

4. Socioeconomic Conditions

The basis for planning future transportation investments rests in a good prediction of future residential and commercial growth patterns. This working paper describes the trends evident in future growth in the Northwest Valley and the socioeconomic data developed for the analysis of future transportation needs in the area. As part of the discussions in this analysis, location and potential implications to Title VI/Environmental Justice populations are evaluated in the context of future growth patterns and needed transportation improvements.

The data used to assess future conditions were developed by MAG for use in the RTP. Interim (“draft 2”) socioeconomic data from the MAG RTP update were used for this study, with assigned horizon years of 2020 and 2030. As is typical for long-range forecasts, actual population and employment may reach these forecast levels a few years earlier or later than assumed in the forecasts. The study therefore focuses on the transportation system and services needed to support the projected future levels of population and employment in the northwest, and not on the precise years in which those levels may be reached.

4.1 Base Year 2000 Socioeconomic Overview

MAG base year 2000 socioeconomic data was provided by traffic analysis zone. It includes resident population, group quarters population, resident households, group quarter households, dwelling units and employment by type. The population and housing figures by TAZ were based on Census 2000 data.

4.1.1 Population

Base year (2000) population counts are shown in Table 3. Base year population distribution patterns in the Northwest area are indicated in Figure 2. TAZs in the southeastern sector of the study area, closest to the center of the urbanized area, have densities as high as 5,000 persons per square mile. These densities generally decrease to the north and the west.

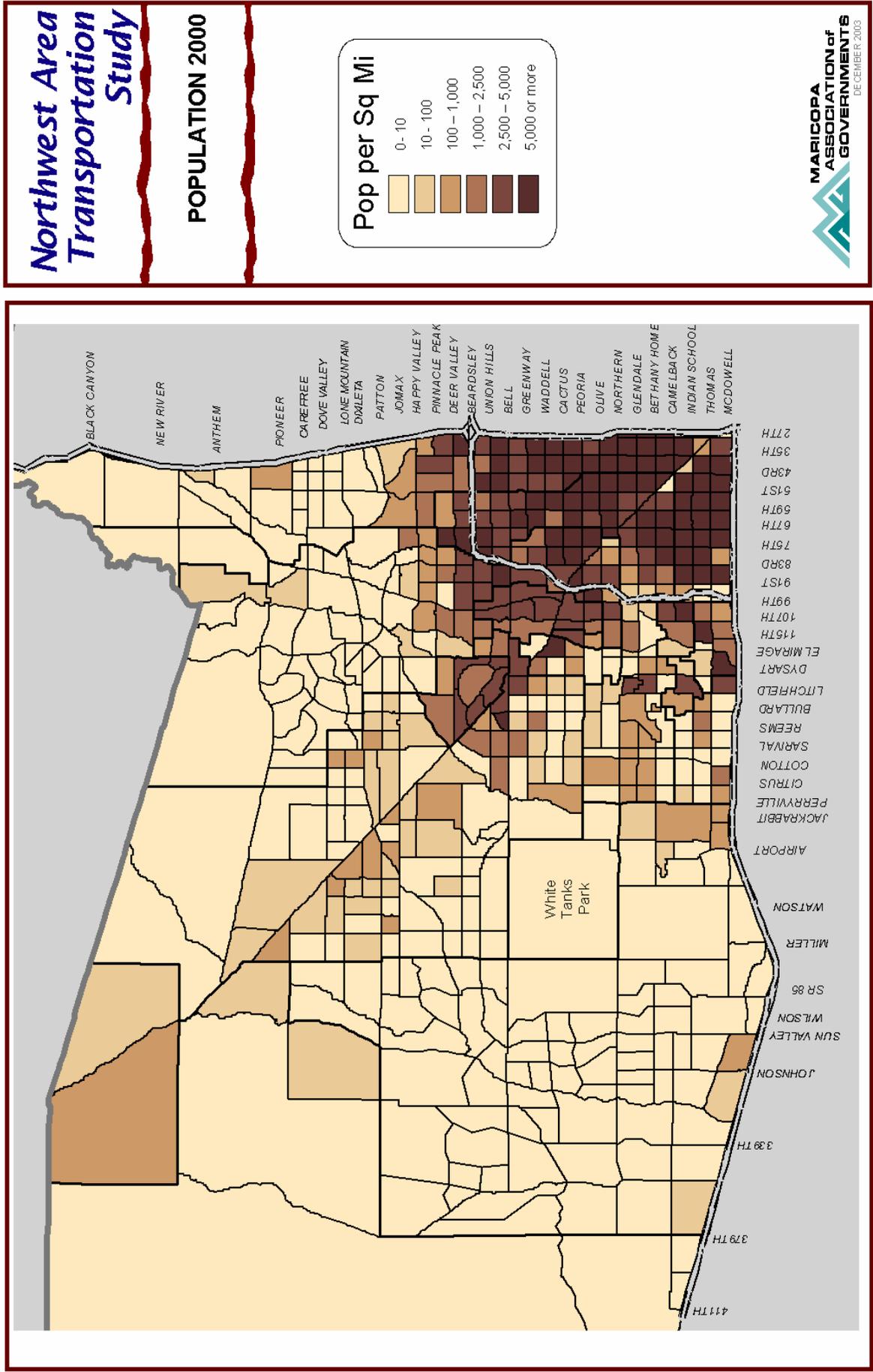
Higher densities follow the Grand Avenue corridor to Sun City and parts of Surprise where development patterns in the retirement communities are relatively compact. Still, most of the acreage in the study area is only sparsely populated. Some of these low-density areas will remain so because of protected status as parks and/or environmental preserves, but large tracts of land remain available for development to the north and west of current urban densities.

Table 4: Population Year 2000

MPA	Year 2000 Population
Avondale	19,145
Buckeye	2,954
County	65,738
El Mirage	8,723
Glendale	230,286
Goodyear	8,868
Litchfield Park	3,831
Peoria	114,142
Phoenix	414,549
Surprise	37,746
Wickenburg	7,419
Youngtown	3,013
Total Study Area	916,414
Total Region	3,135,944

Note: Does not include seasonal or transient population

Figure 2: Population Density Year 2000



Many of the Northwest Valley communities have vast incorporated areas that have been zoned for generally low density residential, but there are pockets of intensity around future employment or government centers that will be defining hubs for the transportation system. Buckeye and Surprise are prime examples of this type of change. Buckeye has plans for over 150,000 homes and associated employment distributed in a balanced pattern west of the White Tank Mountains. Surprise is beginning development of a new government/sports/retail complex near Bell Road and Loop 303 that will provide a major anchor to that part of the Northwest Valley and be a focus of transportation activity in the future.

4.1.2 Employment

Base year (2000) employment (Table 4) shows a pattern similar to that of population, with higher densities in the southeastern sector. The employment pattern of the Northwest Valley has historically been focused toward the southeast in Glendale, Phoenix, and other cities. Until recently, the employed population in outlying areas dwindled quickly as it approached retirement communities in the Sun Cities. A few newer employment nodes have begun to appear farther out along the major transportation corridors. Among them are the areas near Lone Mountain Road and as far north as

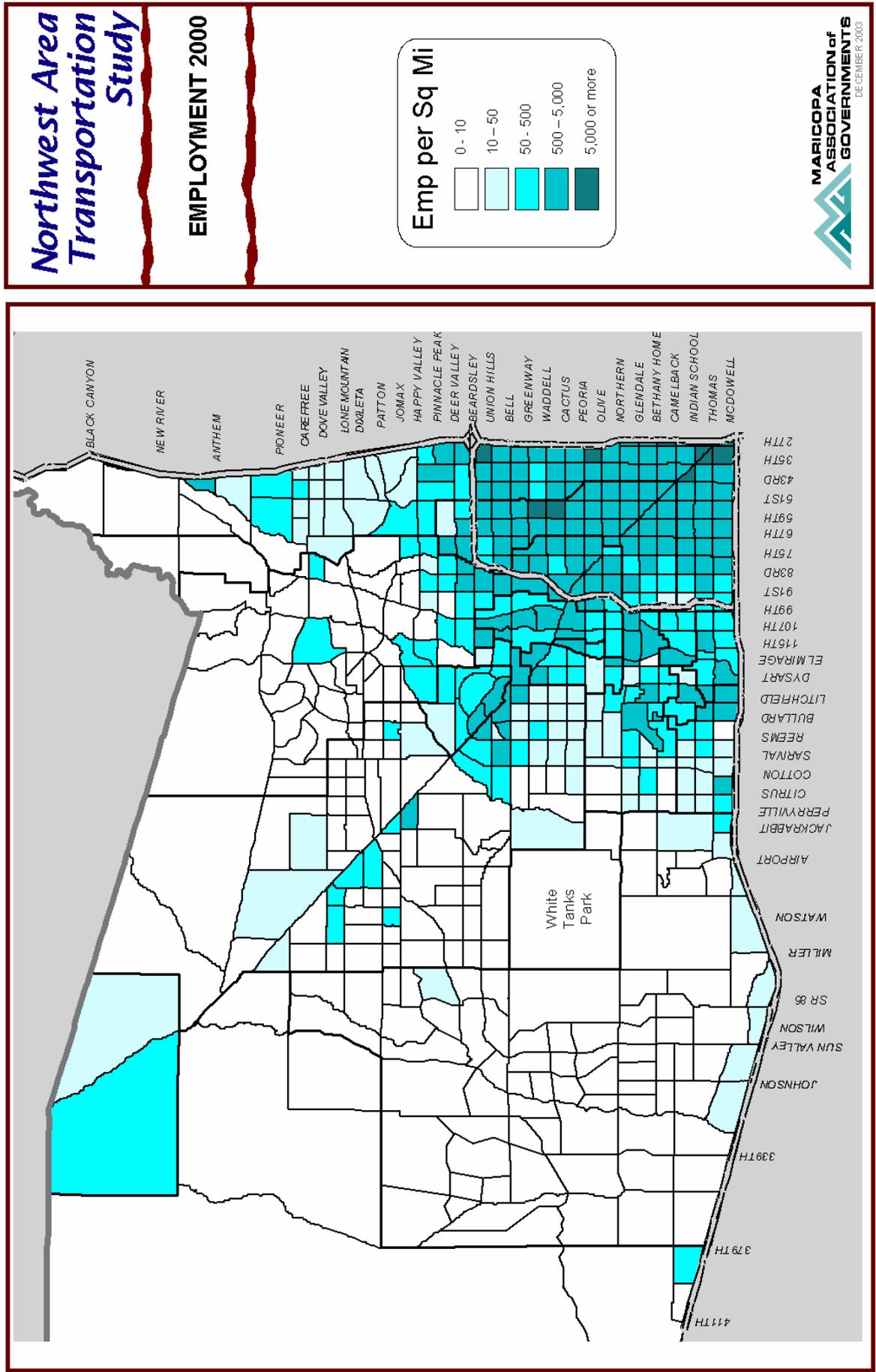
Anthem along north Interstate 17 and in Surprise along Grand Avenue.

The outward trend is putting pressure on transportation facilities. Freeways to the west and north and Grand Avenue are becoming more congested as employment spreads further away from the urban center. Major new transportation facilities in planning stages will improve access to additional areas that will help mitigate areas of the new employment travel demand, but will also open opportunities for further development.

Table 5: Employment Year 2000

MPA	Year 2000 Employment
Avondale	3,236
Buckeye	538
County	20,546
El Mirage	1,885
Glendale	84,542
Goodyear	6,299
Litchfield Park	1,178
Peoria	28,359
Phoenix	111,757
Surprise	8,999
Wickenburg	4,052
Youngtown	1,224
Total Study Area	272,615
Total Region	1,640,297

Figure 3: Employment Density Year 2000



4.2 Socioeconomic Projections

The data used to assess future conditions were developed by MAG for use in the RTP. Interim (“draft 2”) socioeconomic data from the MAG RTP update were used for this study, with assigned horizon years of 2020 and 2030.

4.2.1 Population

These projections show high-density clusters, as high as 5,000 persons per square mile and higher, spreading and “leap-frogging” to areas far outside the existing urban core. As indicated in the previous section, the Buckeye and Surprise MPAs in particular showed remarkable growth, as do portions of Phoenix along I-17. This is consistent with expectations given the substantial land available for future growth in the Northwest Valley. Results of the data preparation effort show that over the next 20 to 40 years growth will reflect a new emphasis on West Valley development as land in other parts of the valley becomes less available and more expensive. Major developers have begun to concentrate significantly more interest in the large expanses of land available at reasonable cost in the West Valley. This will be particularly true in the planning areas of Buckeye and Surprise, which are only now beginning to explore their opportunities with the development industry and major housing/employment projects.

Because of the forecast changes, the study area population doubled by 2020 and increased another 60% by 2030. In 2020, the study area population for the Buckeye MPA increases from 3,000 to over 400,000, an increase of over a

hundred-fold. The population of Surprise increases eight-fold from 38,000 to 290,000 in that same timeframe. While these are among the largest, increases occur in all communities in the Northwest Valley.

From the perspective of managing the transportation system, the most effective response to these growth trends is the definition of at least the structure of the network needed to address transportation challenges in the developing areas as soon as possible. The objective should be to prepare the transportation system in the newly expanding areas to function as efficiently as possible when built, but with room for expansion and modal options. Early planning and programming allow development of the transportation system to occur concurrent with or as part of land use implementation. If memorialized in both regional and local documents, they also strengthen the credibility of local plans in discussions with the development community.

4.2.2 Employment

The employment levels keep pace with the population growth in the projections. The local jurisdictions have planned for a large amount of commercial development. Already, the predominant pattern of travel to Downtown Phoenix for work has begun to spread more broadly to other areas throughout the Northwest Valley as new employment centers are built along the major freeway and arterial corridors. Many communities view employment as a major part of future development. This reflects a significant change in perspective and vision compared to past experience and could result in more employment development in outlying areas to support new housing projects that will be far from

existing employment opportunities. However, because of the need to maintain a regionwide jobs/housing balance, the scenario totals finally formulated were sometimes lower than those expected by the local jurisdictions.

Depending on the long term relationship of new employment locations to new residential development, this could exacerbate the transportation problem or

lead to better balancing between where people live and where they work. In general, should the relationship shift away from balance, there will be a greater need for transportation improvements. In other words, maintaining the regional jobs/housing balance could prevent some growth areas (e.g., Buckeye) from reducing regional travel to existing employment centers.

Figure 4: Population 2020

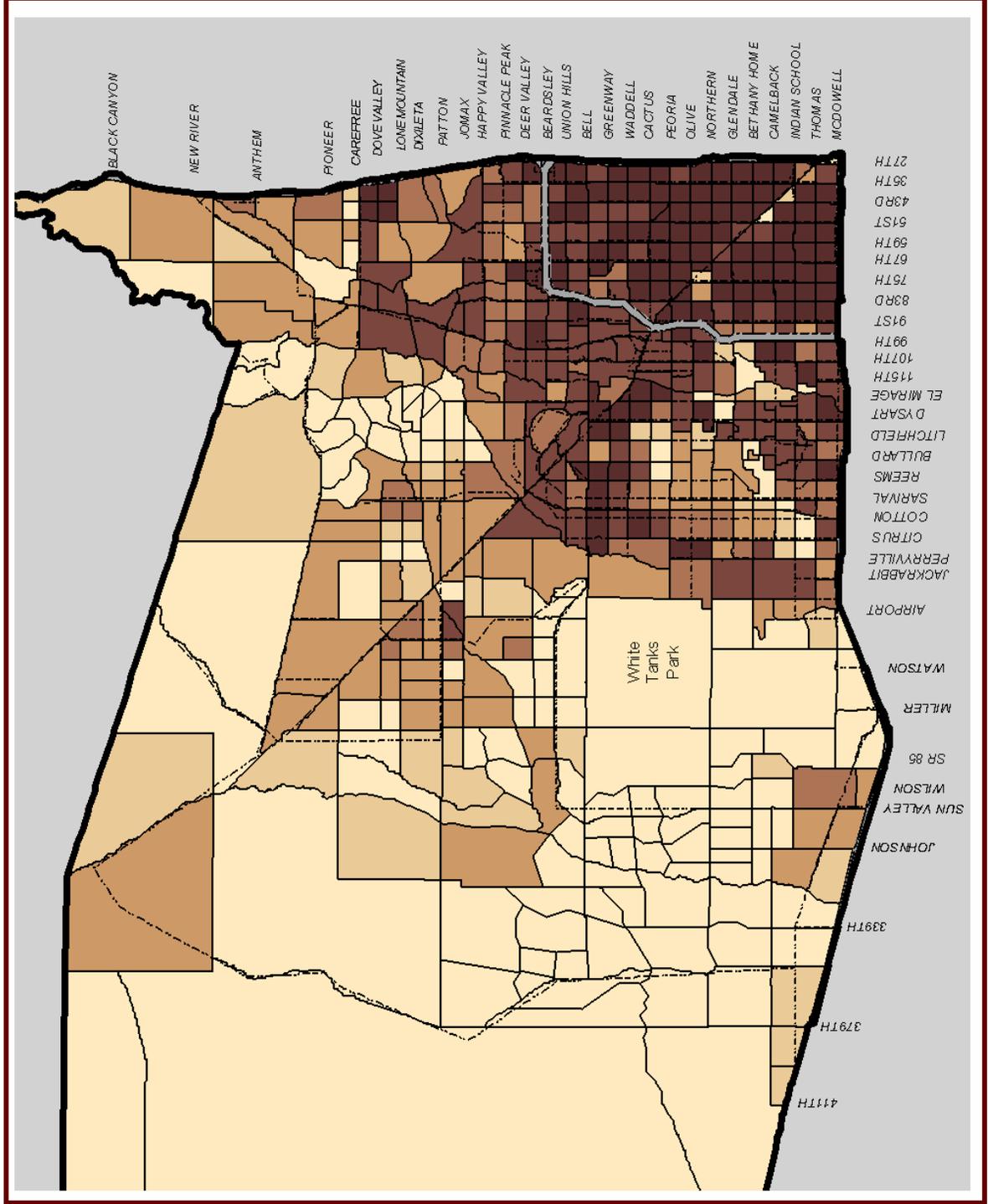


Figure 5: Population 2030

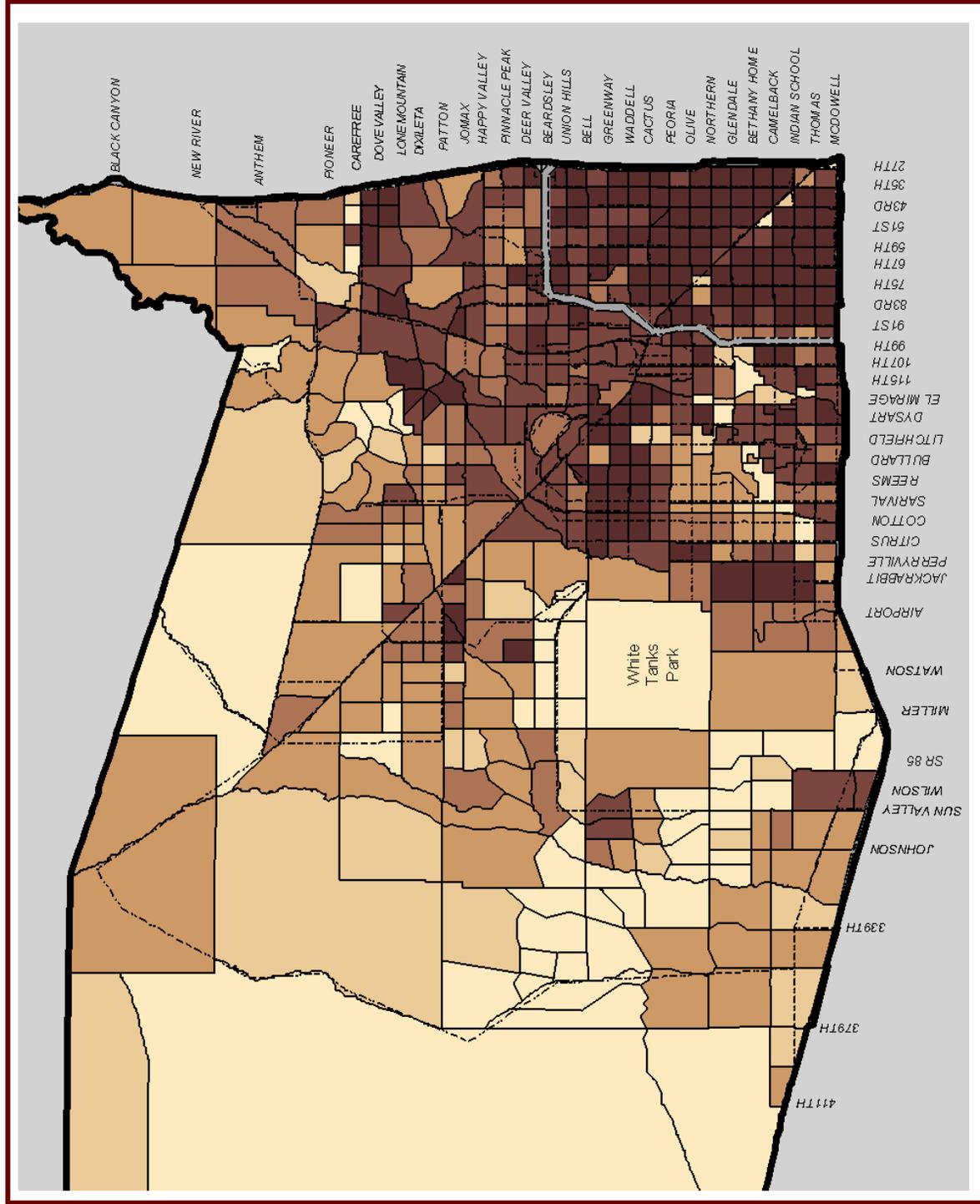


Figure 6: Employment 2020

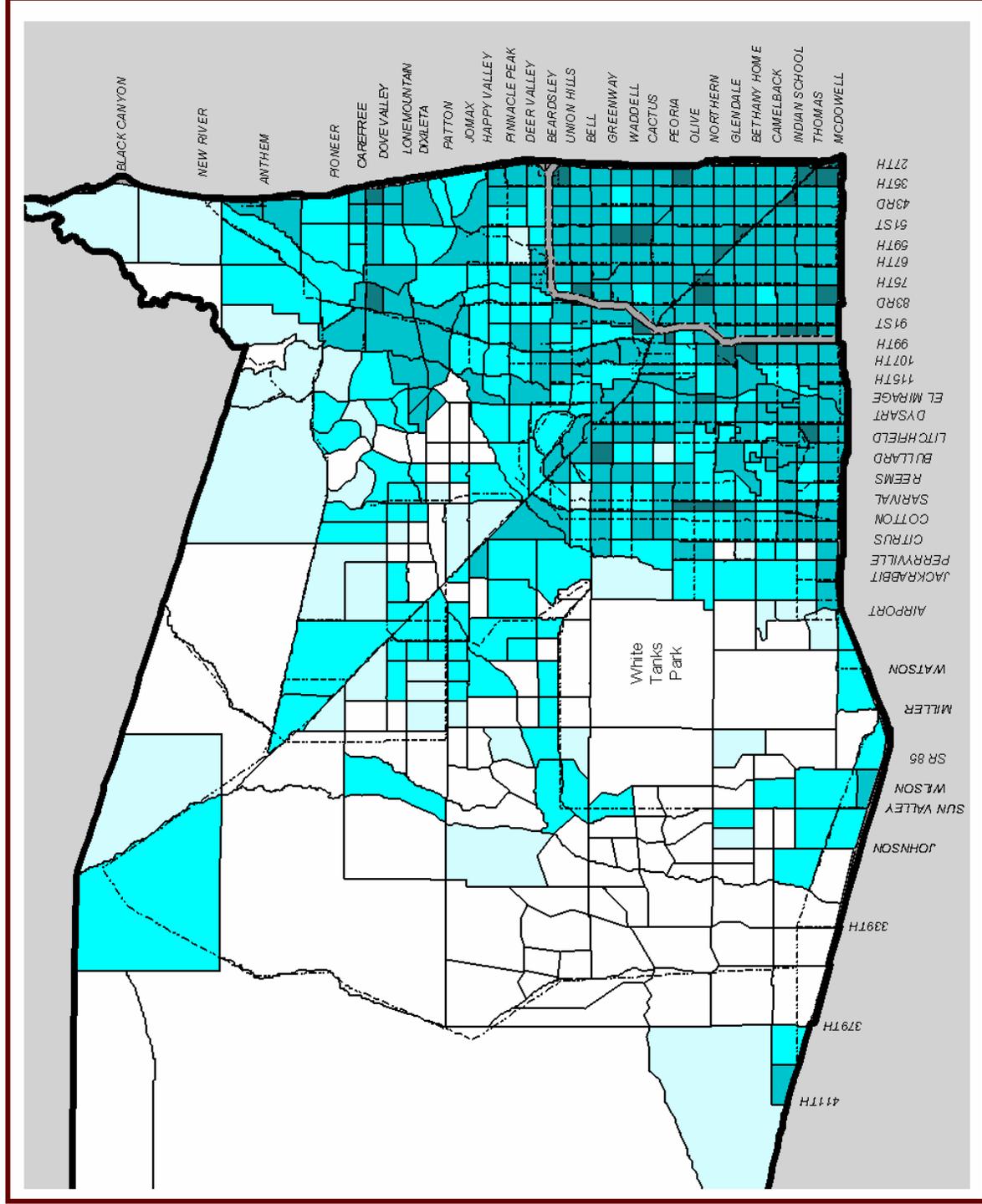


Figure 7: Employment 2030

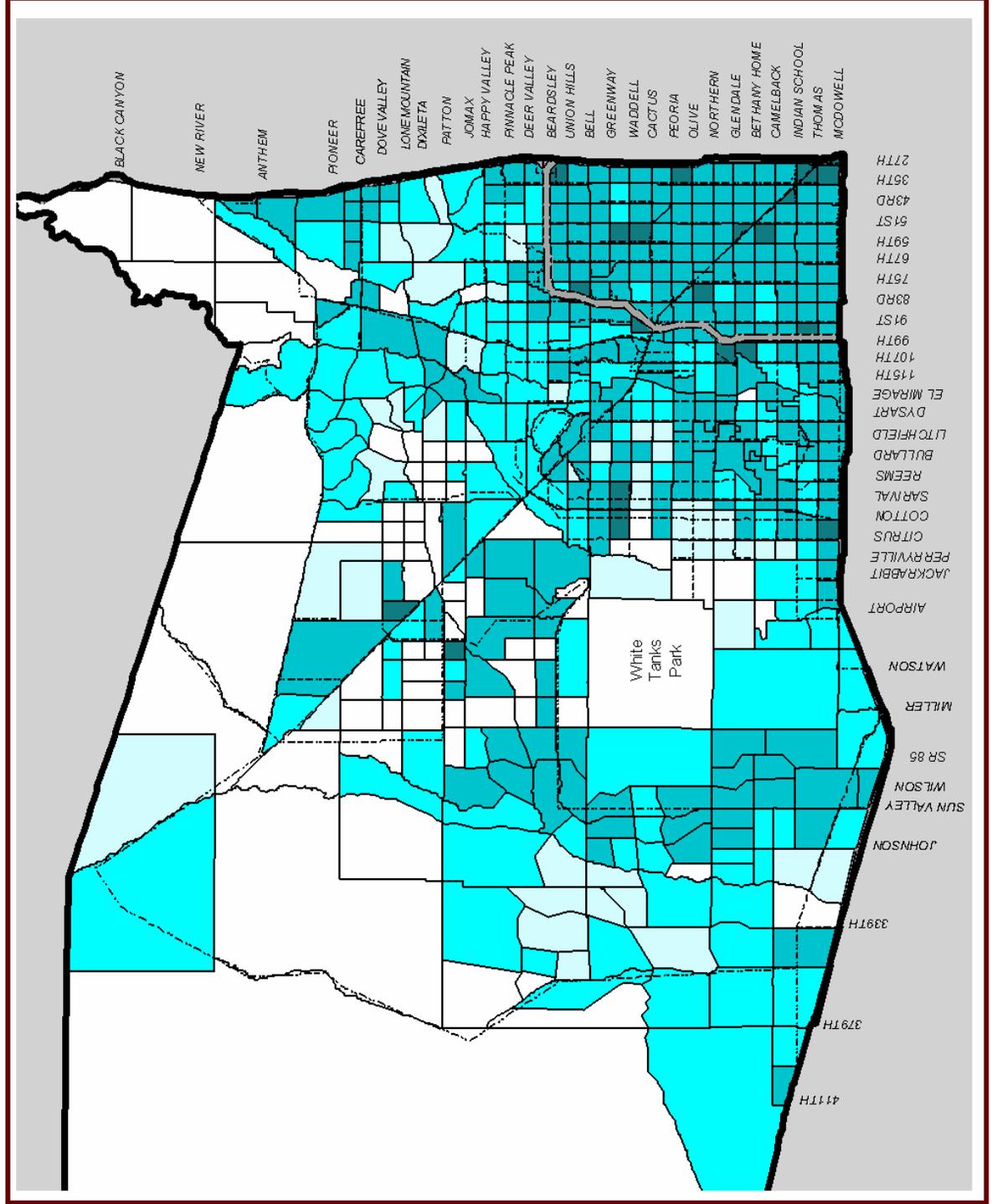


Table 6: Population within the Study Area*

MPA	2000 Population	2020		2030	
		Population	Increase Over 2000	Population	Increase Over 2000
Avondale	19,145	37,231	94%	37,325	95%
Buckeye	2,954	59,570	1,917%	201,309	6,715%
County	65,738	82,209	25%	118,201	80%
El Mirage	8,723	44,696	412%	51,186	487%
Glendale	230,286	308,854	34%	311,693	35%
Goodyear	8,868	33,136	274%	40,892	361%
Litchfield Park	3,831	14,095	268%	14,573	280%
Peoria	114,142	250,391	119%	349,639	206%
Phoenix	414,549	547,697	32%	590,357	42%
Surprise	37,746	210,629	458%	345,510	815%
Wickenburg	7,419	9,956	34%	18,766	153%
Youngtown	3,013	6,395	112%	7,170	138%
Total Study Area	916,414	1,604,859	75%	2,086,621	128%
Total Region	3,135,944	5,525,548	69%	6,815,583	103%

Note: Does not include seasonal or transient population. "Draft 2" data superseded in RTP.

Table 7: Employment within the Study Area*

MPA	2000 Employment	2020		2030	
		Employment	Increase Over 2000	Employment	Increase Over 2000
Avondale	3,236	18,587	474%	23,944	640%
Buckeye	538	19,432	3,512%	63,168	11,641%
County	20,546	27,578	34%	38,682	88%
El Mirage	1,885	17,701	839%	24,904	1221%
Glendale	84,542	160,344	90%	192,053	127%
Goodyear	6,299	29,002	360%	41,818	564%
Litchfield Park	1,178	5,059	329%	4,703	299%
Peoria	28,359	98,114	246%	153,098	440%
Phoenix	111,757	178,519	60%	247,680	122%
Surprise	8,999	55,310	515%	123,181	1,269%
Wickenburg	4,052	6,304	56%	12,214	201%
Youngtown	1,224	1,655	35%	1,713	40%
Total Study Area	272,615	617,605	127%	927,158	240%
Total Region	1,640,297	2,918,881	80%	3,668,663	123%

Note: "Draft 2" data superseded in RTP.

4.3 Additional Variables

The complete list of EMME2 trip generation inputs is shown in Table 8.

Table 8: MAG EMME2 Socioeconomic Data Input File Format

Field	Start	Length
Year	1	6
Traffic Analysis Zone (TAZ)	7	6
District	13	6
Metropolitan Planning Area (MPA)	19	A3
Resident population in households	22	6
Resident population in Group Quarters	28	6
Transient population	34	6
Seasonal population	40	6
Number of Residential households	46	6
Number of Group Quarter households	52	6
Number of transient households	58	6
Number of seasonal households	64	6
Other employment	70	6
Public employment	76	6
Retail employment	82	6
Office employment	88	6
Industrial employment	94	6
Number of households with income \$0 – \$15k	100	6
Number of households with income \$15 - \$25	106	6
Number of households with income \$25 - \$35	112	6
Number of households with income \$35 - \$50	118	6
Number of households with income \$50+	124	6
Total Area (sq mi)	130	F8.2
Office Area (sq mi)	138	F8.2
Post HS enroll	146	6
Retirement zone flag	152	6
Sky Harbor Emplanements	158	6
Number of dwelling units age 0 – 9 (years)	164	6
Number of dwelling units age 10 - 19 (years)	170	6
Number of dwelling units age 20 – 30 (years)	176	6
Number of dwelling units age 30+ (years)	182	6
Number of multifamily dwelling units	188	6
Number of single family dwelling units	194	6

4.4 Title VI – Environmental Justice Analysis

The purpose of Title VI and Environmental Justice regulation is to ensure that public facility projects are not developed at the expense of populations with limited resources for self-advocacy. Specifically, all federally-funded projects must demonstrate that minority, low-income, and disadvantaged populations have been identified and brought into the process, and that the negative impacts of the project do not disproportionately impact these groups.

Title VI of the 1964 Civil Rights Act is intended to ensure that “no person, on the ground of race, color, or national origin, be excluded from participating in, denied the benefits of, or subjected to discrimination” under any program or activity receiving Federal Aid. Executive Order 12898 signed by President Clinton in February 1994 provided further guidance for federal agencies in carrying out Title VI. US DOT ORDER 5680-1 addresses the process by which the US DOT will implement the principles of the law:

- The identification and location of low-income and minority populations;
- Community outreach with environmental justice populations; and
- The evaluation and analysis of the impacts of the transportation projects on target populations with an assessment of whether they will produce disproportionately high and adverse human health or environmental effects on the target populations.

4.4.1 Title VI and Environmental Justice Populations

Title VI of the Civil Rights Act prohibits discrimination on the basis of race, color, or national origin. The Office of Management

and Budget (OMB) issued Policy Directive 15, Revisions to the Standards for the Classification of Federal Data on Race and Ethnicity, in 1997, establishing five minimum categories for data on race. Executive Order 12898 and the DOT and FHWA Orders on Environmental Justice address persons belonging to any of the following groups:

- Black - a person having origins in any of the black racial groups of Africa.
- Hispanic - a person of Mexican, Puerto Rican, Cuban, Central or South American, or other Spanish culture or origin, regardless of race.
- Asian - a person having origins in any of the original peoples of the Far East, Southeast Asia, or the Indian subcontinent.
- American Indian and Alaskan Native - a person having origins in any of the original people of North America and who maintains cultural identification through tribal affiliation or community recognition.
- Low-Income - a person whose household income (or in the case of a community or group, whose median household income) is at or below the U.S. Department of Health and Human Services poverty guidelines.

Several additional populations were also evaluated for this study, including: Disabled Population; Population over Age 60; and Female Headed Households. Countywide and statewide statistics on the measures are included in Table 9.

Table 9: Title VI Populations

	Total Population	Percent of Population					Percent of Households
		Minority	Hispanic	Over Age 60	Below Poverty	With a Disability	Female Head of Household
Maricopa County	3,072,149	34%	25%	15%	12%	18%	27%
Arizona	5,130,632	36%	25%	17%	14%	19%	27%

4.4.2 Poverty

For purposes of this study, Census 2000 data was mapped at the census tract level. The Northwest area has several pockets where the poverty levels are quite high, but, in general, poverty is low in the Northwest

Valley. These areas are largely found closer to existing urban facilities with a definite pattern following the Grand Avenue corridor north. A high percentage of the population west of Wickenburg Road is also below the poverty level.

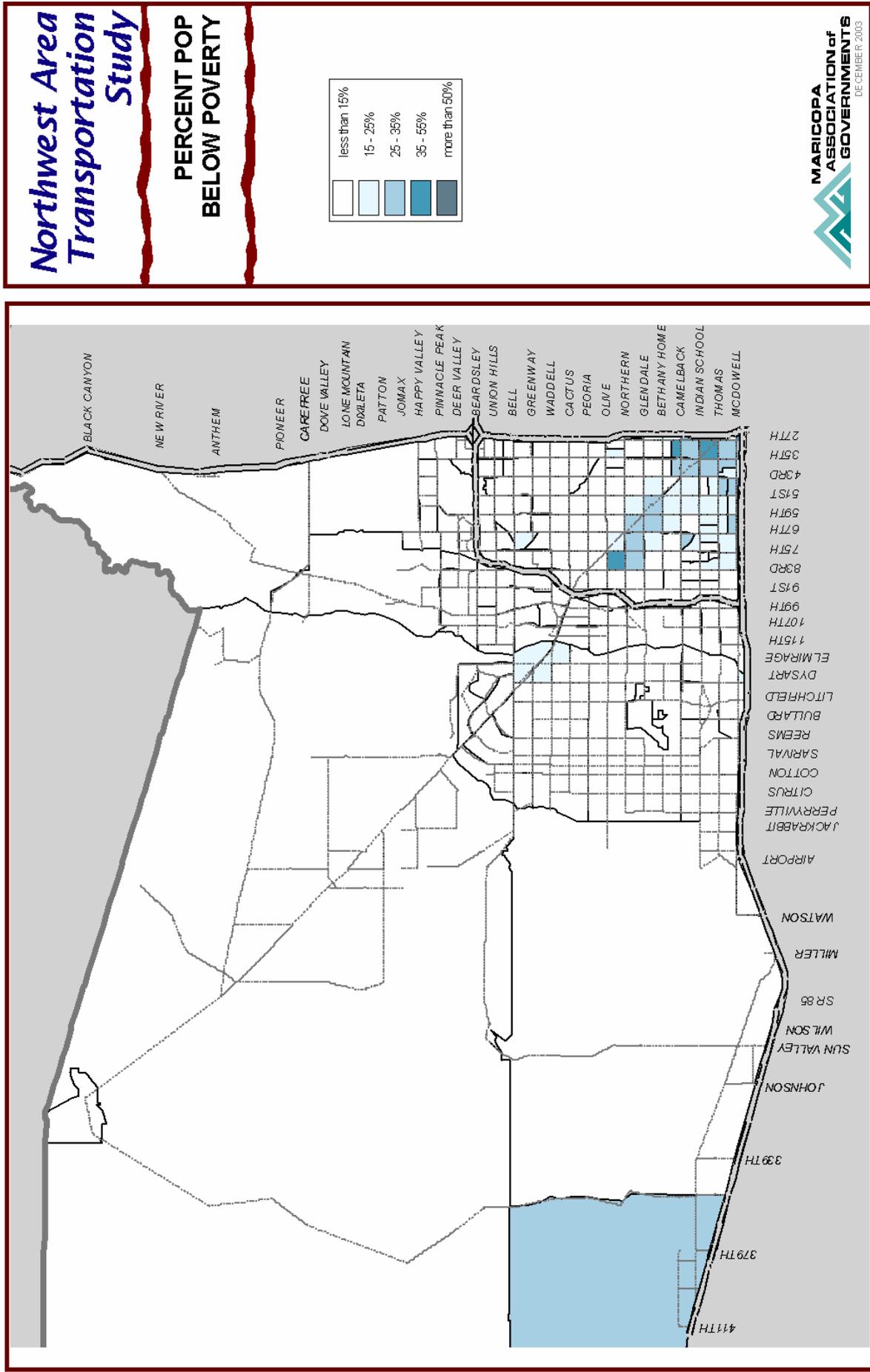
Table 10: 2001 HHS Poverty Guidelines

Size of Family Unit	Family Income
1	8,590
2	11,610
3	14,630
4	17,650
5	20,670
6	23,690
7	26,710
8	29,730
For each additional person, add:	3,020

For the 48 continuous states and D.C.

Source: Federal Register, Vol. 66, No. 33, February, 16, 2001, pp. 10,695-10,697.

Figure 8: Percent Population Below Poverty



4.4.3 Minority Population

Minority population was identified as “Non-White Hispanic” and “Non-White Other Population.” The statewide and countywide average percent minority population is approximately 35%; the Northwest area has many areas where the target population exceeds this figure. Some exceptionally high figures are found in the southeast portion of the study area, with one additional area of concentration in El Mirage.

Most of these populations have ready access to the transportation system and will benefit further from public transportation efforts in Phoenix and Glendale. Some focus will need to be placed in El Mirage to ensure these residents are not negatively impacted and can be helped by future plans.

4.4.4 Percent Population Disabled

The Census 2000 used the following definition of disability status:

“For data products that use a disability status indicator, individuals were classified as having a disability if any of the following three conditions were true: (1) they were 5 years old and over and had a response of “yes” to a sensory, physical, mental or self-care disability; (2) they were 16 years old and over and had a response of “yes” to going outside the home disability; or (3) they were 16 to 64 years old and had a response of “yes” to employment disability.”

The highest concentration of this target group is associated with the retirement communities in Sun City and Sun City West. For this reason the distribution map for this group is similar to that of the next target group, Population Over Age 60.

4.4.5 Percent Population Over Age 60

The highest concentrations of Population over Age 60 areas are found in the Sun City and Sun City West areas. But a very large area with 35-55% over 60 is also seen to the northwest of these areas. This is a very large low density census tract that includes several retirement communities. In this 12,000 square mile tract, approximately 7,000 of the total 15,000 population are above age 60.

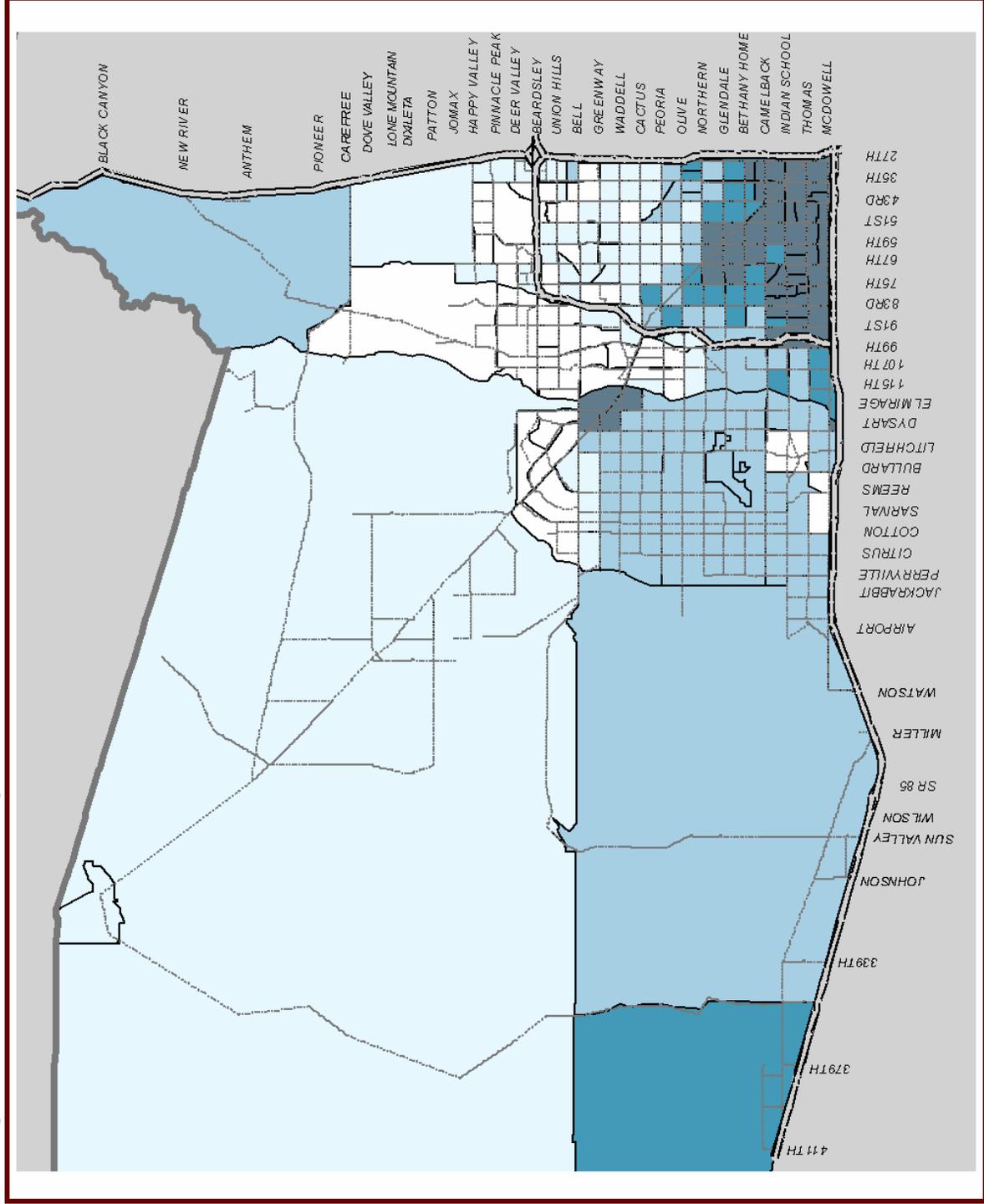
4.4.6 Percent Female Headed Households

Female Headed Households show the least distinct pattern of the selected target populations. However there does seem to be a correlation with the Over Age 60 population. This would be consistent with demographic patterns of women having a higher life expectancy than men.

4.4.7 Implications for Paratransit Services

Disabled and elderly populations are most reliant on paratransit services. While the Sun Cities offer good service within their communities, there is a lack of regional dial-a-ride options in much of the areas highlighted in Figures 10 and 11. Because so much of the affected area is far to the northwest where population is very low, there may not be possible to offer service to all identified target areas. Cost and travel time would be a major detriment when balanced against the low number of beneficiaries.

Figure 9: Percent Minority Population



Northwest Area Transportation Study

PERCENT MINORITY POPULATION

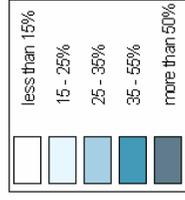


Figure 10: Percent Disabled Population

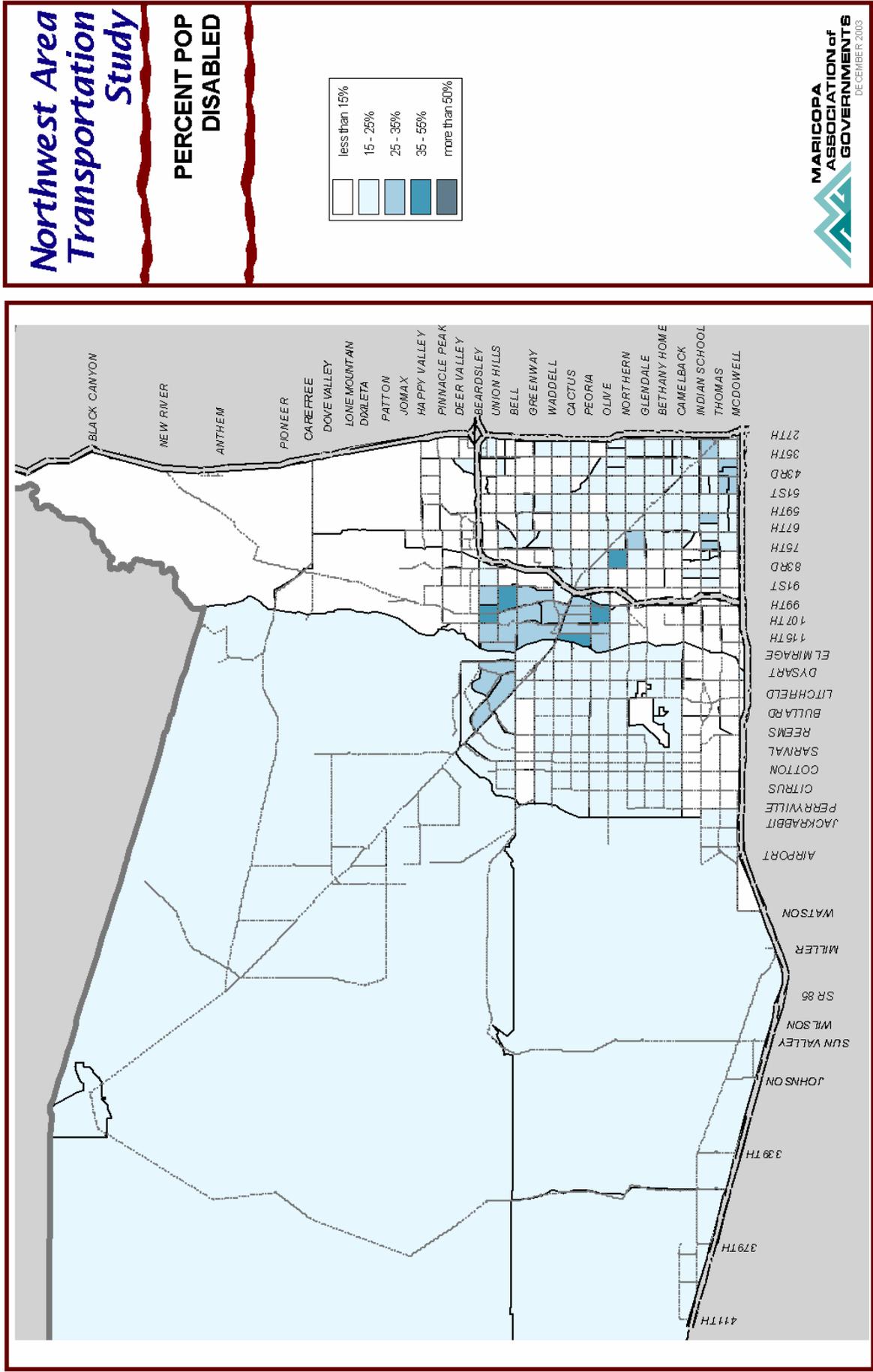


Figure 11: Percent Population Over Age 60

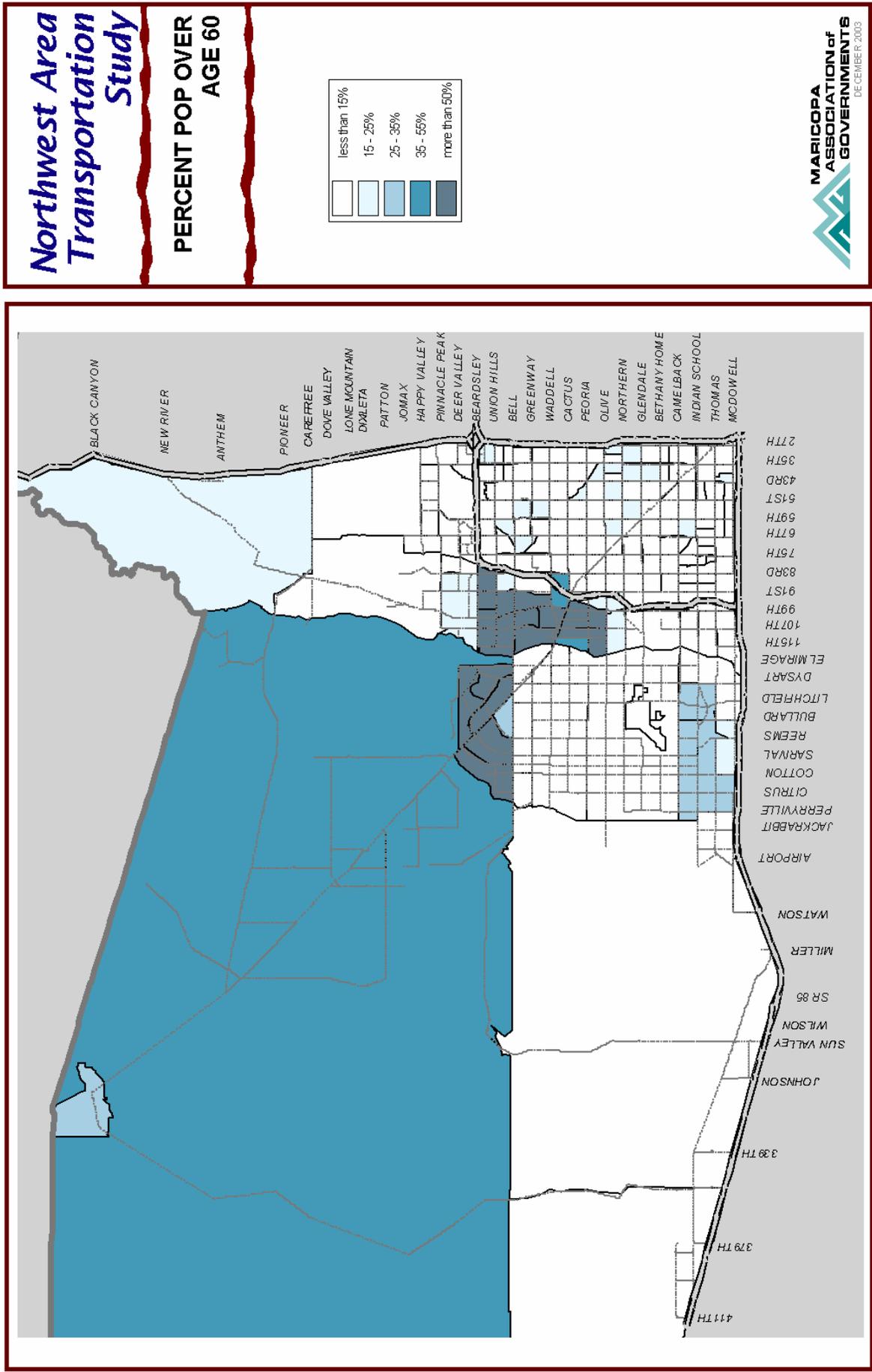


Figure 12: Percent Population Single Female Head of Household

