer of the three shopping centers involved (Paradise Valley Mall, Westridge Mall, and Metrocenter)has approved the concept. Permission from the shopping centers' major tenants is now being obtained. Design drawings have been completed.

Phoenix Project 81521.3-5: 6 Mini Buses. Grant approval from UMTA pending (AZ-03-0011). If approved prior to July 9, 1981, these vehicles will be purchased as an option on a present order from Microbus Corporation. The minibuses are intended for the Phoenix HRD Reserve-a-Ride program.

Phoenix Project 81521.6-5: 6 Supervisory Vehicles and Schedule Delivery Van. Grant approval from UMTA pending (AZ-05-0010). The van will be used for distributing schedules and tickets to sales and information points throughout the service area. The other vehicles will be used for field supervision.

Phoenix Project 81521.7-5: 8 Trucks. Grant approval from UMTA pending (AZ-05-0010). This project includes four pick-up trucks, three one-ton service trucks, and one flat-bed truck.

Phoenix Project 81522.1-5: 107 Electronic Fareboxes. Grant approval from UMTA pending for 22 fareboxes (AZ-05-0010). 85 fareboxes are now being purchased under Grant No. AZ-05-0007.

Phoenix Project 81522.3-5: Management Information System. Grant approval from UMTA pending (AZ-05-0010). Three companies have submitted proposals for the project and evaluation of these is now underway. Implementation will begin immediately after receiving grant approval. It is hoped that the MIS will be at least partly operational by early 1982.

Phoenix Project 81522.4-5: E&H Registration System. Grant approval from UMTA pending (AZ-05-0010). This automated system will expand current registration and trip assignment capabilities in transporation programs for the elderly and handicapped.

Phoenix Project 81523.1-5: 14 Radios for Support Vehicles. Grant approval from UMTA pending (AZ-05-0010).

Phoenix Project 81524.1-5: 30 Bench/Shelter Units. Grant approval from UMTA pending (AZ-05-0010).

Phoenix Project 81524.3-5: 500 Information Signs. Grant approval from UMTA pending (AZ-05-0010).

Phoenix Project 81527.1-5: Downtown Terminal Improvements. Grant approval from UMTA pending (AZ-05-0010). Capital improvements are planned to make the downtown terminal accessible to handicapped individuals. These projects were identified in the Section 504 Transition Plan.

Phoenix Project 81527.4-5: Paradise Valley Park-and-Ride Facility. The City has been unable to obtain a suitable site for this project within the available budget. A grant application will be submitted to UMTA in early FY 1981-82.

Phoenix Project 81527.6-5: 2 Bus Bays on Central Avenue. Grant approval from UMTA pending (AZ-05-0010). These bus bays will improve traffic operations and increase safety by allowing buses to pull out of the traffic lanes for passenger loading.

Phoenix Project 81222.1-3T and Glendale Project 81222.1-3T: Transfer of Fareboxes. Twenty (20) fareboxes have been delivered by the City of Phoenix and accepted by the City of Glendale. Payment will be made in early FY 1981/82.

Phoenix Project 81513: Life-Cycle Costing. In March 1980, UMTA requested that the City purchase twelve (12) Advance Design Buses using the life-cycle costing procedures that the City had helped to develop. Grant AZ-06-0008 was extended to July 1981 and an additional $9,000 was provided to cover expenses for the life-cycle costing procurement process. Bids for the buses will be opened in June 1981 and the award will be made after a detailed technical evaluation.

Scottsdale Project 81627.6-5: 3 Bus Bays. Grant approval from UMTA pending (AZ-05-0010). These bus bays will separate moving traffic from buses stopped for boarding passengers.

Tempe Project 81724.1-5: 7 Bench/Shelter Units. Grant approval from UMTA pending (AZ-05-0010).

Tempe Project 81724.1-5: 20 Benches. Grant approval from UMTA pending (AZ-05-0010).

4.2 STATUS OF TRANSIT PROJECTS IN EARLIER TIP

Due to the time lag between applying for and receiving Federal assistance, as well as the time needed for the procurement process, many of the capital projects that are programmed for a particular year in the Transportation Improvement Program (TIP) are not actually implemented until one or more years later. This section reviews the status of other projects that were implemented in FY 1980/81. These projects were not listed in the FY 1981-85 TIP, but were included in earlier versions.

Glendale Project 551.3: 7 Mini-Buses With Fareboxes. Glendale received a total of 10 mini-buses in FY 1980/81. The purchase of the three additional buses was made possible because of surplus funds created by unexpectedly low bid prices received for the purchase of 15 standard transit coaches by the City of Phoenix. The TIP was amended by the MAG Regional Council in September 1979 to reflect this change.

Glendale Project 551.5: 3 Supervisory Vehicles. Only two vehicles were actually included in the grant application. Two 1980 Chevettes were purchased to transport drivers to their assigned mini-buses. This enables the mini-bus to continue on its route without having to travel back to the dispatch area when a driver needs to be relieved. The result is a decrease in deadhead miles and more efficient service for Dial-A-Ride patrons.

Glendale Project 553.1: Ten Mobile Radios. The ten radios were installed on the mini-buses purchased in project 551.3. The radios provide voice communications between the dispatcher and the mini-buses.

Phoenix Project 577.3: Satellite Maintenance Facility Construction. Operations from the North Maintenance Facility began on March 30, 1981. This has eliminated 778 daily miles of deadhead travel and reduced daily fuel consumption by approximately 215 gallons. This productivity improvement will save about $320,000 (1980 dollars) in operating costs annually.

Phoenix Project 575: Spare Parts and Tools. A spare air conditioning unit for articulated buses was delivered in April 1981 as part of this project.

Phoenix Project 577.2: Heavy Maintenance Facility Construction. This facility is presently under construction with a scheduled completion date of March 1982. The facility will enable Phoenix Transit to rebuild engines, transmissions, and all other major bus components. This will allow all vehicle maintenance to be done in-house and should result in reduced maintenance costs on a per-bus basis.

CHAPTER 5

EVALUATION OF EXISTING TRANSIT SERVICES

The need to achieve maximum effectiveness with existing transportation resources takes on added importance in view of current financial constraints. This chapter focuses on an analysis of the current transportation system to determine if it is providing the best possible service to Valley residents. Important issues to be considered are locally-determined transit goals and objectives, the identified transportation needs of area residents, the quality of current services, the recognition of financial constraints, and the actions necessary to implement any service improvements.

5.1 TRANSIT GOALS AND OBJECTIVES

Transit goals and objectives serve two basic purposes. First, they provide a basis for establishing criteria and measures by which the existing transit system and any service alternatives can be evaluated. Second, goals and objectives play an important role in developing alternatives by identifying desirable elements of transit service in the region.

The overall goal is to increase transit usage by providing efficient, convenient, and safe public transportation services to residents throughout the Phoenix urbanized area.

To help guide efforts toward meeting this goal, a series of objectives -- specific short-term activities consistent with the overall goal -- has been developed. Progress toward achieving these objectives is determined by measures, which are benchmarks for evaluation purposes. Not all objectives have associated measures, however, as some objectives are more appropriate as guides for the design of alternatives or implementation strategies, rather than as evaluation criteria.

Transit objectives fall into five broad categories:

1. Service. Public transportation should be consumer-oriented. It should recognize the diverse transportation needs of Valley residents and provide a mix of service types to meet these needs.

2. Land-Use. Public transportation and the land-use development pattern should be mutually supportive.

3. Equity. The Public Transit Administration and Phoenix Transit System should provide opportunities for persons of all racial and ethnic backgrounds through their employment and contractual practices and should promote public/private sector cooperation.

4. Safety. Operational and equipment safety in the delivery of public transportation services should meet or exceed national safety standards.

5. Financial. Cost-effective transportation should be provided to serve the needs of various market segments within available financial resources.

Table 13 presents the transit objectives and their associated measures.

5.2 EVALUATION OF EXISTING FIXED-ROUTE SERVICE

In this section, various measures are used to analyze the performance of the fixed-route transit system.

Average Daily Ridership. The average daily ridership has increased every fiscal year since FY 1971/72 except FY 1980/81. Average daily ridership has decreased slightly in FY 1980/81 to approximately 41,550 (based on the first 11 months of FY 1980/81) from the FY 1979/80 level of 42,130 revenue passengers per day. This decrease is due to a substantial fare increase which was effective June 2, 1980.

Figure 20 indicates the growth of transit ridership in the Phoenix area over the past ten years.

Schedule Adherence. Phoenix Transit monitors schedule adherence on a monthly basis. Figure 21 is a graphic representation for the most recent survey (May 19 and 20, 1981) of departing times from the downtown bus terminal. Eighty percent of all trips surveyed departed on time or were less than two minutes late. Over 98 percent of the trips left within six minutes of their scheduled departing times.

Maximum Load Points. The maximum load point is the particular point along route past which the highest number of passengers is carried. This information is useful in identifying high-volume corridor segments, evaluating transit usage and travel patterns, and in determining shifts in ridership due to changes in route configurations. As shown in Table 14, the maximum load point for 12 of the 33 local routes is an intersection between an east-west arterial street and Central Avenue. Central Avenue has frequent transit service and is a corridor of high intensity development.

Since express routes collect and discharge passengers at either end of the line but not in the mid-section, the maximum load point on express routes is near one end of the route or the other depending on whether it is an inbound or an outbound trip. Table 15 shows the maximum load point for inbound express route trips. All 14 routes have their maximum load points on inbound trips at the last collector point (usually a park-and-ride lot) prior to beginning the non-stop portion of the route. On outbound express trips, the maximum load point again is that stop immediately prior to the non-stop part of the trip.

Weekday Load Factors. The load factor is the number of riders expressed as a percentage of the vehicle seating capacity. A load factor of 1.0 would indicate that every seat in the bus is occupied and there are no standees. A load factor less than 1.0 would indicate that seats are available, while a factor greater than 1.0 would indicate that there are standees on the bus.

TABLE 13

TRANSIT OBJECTIVES

Objectives	Measures
Service	
1. Tailor public transportation service to respond to identified needs.	-- Number of passengers carried -- Passengers per vehicle-mile
2. Provide transportation alternatives to those unable to travel by auto.	-- Total population served -- Minority population served -- Elderly population served -- Number of zero-auto household served -- Number of elderly and/or handicapped individuals using public transportation or specialized transportation services
3. Provide reliable transit service	-- Percent of trips departing on-time from the downtown terminal -- Percent of buses out of service due to breakdowns (average) -- Number of breakdowns greater than 5 minutes duration -- Number of road calls
4. Continue to implement modified grid transit system.	NA
5. Establish express service to encourage commuters to use to and from major employment centers.	-- Number of passengers carried on express routes -- Numbers of passengers utilizing park-and-ride lots
6. Increase public awareness of transit services and how to use them.	-- Numbers of telephone information calls processed -- Percent of telephone information calls processed -- Number of guide-a-ride and other transit information displays established

NA - Not applicable. This objective is evaluated according to appropriate design guidelines and does not have an associated measure.

TABLE 13

TRANSIT OBJECTIVES (Cont.)

Objectives	Measures
Land-Use	
1. Emphasize public transportation in areas of existing development and redevelopment.	NA
2. Plan transportation facilities to promote the development of village cores within intensive growth corridors.	NA
3. Maximize the transit system's flexibility and therefore its potential to meet changing needs.	NA
4. Provide regional public transportation to major destinations including employment centers, shopping areas, medical facilities, government centers, and colleges.	-- numbers of these destinations served
Equity	
1. Promote equal employment opportunities	-- Percent of minority groups employed by Pheonix Transit System in relation to the composition of the entire labor force available
2. Encourage minority-owned businesses to participate in transit capital projects.	-- Percent of total dollars expended each year for Non-construction procurement that is awarded to minority business enterprises.
3. Encourage public/private sector cooperaction in promoting transit services.	-- Number of private firms acting as ticket/transit information outlets -- Number of privately-owned park-and-ride lots developed

TABLE 13

TRANSIT OBJECTIVES (Cont.)

Objectives	Measures
Safety	
1. Provide a public transportation system which minimizes accidents.	-- Number of traffic accidents involving public transit vehicles per 100,00 vehicle-miles -- Number of traffic accidents involving public transit vehicles per 1,000,000 passengers -- Number of employee accidents per 1,000,000 employee-hours
Financial	
1. Maximize the ratio of benefits to costs for the total community, including transit users, in providing public transportation services.	-- Ratio of system revenues to costs -- Percentage of operating costs recovered from the farebox -- Deficit per passenger
2. Achieve maximum operating efficiency through productivity improvements.	-- Ratio of deadhead (non-revenue) miles to total miles -- Passengers carried per gallon of fuel consumed

FIGURE 20

CITY OF PHOENIX

TRANSIT SYSTEM

RIDERSHIP TRENDS FY-72–FY-81

AVERAGE DAILY RIDERSHIP PER MONTH

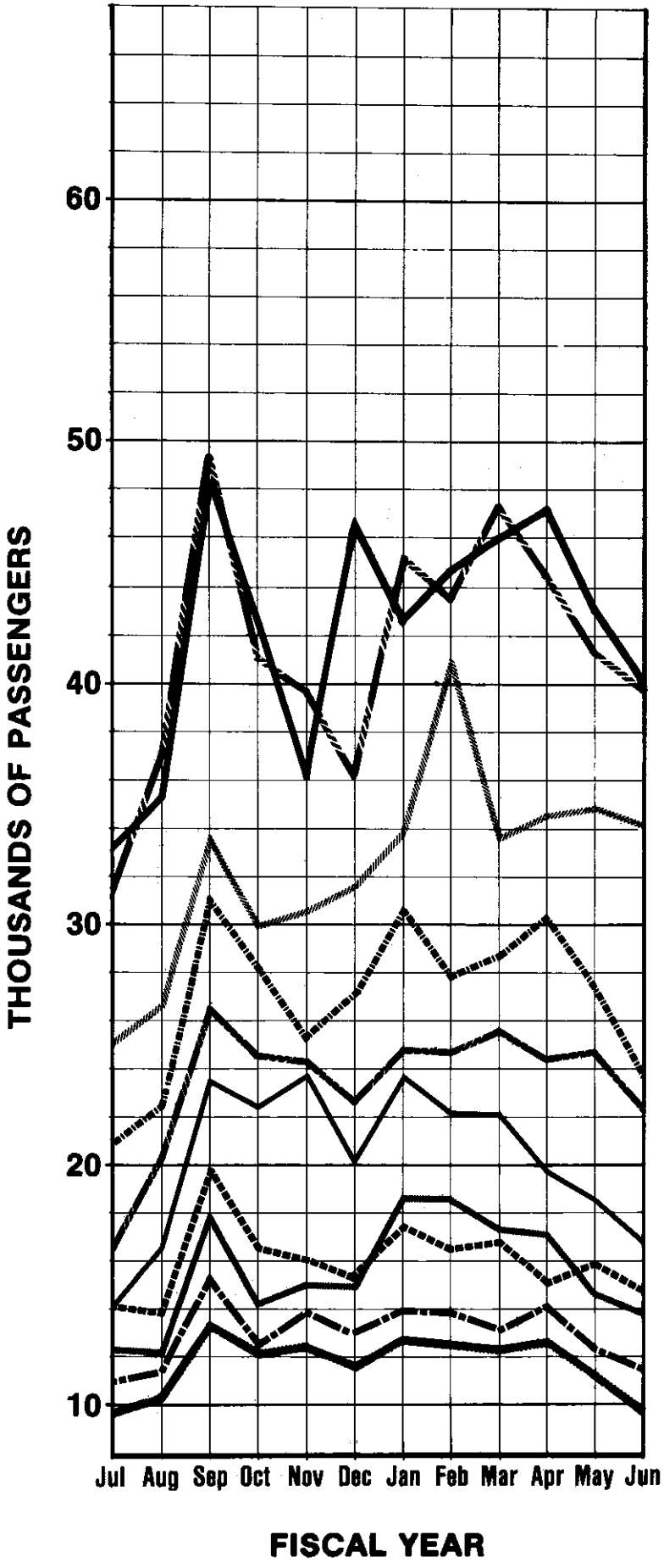


FIGURE 21
SCHEDULE ADHERENCE
(Based on 706 of 737 trips).

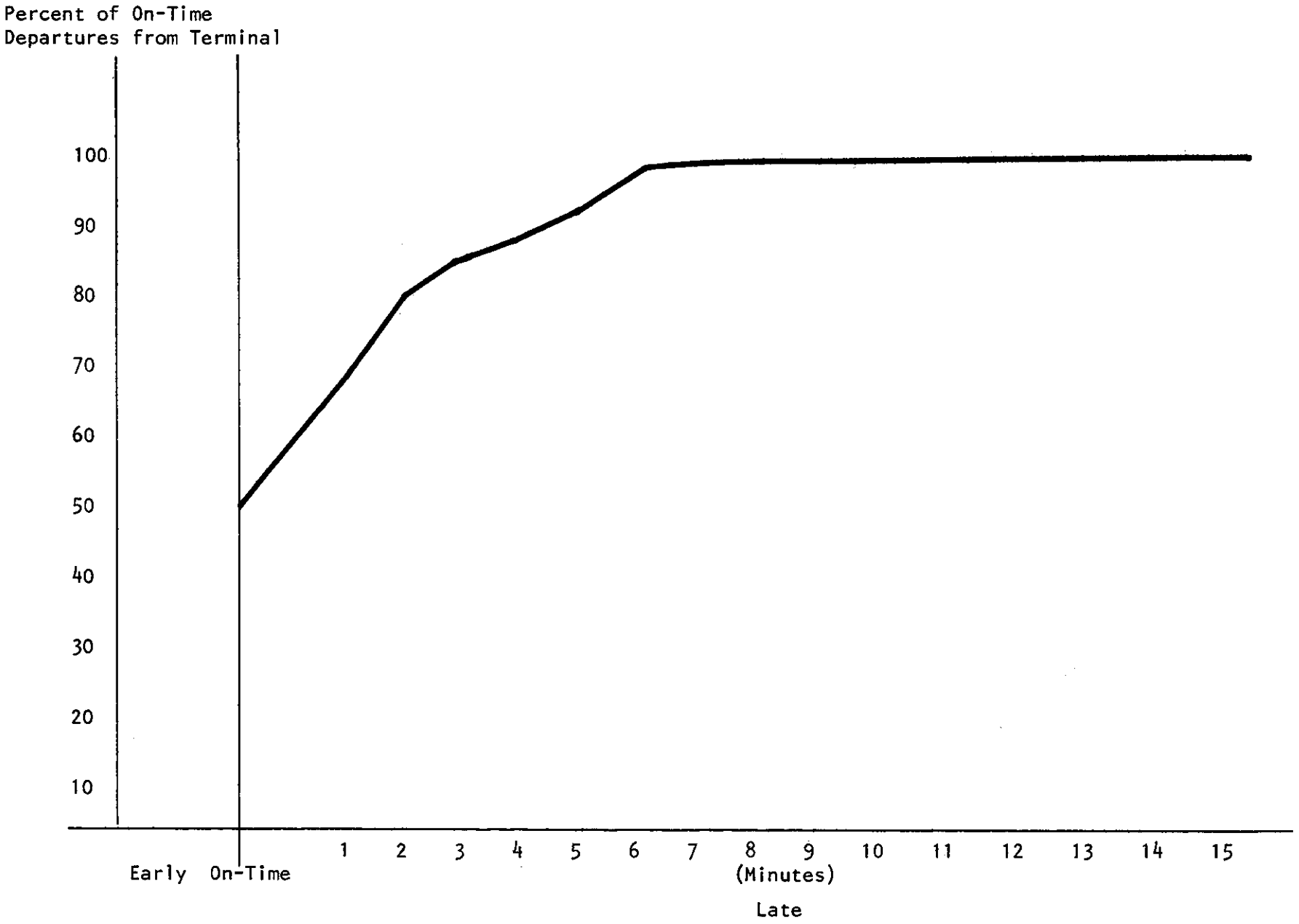


TABLE 14

MAXIMUM LOAD POINT - LOCAL ROUTES

Route	Location
#1	7 Ave. & Broadway Rd.
3 East	7 St. & Van Buren St.
3 West	7 Ave. & Van Buren st.
5	Central Ave. & McDowell Rd.
6	Central Ave. & McDowell Rd.
7	7 St. & Van Buren St.
8	15 Ave. & Washinghton St.
9	7 Ave. & Van Buren St.
10	7 Ave. & McDowell Rd.
12	Central Ave. & Lincoln St.
13	Central Ave. & Lincoln St.
14	Central Ave. & Lincoln St.
15	Central Ave. & Lincoln St.
16	Central Ave. & Lincoln St.
17	Central Ave. & Lincoln St.
18	7 St. & McDowell Rd.
21	7 St. & McDowell Rd.
22	Central Ave. & Camelback Rd.
25	7 St. & Buckeye Rd.
27	7 St. & Roosevelt St.
28	17 Ave. & Washington St.
29	15 Ave. & McDowell Rd.
30	7 Ave. & McDowell Rd.
31	7 St. & Van Buren St.
34	7 Ave. & Grand Ave.
41	17 Ave. & Washington St.
48	Central Ave. & Thomas Rd.
54	Central Ave. & Osborn Rd.
58	Central Ave. & Indian School Rd.
60	24 St. & Jefferson St.
87	19 Ave. & Deer Valley Rd.
88	19 Ave. & Deer Valley Rd.
89	19 Ave. & Deer Valley Rd.

TABLE 15

MAXIMUM LOAD POINT - EXPRESS ROUTES

Route	Location (Inbound)
#81	Palo Verde Nuclear Generating Station
82	Palo Verde Nuclear Generating Station
83	Palo Verde Nuclear Generating Station
86	Central Avenue and Lincoln Street
90	Thomas Mall
91	Metrocenter
92	Metrocenter
93	Price Rd. & Superstition Freeway
94	Price Rd. & Superstition Freeway
95	Metrocenter
96	Metrocenter
97	7th St. and Northern Ave.
98	7th St. and Northern Ave.
99	Los Arcos Mall

The average daily load factor (unweighted) for local routes is 0.70 during midday; peak-hour factors are not available but are much higher. Table 16 shows the load factor for each individual route. Five local routes (#1, #5, #22, #88, and #89) have load factors greater than 1.0. Routes #6 and 87 have load factors of 0.96 and 0.93, respectively, indicating they are near capacity. Routes #25 (East Buckeye) and #54 (Osborn Crosstown) have the lowest average load factors at 0.23 and 0.24, indicating these buses are less than one-quarter full during midday.

Table 16 also shows that express routes have an average daily load factor (unweighted) of 0.67, or slightly over two-thirds of capacity. The two Superstition Expresses (Routes #93 and 94) have the highest load factors at 0.96 and 1.22, while the new Route #86 (South Phoenix Express) has the lowest load factor at 0.12.

The decline in the average daily load factor for express routes since FY 1979/80 (when it was 1.08) is explained by two reasons. First, a decline in ridership on the Palo Verde Routes #81, 82 and 83 has occurred due to patrons' selection of alternative means of transportation such as carpooling and the stabilization of the cost of gasoline. Second, three new express routes were introduced in FY 1980/81 and it usually takes time to build ridership on a new route. The Scottsdale Expresses (Routes #90 and 99) have load factors of 0.55 and 0.42 respectively, or an average of slightly less than 50 percent of capacity. These load factors are expected to increase in time.

The new Route #86 (South Phoenix Express) has a load factor of only 0.12. This route has been operating since mid-January but ridership has improved only slightly, perhaps because Route #86 is relatively short for an express route and a local route (Route #16) also travels along South Central Avenue.

TABLE 16

DAILY LOAD FACTORS (PEAK DIRECTION)*

Local Routes	Load Factor (Midday)
#1	1.42
3	.73
5	1.16
6	.96
7	.73
8	.77
9	.73
10	.45
12	.32
13	.42
14	.43
15	.52
16	.70
17	.35
18	.88
21	.34
22	1.61
25	.23
27	.72
28	.44
29	.66
30	.46
31	.73
34	.73
41	.39
48	.74
54	.24
58	.68
60	.76
87	.93
88	1.14
89	1.01

Average load factor for local routes is .70

Express Routes	Load Factor (Peak Period)
#81	.55
82	.83
83	.50
86	.12
90	.55
91	.57
92	.64
93	.96
94	1.22
95	.85
96	.64
97	.72
98	.86
99	.42

Average load factor for express routes is .67

*BASED ON AN AVERAGE OF 48 SEATS

Revenue Passengers per Vehicle-Mile of Scheduled Service. Approximately 11.5 million revenue passengers will be carried by the transit system in FY 1980/81 based on ridership figures for the initial eleven months of the year. This represents a two percent decrease from FY 1979/80 ridership. This ridership decline may be attributed to the 25 percent increase in the base fare from 40¢ to 50¢, effective June 2, 1980.

Since the City of Phoenix assumed responsibility for the transit system, there have been increases in ridership in all but the past year, as shown in Table 17. Vehicle-miles of scheduled service have increased every fiscal year except FY 1976/77. Revenue passengers per scheduled vehicle-mile dropped from 1.7 in FY 1979/80 to 1.5 (estimated) in FY 1980/81. There are several logical explanations for this decrease: (1) ridership dropped due to a 25 percent increase in the base fare; (2) 900,000 vehicle-miles of service were added but most were designed to relieve overcrowding on existing routes rather than open up new markets, and (3) the new routes that were added will take time to attract and stabilize ridership.

TABLE 17

ANNUAL TRANSIT PATRONAGE AND VEHICLE-MILES OF SCHEDULED SERVICE[1]

Fiscal Year	Revenue Passengers	Vehicle-miles of Scheduled Service	Revenue Passengers Per Vehicle-Mile
1972/73	3,653,274	2496777	1.5
1973/74	4,348,000	3173141	1.4
1974/75	4,501,367	3412918	1.3
1975/76	5,714,100	4669358	1.2
1976/77	6,599,835	4514214	1.5
1977/78	7,562,624	5191853	1.5
1978/79	9,064,309	5872253	1.5
1979/80	11,753,610	6780064	1.7
1980/81	11,500,000 (est).	7,700,000 (est.)	1.5

(1) Includes only local and express routes. Charter service is not included.

Ridership on Individual Routes. Table 18 provides ridership data on a typical school day for individual routes, as well as the entire transit system. Ridership is higher on school days than it is during the summer months for two reasons: many students use transit buses to travel to and from school, and the extremely hot summers in Phoenix generally cause some decline in ridership as potential patrons choose other means of transportation. Saturday ridership is generally one-fifth to one-third of weekday ridership. However, much less service is provided on Saturday. Approximately 10,300 vebicle-miles of service are operated on Saturday as compared to 26,200 vebicle-miles on an average weekday.

It should be noted that the method used to compute and format some of the data has changed since last year. Therefore, direct comparisons to last year's data would be misleading. The data contained in Table 18 are based on revenue surveys taken in March 1981.

Local Routes:

Route #3 (Van Buren Crosstown) has the highest ridership but also has the greatest number of vehicle-miles and hours of service. Route #3 matches the average of all local routes in number of revenue passengers per scheduled vehicle-hour (29.6) and revenue passengers per vehicle-mile (2.2).

Route #5 (North Central Avenue) also provides a high level of service in terms of hours of operation, vehicle-miles of service, and frequency of service. This route operates through the Phoenix Central Corridor and serves two regional shopping centers in northern Phoenix. Route #5 intersects many other routes in addition to serving the downtown Phoenix bus terminal. Consequently, a high percentage (32 percent) of the patrons boarding Route #5 are transferring from other transit routes.

Route #12 (South 15th Avenue) and Route #25 (East Buckeye Road) exhibit the highest percentage of transfers (33 and 34 percent, respectively) of all local routes. Both routes are short and operate in areas which have large numbers of minority and low-income families with little access to alternative means of transportation. Therefore, the need to transfer is not as big a deterrent to transit usage as it is in other parts of the city. In addition, Route #25 serves many major employment centers including Cabot & Cabot Industrial Park. Routes #12 and #25 both have relatively low daily operating posts. Route #12 exhibits a disproportionately high number of revenue passengers per vehicle-mile (3.5 versus an average for all local routes of 1.6), while Route #25 is slightly above the average with 2.0 revenue passengers per vehicle-mile. When total ridership is considered (i.e., including transfers), Route #12 carries 5.1 passengers per vehicle-mile and Route #25 carries 3.0 passengers per vehicle-mile.

Route #41 (North 27th Avenue) has been performing poorly in terms of ridership, showing the lowest number of revenue passengers per vehicle-mile (0.8) of all local routes. This route is also below average in terms of the number of revenue passengers per scheduled vehicle-hour (13.4 versus an average for all local routes of 29.6). Route #41 operates in a highly industrialized area and much of its service area is also served by more direct express routes.

Route #54 (Osborn Crosstown) has experienced low ridership since its inception. Table 18 shows that it continues to perform below average with only 1.1 revenue passengers per vehicle-mile (versus an average of 1.6 for all local routes) and 23.9 revenue passengers per scheduled vehicle-bour (versus an average of 29.6). Route #54 is a relatively short route that operates through a primarily residential area and does not serve many major employers or industrial destinations.

TABLE 18

ROUTE PERFORMANCE FOR A TYPICAL SCHOOL DAY

Local Route	Daily Scheduled Vehicle Miles	Daily Scheduled Vehicle Hours	Daily Passengers (Incl. Transfers)	Percent Transfers	Revenue Passengers	Revenue Passengers Per Vehicle Mile	Revenue Passengers Per Scheduled Vehicle Hour	Daily Passengers Per Vehicle Mile	Daily Passengers Per Scheduled Vehicle Hour
# 1	1,613.6	90.60	3,413	26	2,512	1.6	27.7	2.1	37.7
3	3,186.2	174.71	6,952	26	5,175	1.6	29.6	2.2	39.8
5	2,200.0	120.55	6,943	32	4,754	2.2	39.4	3.2	57.6
6	178.0	8.64	423	26	313	1.8	36.2	2.4	49.0
7	634.9	33.27	1,680	25	1,254	2.0	37.7	2.6	50.5
8	1,193.0	63.24	2,492	23	1,914	1.6	30.3	2.1	39.4
9	497.9	32.73	1,662	26	1,237	2.5	37.8	3.3	50.8
10	472.0	30.47	977	28	704	1.5	23.1	2.1	32.1
12	109.4	8.01	560	33	378	3.5	47.2	5.1	69.9
13	268.0	13.15	486	29	345	1.3	26.2	1.8	37.0
14	683.6	37.83	1,303	29	930	1.4	24.6	1.9	34.4
15	751.8	39.92	1,528	29	1,091	1.5	27.3	2.0	38.3
16	219.1	13.77	920	20	739	3.4	53.7	4.2	66.8
17	294.5	22.38	809	28	585	2.0	26.1	2.7	36.1
18	758.1	44.40	1,716	22	1,337	1.8	30.1	2.3	38.6
21	177.5	11.02	359	23	275	1.5	25.0	2.0	32.6
22	1,375.4	70.44	3,715	29	2,904	2.1	41.2	2.7	52.7
24	52.0	2.80	170	17	141	2.7	50.4	3.3	60.7
25	154.0	11.10	458	34	303	2.0	27.3	3.0	41.3
27	415.8	24.97	1,168	29	826	2.0	33.1	2.8	46.8
28	301.0	18.10	946	31	653	2.2	36.1	3.1	52.3
29	762.0	43.02	1,471	24	1,115	1.5	25.9	1.9	34.2
30	545.0	33.75	1,038	28	750	1.4	22.2	1.9	30.8
31	118.0	7.27	319	23	247	2.1	34.0	2.7	43.9
34	541.6	25.82	965	24	730	1.3	28.3	1.8	37.4
41	828.7	47.14	881	28	633	.8	13.4	1.1	18.7
48	2,093.5	115.03	4,101	31	2,919	1.4	25.4	2.0	35.7
54	336.5	14.85	499	29	355	1.1	23.9	1.5	33.6
58	2,156.9	121.56	3,644	29	2,586	1.2	21.3	1.7	30.0
60	644.3	27.72	1,166	21	922	1.4	33.3	1.8	42.1
87	90.0	2.25	82	01	81	.9	36.0	.9	36.4
88	82.0	2.02	100	11	89	1.1	44.1	1.2	49.5
89	78.0	1.99	89	01	88	1.1	44.2	1.1	44.7
Subtotal for Local Routes:	23,812.3	1,314.52	53,035	25	38,885	1.6	29.6	2.2	40.3

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TABLE 18

ROUTE PERFORMANCE FOR A TYPICAL SCHOOL DAY (CONT'D)

Express Route	Daily Scheduled Vehicle Miles	Daily Scheduled Vehicle Hours	Daily Passengers (Incl. Transfers)	Percent Transfers	Revenue Passengers	Revenue Passengers Per Vehicle Mile	Revenue Passengers Per Scheduled Vehicle Hour	Daily Passengers Per Vehicle Mile	Daily Passengers Per Scheduled Vehicle Hour
# 81	129.0	8.88	60	-	60	.5	6.8	.5	6.8
82	157.0	9.34	72	-	72	.5	7.7	.5	7.7
83 (1)	124.0	8.80	53	-	53	.4	6.0	.4	6.0
(2)*	124.0	8.80	44	-	44	.4	5.0	.4	5.0
84**	128.0	10.90	42	-	42	.3	3.9	.3	3.9
86	52.5	1.75	21	17	18	.3	10.3	.4	12.0
90	146.0	3.50	96	1	95	.7	27.1	.7	27.4
91	162.0	7.74	371	3	361	2.2	46.6	2.3	47.9
92	198.5	7.65	450	2	442	2.2	57.8	2.3	58.8
93	256.2	8.85	380	10	346	1.4	39.1	1.5	42.9
94	271.7	7.57	480	4	461	1.7	60.9	1.8	63.4
93/94	30.1	1.02	35	21	29	1.0	28.4	1.2	34.3
95	66.6	2.62	112	1	111	1.7	42.4	1.7	42.7
96	96.0	3.22	168	7	157	1.6	48.8	1.8	52.2
97	214.7	7.47	221	-	221	1.0	29.6	1.0	29.6
98	116.6	3.74	150	3	146	1.3	39.0	1.3	40.1
99	117.5	2.50	74	1	73	.6	29.2	.6	29.6
Subtotal for Express Routes:	2,390.4	104.35	2,829	4	2,731	1.1	26.2	1.2	27.1
Subtotal for Local & Express Routes:	26,202.7	1,418.87	55,864	25	41,616	1.6	29.3	2.1	39.4
Seasonal	227.3	21.31	181	-	181	.8	8.5	.8	8.5
Charter	753.6	75.47	829	-	829	1.1	11.0	1.1	11.0
Deadhead	1,730.5	102.58	-	-	-	-	-	-	-
GRAND TOTAL	28,941.1	1,618.23	56,874	25	42,626	1.5	26.3	2.0	35.1

*Discontinued this second trip on December 1, 1980
**Discontinued this route on December 1, 1980

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Routes #87, #88 and #89 are relatively long routes originating in southwest Phoenix which travel one-way to a common destination, the North Black Canyon Industrial Area, in northwest Phoenix. These routes make one trip to the area during the morning peak period and a return trip in the late afternoon. Although patrons are picked up and discharged at any stop along the routes, the majority of passengers travel to the North Black Canyon Industrial Area. Therefore, the percentage of transfer passengers is much less (1, 11, and 1 percent respectively) than the average for all local routes (25 percent). The combination of the relatively low percentage of transfers, long trip length, one-way trip direction and common destination yield comparatively low numbers of daily passengers per vehicle-mile (0.9 - 1.2 versus the average for all local routes of 2.2).

Express Routes:

Express routes generally offer service between outlying residential areas and major employment centers during peak periods. Bus stops are limited to a few locations at either end of the route, with no intermediate stops. A higher fare is charged for this service.

Express routes generally are longer than local routes and incur many more miles traveling non-stop at higher speeds. Therefore, the daily scheduled vehicle-miles for express routes are higher in proportion to the daily scheduled vehicle-hours than for local routes. Express routes are also characterized by a low percentage of transfers (an average of 4 percent) as they generally provide direct links between patrons' origins and destinations.

Routes #91 and #92 (Roadrunner Express) exhibit the highest number of revenue passengers per vehicle-mile (2.2 passengers); the average for all express routes is 1.1 passengers.

Route #86 (South Phoenix Express) shows the lowest number of revenue passengers per vehicle-mile (0.3). This route also has only 10.3 revenue passengers per scheduled vehicle-hour (versus an average of 26.2 for all express routes). Route #86 exhibits the poorest performance among all express routes operating wholly within the urbanized area. One reason for this showing may be that Route #86 is relatively short for an express route. Express routes generally are quite long, carrying patrons from outlying areas to employment centers. Route #86, though, approximates the length of many local routes (7.5 miles one-way). Potential patrons may feel that this short a trip does not warrant the additional fare charged for express service.

Routes #81, #82, #83, and #84 serve the Palo Verde Nuclear Generating Station located 30 miles west of the Phoenix city limits. These Palo Verde express routes have a low number of revenue passengers per vehicle-mile due to the relatively long distance to the plant site. The number of revenue passengers per scheduled vehicle-hour is also quite low. This is caused by the fact that, due to the long distances involved, the buses stay on-site during the day rather than returning to Phoenix. Therefore, although the buses make a 1-hour trip each way, the number of passengers per vehicle-hour is computed using the entire 9-hour period during which the buses are in service or sitting at the plant site.

Financial Performance for Individual Routes. Table 19 presents financial data for local and express routes on a typical school day. As with the ridership data in Table 18, the data included in Table 19 are not directly comparable to those contained in last year's performance table, as the methods used to compute these data are different in some instances. The data contained in Table 19 are based on revenue surveys conducted in March 1981.

Local Routes:

Route #3 (Van Buren Crosstown) has the highest daily operating cost of all local routes. However, Route #3 also has the highest number of scheduled vehicle-miles and scheduled vehicle-hours (See Table 18). On each of the seven financial performance measures, Route #3 approximates the average for all local routes.

Of all local routes, Route #16 (South Central Avenue) recovers the highest percentage (63.4 percent) of its operating costs from the farebox. Route #16 serves the south Phoenix area which has a concentration of low-income persons who may not have an alternative means of transportation. This route also provides a direct link to the downtown Phoenix area.

Route #41 (North 27th Avenue) exhibits the highest daily cost per revenue passenger ($2.42) -- more than twice the average for all local routes ($1.11). Route #41's daily operating support per revenue passenger is $1.98 (versus the average of $.71 for all local routes). Passenger revenue per vehicle-mile ($.33) is also the lowest of all local routes and well below the average revenue of $.66 per vehicle-mile. Passenger revenue on Route #41 covers only 17.9 percent of the route's operating cost, less than half the average operating ratio for all local routes (36.3 percent). Route #41 is a long route with 30-minute service and consequently has high operating costs. Its low ridership generates enough revenue to cover only a small portion of these operating costs, causing its poor financial performance.

Route #54 (Osborn Crosstown) has a very high daily cost per revenue passenger ($1.50), even though it has a relatively low daily operating cost of $533. The daily operating support per revenue passenger is second highest among local routes at $1.11. This route's high level of operating support per revenue passenger is a reflection of the low ridership on the route. Route #54 ranks next to last of all local routes in the percentage of operating costs covered by passenger revenue (25.9 percent).

Express Routes:

Route #92 (Roadrunner Express) exhibits the best financial performance of all the express routes. Passenger revenue covers 86.6 percent of this route's daily operating costs (versus the average of 63.1 percent for all express routes). Route #92 also has the lowest daily operating support per passenger ($.09) as compared to the average for all express routes ($.51).

TABLE 19

FINANCIAL PERFORMANCE (BY ROUTE) FOR A TYPICAL SCHOOL DAY

Local Route	Daily Operating Cost	Daily Passenger Revenue	Daily Operating Support	Daily Cost Per Revenue Passenger	Daily Operating Support Per Revenue Passenger	Passenger Revenue Per Vehicle Mile	Operating Cost Per Vehicle Mile	Passenger Revenue As % of Operating Cost	Revenue Per Scheduled Vehicle Hour	Operating Cost Per Scheduled Vehicle Hour
# 1	$ 2,963.65	$ 963.05	$ 2,000.60	$1.18	$.80	$ .60	$1.84	32.5%	$10.63	$32.71
3	5,746.34	2,072.35	3,673.99	1.11	.71	.65	1.80	36.1	11.86	32.89
5	3,966.00	1,867.05	2,098.95	.83	.44	.85	1.80	47.1	15.49	32.90
6	298.04	133.10	164.94	.95	.53	.75	1.67	44.7	15.41	34.50
7	1,113.37	489.05	624.32	.89	.50	.77	1.75	43.9	14.70	33.46
8	2,106.94	785.00	1,321.94	1.10	.69	.66	1.77	37.3	12.41	33.32
9	1,009.33	500.95	508.38	.82	.41	1.01	2.03	49.6	15.31	30.84
10	945.39	298.45	646.94	1.34	.92	.63	2.00	31.6	9.79	31.03
12	238.56	131.40	107.16	.63	.28	1.20	2.18	55.1	16.40	29.78
13	451.63	132.95	316.68	1.31	.92	.50	1.69	29.4	10.11	34.34
14	1,239.97	360.50	879.47	1.33	.95	.53	1.81	29.1	9.53	32.78
15	1,329.13	421.25	907.88	1.22	.83	.56	1.77	31.7	10.55	33.29
16	431.17	273.45	157.72	.58	.21	1.25	1.97	63.4	19.86	31.31
17	658.98	230.45	428.53	1.13	.73	.78	2.24	35.0	10.30	29.45
18	1,425.32	539.75	885.57	1.07	.66	.71	1.88	37.9	12.16	32.10
21	346.53	112.65	233.88	1.26	.85	.63	1.95	32.5	10.22	31.45
22	2,378.43	1,185.85	1,192.58	.82	.41	.86	1.73	49.9	16.83	33.77
24	92.73	55.65	37.08	.66	.26	1.07	1.78	60.0	19.88	33.12
25	332.22	111.35	220.87	1.10	.73	.72	2.16	33.5	10.03	29.93
27	794.42	319.15	475.27	.96	.58	.77	1.91	40.2	12.78	31.81
28	575.58	267.15	308.43	.88	.47	.89	1.91	46.4	14.76	31.80
29	1,399.65	444.40	955.25	1.26	.86	.58	1.84	31.8	10.33	32.53
30	1,062.22	304.65	757.57	1.42	1.01	.56	1.95	28.7	9.03	31.47
31	229.21	104.20	125.01	.93	.51	.88	1.94	45.5	14.33	31.53
34	897.23	317.30	579.93	1.23	.79	.59	1.66	35.4	12.29	34.75
41	1,529.44	273.55	1,255.89	2.42	1.98	.33	1.85	17.9	5.80	32.44
48	3,780.49	1,142.30	2,638.19	1.30	.90	.55	1.81	30.2	9.93	32.87
54	533.00	138.05	394.95	1.50	1.11	.41	1.58	25.9	9.30	35.89
58	3,957.47	1,088.35	2,869.12	1.53	1.11	.50	1.83	27.5	8.95	32.56
60	1,005.90	497.35	508.55	1.09	.55	.77	1.56	49.4	17.94	36.29
87	107.23	37.75	69.48	1.32	.86	.42	1.19	35.2	16.78	47.66
88	97.09	40.85	56.24	1.09	.63	.50	1.18	42.1	20.22	48.06
89	93.75	40.20	53.55	1.07	.61	.52	1.20	42.9	20.20	47.11
Subtotal for Local Routes:	$43,136.41	$15,679.50	$27,456.91	$1.11	$ .71	$ .66	$1.81	36.3%	$11.93	$32.82

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TABLE 19

FINANCIAL PERFORMANCE (BY ROUTE) FOR A TYPICAL SCHOOL DAY (CONT'D)

Express Route	Daily Operating Cost	Daily Passenger Revenue	Daily Operating Support	Daily Cost Per Revenue Passenger	Daily Operating Support Per Revenue Passenger	Passenger Revenue Per Vehicle Mile	Operating Cost Per Vehicle Mile	Passenger Revenue As % of Operating Cost	Revenue Per Scheduled Vehicle Hour	Operating Cost Per Scheduled Vehicle Hour
# 81	$ 269.71	$ 217.85	$ 51.86	$ 4.50	$ .86	$1.69	$ 2.09	80.8%	$ 24.53	$ 30.37
82	298.15	261.52	36.63	4.14	.51	1.67	1.90	87.7	28.00	31.92
83 (1)	264.68	192.48	72.20	4.99	1.36	1.55	2.13	72.7	21.87	30.08
(2)*	264.68	159.79	104.89	6.02	2.38	1.29	2.13	60.4	18.16	30.08
84**	310.47	152.47	158.00	7.39	3.76	1.19	2.43	49.1	13.99	28.48
86	71.53	10.50	61.03	3.97	3.39	.20	1.36	14.7	6.00	40.87
90	170.88	49.65	121.23	1.80	1.28	.34	1.17	29.1	14.19	48.82
91	268.72	206.70	62.02	.74	.17	1.28	1.66	76.9	26.71	34.72
92	291.64	252.55	39.09	.66	.09	1.27	1.47	86.6	33.01	38.12
93	355.42	195.85	159.57	1.03	.46	.76	1.39	55.1	22.13	40.16
94	339.68	265.55	74.13	.74	.16	.98	1.25	78.2	35.08	44.87
93/94	41.36	16.00	25.36	1.43	.87	.53	1.37	38.7	15.69	40.55
95	98.94	63.25	35.69	.89	.32	.95	1.49	63.9	24.14	37.76
96	131.21	90.70	40.51	.84	.26	.94	1.37	69.1	28.17	40.75
97	298.95	123.65	175.30	1.35	.79	.58	1.39	41.4	16.55	40.02
98	155.85	78.20	77.65	1.07	.53	.67	1.34	50.2	20.91	41.67
99	131.03	38.35	92.68	1.79	1.27	.33	1.12	29.3	15.34	52.41
Subtotal for Express Routes:	$ 3,762.90	$ 2,375.06	$ 1,387.84	$ 1.38	$ .51	$ .99	$ 1.57	63.1%	$ 22.76	$ 36.06
Subtotal for Local & Express Routes:	$ 46,899.31	$ 18,054.56	$28,844.75	$ 1.13	$ .69	$ .69	$ 1.79	38.5%	$ 12.72	$ 33.05
Seasonal	$ 551.24	$ 181.98	$ 369.26	$ 3.05	$ 2.04	$ .80	$ 2.43	33.0%	$ 8.54	$ 25.87
Charter	2,059.66	2,164.83	N/A	2.84	N/A	2.87	2.73	105.1	28.68	27.29
Deadhead	3,278.75	-	3,278.75	-	-	-	1.90	-	-	31.96
GRAND TOTAL	$ 52,788.96	$ 20,401.37	$32,387.59	$ 1.24	$ .76	$ .71	$ 1.83	38.6%	$ 12.61	$ 32.62

*Discontinued this second trip on December 1, 1980.
**Discontinued this route on December 1, 1980.
N/A Not Applicable - Profit-making service.

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Route #86 (South Phoenix Express) exhibits the poorest showing among all express routes in terms of passenger revenue per vehicle-mile ($.20) and passenger revenue as a percentage of operating costs (14.7 percent). Route #86 has been operating since January 1981 and may not have had sufficient time to build up its ridership. Route #86 also serves areas in southern Phoenix which are served, and have been served for many years, by several local routes. In addition, Route #86 is relatively short for an express route and potential patrons may not feel that the higher express fare is worth the 10-15 minute differential between patronizing this route and utilizing local Route #16. These facts help to explain Route #86's low ridership and resulting poor financial performance.

Routes #81, #82, #83, and #84 (Palo Verde Express) were established on a breakeven basis. However, the passenger revenue generated by these routes is not covering the entire cost of providing this service. Route #82 recovers 87.7 percent of its operating costs, while Route #81 covers 80.8 percent. Although Route #84 and the second trip on Route #83 were discontinued in December 1980, they are included in Table 19 for illustrative purposes. These trips were recovering only 49.1 percent and 60.4 percent, respectively, of their daily operating costs through passenger revenue.

The operating cost per scheduled vehicle-hour for express routes is estimated to be appoximately $3.00 per hour greater than it is for local routes ($36.06 for express routes and $32.82 for local routes). Generally, express routes have higher operating costs due to the fact that they travel greater distances to outlying areas and carry revenue passengers only one-way of the round trip. Express routes also operate only during peak periods. Local routes carry revenue passengers in both directions of the round trip and generally do not travel as great a distance as express routes. In addition, local routes operate many more hours of the day, which makes their operating cost per scheduled vehicle-hour less.

5.3 MARKETING PROGRAM

Overall, attitudes toward bus service have been improving and the demand for expanded transit service is rising. The advertising and public relations campaigns of the past several years, as well as the modernization and expansion of the fleet, have helped create increasingly favorable attitudes toward the transit system. Recent marketing efforts have helped increase consumer interest in using the system.

Public information, promotions/public relations, advertising, and market research represent vital segments of the marketing program.

Public Information. Public information activities are handled primarily through Phoenix Transit System (which provides telephone information, and also prints and distributes transit schedules, maps, bus cards, and flyers). The Public Transit Administration is responsible for press releases, market research activities, and overseeing the installation of transit displays at major activity centers.

During FY 1980/81 a new transit map was made available to the public for a charge of 50¢ each. By showing the map to the bus driver, the purchaser could get one free ride. Also during FY 1980/81, ten Guide-a-Ride displays (multi-route information aids) were installed at major transit transfer points and permanent transit/car pool displays were installed in two of the area's largest shopping centers.

A number of special brochures explaining transit services were also printed. Among these were brochures on the three Phoenix dial-a-ride systems, a brochure describing how to use the all-day transit pass to make three different self-guided tours of the Valley, one on transit etiquette, and one describing the mechanics of bus riding. Two of these brochures were distributed via monthly water bill mailings, each reaching almost 300,000 households and places of business.

Promotions/Public Relations. Promotions/public relations are important components of the overall marketing program. In FY 1980/81 these activities focused on heightening consumer awareness by publicizing service changes, highlighting consumer-oriented improvements, and informing the public about bow to use transit services.

Phoenix Transit's customer service representatives made 135 presentations and coordinated 460 field trips for 24,600 students in FY 1980/81. The customer service representatives work with schoolchildren and elderly and disabled individuals in explaining how to use transit effectively. The Public Transit Administration also works closely with employers and groups of employees to encourage transit usage. This coordination has resulted in some schedule adjustments and the establishment of additional ticket sales/schedule outlets.

Some of the most intense promotion efforts centered on the use of radio and newspaper to get transit messages to consumers. Two regularly-scheduled consumer call-in talk shows were underway in FY 1980/81. One is designed to reach the Spanish-speaking market. The other, though reaching the general market, has a particularly high listening audience among elderly citizens.

A third radio project is scheduled to start in July 1981. This new project will have reporters from an all-news station recording people asking questions concerning transit at bus stops throughout the urban area. These questions, as well as the answers, will then be played back on the air in 30-90 second recorded spots. These transit spots will be played at various times throughout the day and night.

Local newspapers have been printing small route maps on their pages. Captions under the maps describe the frequency of service on that route and places of interest along the way. There has been much favorable consumer response concerning these marketing efforts.

The City of Phoenix Public Transit System celebrated its tenth birthday in the Spring of 1981 and formally dedicated the North Maintenance Facility. Press coverage of both events was widespread.

During FY 1980/81, press releases averaged about two per month and more than 150 articles about the transit system appeared in the newspapers. Several long feature stories were published in local news magazines.

Advertising. Multi-media advertising campaigns utilized radio, television, newspaper, bus cards and brochures in FY 1980/81. Two major and one minor advertising campaigns were designed to motivate new riders. These campaigns emphasized using transit during the midday and the Christmas season, and educated the public about the basics of how to use the system.

Market Research. Market research is crucial because it serves as the basis for decisions concerning marketing and service modifications. Ridership, revenue and service performance checks are conducted on an ongoing basis. Every few years major rider and non-rider surveys are conducted. These surveys were again updated during FY 1980/81. The first semi-annual telephone survey was also conducted. The results of these surveys are discussed in the following section.

5.3.1 MARKETING SURVEYS

During 1980 and 1981, three research projects were completed: the 1980 on-Board Origin and Destination Survey of Phoenix Transit System and the 1980 Survey of Non-Bus Riding Population in the Metropolitan Phoenix Area and the initiation of semi-annual telephone surveys.

On-Board Survey of Bus Riders. The 1980 On-Board Origin and Destination Survey of Phoenix Transit System was prepared for the City of Phoenix Public Transit Administration by Bozell and Jacobs/J&T through their research subcontractor, Behavior Research Center. The survey and analysis were financed with Section 8 funds provided by the Urban Mass Transportation Administration (UMTA).

This effort was an update of a similar survey conducted in 1976. Its purpose was to determine the demographic and tripmaking characteristics of Phoenix Transit System's patrons. The survey findings will be used:

1) As a basis for route evaluation and change,
2) To guide the transit marketing program,
3) As a data base for planning purposes, and
4) As a correlation tool with the 1980 Census.

One hundred percent of the riders on 38 percent of all trips were sampled. Of the system's 1800 half trips (Palo Verde Routes #81, 82, 83 and 84 were excluded), 690 were sampled. The selection of half trips was structured so that a representative cross-section of each of the following weekday load periods was sampled:

AM Peak:	First Trip - 9:00 AM
AM Off-Peak:	9:00 AM - 1:00 PM
PM Off-Peak:	1:00 PM - 3:30 PM
PM Peak:	3:30 PM - Last Trip

A total of 16, 221 interviews was obtained, of which 15,401 proved usable. This cleaned sample of 28.9 percent (of the estimated ridership of 53,300) is adequate to generate a sampling error of not more than one percent at a 95 percent confidence level.

The 1980 survey reflects a number of subtle, but important, shifts in the socio-economic characteristics of bus riders. These shifts appear to be indicative of the increasingly important role public transit is playing in meeting the transportation needs of families and individuals who have difficulties coping with rising private transportation costs. In particular, the following demographic characteristics should be noted:

1) For the first time, employed persons rather than students constituted the dominant bus user group. Particularly among young adults, public transit appears to be important for meeting job-related transportation needs.

2) Forty percent of the bus riders belong to racial or ethnic minorities -- a figure that has expanded since 1976 and a figure that is roughly twice their proportion to the overall population.

3) The average family income of bus riders is below the average income of all families in metropolitan Phoenix. In addition, the disparity between the incomes of bus riders' families and the average Valley family is growing.

4) Seven out of ten riders are under 35 years of age and the average age of riders appears to be declining.

5) Women continue to outnumber male riders by a ratio of nearly 3:2.

The 1980 survey also recorded a substantial growth in work-related trips (from 38 percent in 1976 to 48 percent in 1980). Furthermore, 70 percent of all riders, and over 60 percent of work-related riders, are "captive riders" -- that is, they are riders who did not have an automobile available for the trip for which they were interviewed.

The average Phoenix Transit user makes approximately 7.7 one-way transit trips a week, and 45 percent of the users make 10 or more trips weekly.

The walk (and drive) distance traveled by patrons to and from the bus stop has decreased since 1976. The average distance has gone from 3.5 blocks in 1976 to approximately 3.2 blocks today. This is due to increases in the number of routes and route-miles provided by Phoenix Transit System.

Phoenix is the origin and/or destination of 93 percent of all trips. This is several percentage points higher than in the 1976 survey and is due primarily to the reduction of fixed-route transit service in the Mesa area:

Total Intra-city Trips:	89.98%
Phoenix	88.89%
Scottsdale	.70
Glendale	.22
Tempe	.15
Mesa	.02
Total Inter-city Trips:	10.02%

Transit ridership is highest between 6:00 a.m. and 8:00 a.m. and between 3:00 p.m. and 5:00 p.m. Slightly over 40 percent of the total transit ridership occurs during these two periods. This percentage is lower than in 1976, due to a slight increase in the midday ridership -- a trend being encouraged through marketing efforts.

The most common fare payment method by transit users is the "Full Adult Cash" fare with a response of 28 percent, followed by "Cash & Ticket" with 20 percent and "Transfer" with 16 percent. This question was expanded from the 1976 survey so specific comparisons are not possible between the two studies. However, it appears that, while the use of transfers has remained constant over the past five years, the use of cash has decreased and the use of tickets has increased. Two major marketing campaigns have, in recent years, encouraged the use of prepayment instruments.

Survey of Non-Bus Riding Population. In an attempt to increase transit ridership, research was undertaken in 1976 to identify those segments of the non-bus riding population with the highest propensity to become users of the Phoenix Transit System, and to determine underlying motivational factors which could be used to attract this segment of the population. Findings of the 1976 survey pointed to a need to improve both the level of transit awareness and attitudes toward transit. This information has been used in the design of marketing efforts over the past four years.

An update of the 1976 survey was conducted in the spring of 1980. This project was performed through Bozell and Jacobs/J&T by their research subcontractor, Behavior Research Center. The survey was financed in part with UMTA Section 5 funds.

The survey update was designed to provide information comparable to the 1976 survey, but was expanded somewhat to determine public attitudes toward the organization and financing of the transit system. The survey consisted of 400 personal interviews conducted in the homes of the respondents. The sample was drawn from non-bus riders residing in the transit service area (Phoenix, Glendale, Mesa, Tempe and Scottsdale).

The responses to the 1980 survey, when compared to those in 1976, indicated that the overall image non-bus riders have of Phoenix Transit System's service and of the types of people who ride buses has improved. The proportion of non-riders who expressed strong interest in using the bus system increased from 27 to 38 percent. The 1980 survey also revealed growing demand among non-riders for expanded bus service as well as a substantial increase in the proportion of those who favor investing major tax dollars in municipal bus service. Preference for local municipal government operation of bus service has also grown and a plurality favor some sort of fare subsidization formula over a philosophy of self-supporting fares. Those who expressed a strong resistance to switching from automobiles to transit declined from 70 percent to 50 percent -- a substantial shift in values.

Results of this survey show an increased awareness of the Phoenix Transit System but point to the need to provide consumers with more detailed information about how to use it. Indications are that norr-riders are more inclined to try transit if they can be convinced that it is convenient. Future marketing projects will be designed to emphasize convenience factors.

Centel Survey. Because the two surveys discussed previously are conducted only every few years, Public Transit Administration initiated a semi-annual telephone survey in 1981. The purpose of these telephone surveys is to detect a shifts in the attitudes and awareness of both riders and non-riders more quickly.

Bozell and Jacobs/J&T used M.R. West as a research subcontractor on the project. M.R. West conducts a monthly telephone survey (known as Centel) for a variety of clients interested in consumer attitudes and awareness. The survey is designed so that interviews are geographically balanced and are 50 percent male/50 percent female. At a 95 percent confidence level, the data from the 500 interviews are accurate within ± 4.5 percent.

Five or six transit questions are added to the Central survey twice annually. Four questions are consistent from survey to survey so that trend lines can be established. One or two additional questions of a timely nature are also included each time.

The first of these transit-related surveys was conducted in January 1981. One-third of the respondents indicated they had recently seen news stories concerning Phoenix Transit. One-half of those interviewed said their attitude toward Phoenix Transit was favorably affected by the news stories. Attitudes of the other half were not affected -- either positively nor negatively.

The respondents were asked to rate Phoenix Transit System's performance today compared to a year ago. One-half recognized some improvement; one-half saw no change. Those who recognized improvement were longer-term residents and people who generally fit into the "captive rider" category.

Respondents felt it was easy to get information concerning Phoenix Transit System. However, only 11 percent felt they knew enough to make a trip without additional information. This percentage has increased since 1976, indicating that marketing efforts are succeeding. However, it points to an area requiring continued attention. Residents living in the center of the urban area generally were more knowledgeable. This is reasonable since the highest level service is offered in central Phoenix.

In January 1981, respondents were asked whether they would support a 1¢ sales tax increase to finance street, freeway and public transit improvements. Respondents favored the tax 2:1.

The second telephone survey of FY 1980/81 is currently underway (June-July 1981) and results are not yet available.

5.4 TRANSIT NEEDS OF SPECIAL TARGET GROUPS

There are three groups of people which were targeted for special attention during FY 1980/81: elderly and handicapped persons; Hispanic residents; and commuters in outlying areas.

Handicapped Persons. Section 504 regulations require transit systems receiving federal funds to make one-half of the peak-hour bus fleet accessible to handicapped people, including those who are wheelchair-bound, by no later than July 1, 1989. The City of Phoenix has received a special grant from the Urban Mass Transportation Administration (UMTA) to test a manual designed to help transit operators transition to a wheelchair-accessible fleet. The manual provides information regarding service planning, operations, and maintenance of wheelchair lifts. It also addresses the marketing and public relations aspects of introducing this new equipment.

An ad hoc citizens advisory group, including many wheelchair-bound persons, has helped to evaluate routes for accessible service and establish priorities. They are also working closely with Public Transit and Phoenix Transit staff to develop appropriate marketing and training programs. The first lift-equipped buses are scheduled to be put into service on Routes #8, #16, and #27 in late August 1981.

Hispanics. According to the 1980 Census, Hispanics comprise 15.1% of the population of the City of Phoenix and 16.2% of Arizona's population. The origin and destination survey administered in November 1980 had the questions printed in Spanish on one side of the survey card. Of the 15,401 total usable (cleaned) surveys, 389 were completed in Spanish.

Efforts have been made in the marketing program to ensure that Spanish-speaking persons are informed about the public transit system. Promotional advertisements and public hearing notices are printed in the Spanish-language newspaper El Sol, and radio advertisements are broadcast on Spanish-language radio station KIFN. Phoenix Transit System also has a monthly radio interview with a consumer call-in segment on KIFN.

In addition, there is at least one Spanish-speaking employee at both the Public Transit Administration and Phoenix Transit System offices and at the downtown terminal. These employees are knowledgeable about the bus system and can assist Spanish-speaking persons.

Commuters. The dispersed population pattern of the Phoenix area lends itself to long-distance express transit routes for commuters from outlying areas to major employment centers. Express routes have been established from the southeast Valley area (Tempe), northwest and northeast Phoenix, and north and south Scottsdale. Ridership on these express routes has been consistently high with an average of 33 riders per half-trip on all express routes. To encourage express riders, 22 park-and-ride lots have been established at strategic locations around the Valley.

All express routes except Route #86 (South Phoenix Express) have been successful, even though express patrons are charged a premium fare which is 30 percent higher than the regular fare. Patrons from outlying areas are willing to pay a higher fare for the convenience of direct, non-stop service.

5.5 UNMET NEEDS AND DEFICIENCIES

Despite great strides in the provision of public transportation services during the past 10 years, there are still certain unmet needs and deficiencies which have been identified. Many of these are currently being addressed while others have been targeted for improvement in the future. Following is a brief discussion of the identified problem areas.

Services for Sun City, Chandler, Guadalupe, and Other Outlying Cities. There are several communities on the fringes of the urbanized area that have expressed an interest in transit service but currently are unserved or have only very limited service available.

Sun City is an unincorporated city northwest of Phoenix with a resident population of approximately 40,000 persons -- all of whom are 50 years or older. Transit service has long been a concern and desire of Sun City residents. Although some local service is provided by Sun City Bus Lines, there is no transit service available between Sun City and adjacent communities except for the limited service provided through the Maricopa County/Red Cross Special Transportation Services program. Because Sun City is an unincorporated community, however, Maricopa County is the jurisdiction which would have to agree to implement service to Sun City. To date, the County has not been willing to accept the financial burden of having Phoenix Transit provide such service and Sun City residents have not tried to raise the necessary funds through the homeowners association or other means available to them to pass the money on to the County.

Data from the 1980 Census show that the City of Chandler is now part of the Phoenix urbanized area. Chandler is programmed in the FY 1982-86 Transportation Improvement Program (TIP) for transit service to and from Phoenix starting in FY 1983/84 if funding is available.

Officials in the Town of Guadalupe have expressed an interest in establishing an express route stop in their town. The Public Transit Administration has discussed routing options with them. However Guadalupe currently is unable to fund such service.

Transit service to other outlying communities will be considered as the Phoenix area continues to grow. However, the ability of each city or town to fund its share of the costs is the critical factor in determining whether the service can be provided via contractual agreements.

Lack of Evening and Sunday Service. Many Phoenix residents would like to see transit service during the evening and on Sunday. In response to their requests, the Mayor and City Council implemented two new services in FY 1980/81.

On August 25, 1980, 7:15 p.m. trips were added to five routes with high ridership. In the nine months since then, ridership on the 7:15 p.m. trips has ranged between 11 and 41 per bus. All but a few of these riders make the 7:15 p.m. outbound trip from the Phoenix downtown terminal; the Route #22 inbound trip from Arizona State University is the one exception. In FY 1981/82 the outbound portion of the early evening trips will be retained but the inbound trip, except for Route #22, will be deleted. Expansion of early evening service in the near future is unlikely as ridership has not been sufficiently high on present routes to warrant an expansion, particularly in light of current financial constraints.

On August 31, 1980, the Phoenix Sunday Dial-A-Ride began operating. Uncertain of the potential demand for Sunday transit service, the Mayor and City Council determined that a demand-response system was preferable to implementing fixed-route service on Sunday. If ridership on the dial-a-ride was high enough, fixed-route service could be considered in the future. Ridership on Sunday Dial-A-Ride, however, has been stable at 250-300 passengers per week. Based on this level of demand, the more expensive fixed-route service would not be cost-effective and the Mayor and City Council have decided to retain the Sunday Dial-A-Ride.

Lack of Public Information. Although the 1980 Survey of Non-Bus Riding Population in the Metropolitan Phoenix Area showed that the public's perception of the transit system today is more positive than in 1976, many people are still unaware of how to use the transit system. Routes, schedules, and fare information are still not widely known, so, marketing efforts for the next few years will emphasize these areas. The Spring 1981 marketing campaign was aimed at informing potential riders about how to use the transit system: "how to catch it," "how to stop it," and "how to pay for it" were major themes in both print and radio ads.

Vandalism and Graffiti. The City of Phoenix Transit System has suffered from chronic problems of vandalism and graffiti created, for the most part, by high school students. To combat this, the price of a student ticket was increased by 5¢ in June 1980. The proceeds from this increase are placed in a special

fund and are used to pay for security monitors and to cover the cost of repairing damage caused by vandalism. The monitors patrol buses and areas with high concentrations of students to discourage destructive student behavior. The program has proven quite successful and incidents of vandalism have decreased substantially.

Lack of Passenger Amenities. Installation of passenger amenities has not proceeded at the same rapid pace as transit system growth over the past 10 years. Rather, emphasis has been placed on developing the transit infrastructure necessary to accommodate a 700-bus fleet by the year 2000. With this framework nearly completed, more resources are now being allocated for passenger amenities such as improved bus stop signs and streamlined schedules. A bench and shelter program will be expanded, while Guide-A-Rides are being placed at major transfer points. Mini-terminals are being established at three major regional shopping centers.

Security and Image of the Downtown Phoenix Bus Terminal. The commonly held image of the downtown Phoenix terminal as an unsafe area reflects the public's perception of the downtown area itself. The City of Phoenix is seeking to dispel this perception by engaging in major efforts to rejuvenate the downtown area. The Public Transit Administration has been actively involved in this planning process. However, the actual implementation of downtown redevelopment will take many years. As a short-term measure, police officers (uniformed and plainclothed) are on duty at the terminal. This has significantly improved security and reduced the number of incidents at the terminal.

Inadequate Maintenance Facilities. Until March 1981, Phoenix Transit was operating 230 buses out of a garage with six maintenance bays that was built to accommodate a fleet of 50-75 coaches. The recently-opened North Maintenance Facility has 11 bays capable of servicing 200 buses. In March 1982, the new Heavy Maintenance Facility will open. It will have 26 bays capable of servicing 400 buses and accommodating all heavy maintenance functions. With these new facilities in operation, fleet maintenance -- and thus vehicle reliability -- should improve.

Air Conditioning. Transit buses are purchased according to UMTA specifications (known as the "White Book") which impose a nationwide standard for vehicle performance. Air conditioning systems provided on buses built to White Book specifications are inadequate for the unique climatic conditions found in the Phoenix area, where temperatures consistently exceed 100°F in the summer months. The Phoenix Transit maintenance department has made mechanical adjustments and special retrofits with some success, but the basically inadequate air conditioning system continues to cause maintenance problems and a significant ridership loss in the summer months.

There has been some discussion among UMTA officials about eliminating the mandatory White Book specifications. This could help Phoenix in acquiring buses that are more suitable to local conditions.

Insufficient Data Base. Data collection, analysis, and recordkeeping are now entirely manual operations at Phoenix Transit. When information is required by management for decision-making, a great deal of staff time is usually expended in gathering the necessary data and compiling it into a useful form. This results in a data base that is piecemeal, rather than comprehensive and integrated. To relieve this situation, proposals are currently being evaluated for the design and implementation of an automated management information system (MIS). The MIS should be at least partly operational by January 1982. It is anticipated that an automated system will vastly improve the quality and quantity of information on which decisions are based.

5.6 FINANCIAL STATUS OF THE SYSTEM

The availability of funds is the most critical factor in determining the future of public transportation in the Phoenix area. Without adequate funding, the amount of new and/or improved transit services that can be provided is severely limited. Even maintaining current levels of service calls for increased funding to meet rising costs.

5.6.1 SOURCES OF FUNDING

The public transportation system is financed through a combination of sources: farebox and other revenues, federal aid, and support from Phoenix and other Valley cities.

Passenger Revenues. Currently, passenger revenues cover just over 33 percent of the total operating costs of the public transportation system. However, actual recovery ratios for specific components of the transit system vary widely. For example, the estimated recovery ratios for FY 1980/81 are about 33 percent for the fixed-route system but only 8 percent for the Phoenix Sunday Dial-A-Ride.

Since the City of Phoenix assumed responsibility for the Phoenix Transit System in March 1971, adjustments in transit fares have been infrequent. In July 1972, transit fares were both simplified and reduced. Between 1972 and 1978 many discount transit fares aimed at specific target groups were implemented. The cumulative result of these actions was a very complicated overall transit fare structure. In July 1978, the fare structure was once again simplified; fares were also modestly increased. In June 1980, the adult base fare on Phoenix Transit System was increased from 40¢ to 50¢ -- a 25 percent increase. Other fares were increased by a similar percentage. This last fare increase resulted in a 21.5 percent increase in revenue. Although ridership declined initially after the fare increase, it later recovered. Total FY 1980/81 ridership is expected to be approximately two percent less than FY 1979/80 ridership.

The Phoenix City Council has set a goal of recovering 30-40 percent of operating costs from the farebox.

Other System Revenues. Phoenix Transit operates a substantial amount of charter service, particularly in the evening and on the weekends when the fleet would otherwise be idle. The net revenues from this special service are used to reduce the net public cost of the transit system.

Another potential source of funding is advertising revenue. The City of Phoenix is expected to sign a contract by August 1981 with a private firm for bus bench and interior bus card advertising. It is expected that the City's share of the profits will be approximately $25,000 during the first year of the contract.

Federal Operating Assistance. Section 5 of the Urban Mass Transportation Act of 1964, as amended, provides federal funds for capital and/or operating assistance to public transportation systems. These funds are distributed according to a formula based on population and population density. The Phoenix urbanized area is currently entitled to receive up to $5.8 million annually under Tiers I and II of the Section 5 program.

If used for operating support (as is currently being done in the Phoenix area), Section 5 money can be obtained only up to a maximum of 50 percent of the operating deficit actually incurred. Section 5 funds must be matched on a dollar-for-dollar basis with non-federal (local) funds.

Until this past year, the annual Section 5 allocation has always covered 50 percent of the total operating deficit. In FY 1980/81, the financial needs of the Phoenix area exceeded its Section 5 ceiling. Fortunately, due to unused funds carried over from previous years, 50 percent of the total operating support was still recovered from the federal government in FY 1980/81. However, carryover funds are not available next year.

Federal Capital Assistance. At present, the primary source of funding for capital programs is Section 3 of the Urban Mass Transportation Act of 1964, as amended. Section 3 funds are a discretionary program, i.e., no metropolitan area receives any statutory entitlement -- all applications are evaluated on their merits in light of the available funding for the entire Section 3 program. This federal program provides 80 percent of the net cost of capital projects. The projects for which capital grants are requested must appear in the Annual Element of the Transportation Improvement Program (TIP). They must meet certain other federal requirements, and the non-federal share of 20 percent of the net project cost must also be available.

There is also a component (Tier IV) of the Section 5 program which provides limited capital assistance for buses and related facilities to urbanized areas on a formula basis. The Phoenix area currently receives approximately $1.9 million per year from this program.

The importance of federal aid to the capital improvement program is shown in Table 20. The Phoenix area has received over $32 million in UMTA capital grants since 1973. Two other grants have also been submitted but are not yet approved, as indicated in Table 21.

TABLE 20 CITY OF PHOENIX PUBLIC TRANSIT ADMINISTRATION

SUMMARY OF UMTA CAPITAL GRANTS

Grant No.	Date of UMTA Approval	Total Project Cost	Federal Share	Local Share	Project
AZ-03-0002	Jan. 1973	$2,854,000	$1,902,666	$ 951,334	Purchase 55 buses, 115 fareboxes and 10 bus shelters
AZ-03-0004	Dec. 1974	$5,596,865	$4,477,492	$1,119,373 (1)	Purchase 48 buses, spare parts & communications equipment. Construct downtown terminal.
AZ-05-0001	May 1977	$3,298,510	$2,638,808	$ 659,702	Purchase 37 buses and misc. vehicles. Retrofit 55 buses with power steering.
	Amended Mar. 1979	$ 935,964	$ 748,771	$ 187,193	Cost adjustment.
		$4,234,474	$3,387,579	$ 846,895	
AZ-03-0005 & AZ-05-0005	June 1977	$4,653,405	$3,722,724	$ 930,681	Purchase 3 vans, 20 articulated buses, 98 fareboxes, communications & other equipment. Design heavy maintenance facility.
	Amended Aug. 1979	$ 292,535	$ 234,028	$ 58,507	Improve railroad grade crossings at heavy maintenance facility site.
	Amended Sept. 1979	$5,674,950	$4,539,956	$1,134,994 (1)	Construct heavy maintenance facility.
	Amended July 1980	$5,975,055	$4,780,044	$1,195,011	Construct heavy maintenance facility.
		$16,595,945	$13,276,752	$3,319,193	
AZ-03-0006 & AZ-05-0008	Aug. 1977	$1,026,035	$ 820,828	$ 205,207	Purchase 6 vans, fareboxes, radios, 54 shelters, 120 benches & 140 bus stop signs. Design satellite maintenance facility.
	Amended Feb. 1980	$3,666,600	$2,933,280	$ 733,320	Construct Satellite maintenance
		$4,692,635	$3,754,108	$ 938,527	facility.
AZ-05-0002	Oct. 1978	$ 342,210	$ 273,760	$ 68,450	Purchase supervisory and maintenance vehicles, 500 bus stop signs & misc. tools and equipment.
AZ-05-0007	May 1980	$4,668,970	$3,735,175	$ 933,795	Purchase 15 buses, 13 minibuses, 182 fareboxes, 116 radios, 3 shelters, 50 benches & 250 bus stop signs.
AZ-03-0009	Aug. 1980	$2,000,000	$1,600,000	$ 400,000	Purchase 12 buses.
AZ-03-0011 & AZ-05-0011	June 1981	$6,644,730	$5,315,785	$1,328,945	Purchase 19-20 buses (including 10 articulated), 3 minibuses, 6 vans & miscellaneous equipment. Construct 3 mini-terminals.
AZ-05-0010	June 1981	$1,692,227	$1,353,782	$ 338,445	Purchase 6 vans, 9 minibuses, 16 support vehicles, fareboxes, benches, shelters & bus stop signs. Implement Management Information System.
TOTAL GRANTS APPROVED		$49,322,056	$39,077,099	$10,244,957	

(1) Includes land value.

TABLE 21

CITY OF PHOENIX PUBLIC TRANSIT ADMINISTRATION

CAPITAL GRANTS SUBMITTED TO UMTA BUT NOT YET APPROVED

Grant No.	Date Submitted	Total Project Cost	Federal Share	Local Share	Project
AZ-03-0011 & 05 Component	Oct. 1980	$6,644,730	$5,315,785	$1,328,945	Purchase 19-20 buses (including 10 articulated), 3 minibuses, 6 vans and misc. equipment. Construct 3 mini-terminals.
AZ-05-0010	Sept. 1980	$1,692,227	$1,353,782	$ 338,445	Purchase 6 vans, 9 minibuses, 16 support vehicles, 125 fareboxes, benches, shelters, & bus stop signs. Implement management information system (MIS). Construct bus pullouts.
TOTAL		$8,336,957	$6,669,567	$1,667,390	

Support From Cities. Local governments provide the required match for federal dollars and are thus responsible for providing the remaining operating support for the transit system. These monies come out of the general funds of the Cities of Phoenix, Glendale, Mesa, Scottsdale, and Tempe. Each city is individually responsible for the transit and paratransit services provided to its residents.

Table 22 provides a summary of the sources of funding for the transit system since 1971. This information is presented graphically in Figure 22.

5.6.2 OUTLOOK FOR FUTURE FUNDING

Additional revenues must be found if existing transit services are to be maintained and improved. The possibility of decreasing Federal operating assistance makes the future of public transportation in the Phoenix area even more uncertain.

Reduced Federal Aid. It cannot be determined at this time just how much Federal aid will be available for transit projects in the Phoenix urbanized area over the next five years.

As part of his Program for Economic Recovery, President Reagan has called for extensive changes in both the type and level of Federal assistance for transit. It is likely that these proposals will undergo extensive modifications by Congress before becoming legislation. However, the magnitude of the Administration's proposed changes certainly warrants serious concern.

The major provision of the Administration's bill would phase out all Section 5 operating assistance by FY 1984/85. The rationale is that the Federal government should provide only capital assistance to public transit system and that State and local governments are a more appropriate source of operating support. Using the funding levels proposed in the bill, allocations for the Phoenix area are estimated to be approximately $5.8 million in FY 1981/82, $3.8 million in FY 1982/83, $1.8 million in FY 1983/84 and $0 thereafter.

Federal aid now accounts for approximately one-third of the region's transit operating budget. The loss of these funds will have serious repercussions on the transit system's ability to serve Valley residents.

Service Cutbacks and Fare Increases. There are no dedicated funds for transit in the Valley. Local funding for transit comes from the general funds of each city. Transit must compete with fire and police protection, street maintenance, garbage collection and other city services for those funds. The problem is further compounded by State spending limitations which place a ceiling on future budget increases for all levels of government in Arizona.

TABLE 22

FY 1971-81 TRANSIT SYSTEM OPERATING BUDGETS

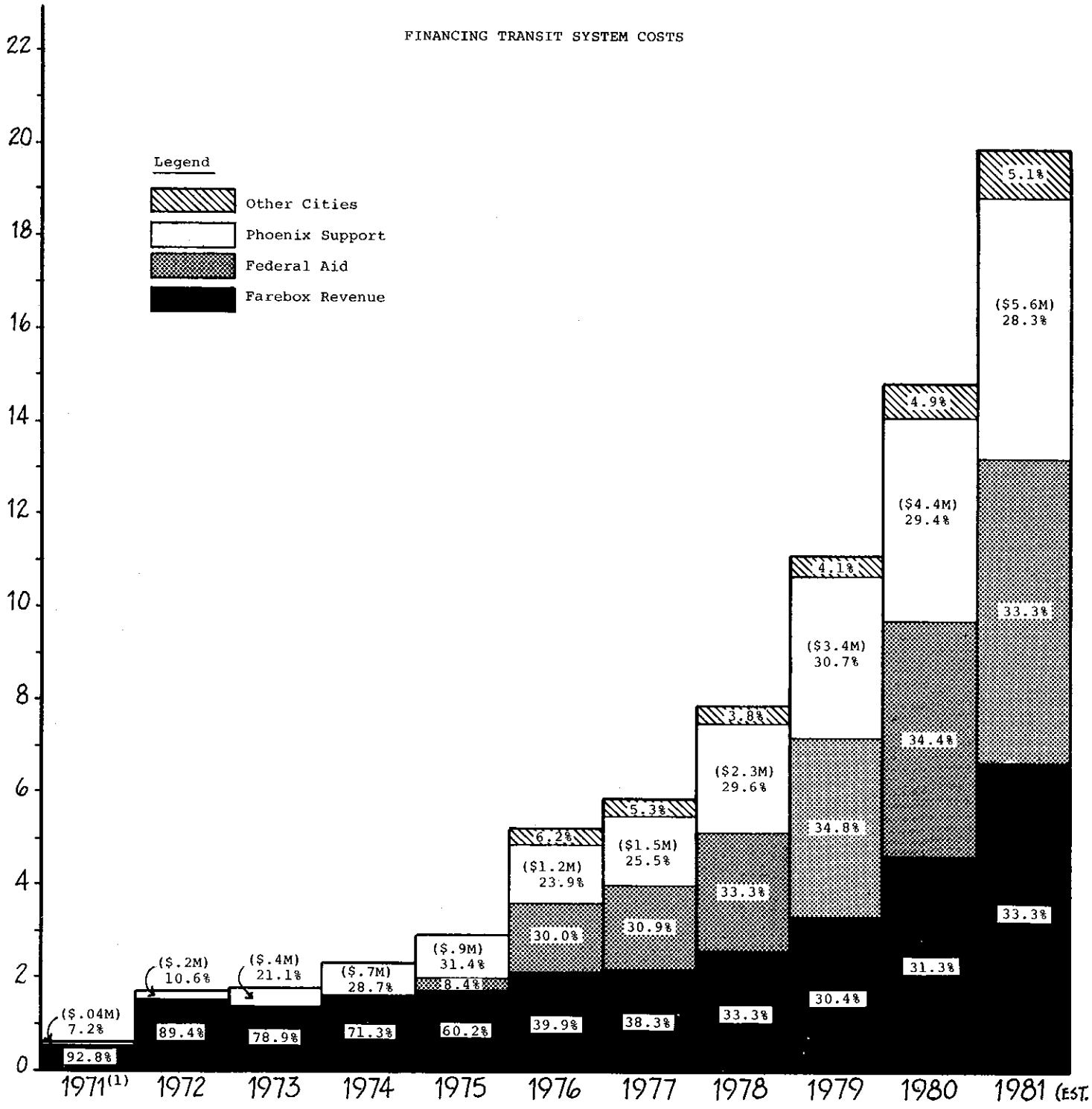
FISCAL YEAR	TOTAL OPERATING COSTS (in 000's)	FAREBOX & OTHER REVENUE (in 000's)	FEDERAL OPERATING SUPPORT (in 000's)	PHOENIX OPERATING SUPPORT (in 000's)	OTHER CITIES OPERATING SUPPORT (in 000's)	TOTAL OPERATING SUPPORT (in 000's)
1971 (1)	526	488	-	38	-	38
1971-1972	1,713	1,532	-	181	-	181
1972-1973	1,785	1,409	-	376	-	376
1973-1974	2,365	1,686	-	679	-	679
1974-1975	2,962	1,783	250	929	-	1,179
1975-1976	5,205	2,076	1,564	1,244	321	3,129
1976-1977	5,821	2,229	1,796	1,488	308	3,592
1977-1978	7,794	2,594	2,600	2,306	294	5,200
1978-1979	11,078	3,363	3,858	3,401	456	7,715
1979-1980	14,839	4,643	5,098	4,370	728	10,196
1980-1981 (est.)	19,905	6,631	6,637	5,624	1,013	13,274

(1) March 1, 1971 through June 30, 1971

Includes fixed-route service in Phoenix, Glendale, Scottsdale, and Tempe as well as Mesa Dial-a-Ride, Glendale Dial-a-Ride, Paradise Valley, Moon Valley and Phoenix Sunday Dial-a-Rides where applicable.

FIGURES SUBJECT TO CHANGE AFTER COMPLETION OF FINAL AUDITS.

FIGURE 22



(1) March 1, 1971 through June 30, 1971

Faced with rising operating costs and reduced federal aid, the Mayor and City Council of Phoenix conducted a detailed review of transit routes and services during the FY 1981/82 budget preparation process. It was finally determined that a combination of fare increases and service cutbacks should be instituted. Given current budget limitations, little else could be done. There are no funds available for maintaining current service levels, much less expanding the transit system, at this time.

A public hearing was held on May 28, 1981 to obtain citizen input on proposed fare increases and service reductions. Some 140 citizens were in attendance and 35 testified at the hearing. The general tone of the attendees was acceptance as inevitable of the need for a fare increase; however they were distressed over the proposed service reductions.

The new fare structure effective June 29, 1981 is presented in Table 23. Adult base fares will be increased by 20 percent. Eligible elderly and handicapped individuals and children will continue to pay only half-fare under the new fare structure. Increases for other types of fares such as express trips, ticket books, and passes range between 17 and 33 percent.

These fare increases are necessary in order to continue to meet the Phoenix City Council's goal of having farebox revenues meet 30-40 percent of total transit operating costs. Without this fare increase, even more service cutbacks would be necessary in order to reduce next year's transit operating deficit to acceptable levels.

It is believed that the majority of the public will view the proposed fare increases as normal price adjustments during the present period of inflation. A five percent decline in transit ridership is expected as a result of the new fare structure. However, this decline should be temporary. As gasoline prices continue to rise throughout the year, people will again turn to transit. Even with the fare increase, Phoenix Transit fares will continue to compare favorably with the costs of owning and operating a private automobile, as illustrated by Figure 23.

Service cutbacks approved by the Phoenix City Council are presented in detail in Chapter 6.

Possible State Aid. As Federal operating assistance is phased out, it becomes imperative to find new sources of funding for transit. Farebox revenues and operating support from the cities' general revenues cannot be increased enough to make up for the loss of Federal aid.

A potential source of replacement and/or additional transit funding is the State of Arizona, which does not now provide any capital or operating assistance. The Governor has called for a special session of the State Legislature starting July 8, 1981 on the subject of transportation financing. It is hoped that transit will be an essential component of any financial package resulting from that meeting. However, speculation on the form of the legislation that will eventually emerge from the Legislature (and be signed by the Governor) would be an unproductive exercise at this time.

TABLE 23

COMPARISON OF FY 1981 AND FY 1982 FARE STRUCTURES

PHOENIX TRANSIT SYSTEM

	Cities of Glendale, Phoenix, Tempe		City of Scottsdale	
	FY 1980/81	FY 1981/82	FY 1980/81	FY 1981/82
LOCAL ROUTES:				
Adult	$ .50	$ .60 (1)	$ .60	$ .70
Elderly, Handicapped, or Child	.25	.30	.30	.35
Adult Ticket (in multiples of 10)	.45	.575	N/A	N/A
Student Ticket (N/A in Tempe)	.30	.40	.30	.40
EXPRESS ROUTES:				
Adult	.65	.80	.75	.90
Adult Ticket (in multiples of 10)	.60	.775	N/A	N/A
Child	.30	.40	.35	.45
PASSES:				
All-Day (Adult)	1.50	2.00	1.50	2.00
All-Day (Elderly, Handicapped, or Child)	.75	1.00	.75	1.00
Monthly	20.00	25.00	20.00	25.00
Annual	180.00	230.00	180.00	230.00

(1) Adults riding Route #60 in Mesa will pay $1.20.
The elderly and handicapped riding Route #60 in Mesa will pay $.60.

PHOENIX DIAL-A-RIDES

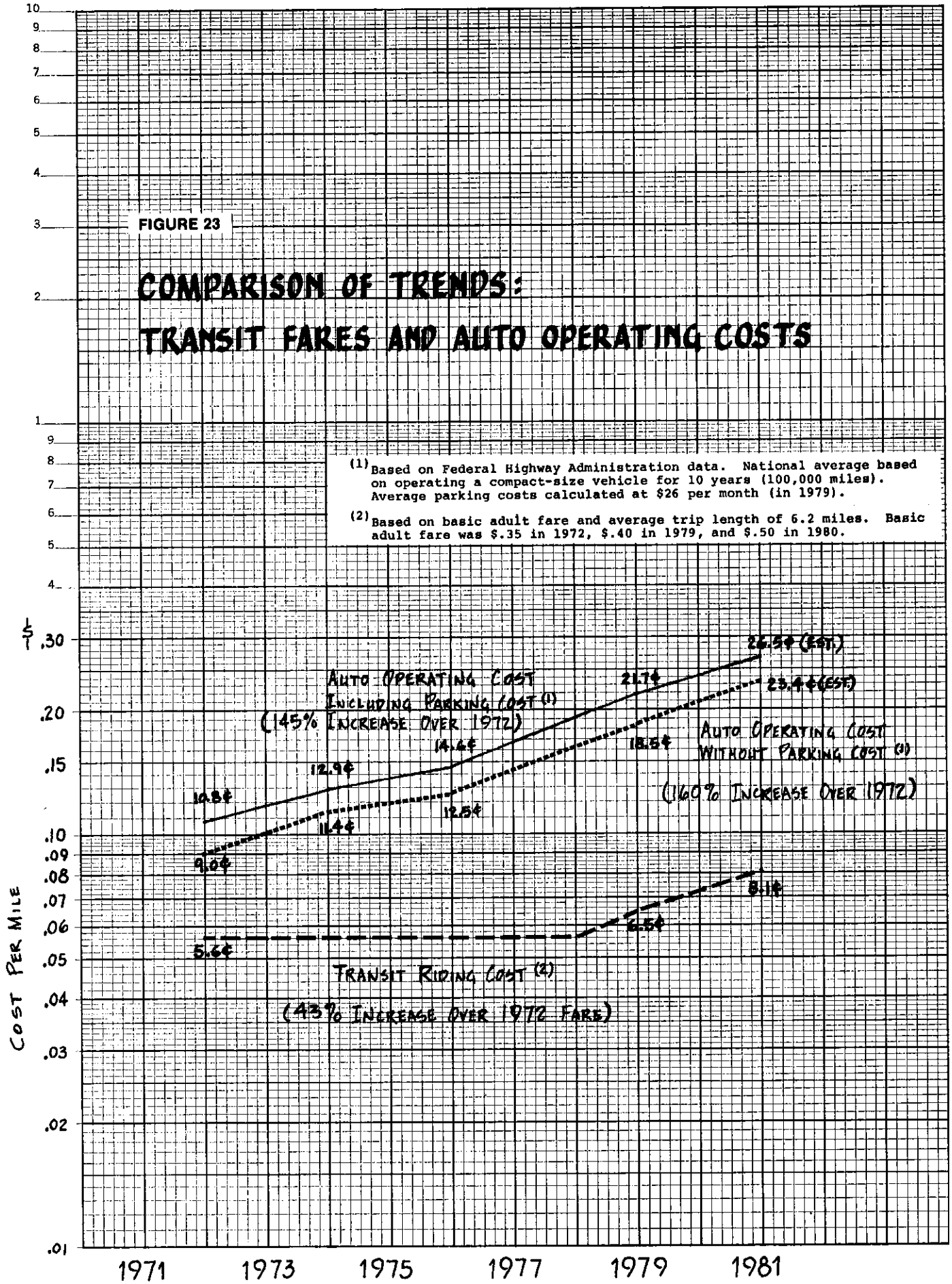
	Paradise Valley DAR		Sunday DAR	
Service Type	FY1980/81	FY 1981/82	FY 1980/81	FY 1981/82
Adult	$ 1.00	$ 1.25	$ 1.00	$ 1.50
Elderly, Handicapped, or Child	.25	.50	.50	.75
Student Ticket	.50	.60	N/A	
Zone Fare:				
Adult	N/A		.25	.50
Elderly, Handicapped, or Child	N/A		.10	.20

FIGURE 23

COMPARISON OF TRENDS: TRANSIT FARES AND AUTO OPERATING COSTS

(1) Based on Federal Highway Administration data. National average based on operating a compact-size vehicle for 10 years (100,000 miles). Average parking costs calculated at $26 per month (in 1979).

(2) Based on basic adult fare and average trip length of 6.2 miles. Basic adult fare was $.35 in 1972, $.40 in 1979, and $.50 in 1980.



CHAPTER 6

FIVE-YEAR TRANSIT PLAN

This chapter presents the short-range transit plan, a five-year program of projects for improving public transportation in the Phoenix metropolitan area. It is based on the data presented in previous chapters and includes both capital and non-capital projects. The plan represents a joint planning effort by MAG transit planning staff, the City of Phoenix Public Transit Administration, Maricopa County, and the cities of Glendale, Mesa, Scottsdale and Tempe.

6.1 FY 1981/82 TRANSIT PROGRAM

The first year of the five-year plan is presented in greater detail than other years as decisions have already been made regarding budgets. Because present conditions are always more certain than future conditions, individual projects for FY 1981/82 and their expected impacts can be more clearly identified at this time.

6.1.1 SERVICE CHANGES PLANNED FOR FY 1981/82

For the first time since 1971 when the City of Phoenix assumed responsibility, the transit system will not be expanded next year. Funding constraints have forced the City to raise fares and cut back service in FY 1981/82 in an attempt to reduce the size of the operating deficit.

Table 24 details the specific service reductions to be implemented at the start of FY 1981/82. Weekday and Saturday service reductions are shown graphically in Figures 24 and 25, respectively. Approximately 2,377 weekday miles and 978 Saturday miles of fixed-route service will be eliminated. This represents 656,889 annual miles or about 9 percent of the FY 1980/81 annual mileage. The savings are estimated at approximately $1,237,000. Elimination of the Moon Valley Dial-A-Ride will save an additional $40,000 next year.

Every attempt was made to minimize the adverse impact of service reductions, however. The transit services proposed for cutbacks are, in all cases, those which are currently least utilized. In this way, the fewest number of transit riders will be affected. It is estimated that 2,969 weekday pasengers and 1,428 Saturday passengers will be affected by the service cutbacks. Many of these people will be able to adjust their schedules and will continue to use public transportation. The loss in ridership due to service reductions is expected to be on the order of five percent overall: 1,200 weekday passengers and 900 Saturday passengers.

An additional five percent loss in ridership is anticipated due to fare increases. However, this loss is expected to be of a more temporary nature.

6.1.2 OPERATING IMPROVEMENTS PLANNED FOR FY 1981/82

Improvements scheduled for FY 1981/82 that are designed to provide more efficient operations include the following:

TABLE 24

CITY OF PHOENIX TRANSIT SYSTEM
FY 1981/82 SERVICE REDUCTIONS

Scheduled Service - Weekdays

Description	Daily Miles	Current Ridership On Trips To Be Eliminated[1]	Estimated Annual Savings
Route #1 - Glendale Avenue, 24th Street, Roeser Road, South Seventh Avenue. Eliminate two inbound trips.	41	30	$ 20,664
Route #1 - Glendale, 24th Street, Roeser Road, South Seventh Avenue. Reduce midday frequency of service from 30 to 60 minutes by eliminating nine round trips.	486	800	244,944
Route #3 - West Van Buren, North 35th Avenue. Eliminate one round trip.	19	0	9,576
Route #3 - West Van Buren, North 35th Avenue. Eliminate one inbound trip.	12.4	10	6,250
Routes #3 - North 35th Avenue, #5 - North Central and #8 - North 19th Avenue. Eliminate last downtown trip which occurs about 8:00 p.m.	36.5	15	18,396
Route #5 - North Central Avenue. Reduce midday frequency from 12 to 15 minutes by eliminating nine round trips.	233.5	600	108,612
Route #10 - North Seventh Avenue. Reduce midday frequency of service from 30 to 60 minutes by eliminating five round trips.	84.5	170	42,588

[1] Although these passengers are affected, many of them will be able to adjust their schedules and use other trips. Scheduling changes have been made to reduce the negative impact of service cutbacks on riders.

Description	Daily Miles	Current Ridership On Trips To Be Eliminated	Estimated Annual Savings
Route #12 - South 15th Avenue. Eliminate one round trip.	5	16	$ 2,520
Route #12 - South 15th Avenue. Reduce peak hour service from 30 to 60 minutes by eliminating seven round trips.	39	115	19,656
Route #14 - East Broadway. Eliminate one pull-in and one round trip.	21	11	10,584
Route #15 - East Southern Avenue. Eliminate three pull-in trips.	12	4	6,048
Route #17 - East Mohave, Sky Harbor. Eliminate one outbound and one inbound trip.	8	11	4,032
Route #21 - North 20th Street. Eliminate one round trip.	14	6	7,056
Route #21 - North 20th Street. Eliminate midday service by eliminating six round trips.	84	70	42,336
Route #22 - Camelback, Scottsdale, Tempe, A.S.U. Eliminate service in south Tempe.	275	45	88,200
Route #24 - West Adams, State Capitol. Eliminate one round trip.	11	9	5,544
Route #24 - West Adams, State Capitol. Eliminate remaining service.	48	95	24,192
Route #25 - East Buckeye Road. Eliminate one outbound trip and one round trip.	8	9	4,032
Route #25 - East Buckeye Road. Reduce frequency of service from 30 to 60 minutes by eliminating twelve round trips.	80	290	40,320
Route #27 - East Roosevelt. Eliminate two inbound trips.	21	5	10,584

Description	Daily Miles	Current Ridership On Trips To Be Eliminated	Estimated Annual Savings
Route #28 - West Buckeye, State Capitol. Reduce midday frequency of service from 30 to 60 minutes by eliminating five round trips.	49	50	$ 24,696
Route #30 - West McDowell Road. Reduce midday frequency of service from 30 to 60 minutes by eliminating five round trips.	94.5	100	47,628
Route #31 - North 12th Street. Eliminate one inbound trip.	6	5	3,024
Route #34 - Grand Avenue. Eliminate one outbound trip.	10.5	5	5,292
Route #41 - North 27th Avenue. Reduce midday frequency of service from 30 to 60 minutes by eliminating five round trips.	172.8	140	87,092
Route #54 - Osborn Road Crosstown. Eliminate all service.	439	328	221,256
Route #86 - South Phoenix Express. Eliminate all service.	55	30	27,720
Route #92 - Roadrunner Express. Eliminate one pull-out trip.	11	0	5,544
	2,376.7	2,969	$1,138,386

Scheduled Service - Saturday

Description	Saturday Miles	Current Ridership On Trips To Be Eliminated	Estimated Annual Savings
Route #5 - North Central Avenue. Eliminate two round trips.	62	18	$ 6,488
Route #5 - North Central Avenue. Reduce frequency of service from 15 to 20 minutes.	328	1,000	30,992

Description	Saturday Miles	Current Ridership On Trips To Be Eliminated	Estimated Annual Savings
Route #7 - North 7th Street. Eliminate one round trip.	18	13	1,872
Route #8 - North 19th Avenue. Eliminate one round trip.	32	12	3,328
Route #10 - North 7th Avenue. Eliminate one round trip.	24	15	2,496
Route #12 - South 15th Avenue. Eliminate one inbound trip.	1.5	3	156
Route #14 - East Broadway. Eliminate one pull-out trip.	4	4	416
Route #15 - East Southern Avenue. Eliminate one pull-out trip.	4	2	416
Route #16 - South Central Avenue. Eliminate one pull-in trip.	4.5	3	468
Route #17 - East Mohave, Sky Harbor. Eliminate one round trip.	10	8	1,040
Route #21 - North 20th Street. Eliminate Saturday service.	172	110	17,888
Route #25 - East Buckeye Road. Eliminate one round trip.	6	2	624
Route #28 - West Buckeye, State Capitol. Eliminate one round trip.	13	9	1,352
Route #30 - West McDowell Road. Eliminate Saturday service.	260.5	220	27,092
Route #34 - Grand Avenue. Eliminate two round trips.	38	9	3,952
	977.5	1,428	$ 98,580
Dial-A-Ride Services			
Moon Valley Dial-A-Ride. Eliminate all service.	N/A	60	$ 40,000

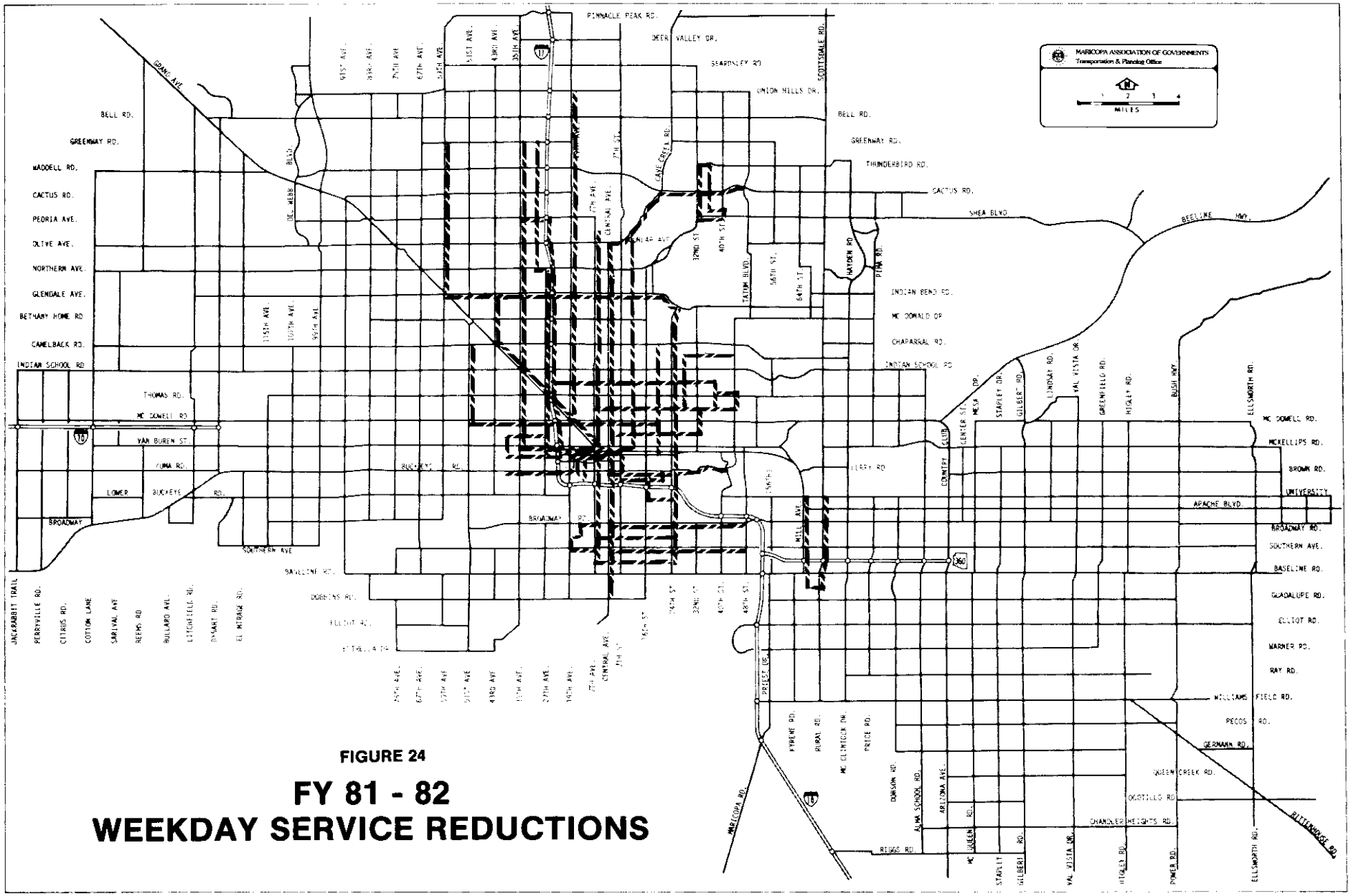


FIGURE 24

FY 81 - 82
WEEKDAY SERVICE REDUCTIONS

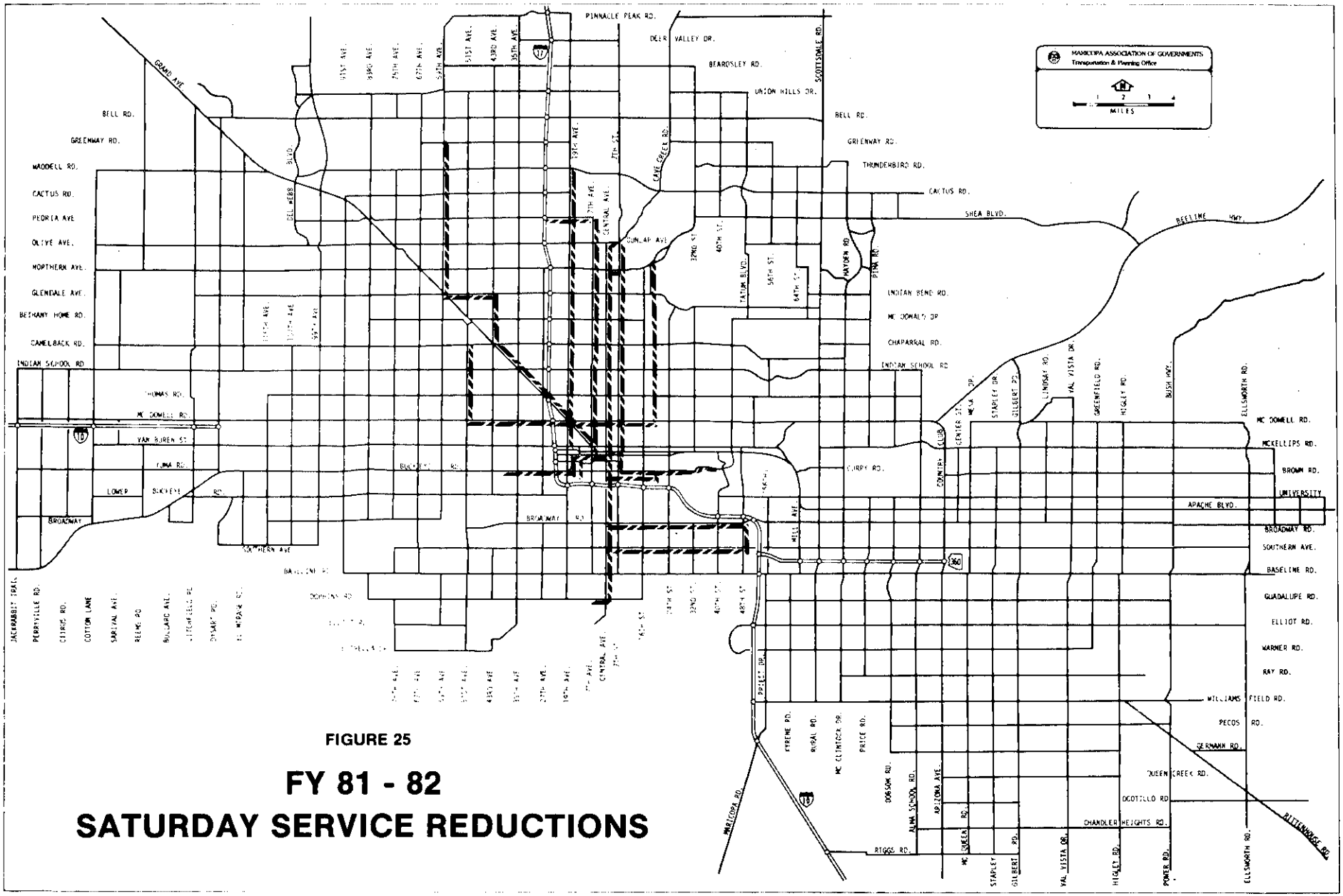


FIGURE 25

FY 81 - 82
SATURDAY SERVICE REDUCTIONS

Heavy Maintenance Facility - This new facility is scheduled for completion by March 1982. Set on a 13.5-acre site, the building includes operational and maintenance offices (7,360 square feet), a shop/maintenance area (76,460 square feet), and warehouse/parts storage (8,785 square feet). The facility is designed to accommodate up to 250 buses and will store approximately 50 of them under a shaded canopy. The facility will replace an existing facility owned by American Transit Corporation at 301 West Watkins Road.

The new facility will have the necessary equipment to do all major vehicle repairs, including complete overhauls of coaches. For example, a separate engine rebuild shop, a small unit repair area, body shop, painting area and dynamometer room will be provided at the new facility.

Data Retrieval from Fareboxes. As part of the retrofit of the transit fleet with electronic fareboxes, a computerized data retrieval system will be installed. The system will provide information on fares based on routes, runs, types of passengers and mileage. This information will be used in the planning process to develop frequency patterns and accessibility data, and to identify boarding patterns.

Management Information System. A computerized information system designed to meet the internal management information needs and external reporting requirements of the Phoenix Transit System will be installed. There will also be options to interface with the data retrieval system mentioned above, the RUCUS (RUn CUtting and Scheduling) computer program used by Phoenix Transit for route scheduling, and the consumables monitoring program at the new maintenance facilities.

Bus Location/Video Security System. Closed circuit T.V. systems will be installed at both new maintenance facilities in order to provide a more efficient way of keeping track of buses on facility grounds. Dispatchers will be able to quickly locate a particular bus and determine if it is ready to be put into service.

Telephone Information System. Due to the increasing number of telephone calls for route and schedule information, the present telephone system is not able to properly route calls to the first available operator. Potential patrons often become frustrated and hang up before they receive their information. A new computerized electronic call distributor system will automatically transfer calls, keep track of the time spent on each call, and the number of calls answered per operator. The new telephone system will increase the number of calls being answered and help to provide more citizens with transit information.

6.1.3 MARKETING PROGRAM PLANNED FOR FY 1981/82

In FY 1981/82, the primary objective of the marketing program will be to minimize the negative impact of service reductions and fare increases on transit ridership. An average daily ridership goal of 40,000 has been, set for FY 1981/82, although expectation is that there will be a decrease to about 36,000 average daily riders.

Listed below are the four specific areas which will be emphasized in the FY 1981/82 marketing program:

1) The convenience of the transit system, such as park-and-ride lots;

2) Increased public awareness of transit, particularly information about how to most effectively use the system;

3) Wheelchair-accessible transit service; and

4) Use of the transit system when there is excess capacity (during midday and on Saturday).

During FY 1981/82, a portion of the area's Section 8 planning assistance grant from UMTA will be used to develop a marketing plan. This plan will analyze the results of marketing research accomplished in FY 1980/81 in order to develop goals and a program for marketing efforts in the next five years.

In addition to this short-range marketing plan, the FY 1981/82 marketing program encompasses a wide range of projects under four broad categories:

Research. The research component of the FY 1981/82 marketing program will involve ongoing data collection and analysis.

1. Transit-related questions will continue to be asked twice a year on the Centel monthly telephone survey in order to monitor shifts in public attitudes toward transit.

2. The Public Transit Administration will continue to monitor revenue, ridership, and service performance. This activity is of particular importance as these data will be used to evaluate existing service in the event that additional reductions in service become necessary due to budgetary constraints.

Public Information. The public information function of the FY 1981/82 marketing program will emphasize clearer, more descriptive information in order to make it easier for potential riders to learn how to use the bus system. Primary public information activities will include:

1) Installation of twelve more Guide-A-Rides, bringing the system total to 23. Guide-A-Rides are multiple-route information aids which are installed at major transfer points and passenger generators.

2) Installation of a third transit display, similar to ones already in place at Metrocenter and Paradise Valley Mall. It will be installed at a regional shopping center or Sky Harbor Airport. These large displays provide information about the public transit system and the regional carpool/vanpool matching program.

3) Distribution of transit information with water bills. Transit-related pamphlets will be sent out with Phoenix water bills twice during the year. About 300,000 persons are reached with each mailing.

4) Design and distribution of brochures to inform potential users about wheelchair-accessible bus service. These brochures will describe the service to be initiated on three routes in late August and will explain how the wheelchair lift is used.

5) Fabrication and installation of new, more descriptive graphics for the terminal and new bus stop signs.

6) Distribution of a new type of schedule. These schedules are reduced in size and designed for quick and easy reference. Prototype schedules have been printed and are currently being tested. If this test proves successful, development of quick-reference schedules for more routes will be considered.

Promotions/Public Relations. The purpose of the promotions/public relations component of the FY 1981/82 marketing program is to maintain and stimulate consumer awareness of the transit system. A summary of the planned promotional activities is provided below:

1. The Public Transit Administration will utilize cable television to announce changes in routes and fares and to emphasize routes where new ridership is being encouraged.

2. Phoenix Transit customer service representatives will continue to speak before citizen groups and to educate schoolchildren, elderly and handicapped persons about the proper procedures for effectively using transit. The customer service representatives will accompany fewer of the field trips made by school children; however, they will continue to coordinate the trips.

3. The all-day bus tour map will be published in the Phoenix and Valley of the Sun Convention and Tourist Bureau magazine that is widely distributed to visitors and area residents.

4. Efforts to encourage more Valley employers to establish transit riding programs will be increased.

5. In July 1981, a new radio program will be initiated. Transit questions solicited from passengers waiting at bus stops will be answered on the air in 30-90 second recorded spots played throughout the day and night. This is a joint effort of the Public Transit Administration and radio station KTAR.

Advertising. Advertising will be used to help minimize the negative aspects of the service cutbacks by focusing attention on the convenience of the transit system. Advertising efforts for next year will include:

1) Fall 1981 and Spring 1982 Multi-Media Campaigns. The campaigns are to create interest in public transit and explain how to use the bus system.

2) Seasonal Advertising. During the Christmas season, multi-media advertising will encourage people to use public transit for their shopping trips.

3) Target Marketing. Advertising will be targeted to specific markets this year. The broad transit market is comprised of many geographic segments, some of which will receive special target advertising about particular transit routes in their area.

6.1.4 CAPITAL IMPROVEMENTS PLANNED FOR FY 1981/82

Due to the long time periods necessary for preparation and submittal of a capital grant, receipt of UKTA approval, development of the specifications and architectural/engineering plans, delivery of equipment and/or construction and payment, it is difficult to state with certainty when capital equipment will actually be used by the transit system. The capital improvement program listed below represents projects scheduled for purchase and, in some cases, implementation during FY 1981/82.

City of Phoenix:

North Maintenance Facility and Equipment - This project includes the completion of equipment purchases necessary to efficiently operate the satellite maintenance facility. Approximately 1,200 pieces of equipment (from hand tools to tow tractors) are being purchased (Grant No. AZ-03-0006).

Heavy Maintenance Facility and Equipment - This project is similar to the one discussed above. Approximately 3,100 pieces of equipment are being purchased including dynamometers, engine overhaul tools, body repair tools, and painting equipment (Grant No. AZ-03-0005).

Downtown Terminal Graphics - Route maps and time schedules for both weekday and Saturday service will be developed and installed. A display placed inside the terminal building will have a large-scale map of the Phoenix area, information about points of interest in the Valley, and individual maps for each route (Grant No. AZ-03-0004).

Central Avenue Bus Bays - Two bus bays (pullouts) are to be constructed on North Central Avenue. With the frequency of buses on this street about every 3-4 minutes during peak periods and every 10 minutes during midday, transit buses are contributing to traffic congestion and creating safety problems. The bus bay will separate the stopped bus from the moving traffic lane while passengers are loading and unloading. This will increase safety for both motorists and bus riders. The bus bays will also increase roadway capacity (Grant No. AZ-05-0010).

Bench/Shelter Units - A total of 46 bench/shelter units will be purchased to expand the passenger amenities program in the City of Phoenix. These units will be placed at high-volume bus stops with priority given to locations that are near human service agencies and medical facilities (Grant No. AZ-03-0006).

Information Signs - 500 bus stop signs will be manufactured and installed in the City of Phoenix. In addition to marking the location of bus stops, these signs will also provide descriptive information including a schematic map of the route (Grant No. AZ-05-0002).

Advanced Design Buses - The purchase of 22 or more regular 40-foot transit coaches for fixed-route service is programmed. Delivery is expected near the end of FY 1981/82 or in early 1982/83 (Grant No. AZ-03-0009 and AZ-03-0011 with Section 5 component).

Articulated Buses - Ten articulated buses will be purchased to be used on routes with high passenger volumes. Delivery is expected in late FY 1982/83 (Grant No. AZ-03-0011).

Mini-Buses and Radios - Six wheelchair lift-equipped mini-buses with radios will be purchased for the City of Phoenix HRD Reserve-A-Ride program. They will be used to increase the spare ratio. Some older vehicles may be stockpiled to be used during emergencies or when funding is available for expanding the service. This project should be completed in FY 1981/82 (Grant No. AZ-05-0010).

Supervisory and Schedule Delivery Vehicles - Supervisory vehicles are necessary to maintain an adequate level of field supervision. The schedule delivery vehicle will be used primarily to distribute bus schedules and tickets to sales and information points throughout the service area. An increase in the number of these points requires an additional vehicle to handle the increased volume of schedules and tickets. This project should be completed in FY 1981/82 (Grant No. AZ-05-0010).

Support Trucks and Related Equipment - This project includes the purchase of four pick-up trucks, one flatbed truck and three one-ton service trucks. The pick-up trucks are necessary for transporting small items between the two maintenance facilities, running parts and responding to road failures. The flatbed truck will be used when installing bus benches and shelters; it will be equipped with a high-capacity hoist with a telescopic boom capable of hauling six benches. The service trucks will be used to transport heavy items such as tires, brake drums and farebox vault receivers between facilities. This project should be completed in FY 1981/82 (Grant No. AZ-05-0010).

Coin Processing Equipment - Automated coin/bill counting equipment will be installed in the cashier rooms at the North and Heavy Maintenance Facilities (Grant No. AZ-05-0007).

Registering Fareboxes and Spare Units - This project includes the purchase of 129 fareboxes of the same design as the ones already installed on some buses. The fareboxes will enable Phoenix Transit to continue standardizing its fare collection system and to have passenger and revenue data collected on each route. All fareboxes should be delivered and installed in FY 1981/82 (Grant No. AZ-03-0005, AZ-05-0007, AZ-05-0010, and AZ-03-0011 with Section 5 component).

Two-Way Radios - 24 radios will be purchased for the new buses and 14 radios for supervisory vehicles and trucks. This project is expected to be completed in FY 1982/83 (Grant No. AZ-05-0010 and AZ-03-0011).

City of Glendale:

Mini-Buses With Radios - These six diesel-powered buses will be purchased by the City of Glendale to replace existing vehicles in the Glendale Dial-A-Ride fleet. Delivery is expected in FY 1982/83 (Grant No. AZ-05-0010 and AZ-03-0011).

Fareboxes - These six fareboxes are intended for the mini-buses mentioned above (Grant No. AZ-05-0010 and AZ-03-0011).

Bench/Shelter Units - These four units will be used to expand the passenger amenities program in the City of Glendale. They will be placed at high volume bus stops with priority given to locations that are near human service agencies and medical facilities. Site selection and design will occur in FY 1981/82 and installation in FY 1982/83 (Grant No. AZ-03-0011).

Benches - Six benches will be placed at medium-volume bus stops. This project will begin in FY 1981/82 and be completed in FY 1982/83 (Grant No. AZ-03-0011).

Supervisory Vehicle - This vehicle will be used as a relief vehicle to allow for continuous operation of the mini-buses. This car will enable the drivers to be relieved for lunch with no down time. It will be purchased in FY 1981/82 and delivered in FY 1982/83 (Grant No. AZ-05-0010).

Second Channel Conversion - With the expansion of the Glendale Dial-A-Ride, increased radio capabilities will be needed. A second channel for transmitting and receiving will be added to the present system. Development of specifications and the bid process will be underway in FY 1981/82, with completion of the project scheduled for FY 1982/83 (Grant No. AZ-05-0010).

Base Station Radio - Due to the increased radio traffic resulting from the expansion of the Glendale Dial-A-Ride, a fixed base station will be necessary. Completion of the project is expected in FY 1982/83 (Grant No. AZ-05-0010).

Office Furniture and Equipment - The equipment will be used in the administrative offices of Glendale Dial-A-Ride (Grant No. AZ-05-0010).

City of Scottsdale:

Bus Bays - Three bus bays (pullouts) will be constructed by the City of Scottsdale. They will separate stopped buses from moving traffic during the loading and unloading of passengers. Site selection and design will occur in FY 1981/82 and construction in FY 1982/83 (Grant No. AZ-05-0010).

City of Tempe:

Bench/Shelter Units - These seven bench/shelter units are for expanding the passenger amenities program in the City of Tempe. The units will be installed at high-volume bus stops throughout the city, probably in early FY 1982/83 (Grant No. AZ-05-0010).

Benches - These 20 bus stop benches will be purchased and installed by the City of Tempe to expand their passenger amenities program in FY 1981/82 (Grant No. AZ-05-0010).

Maricopa County:

Fifteen-Passenger Vans - These 12 vans will be equipped with wheelchair lifts and used by the County/Red Cross Special Transportation Services program on a countywide basis. About half should be put into service in late FY 1981/82 with the remainder delivered in early FY 1982/83 (Grant No. AZ-05-0010 and AZ-03-0011).

6.2 FY 1983-86 TRANSIT PROGRAM

The transit program for FY 1981/82 can be described in much greater detail than the programs for FY 1983-86 because the funding and budgetary limitations are already known. After FY 1981/82, there are unresolved financial questions, such as reductions in federal aid and potential State funding, which would make specific programs merely speculative wish lists. Therefore the

remaining four years of this five-year program are discussed in more general terms under each of four major areas: service, operations, marketing, and capital improvements.

6.2.1 FY 1983-86 SERVICE IMPROVEMENTS

In order to make the best use of limited funds, certain priorities are considered when assigning an implementation schedule to planned service improvements. Priority is given to projects that: (1) relieve severe overcrowding on existing routes, (2) facilitate implementation of the grid plan, and (3) provide service to areas that are presently lacking public transportation. Projects that accomplish more than one of these three aims are especially desirable.

Improvements to Relieve Severe Overcrowding. Trips on regular routes that have a load factor of more than 1.4 during the peak hour (more than 1.0 on express routes) are considered severely overcrowded. Implementing projects that relieve severe overcrowding is a primary way to achieve the established regional goals and objectives for public transit. Passengers that are using established transit service should be able to enjoy a safe, comfortable and convenient ride.

Improvements to Facilitate Grid Plan Implementation. The grid plan has been adopted to reflect the changing land uses and tripmaking patterns in the Phoenix urbanized area. Projects that are in accordance with this plan receive a high priority because they will facilitate the provision of a public transit system that meets the needs of the area's residents. A transit system that takes people to diverse destinations in an efficient and timely manner encourages more people to try to use it on a regular basis.

Service to Areas Presently Lacking Public Transportation. Many areas in the Phoenix urbanized area do not have any public transportation available. The population growth and economic development of this area have been extremely rapid, and the transit system has not been able to keep pace. Problems also exist in coordinating the funding for transit projects that serve more than one jurisdiction. Projects that serve areas presently lacking public transportation receive high priority in order to develop a geographically comprehensive transit system.

Service improvements for FY 1983-86 are listed in Tables 25-28. However, implementation of any or all of these service improvements is contingent upon available funding in one given year. If additional revenues are not found, it is likely that service cutbacks, rather than expansion, will occur.

In FY 1982/83, about 80 percent of the transit service eliminated in FY 1981/82 is scheduled to be re-established, along with some new routes and frequency improvements. This will return the level of service to the FY 1980/81 level. Another significant improvement is slated for implementation in FY 1983/84 when express service will begin from the City of Chandler to downtown Phoenix. This will be an important step in providing transit service to an area which has not previously been served by public transportation.

New express routes are also planned to be implemented for the Ahwatukee area in southeast Phoenix, west Phoenix (Westridge) and north Phoenix (Beardsley). These routes will serve new, rapidly developing areas.

TABLE 25

FY 1982/83 SERVICE IMPROVEMENTS

Improvement	Reasons
Restore service eliminated in FY 81/82	Restore service to approximate FY 80/81 levels
Camelback Crosstown (Route #22): Improve frequency to 15 min. (peak) and 20 min. (midday)	
North Central Avenue (Route #5): 10 additional peak hour trips	Relieve overcrowding by providing additional capacity
Undefined service adjustments	
McDowell Crosstown: Combine Routes #18 and #30	Continue to implement modified grid system
Bethany Home Crosstown: Add new route	
South l9th Avenue: Extend Route #8	Provide service in an area previously not served
Indian School Crosstown (Route #58): Add 77 daily miles of service on Saturday	Expand Saturday service to parallel weekday/grid system service
Paradise Valley Dial-A-Ride: Expand service area to the eastern City boundary	Expand dial-a-ride service (to provide service in unserved area and time)
Sunday Dial-A-Ride: Extend the hours from 3:00 to 5:00 p.m.	

TABLE 26

FY 1983/84 SERVICE IMPROVEMENTS

Improvement	Reasons
Express service trips: Add trips at 4:00 p.m. South Phoenix Express (Route #86): Add trips South Central (Route #16): Improve frequency Superstition Express (Routes #93 and #94): Add trips North l9th Avenue to Union Hills Road (Route #8): Add trips Undefined service adjustments	Relieve anticipated overcrowding by providing additional capacity
Northern Avenue Crosstown: New route Dunlap Avenue Crosstown: New route Scottsdale (Routes #3, #18 and #58): Realign existing routes	Continue to implement modified grid transit system
43rd Avenue to Bell Road (Route #3W): Extend route 35th Avenue to Union Hills Road (Route #3W): Extend route 27th-41st Avenue to Bell Road (Route #41): Extend route South 16th Street (Route #9): Extend route Paradise Valley Express (Routes #97 and #98): Extend service to Tatum Blvd.	Extend existing route to provide service in an area previously not served
Southeast Phoenix Express: New route Westridge Express: New route	Provide service in an area previously not served
Chandler Express: New service	Provide service to area newly included in urban area per 1980 census
Saturday Service: Add 200 miles of service	Expand Saturday service to parallel weekday grid system
Moon Valley Dial-A-Ride: Add vehicle Sunday Dial-A-Ride: Add 4 vehicles	Expand dial-a-ride service (to improve response time)
Dial-A-Ride: Extend service to include newly annexed areas of North Phoenix	Provide new dial-a-ride service

TABLE 27

FY 1984/85 SERVICE IMPROVEMENTS

Improvement	Reasons
North 39th Avenue (Route #29): Add 4 rush hour trips	
Roadrunner Express (Routes #91,92,95 & 96): Add express trips	Relieve anticipated overcrowding by providing additional capacity
Undefined service adjustments	
Thunderbird-Cactus Crosstown: New route	Continue to implement modified grid transit system
Peoria Crosstown: New route	
West Broadway (Route #14): Extend existing route	Extend existing route to provide service in an area previously not served
North 15th Avenue (Route #29): Extend existing route	
Airport-Van Buren-Downtown (Route #17): Modify existing route	Modify existing route due to expansion of airport clear zone
Beardsley Express: New route	Provide service in an area previously not served
Tatum Express: Modify existing Route #97/98	Provide higher level of service
Ahwatukee Express: Modify existing Southeast Phoenix Express	Provide service in an area previously not served
Saturday Service: Add 200 miles of service	Expand Saturday service to parallel weekday grid system service

TABLE 28

FY 1985/86 SERVICE IMPROVEMENTS

Improvement	Reasons
Westridge Express: Add trips	
Grand Avenue (Route #34): Additional rush hour trips	
North Central (Route #5E,5W): Add trips to establish a 5-minute service on trunk	
East Washington (Route #60): Add trips	Relieve overcrowding by providing additional capacity
Roadrunner Express (Routes #91,92,95 & 96): Add Express trips	
Southern Avenue (Route #15): Add trips	
East Broadway (Route #14): Add trips	
Undefined service adjustments	
Bell Road Crosstown: New route	Continue to implement modified grid transit system
Bethany Home Crosstown: Westward extension of existing route	Extend existing route to provide service in an area previously not served
South 7th Street: Extend existing route	

Throughout the four-year period, additional trips are planned for some existing local and express routes to relieve overcrowding. The modified grid system is expanded each year with additional east-west and north-south crosstown routes.

All proposed route changes and frequency improvements for FY 1982-86 are depicted graphically in Figures 26 and 27, respectively.

6.2.2 FY 1983-86 OPERATING IMPROVEMENTS

Although a detailed program has not been developed beyond FY 1981/82, two primary thrusts for operating improvements have been determined for later years. Productivity studies of the two maintenance facilities will be conducted. It is anticipated that these studies will lead to significant improvements in efficiency. The second major effort will be directed toward developing a closer liaison with the Valley's largest employers. These ties will strengthen the route modification and development program by involving in the planning stage those people who will be most directly affected by route changes.

6.2.3 FY 1983-86 MARKETING EFFORTS

The overall goal of marketing is to significantly increase transit ridership through a higher level of awareness about services and how to use them. Just to maintain a stable ridership requires constant effort to attract new riders and educate them in how to use the system. To achieve increasing ridership requires even greater efforts.

For FY 1983-86, the marketing program will be maintained and expanded if budgetary constraints allow. A marketing plan will be developed in FY 1981/82 which will set forth the strategy and objectives of the marketing program for the subsequent four years. Marketing activities during FY 1983-86 will be based on this overall plan.

6.2.4 FY 1983-86 CAPITAL IMPROVEMENTS

The timing of implementation of planned capital improvement projects is uncertain, as most are funded with discretionary Section 3 capital assistance. Specific capital projects programmed for the next five years can be found in the FY 1982-86 Transportation Improvement Program. In general, vehicle purchases averaging 50 buses per year (to be operated by Phoenix Transit) are programmed. The 50 buses will include 30 advance design, 10 suburban, and 10 articulated buses. Approximately 40 percent of these will be used as replacements for older vehicles and the remaining will be used for fleet expansion. These additional vehicles are necessary if the service improvements planned for FY 1983-86 are to be implemented.

Other vehicle purchases include approximately 12 vans per year to be used by the Maricopa County/Red Cross Special Transportation Services program, an average of 2 mini-buses per year for the Glendale Dial-A-Ride, 3 mini-buses per year for the Phoenix HRD Reserve-A-Ride program, and various support vehicles.

A complementary number of fareboxes and radios are programmed each year. In addition, approximately 500 bus stop signs and 30-40 bench/shelter units are included for each year of the four-year program.