



**CITY OF PHOENIX**  
**WATER SERVICES DEPARTMENT**  
**DEMOGRAPHIC STUDY**  
**CONTRACT No. 4701004863**

**FINAL DRAFT WHITE PAPER**

**PREPARED FOR:**

**CITY OF PHOENIX**  
**WATER SERVICES DEPARTMENT**  
**200 WASHINGTON STREET**  
**PHOENIX, ARIZONA 85003**

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## INTRODUCTION

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The purpose of this White Paper is to document the completion of Tasks 1, 2 and 3 associated with the City of Phoenix Demographic Study (contract number 4701004863). The scope of Task 1 (local information gathering) involved compiling the information required to develop socioeconomic projections for the City of Phoenix, its villages and its infrastructure planning areas.

In Task 2 analyses were performed to develop projections of the overall change in population and employment expected to occur in Maricopa County, the City of Phoenix, and in sub-areas within the city. Also, research was performed on trends in the characteristics of development and specific development assumptions were created for planning parcels in the growth areas of the city and for redevelopment parcels in the established portions of the city.

Finally, Task 3 translates the information gathered in the first two tasks into socioeconomic projections for the period from 2015 through 2050 for all 75 Land-Use Analysis (LUA) zones within the City of Phoenix. The LUA zones were created by sub-dividing each of the city's 15 villages into roughly equivalent-sized modeling zones that reflect key infrastructure planning and service areas. Projections created for each year through 2030 were used in the calculation of development impact fees, with data for five-year projection periods extending to 2050 for longer-term planning purposes. The remainder of this introductory section provides additional information on the methodology, geographies and assumptions used in the analysis.

### BACKGROUND & METHODOLOGY

The purpose of this study is to assist the city in its effort to prepare various medium and long-term socioeconomic projections relating to: population and employment, development by land-use, vacancy rates of existing residential and commercial space, and trends in the physical characteristics. These projections are required to inform anticipated updates to the Water Resource Plan, the Water and Wastewater Master Plans, the city's Infrastructure Financing Plans (IFP), including the Water Resource Acquisition Fee, and other infrastructure and financial planning activities undertaken by the Water Services Department (WSD), the Planning and Development Department (PDD) and other city departments with major capital planning needs.

The existing projections used by the City of Phoenix were prepared with a significant amount of cooperation from both WSD and PDD staff. These projections were used to develop the reference scenario for the Water Resource Plan that is being prepared by WSD. The 2016 Maricopa Association of Governments (MAG) projections provide a great deal of valuable information that can be used in these efforts; however, a significant amount of additional information is needed, including greater detail on physical development trends and their associated service requirements and multiple-scenario projections that can be used in the city's water and wastewater master plans and infrastructure plans. This additional information requires the allocation of population and employment to specific parcels, identification of the

development potential of specific sites and parcels, and provision of anticipated sequencing of new development in the city's growth areas. This detail will be used by city staff to determine existing levels of service and anticipate future infrastructure requirements needed to meet the demands of new development.

In addition to providing more detailed information, the scope of work for this project differs from what has been done in the past. This project incorporates key development assumptions for the city into the MAG regional allocation model and alters the way that nonresidential land-uses, and the corresponding levels of nonresidential absorption and employment, are forecast for the city. With respect to the MAG forecasts, this project creates alternative data sets and modeling assumptions that can be incorporated into the MAG model. So, rather than just incorporating existing MAG projections into the analysis, this effort results in alternative projections generated by MAG that can be used to develop more customized projections for the City of Phoenix. The changes in the inputs to the MAG model include updated growth control totals for Maricopa County, as well as an improved database of development and redevelopment potential; this includes new development assumptions in the southwest and northern growth areas of the city and a better assessment of the redevelopment potential in more mature areas in the city.

Employment forecasts for subareas within the city have historically been treated as a calculation based on residential development levels and baseline MAG forecasts. In this study employment is examined utilizing projections of employment by industry to separate local-serving from exporting (basic) sectors of the economy. Industry to occupation relationships were applied to industry employment projections to predict employment by occupation and then assigned to MAG land-use categories.

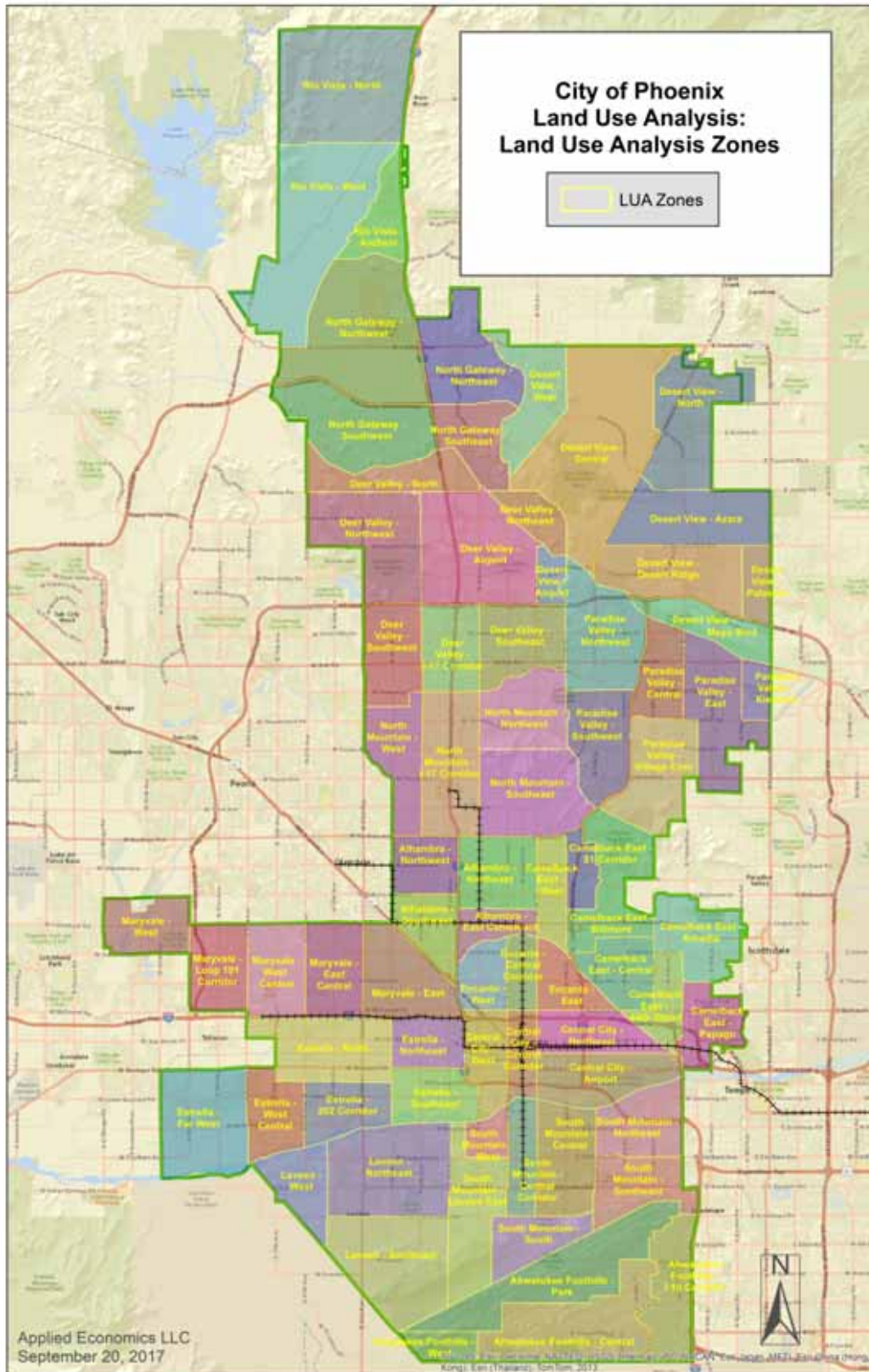
Key to this process was the development of a detailed set of land-use categories, documented in Task 2 of this White Paper. These land-use categories provide the same level of detail used in the MAG model but also incorporate other key attributes that have bearing on specific types of infrastructure and service requirements, including size of unit, landscaping, etc.

#### LAND-USE MODELING AREAS

To facilitate the development of the socioeconomic projections, the City of Phoenix was divided into 75 LUAs (Map 1). These zones were created by dividing each City of Phoenix planning village into infrastructure planning areas and then into modeling areas using MAG Traffic Analysis Zones (TAZs). This system of geographies provided the detail required for the development impact fee service areas while also supporting other city planning efforts and providing a direct link to MAG's regional modeling effort.

In growth areas, data for the LUAs were used to prepare sub-county and sub-city allocations of projected housing units and employment by land-use. Those projections were then used to guide the allocation of growth to parcels within the Master Plan (MP) areas. In all areas of the city, data from the LUAs were used to incorporate MAG's baseline projections and assess any alternative projection series that may have been generated during later phases of the project.

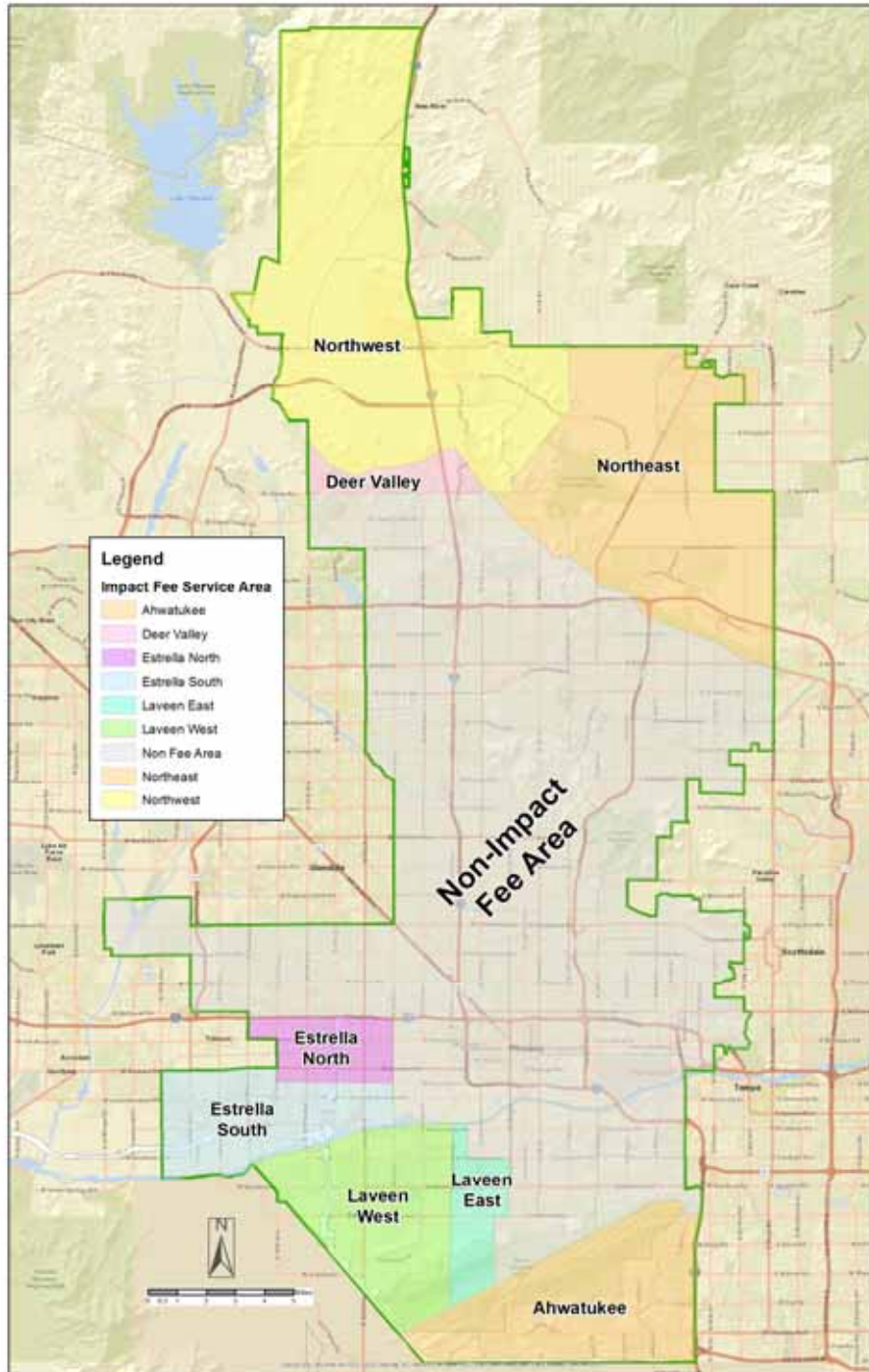
MAP 1  
LAND-USE ANALYSIS ZONES



## IMPACT FEE AREAS

The impact fee areas used in the Infrastructure Financing Plan, shown in Map 2, are aggregations of LUAs that correspond to the specific impact fees charged in each area. As the map shows, much of the city is not included in an impact fee area. As a result, a set of Market Areas were developed for that more appropriately subdivide the city for the purposes of land-use analysis and socioeconomic projections.

MAP 2  
IMPACT FEE AREAS





## MARKET AREAS

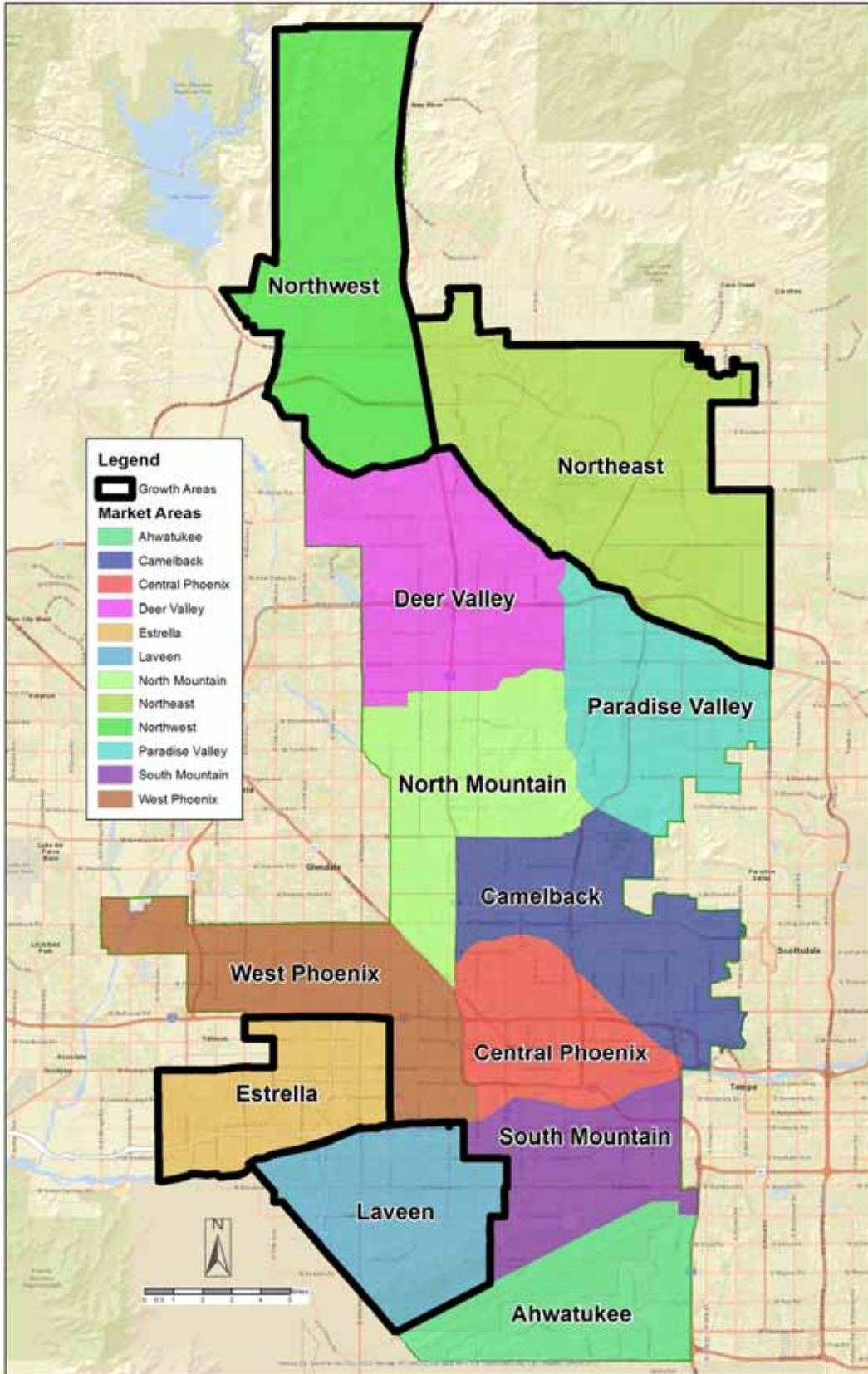
Market Areas were created for the purpose of analyzing the historic change in housing units and employment by type and to develop market-based assumptions about future growth. Of particular interest in this study is the development that is occurring in the north and southwest Market Areas. In these areas, herein referred to as “growth markets”, the socioeconomic projections are driven by specific assumptions about future land-use, development and development sequencing. As shown in Map 3, the growth markets consist of the Estrella and Laveen areas in the southwest and areas in the northwest and northeast portion of the city (north of the Central Arizona Project canal). The remaining Market Areas were largely modeled using MAG projections.

Extensive data was compiled for each growth market, including an inventory of all land documents, the amount of remaining development potential by land-use, and the number of residential units and/or nonresidential space (square feet) that are/is likely to be constructed in the future. Specific assumptions about when such development might occur were not generally made, but the supply of development was prioritized according to a number of factors, including:

- Known development plans
- Proximity to existing development
- Infrastructure availability
- Land ownership

Regional growth allocation totals were used to guide projections of the amount of the supply that is likely to be absorbed during any particular period. In the growth markets, however, specific forecasts for the first 10 to 15-year period were used to project the development of specific infrastructure plans and determine the resulting development impact fees.

MAP 3  
MARKET AREAS

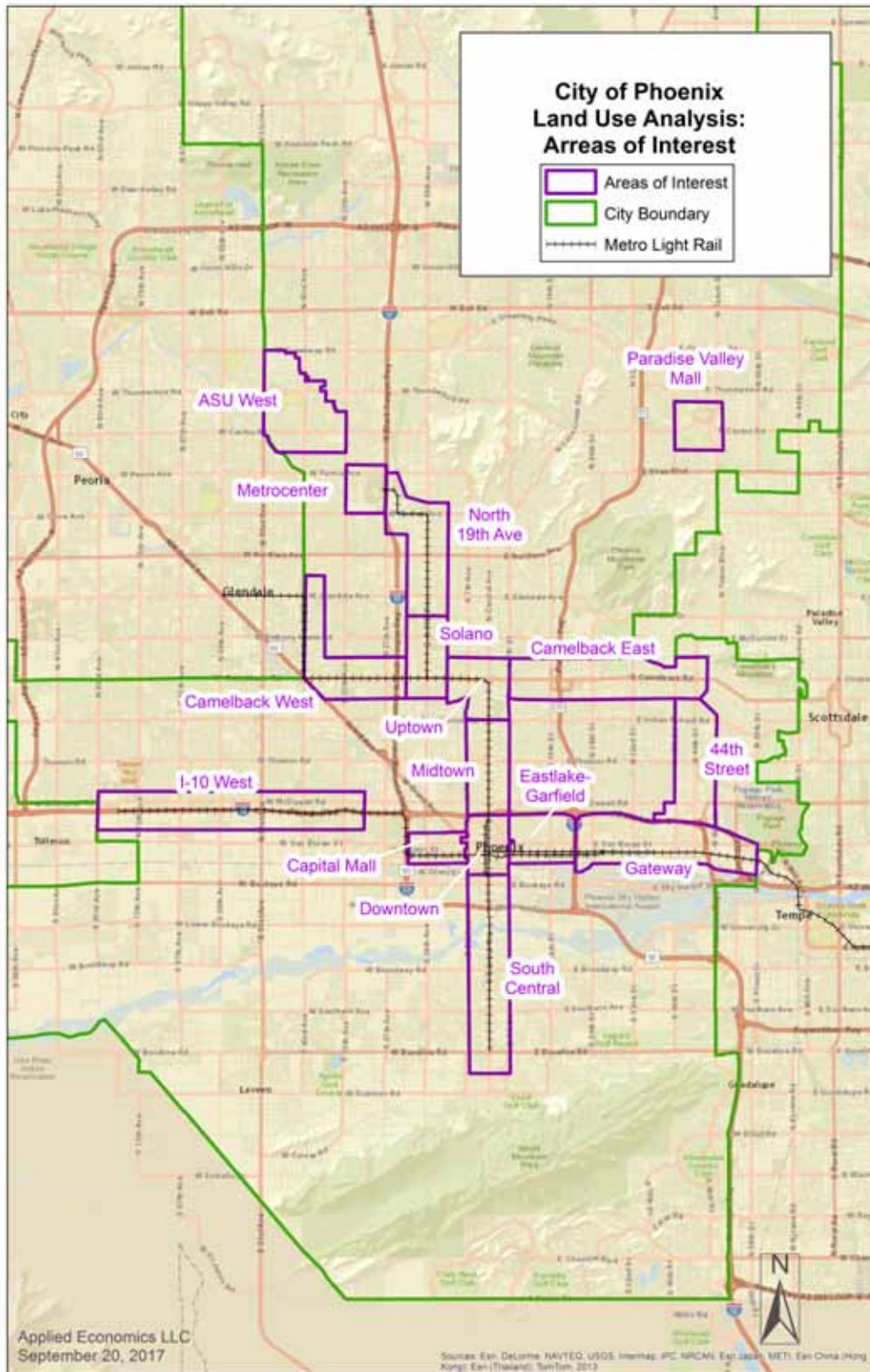


## REDEVELOPMENT AREAS OF INTEREST

Areas of Interest were defined to focus on the parts of the city that have the most potential for redevelopment over the next few decades. While the majority of the city's housing and population growth is likely to be concentrated in new development areas, in both the southwest and northern portions of the city, recent trends indicate renewed market strength and redevelopment activity in established areas. Much of this activity has been concentrated along the light rail corridor and in gentrifying neighborhoods in central Phoenix. This represents a significant departure from past development patterns and, thus, must be accounted for more directly in the projections.

In all, 16 specific subareas of the city that hold the most potential for future redevelopment have been identified (Map 4). Wherever possible, these areas were defined using existing city planning study areas. The intent is to leverage previously performed studies and other internal planning efforts to better inform the projections. This is especially true in the case of transit oriented development (TOD). As the city has embraced TOD, significant effort has been applied to the study of its current and likely future impact on the City of Phoenix. As such, the study will result in specific assumptions regarding the amount of in-fill and redevelopment that could reasonably be expected over the next 30-plus years.

MAP 4  
AREAS OF INTEREST



## 1.0 LOCAL INFORMATION GATHERING

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This section details the socioeconomic and development data sets that were compiled to support the new socioeconomic projections associated with Task 1 of the City of Phoenix Demographic Study. The purpose here is not to detail each data value, but rather to communicate the sources that were used and the information that was obtained. In most cases, the data was compiled for villages, LUAs and AOIs.

### 1.1 SOCIOECONOMIC AND DEVELOPMENT DATA

#### 1.1.1 2016 MAG PROJECTIONS

The MAG socioeconomic estimates and projections are of significant importance when preparing projections for the city. Not only do they provide guidance as to how much regional growth could be expected to occur, they also offer insight into how that growth might be allocated within the city. The following table summarizes the specific data points that are available in the MAG data.

**TABLE 1-1  
SUMMARY OF AVAILABLE INFORMATION  
2016 MARICOPA ASSOCIATION OF GOVERNMENTS SOCIOECONOMIC DATA**

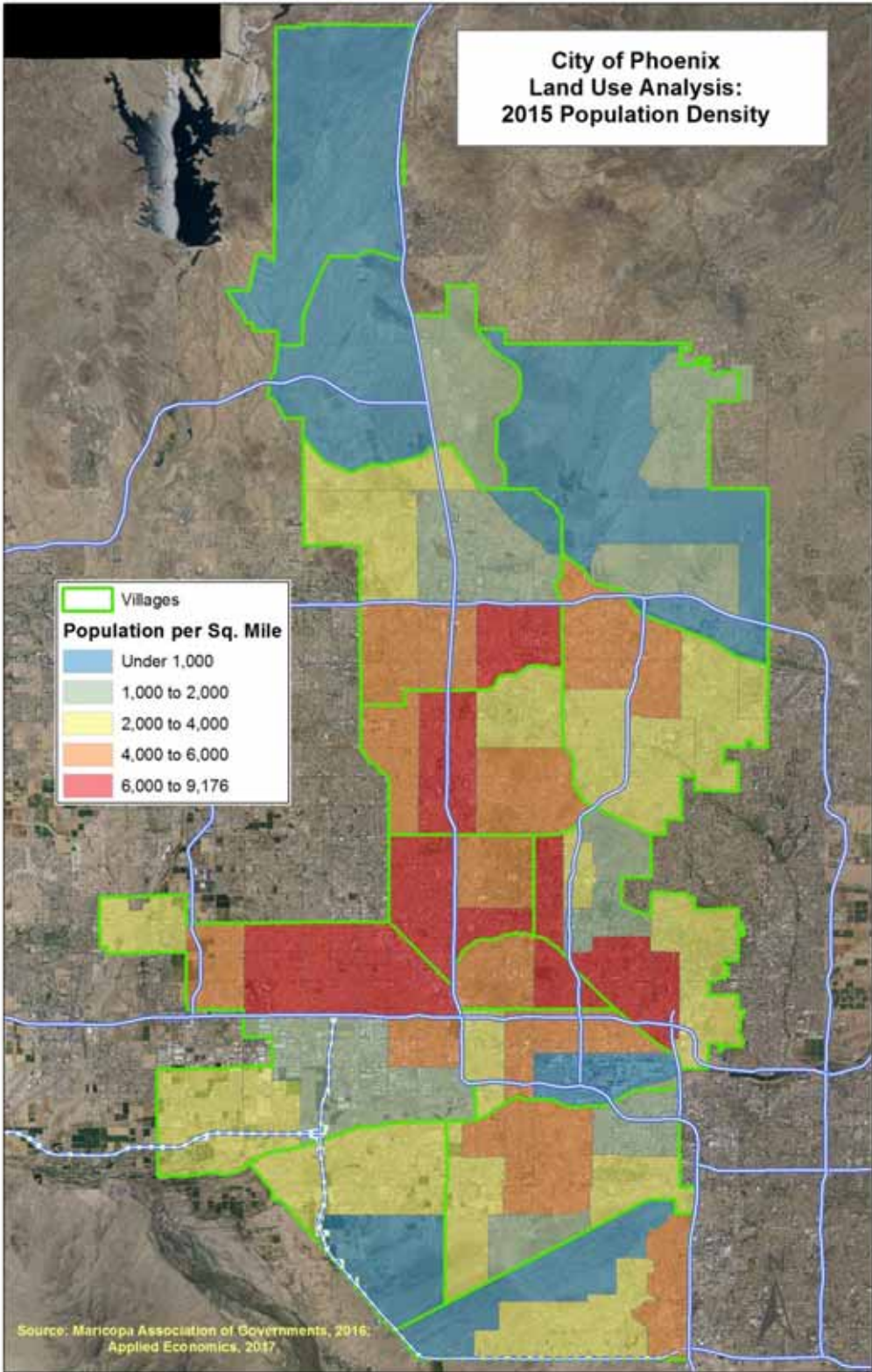
Variable	Definition
YEAR	Year
COUNTY	County
MPA2016	Municipal Planning Area Code (see below for lookup)
RAZ2016	Regional Analysis Zone
TAZ2016	Traffic Analysis Zone
In_MPO_Boundary	TAZ is within MAG's MPO boundary
TOTPOP_*	Total Population (all resident population + all group quarters population)
RESPOP_*	Resident Population (all resident population living in households)
RESHH_*	Resident Households (all resident households, does not include group quarters)
TOTDU_*	Total Dwelling Units
TOTEMP_*	Total Employment
OTHEMP_*	Other Employment (e.g. hotel, medical, etc.)
PUBEMP_*	Public Employment
RETEMP_*	Retail Employment
OFFEMP_*	Office Employment
INDEMP_*	Industrial Employment
WORKHOME_*	Work at Home Employment
CONEMP_*	Construction Employment (construction workers on construction sites)
NSBEMP_*	Non-Site Based Employment (e.g. landscapers, delivery drivers, etc.)

Source: Maricopa Association of Governments.

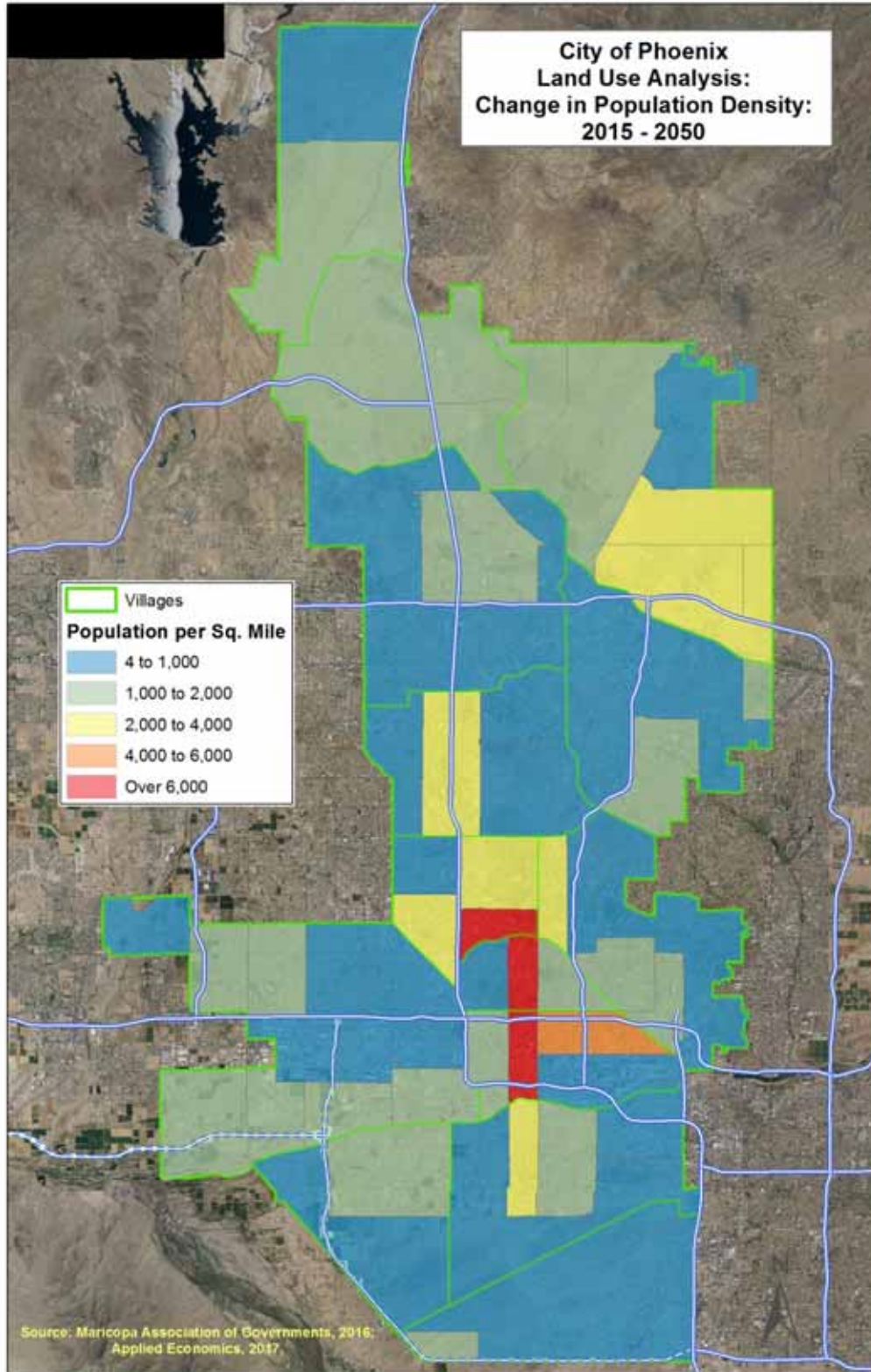
\* Data available for 2015, 2020, 2030, 2040 and 2050.

Maps 1-1 and 1-2 illustrate this information aggregated by LUA; the maps also show base year (2015) population density and the projected change in population density between 2015 and 2050. Of particular interest is the large increase in population density in the Central Avenue corridor and in other portions of the city served by light rail.

MAP 1-1  
2015 POPULATION DENSITY  
LAND-USE ANALYSIS ZONES



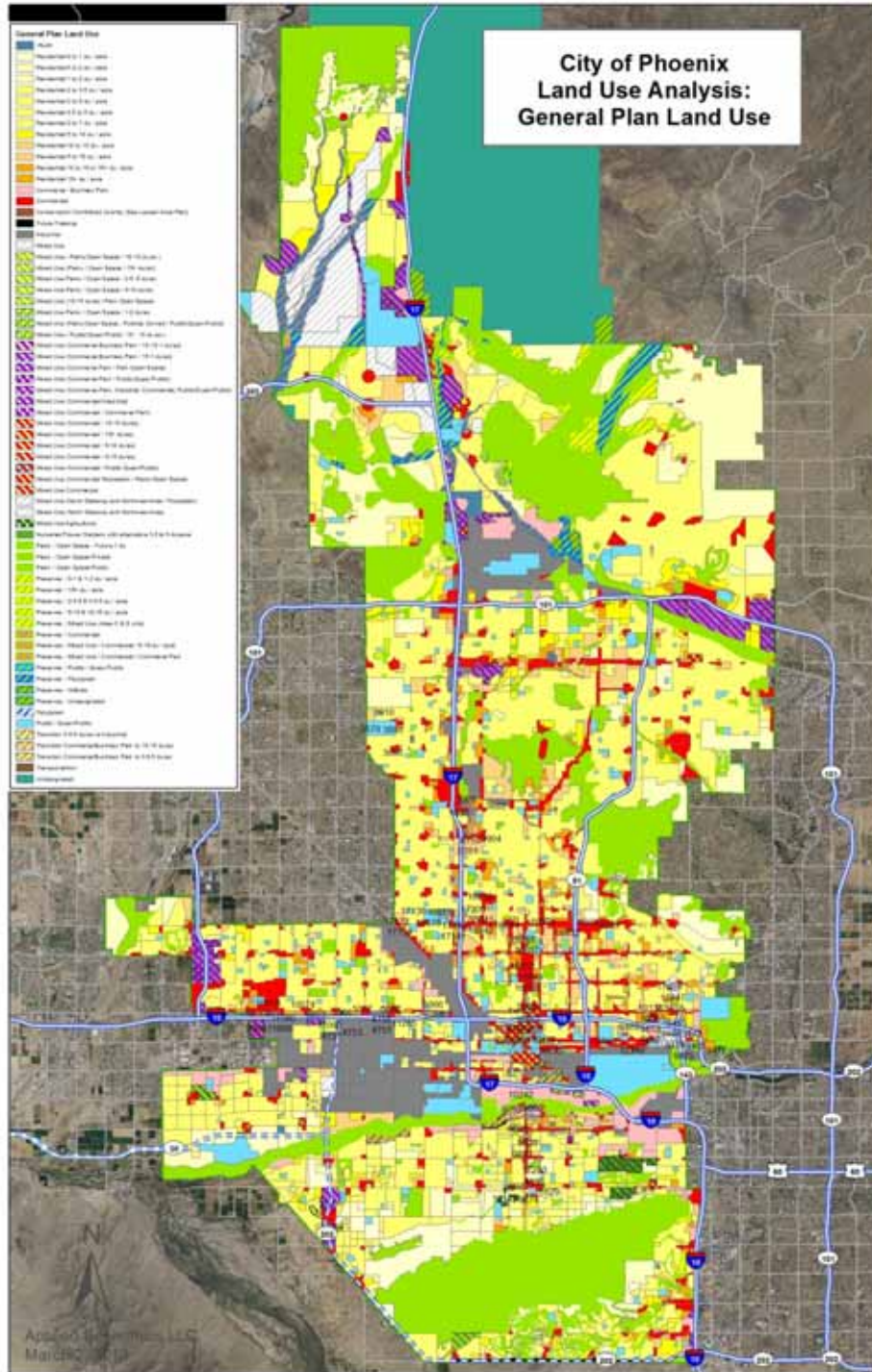
MAP 1-2  
CHANGE IN POPULATION DENSITY: 2015 - 2050  
LAND-USE ANALYSIS ZONES



### 1.1.2 CITY OF PHOENIX GENERAL PLAN

The City of Phoenix General Plan, illustrated by Map 1-3, serves as the default for future land-use assumptions when more detailed information is unavailable. This is much more likely to be the case in the northern portion of the city; the future of the remaining development areas in the southwest is much more well-defined.

MAP 1-3  
CITY OF PHOENIX - GENERAL PLAN LAND-USE





### 1.1.3 HISTORICAL PROJECTIONS AND ASSUMPTIONS

In the beginning, the analysis required a review of the last set of projections completed for the city in 2012 and the acquisition of “super parcel” land-use data files for the MP areas of the city. Past projections were based on county-level growth in population and employment that incorporated low-, mid- and high-growth population projections for Maricopa County (prepared by the State of Arizona) and an assessment of the city’s overall capture rate of that growth. Unfortunately, that approach missed the extended impact of the recession on the housing market, as well as the impact of changes in the single family housing industry and the shift toward multi-family and infill development in the urban core.

The super-parcel information compiled by the city provides an excellent starting point for the assessment of future development potential in the MP areas. The past assessment of future development, summarized in Table 1-2, shows the potential for more than 270,000 housing units and 245 million square feet of nonresidential space, not accounting for public and institutional development.

TABLE 1-2  
2012 DEVELOPMENT POTENTIAL ASSESSMENT

Area	SF	MF	Office	Retail	Industrial
Northwest	25,869	14,215	9,264	13,225	35,803
Bisquit Flats	12,300	20,134	5,297	10,070	5,091
Northeast (Desert View, NBCC)	54,597	41,148	30,166	22,469	220
<b>Total North</b>	<b>92,766</b>	<b>75,497</b>	<b>44,727</b>	<b>45,765</b>	<b>41,114</b>
Estrella	12,660	9,726	2,336	5,371	28,792
Laveen	21,972	5,653	713	6,416	0
<b>Total Southwest</b>	<b>34,632</b>	<b>15,380</b>	<b>3,050</b>	<b>11,787</b>	<b>28,792</b>
Deer Valley	2,093	464	106	2,565	19,009
Maryvale	1,848	4,094	6,144	7,178	4,155
South Mountain	2,898	3,007	11	1,522	2,679
Ahwatukee	1,119	747	775	722	0
Downtown	0	29,968	14,604	3,133	0
Camelback	0	6,192	4,150	3,133	0
<b>Total City</b>	<b>135,356</b>	<b>135,349</b>	<b>73,567</b>	<b>75,805</b>	<b>95,750</b>

Source: City of Phoenix, Water Services Department, 2013.

Potential is displayed in terms of housing units of thousands of sq. ft. of commercial. Space.

### 1.1.4 2010 CENSUS DATA

Baseline information from the 2010 Census was compiled for all of the LUAs, MPs and AOs. The variables included are detailed in Table 1-3. This information was used to establish baseline levels of housing and demographic characteristics for modeling subareas. Occupancy, tenure and family structure characteristics can be very useful when considering future demographic and development assumptions for subareas within the city.

**TABLE 1-3  
SUMMARY OF AVAILABLE INFORMATION  
2010 CENSUS DATA**

Tab 1 - Pop Facts		Tab 2 - Household Facts		Tab 3 - Housing Facts	
LUA Zone		LUA Zone		LUA Zone	
BlockCount	Count of Blocks	TotalHH	Total Households	TotalUnits	Total Housing Units
TotalPop	Total Population	WhiteHH	Households by Race	OccUnits	Occupied Housing Units
WhitePop	Population by Race	BlackHH	Households by Race	OwnerOcc	Owner Occupied
BlackPop	Population by Race	IndianHH	Households by Race	RenterOcc	Renter Occupied
IndianPop	Population by Race	AsianHH	Households by Race	VacUnits	Vacant Units
AsianPop	Population by Race	OtherHH	Households by Race	VacForRent	Vacant for Rent
OtherPop	Population by Race	TwoRaceHH	Households by Race	VacRented	Vacant Rented - not yet occ.
TwoRacePop	Population by Race	HispanicHH	Households by Race	VacForSale	Vacant for Sale
HispanicPop	Population by Race	HHwKids	Household Structure	VacSold	Vacant Sold - not yet occ.
MalePop	Population by Gender	HusbWife_Under6	Household Structure	VacSeasonal	Vacant Seasonal
FemalePop	Population by Gender	HusbWife_Under17	Household Structure	VacOther	Vacant Other
PopUnder5	Population by Gender	HusbWife_6_17	Household Structure	Owner15_24	Owner Occupied by Age
Pop5_9	Population by Age Cohort	SingleParent_Under6	Household Structure	Owner25_34	Owner Occupied by Age
Pop10_14	Population by Age Cohort	SingleParent_Under17	Household Structure	Owner35_44	Owner Occupied by Age
Pop15_19	Population by Age Cohort	SingleParent_6_17	Household Structure	Owner45_54	Owner Occupied by Age
Pop20_24	Population by Age Cohort	NoParent_Under6	Household Structure	Owner55_64	Owner Occupied by Age
Pop25_29	Population by Age Cohort	NoParent_Under17	Household Structure	Owner65_74	Owner Occupied by Age
Pop30_34	Population by Age Cohort	NoParent_6_17	Household Structure	Owner75_84	Owner Occupied by Age
Pop35_39	Population by Age Cohort	HHnoKids	Household Structure	Owner85Up	Owner Occupied by Age
Pop40_44	Population by Age Cohort	WOKidsHusbWife	Household Structure	Renter15_24	Renter Occupied by Age
Pop45_49	Population by Age Cohort	WOKidsSingle	Household Structure	Renter25_34	Renter Occupied by Age
Pop50_54	Population by Age Cohort	WOKidsNonFamily	Household Structure	Renter35_44	Renter Occupied by Age
Pop55_59	Population by Age Cohort	FamHH15_24	Family Households by Age of Head	Renter45_54	Renter Occupied by Age
Pop60_64	Population by Age Cohort	FamHH25_34	Family Households by Age of Head	Renter55_64	Renter Occupied by Age
Pop65_69	Population by Age Cohort	FamHH35_44	Family Households by Age of Head	Renter65_74	Renter Occupied by Age
Pop70_74	Population by Age Cohort	FamHH45_54	Family Households by Age of Head	Renter75_84	Renter Occupied by Age
Pop75_79	Population by Age Cohort	FamHH55_64	Family Households by Age of Head	Renter85Up	Renter Occupied by Age
Pop80_84	Population by Age Cohort	FamHH65_74	Family Households by Age of Head		
Pop85Up	Population by Age Cohort	FamHH75_84	Family Households by Age of Head		
Pop0	Population Under 20	FamHH85Up	Family Households by Age of Head		
Pop1	Population Under 20	NFamHH15_24	Non-family Households by Age of Head		
Pop2	Population Under 20	NFamHH25_34	Non-family Households by Age of Head		
Pop3	Population Under 20	NFamHH35_44	Non-family Households by Age of Head		
Pop4	Population Under 20	NFamHH45_54	Non-family Households by Age of Head		
Pop5	Population Under 20	NFamHH55_64	Non-family Households by Age of Head		
Pop6	Population Under 20	NFamHH65_74	Non-family Households by Age of Head		
Pop7	Population Under 20	NFamHH75_84	Non-family Households by Age of Head		
Pop8	Population Under 20	NFamHH85Up	Non-family Households by Age of Head		
Pop9	Population Under 20				
Pop10	Population Under 20				
Pop11	Population Under 20				
Pop12	Population Under 20				
Pop13	Population Under 20				
Pop14	Population Under 20				
Pop15	Population Under 20				
Pop16	Population Under 20				
Pop17	Population Under 20				
Pop18	Population Under 20				
Pop19	Population Under 20				

### 1.1.5 2015 ACS BLOCK GROUP DATA

In addition to demographic data from the 2010 Census, data was extracted from the 2015 American Community Survey (ACS) at the block group level and aggregated by LUA and AOI. The 2015 dataset is a five-year aggregation of survey data from 2011 through 2015. ACS data provides details on housing unit type, householder ages, mobility, income, occupational employment and industry employment, which was not available from the 2010 Census due to the elimination of the long-form of the Census in 2010. Table 1-4 details the demographic data points that were obtained from the ACS. Of particular interest for the demographic projections are the tenure and age of the householders and the rate of mobility that is implied by the term of occupancy (based on year moved in). This information was useful in generating development assumptions and in evaluating population projections for subareas within the City of Phoenix.

**TABLE 1-4  
SUMMARY OF DEMOGRAPHIC INFORMATION  
2015 ACS FIVE-YEAR DATA**

Laborforce	Households	Households
Male	Under \$20,000	Family - Couple
Female	\$20,000 - \$34,999	Family - Single
Under5	\$35,000 - \$59,999	Nonfamily - With Other(s)
Age5_17	\$60,000 - \$99,999	Nonfamily - Alone
Ages18_24	\$100,000 or more	
Ages25_34	Median Income	
Ages35_44		
Ages45_54	Owner Households	Renter Households
Ages55_64	Householder 15 to 24 years	Householder 15 to 24 years
Ages65_74	Householder 25 to 34 years	Householder 25 to 34 years
Ages75_84	Householder 35 to 44 years	Householder 35 to 44 years
Ages85Up	Householder 45 to 54 years	Householder 45 to 54 years
Median Age	Householder 55 to 59 years	Householder 55 to 59 years
	Householder 60 to 64 years	Householder 60 to 64 years
White	Householder 65 to 74 years	Householder 65 to 74 years
African American	Householder 75 to 84 years	Householder 75 to 84 years
Native American	Householder 85 years and over	Householder 85 years and over
Asian		
Hispanic	Moved in 2015 or later	Moved in 2015 or later
Other	Moved in 2010 to 2014	Moved in 2010 to 2014
	Moved in 2000 to 2009	Moved in 2000 to 2009
In Poverty	Moved in 1990 to 1999	Moved in 1990 to 1999
	Moved in 1980 to 1989	Moved in 1980 to 1989
	Moved in 1979 or earlier	Moved in 1979 or earlier
Housing Units		
Single Family		
2 - 4 Units / Building	Housing Value	Housing Rent
5 - 20 Units / Building	Under\$100K	Under \$500
20 - 49 Units / Building	\$100K - \$149K	\$500 - \$749
50+ Units / Building	\$150K - \$199K	\$750 - \$999
	\$200K - \$299K	\$1,000 - \$1,999
Vacant Units	\$300K - \$499K	Over \$2,000
Seasonal Units	Over \$500K	No Cash Rent

In addition to demographic data, ACS data that details various labor force characteristics was compiled for each of the LUAs and AOIs. This included measurements of employed persons by occupation and industry, educational attainment, means of transportation to work and labor force status, as shown in Table 1-5. These labor force characteristics are particularly important in the process of assessing both the residential and nonresidential redevelopment potential of specific portions of the city. In terms of residential development, educational attainment, means of transportation to work and labor force status provided insight into the type of housing that will likely be desired. Industry and occupational information can be used to develop labor shed information for city subareas which, in turn, influences nonresidential development patterns.

**TABLE 1-5  
SUMMARY OF LABORFORCE INFORMATION  
2011-15 ACS FIVE-YEAR DATA**

Employed Persons	Persons 25 Years and Over
By Occupation: Management, business, and financial Computer, engineering, and science Education, legal, community service, arts, and media Healthcare practitioners and technical Protective service Food preparation and serving related Building and grounds cleaning and maintenance Personal care and service Sales and related Office and administrative support Construction, maintenance and natural resources Production Transportation Material moving  By Industry: Construction, Ag and Mining Manufacturing Wholesale trade Retail trade Transportation and warehousing, and utilities Professional, scientific, and technical services Information Finance and insurance, and real estate Administrative and support services Educational services Health care and social assistance Arts, entertainment, and recreation Accommodation and food services Other services, except public administration Public administration	Educational Attainment: Non-High School Graduate High School Graduate (only) Some College Associates Degree Bachelor's Degree Graduate Degree  High School or More College Degree  Means of Transportation to Work Drove alone Carpooled Public transportation Bicycle Walked Other means Worked at home  Persons 16 Years and Over In labor force: Civilian labor force: Employed Unemployed Armed Forces Not in labor force  Labor Force Participation Rate Unemployment Rate

### 1.1.6 HOUSING CHARACTERISTICS

Housing inventory and occupancy data for the LUAs and AOs were obtained from a combination of 2010 census data, MAG building permit completions and HUD vacancy data (compiled from United State Postal Service delivery data by census tract). This information was extracted from the MAG Vacancy Rate Estimate System that was also developed by Applied Economics; the system brings together information from all three sources to provide quarterly information on the number of housing units (inventory) and vacant units by census tract. The data show trends in vacancy rates by quarter from 2010 Q1 through 2017 Q2.

This data was aggregated for each city village and is illustrated in Table 1-6. As shown, the overall vacancy rate in the City of Phoenix has declined from 12.8 percent in 2010 to 8.4 percent in 2017, which is up slightly from 8.0 percent in 2016. The overall decline in vacancy rates reflects the recovery of the housing market from the recession, which now appears to be complete. Within the city, the highest vacancy rates are found in the Central City Village and the lowest rates are in the Ahwatukee Foothills Village. The greatest absolute decline has been in the Encanto Village, which fell from 17.8 percent to 11.1 percent; the largest percent decline was in the Laveen Village, which declined from 9.0 percent to 4.5 percent.

TABLE 1-6  
VACANCY RATE TRENDS BY VILLAGE

Village	2010	2011	2012	2013	2014	2015	2016	2017
Ahwatukee Foothills	6.9%	5.7%	5.0%	5.0%	5.0%	4.5%	3.8%	4.0%
Alhambra	16.5%	15.3%	14.4%	14.2%	12.5%	11.8%	10.9%	11.4%
Camelback East	14.8%	13.3%	11.9%	11.6%	10.9%	9.7%	8.9%	10.3%
Central City	18.8%	17.4%	17.6%	17.3%	17.0%	16.4%	15.1%	16.1%
Deer Valley	9.0%	8.5%	7.2%	6.8%	5.6%	5.4%	4.4%	4.5%
Desert View	11.7%	10.9%	10.2%	9.5%	9.1%	7.6%	7.9%	7.4%
Encanto	17.8%	16.2%	14.4%	15.2%	13.3%	12.0%	10.7%	11.1%
Estrella	14.1%	13.6%	12.9%	12.9%	12.2%	11.5%	10.9%	10.9%
Laveen	12.2%	12.3%	11.2%	10.4%	10.0%	9.3%	8.6%	8.1%
Maryvale	14.7%	14.2%	13.1%	12.9%	11.9%	10.9%	9.7%	9.8%
North Gateway	10.6%	8.0%	6.4%	7.1%	5.1%	6.0%	5.2%	6.9%
North Mountain	12.2%	11.5%	10.9%	11.1%	9.3%	8.0%	7.0%	7.3%
Paradise Valley	9.8%	8.9%	7.6%	7.5%	6.9%	6.3%	5.5%	5.9%
Rio Vista	17.8%	17.2%	17.2%	15.4%	13.2%	14.4%	13.1%	12.9%
South Mountain	13.0%	12.8%	11.7%	11.1%	10.6%	9.3%	8.5%	8.8%
City of Phoenix	12.8%	11.9%	10.9%	10.7%	9.7%	8.9%	8.0%	8.4%

Sources: HUD USPS Vacancy Information; MAG; Applied Economics, 2018.

### 1.1.7 COUNTY ASSESSOR DATA

One of the most important sources of information for the project is parcel-level data obtained from the Maricopa County Assessor. This dataset not only provides detailed information about residential and nonresidential inventory, it also provides development trend data (by year of construction) and important information about the quality of existing improvements (including the value of both land and improvements). Table 1-7 details the amount of built, nonresidential space by village in the City of Phoenix. The land and improvement value information available from this source helped guide the projections for new growth and aided in the identification of areas that have redevelopment potential.

**TABLE 1-7  
NONRESIDENTIAL SQUARE FOOTAGE BY TYPE BY VILLAGE**

Village	Retail	Lodging	Office	Medical		Public	Manufacturing	Warehouse	Other	Total
				Office	Institution					
Ahwatukee Foothills	3,171,517	444,133	1,745,580	323,918	723,812	2,179,129	32,780	1,067,786	107,783	9,796,438
Alhambra	6,994,966	302,275	3,525,066	878,187	8,959,385	3,431,920	529,742	2,199,050	98,151	26,918,742
Camelback East	10,552,243	4,900,445	22,178,502	575,446	2,767,407	6,615,238	1,694,913	2,528,838	374,594	52,187,626
Central City	5,810,456	1,752,926	6,411,129	737,773	5,563,240	40,524,740	4,791,230	18,727,257	935,826	85,254,576
Deer Valley	8,912,941	1,027,015	9,694,006	695,938	1,987,678	5,481,509	2,915,415	10,475,954	93,671	41,284,127
Desert View	1,799,264	633,814	736,154	73,735	2,711,089	1,481,315	56,317	782,089	609,167	8,882,943
Encanto	4,024,077	982,328	13,161,156	1,618,906	5,728,875	5,095,110	351,115	1,728,515	207,166	32,897,247
Estrella	4,627,476	152,960	3,816,933	7,446	372,551	7,738,680	10,588,183	47,781,031	1,383,465	76,468,725
Laveen	1,793,552		21,723		220,557	1,881,392	256,792	484,437	730,427	5,388,880
Maryvale	8,785,028	787,864	845,083	644,034	2,645,684	5,863,315	3,597,027	13,401,921	70,473	36,640,429
North Gateway	701,185		144,749	91,131	40,336	712,786	388,677		26,993	2,105,857
North Mountain	9,383,509	2,196,720	6,120,063	538,441	3,249,101	5,329,663	1,173,057	3,709,283	294,620	31,994,457
Paradise Valley	12,084,857	1,231,510	5,498,353	959,466	2,786,640	5,870,771	433,100	2,493,049	428,196	31,785,941
Rio Vista	820,432	44,502	15,162		62,447	178,226	60,748	296,855	21,679	1,500,050
South Mountain	4,495,006	1,687,065	5,664,881	96,638	1,657,407	4,011,232	4,471,841	17,319,181	889,434	40,292,685
<b>Total</b>	<b>83,956,510</b>	<b>16,143,557</b>	<b>79,578,539</b>	<b>7,241,058</b>	<b>39,476,208</b>	<b>96,395,027</b>	<b>31,340,937</b>	<b>122,995,245</b>	<b>6,271,645</b>	<b>483,398,724</b>

Sources: Maricopa County Assessor, Secured Master and Commercial File, 2018.

### 1.1.8 PERMIT/COMPLETION DATA

Finally, a dataset was assembled using MAG Building Permit Completions. This source includes permit data for the completion and demolition of residential housing units from 1990 to the present. Completions by village and unit type since 2010 are summarized in Table 1-8.

**TABLE 1-8  
HOUSING UNITS FROM BUILDING PERMIT COMPLETIONS**

Village	2010	2011	2012	2013	2014	2015	2016	2017*	Total	Share
Ahwatukee Foothills	9	9	4	43	118	465	46	41	735	100%
Single Family**	9	9	4	43	118	63	46	41	333	45%
Multifamily***						402			402	55%
Alhambra	89	92	66	65	49	52	343	20	776	100%
Single Family**	5	3	17	9	33	44	41	18	170	22%
Multifamily***	84	89	49	56	16	8	302	2	606	78%
Camelback East	260	20	50	378	465	554	1,223	693	3,643	100%
Single Family**	14	14	35	68	78	126	184	107	626	17%
Multifamily***	246	6	15	310	387	428	1,039	586	3,017	83%
Central City	81	67	189	707	209	264	862	616	2,995	100%
Single Family**	1	1	3		2	6	10	10	33	1%
Multifamily***	80	66	186	707	207	258	852	606	2,962	99%
Deer Valley	635	124	472	142	292	301	106	265	2,337	100%
Single Family**	196	124	198	127	38	53	52	59	847	36%
Multifamily***	439		274	15	254	248	54	206	1,490	64%
Desert View	447	305	343	415	753	377	1,254	225	4,119	100%
Single Family**	234	209	284	371	249	166	293	182	1,988	48%
Multifamily***	213	96	59	44	504	211	961	43	2,131	52%
Encanto	4	4	91	121	7	3	128	233	591	100%
Single Family**		4	2	6	6	3	26	10	57	10%
Multifamily***	4		89	115	1		102	223	534	90%
Estrella	283	143	205	230	143	163	166	93	1,426	100%
Single Family**	283	143	156	230	143	163	166	93	1,377	97%
Multifamily***			49						49	3%
Laveen	237	99	192	199	242	312	428	208	1,917	100%
Single Family**	237	99	192	199	242	312	428	208	1,917	100%
Multifamily***									0	0%
Maryvale	103	48	30	260	172	63	167	196	1,039	100%
Single Family**	39	48	3	222	107	63	167	128	777	75%
Multifamily***	64		27	38	65			68	262	25%
North Gateway	150	73	225	534	177	211	228	120	1,718	100%
Single Family**	150	73	165	206	172	191	218	120	1,295	75%
Multifamily***			60	328	5	20	10		423	25%
North Mountain	1	4	7	19	45	45	72	14	207	100%
Single Family**	1	4	7	5	45	43	20	11	136	66%
Multifamily***				14		2	52	3	71	34%
Paradise Valley	37	2	62	63	471	167	211	195	1,208	100%
Single Family**	17	2	19	40	149	140	176	33	576	48%
Multifamily***	20		43	23	322	27	35	162	632	52%
Rio Vista	33	28	34	9	2			2	108	100%
Single Family**	33	28	34	9	2			2	108	100%
South Mountain	235	260	232	252	253	211	346	188	1,977	100%
Single Family**	149	183	176	162	159	209	250	188	1,476	75%
Multifamily***	86	77	56	90	94	2	96		501	25%
City of Phoenix	2,604	1,278	2,202	3,437	3,398	3,188	5,580	3,109	24,796	100%
Single Family**	1,368	944	1,295	1,697	1,543	1,582	2,077	1,210	11,716	47%
Multifamily***	1,236	334	907	1,740	1,855	1,606	3,503	1,899	13,080	53%

\* Through June, 2017. \*\* Includes mobile homes. \*\*\* Includes apartments and townhouses.

As the data shows, there were nearly 24,800 housing units completed in the city from the beginning of 2010 through June of 2017. Of these, just over half (53 percent) were multi-family units, including apartments and attached townhouse and condominium units. The share of units that are multi-family varies dramatically, from none to over 99 percent. As expected, the highest concentrations of new, single family units were in the Desert View, Laveen, Estrella, South Mountain and North Gateway villages; these areas accounted for nearly 70 percent of all new, single family units in the city.

The Desert View Village had the largest total number of new housing units (4,119) completed during the period and accounted for 16.6 percent of all additions citywide. Somewhat surprisingly, the Camelback East and Central City Villages added the next greatest share of new units, at 14.7 percent and 12.1 percent, respectively. This distribution represents a large departure from the historical pattern of growth in the City of Phoenix and in the Phoenix Metropolitan Area. The return of residential construction to the urban core has had an impact on the urban form over the past several years and that trend seems likely to continue.

## 1.2 COMMERCIAL, INDUSTRIAL AND INSTITUTIONAL DATA

In order to guide employment projections and develop assumptions for properties of different types and ages, data for individual commercial and industrial properties was provided by Cushman & Wakefield. This data consists of detailed market information for retail, office and industrial properties in the City of Phoenix. Table 1-9 details the information available for the three different types of properties; where applicable, each property was coded with both the corresponding LUA and AOI designations.

**TABLE 1-9  
REAL ESTATE DATA AVAILABLE BY TYPE OF PROPERTY**

Retail	Office	Industrial
PropertyID	PropertyID	PropertyID
ADDRESS	ADDRESS	ADDRESS
LATITUDE	LATITUDE	RBA
LONGITUDE	LONGITUDE	LATITUDE
RBA	RBA	LONGITUDE
VACANCY %	VACANCY %	VACANCY %
YEARBUILT	YEARBUILT	YEARBUILT
BSTATUS	LANDAREA	LANDAREA
LANDAREA	SPRINKLERS	BSTATUS
SPRINKLERS	CLASS	SPRINKLERS
PROPTYPE	STORIES	CEILINGHEI
PARKRATIO	TYPICAL FLOOR SIZE	DOCKS
YEARRENO	PARKRATIO	PARKSPACES
ANCHORTENANTS	YEARRENOVA	STARRAT
	ZONING	STARNUM

Source: Cushman & Wakefield, 2017.



With information about land and building area, property sub-type, vacancy rate, year of construction and other indicators, it was possible to develop a variety of important measurements, including vacant space by type, floor area ratios (FARs) and parking ratios (all by age of improvement). This detail allowed us to distinguish the characteristics of recently built properties versus the total existing inventory. Each of these measurements can be calculated by subarea within the city.

### 1.2.1 RETAIL

Data from Cushman & Wakefield for the retail market in the City of Phoenix includes a total of more than 44.4 million square feet of building area. This survey data includes most commercial properties with 10,000 or more square feet, which comprise about 53 percent of total retail inventory in the city. In late 2017, these properties had a total of about 4.3 million square feet of vacant space, or about 9.6 percent of total retail inventory. The vacancy rate varies significantly by type of property (as shown in Table 1-10) and also by geographic subarea. Like the other data assembled for this study, this data can be aggregated by village, LUA and AIO. The highest vacancy rates are in the lifestyle, community and theme properties, which is indicative of the variability inherent in these more targeted centers.

TABLE 1-10  
CITY OF PHOENIX RETAIL PROPERTY CHARACTERISTICS BY TYPE

Property Type	Properties	Building Area		Acres	Vacancy Rate	FAR
		Total	Vacant			
General Retail	173	8,490,288	339,137	919.35	4.0%	0.21
Community Center	112	9,384,265	1,294,693	964.25	13.8%	0.22
Lifestyle Center	9	310,289	43,584	34.10	14.0%	0.21
Neighborhood Center	220	12,595,052	1,558,187	1,323.35	12.4%	0.22
Outlet Center	1	324,000	0	66.00	0.0%	0.11
Power Center	45	5,873,032	344,673	872.38	5.9%	0.15
Regional Mall	3	1,110,714	68,047	66.01	6.1%	0.39
Strip Center	59	1,752,584	177,807	166.27	10.1%	0.24
Super Regional Mall	19	4,279,615	403,199	386.44	9.4%	0.25
Theme/Festival Center	4	288,678	38,748	12.89	13.4%	0.51
Total	645	44,408,517	4,268,076	4,811.04	9.6%	0.21

Source: Cushman & Wakefield, 2017.

Another useful piece of information that can be extracted from this dataset is the floor area ratio (FAR), which represents the amount of building area divided by the amount of land area. This ratio is one of the more critical assumptions used to develop employment projections based on land-use. With some exceptions for a few large projects in specific categories, the FAR for retail development is consistently between 0.20 and 0.22.

## 1.2.2 OFFICE

Data from Cushman & Wakefield for the office market in the City of Phoenix includes a total of more than 56.7 million square feet of building area (Table 1-11). This survey data includes most commercial properties with 10,000 or more square feet, which represent about 65 percent of total office building inventory in the city. In late 2017, these buildings had a total of about 10.9 million square feet of vacant space, or about 19.3 percent of total office inventory. The vacancy rates appear to be higher in the Class B and C categories, especially in mid- to high-rise buildings.

TABLE 1-11  
CITY OF PHOENIX OFFICE PROPERTY CHARACTERISTICS

Property Type	Properties	Building Area		Acres	Vacancy	
		Total	Vacant		Rate	FAR
<b>Class A</b>						
2-Story	15	1,736,528	200,072	197.70	11.5%	0.20
3-4 Story	64	8,351,492	1,521,169	495.96	18.2%	0.39
5-9 Story	16	2,932,247	482,321	79.10	16.4%	0.85
10-19 Story	21	5,856,026	1,217,604	52.18	20.8%	2.58
20+ Story	12	5,758,754	1,068,633	31.36	18.6%	4.22
Sub Total	128	24,635,047	4,489,798	856.30	18.2%	0.66
<b>Class B</b>						
1-Story	71	3,443,169	665,604	303.45	19.3%	0.26
2-Story	197	11,595,901	2,618,049	823.32	22.6%	0.32
3-4 Story	111	8,487,648	1,394,401	564.47	16.4%	0.35
5-9 Story	13	1,396,839	165,691	47.71	11.9%	0.67
10-19 Story	14	2,786,157	695,604	32.78	25.0%	1.95
20+ Story	4	1,503,981	478,025	15.22	31.8%	2.27
Sub Total	410	29,213,695	6,017,373	1,786.94	20.6%	0.38
<b>Class C</b>						
1-Story	22	825,810	79,918	60.72	9.7%	0.31
2-Story	37	1,187,164	143,769	87.27	12.1%	0.31
3-4 Story	14	615,211	146,129	18.76	23.8%	0.75
5-9 Story	4	197,022	40,801	5.19	20.7%	0.87
Sub Total	77	2,825,207	410,617	171.94	14.5%	0.38
<b>Total</b>	<b>615</b>	<b>56,673,949</b>	<b>10,917,789</b>	<b>2,815.18</b>	<b>19.3%</b>	<b>0.46</b>

Source: Cushman & Wakefield, 2017.

### 1.2.3 INDUSTRIAL

Data from Cushman & Wakefield for the industrial market in the City of Phoenix includes a total of more than 159.5 million square feet of building area (Table 1-12). This survey data includes industrial properties with 5,000 or more square feet, which represents nearly all of the industrial market. In late 2017, these buildings had a total of about 14.6 million square feet of vacant space, or about 9.1 percent of total industrial inventory in the city. Vacancy rates appear to be much higher in high-amenity buildings, which also tend to be the newer buildings. Buildings under 10 years old have more than twice the average vacancy rate of the overall market.

TABLE 1-12  
CITY OF PHOENIX INDUSTRIAL PROPERTY CHARACTERISTICS

Property Type	Properties	Building Area		Acres	Vacancy Rate	FAR
		Total	Vacant			
<b>Star Rating</b>						
1 Star	121	1,936,943	15,061	202.94	0.8%	0.22
2 Star	2,201	49,095,447	2,539,427	5,614.71	5.2%	0.20
3 Star	863	50,637,055	4,259,448	5,155.89	8.4%	0.23
4 Star	227	36,889,616	4,051,062	2,856.92	11.0%	0.30
5 Star	50	20,979,502	3,696,642	1,354.27	17.6%	0.36
<b>Total</b>	<b>3,462</b>	<b>159,538,563</b>	<b>14,561,639</b>	<b>15,184.73</b>	<b>9.1%</b>	<b>0.24</b>
<b>Age of Building</b>						
Under 10 years	121	17,704,074	4,386,233	1,276.58	24.8%	0.32
10 to 19 years	627	37,902,886	3,218,296	3,545.66	8.5%	0.25
20 to 29 years	341	21,812,033	1,818,860	2,181.72	8.3%	0.23
30 to 39 years	1,143	37,267,633	2,769,905	3,657.54	7.4%	0.23
40 to 49 years	594	20,750,779	873,961	2,454.69	4.2%	0.19
50 to 59 years	331	14,579,446	1,178,186	1,216.82	8.1%	0.28
60 to 79 years	228	6,841,250	269,662	692.70	3.9%	0.23
80+ years	46	1,670,621	43,334	106.07	2.6%	0.36
Unknown	31	1,009,841	3,201	52.95	0.3%	0.44
<b>Total</b>	<b>3,462</b>	<b>159,538,563</b>	<b>14,561,639</b>	<b>15,184.73</b>	<b>9.1%</b>	<b>0.24</b>

Source: Cushman & Wakefield, 2017.

Industrial FARs generally range between about 0.20 and 0.30. It appears that higher-amenity buildings have higher FARs, likely due to the difference between warehouse and distribution space versus manufacturing space. It also appears that the average industrial FAR has come full-circle, falling from over 0.30 for the oldest properties to around 0.20 during the heyday years of growth, and rising to 0.32 in recent years. This is likely due to greater efficiency in the use of space that is being driven by rising land prices, a decline in employment density and changes in the nature of industrial properties in the new economy.

### 1.3 RESIDENTIAL TRENDS

From 2003 through 2008, if you were breathing you could qualify for a mortgage and housing attained exceptionally high valuation/production levels. The level of home ownership in Arizona peaked in mid-2004, at 69.2 percent, before dropping in the second quarter of 2016 to its lowest level since 1965. The Great Recession, which extended from 2008 through early 2012, hit Arizona exceedingly hard.

#### 1.3.1 MULTI-FAMILY RENTAL TRENDS

Although the multi-family market in Arizona has typically moved up and down in three to four-year cycles, the fall-out from the Great Recession, coupled with the ascendancy of younger generations into the housing market, has created healthy market conditions in Phoenix over the last seven years. Arizona, Atlanta, parts of Florida, Las Vegas and Sacramento are all “post-housing-bust” markets that were treated as “toxic” by lenders/builders after the recession; unlike other markets (like New York City, parts of California, Miami, and Seattle), these markets did not attain a more immediate increase in housing growth. As a result, the strong multi-family market in Phoenix (five percent average vacancy and year-over-year rent hikes) is expected to continue for some years to come. According to a recent Colliers report, nearly 1,500 apartments came online in Phoenix during the first quarter of 2017 and more than 10,000 units were under construction. Development is likely to be concentrated in the east valley and central Phoenix in the short-term, as millennials tend to prefer rentals in the central-city and close-in suburbs. Detached, single family rentals are being offered in Phoenix, but the market is in an early stage of development; production is currently limited due to questions that remain about the long-term nature of this new market.

#### 1.3.2 HOME OWNERSHIP TRENDS

The Arizona “post-housing-bust” market has gradually recovered from the Great Recession, but the local recovery is moderate compared to some other regions of the country. Generally, production levels have grown modestly since 2012, but valuation levels have yet to return to pre-recession figures. Like other moderate growth areas, Phoenix lacks inventory, therefore prices are rising accordingly and homebuilding is strong. Millennial/GenX buyers currently comprise about 40 percent of sales activity and it is expected that this trend will continue to increase, in both the short and long-term, as the group’s preference for rentals starts to give way to home ownership. Smaller, renovated, central-city and close-in suburban locations currently characterize Millennial’s preferences. Fueled by employment growth, in-migration and the ascendancy of Millennial/GenX households into home ownership, demand for housing is anticipated to grow consistently. However, long-term projections (12-20 years) need to also anticipate the ultimate demise of the Boomer households and the large volume of resale units that will be absorbed by younger buyers. Experts predict that a serious market correction may occur as a shortage of ownership housing shifts to an over-supply and motivates valuation declines.

### 1.3.3 INDICATORS OF DISTRESS

In conjunction with other factors, indicators of substantive housing distress can portend the ultimate need for redevelopment in a given area. Conversely, indicators of minimal distress in an area may indicate that the neighborhood is stable or that prior redevelopment has occurred. When assessing distress, the number of households that have one or more problems is the key indicator. Areas where the incidence of one or more problems, either for owners or renters, is less than that of the total AOI are typically more stable, and vice-versa.

Among owner-occupied housing units, most of the AOIs exhibit rates of distress far below that of the City of Phoenix overall (Table 1-13). The exceptions are the Eastlake-Garfield, Gateway and I-10 West AOIs, each of which have much higher than average rates of housing distress that are fueled by both overcrowding and a high cost burden. Among renter-occupied housing units, the share of distress is much higher overall, but only the Capital Mall and I-10 West AOIs have a level above the city average.

Since residential distress is defined as a household that is either overcrowded, cost-burdened, in extensive disrepair, or combination thereof, the residential projections use this data to estimate the volume of new, affordable inventory to be placed into service going forward. This is especially relevant to the situation in AOIs where construction of new, high-end apartments is occurring in tandem with escalating levels of affordable housing demand.

**TABLE 1-13  
INDICATORS OF HOUSING DISTRESS**

Area of Interest	Severe Overcrowding (> 1.5 Persons/Room)		Lacking Complete Kitchens or Plumbing Substandard Housing		Housing Cost Burden Greater Than 50% Of Inc.		Having One Or More Of Problems Noted			
	Owners	Renters	Owners	Renters	Owners	Renters	Owners	Percent	Renters	Percent
44th Street	10	285	4	45	415	1,157	449	14.9%	1,693	32.6%
ASU West	10	11	10	22	660	481	767	15.7%	575	24.5%
Camelback East	36	48	10	136	942	1,138	1,021	17.6%	1,434	20.9%
Camelback West	42	470	73	31	459	1,004	678	22.1%	2,101	46.8%
Capital Mall	7	220	4	86	76	585	111	29.4%	1,062	47.6%
Downtown	0	56	0	61	55	435	65	27.6%	636	29.0%
Eastlake-Garfield	42	115	7	40	241	631	428	45.5%	1,028	34.9%
Gateway	27	176	12	28	315	893	430	35.6%	1,415	29.2%
I-10 West	214	1,541	83	116	1,132	2,654	2,017	34.6%	6,240	53.9%
Metrocenter	0	31	7	28	45	328	58	13.7%	402	33.5%
Midtown	11	126	2	86	378	775	417	18.4%	1,154	28.7%
North 19th Ave	8	289	36	188	320	2,027	402	12.9%	2,838	34.8%
Paradise Valley Mall	5	0	0	12	349	709	375	16.9%	740	27.1%
Solano	29	253	0	73	216	1,136	251	9.8%	1,882	40.3%
South Central	38	148	8	37	335	687	575	22.7%	1,177	36.9%
Uptown	16	109	15	24	257	610	293	15.8%	907	31.1%
<b>AOI TOTAL</b>	<b>496</b>	<b>3,877</b>	<b>271</b>	<b>1,012</b>	<b>6,196</b>	<b>15,250</b>	<b>8,336</b>	<b>20.7%</b>	<b>25,285</b>	<b>36.3%</b>
<b>City of Phoenix</b>	<b>2,028</b>	<b>8,712</b>	<b>1,253</b>	<b>3,033</b>	<b>32,344</b>	<b>51,158</b>	<b>41,480</b>	<b>14.6%</b>	<b>50,468</b>	<b>20.3%</b>

Source: HUD CPD Maps, ACS Average by Tract boundary extrapolated to MAG 2011-2015 ACS Average by Block Group boundary.

## 1.4 REDEVELOPMENT AREAS OF INTEREST

A number of different datasets were compiled to better understand the development and socioeconomic characteristics of the AOIs. The purpose of this assessment was to develop assumptions about how these areas are likely to redevelop in the future. As noted in the previous sections, base data was assembled for each of the AOIs from a variety of secondary sources. In addition, we assessed which portions of each AOI held the greatest potential for redevelopment in the next 10-, 20- and 20-years; this potential is indicated in the following maps for each AOI, with areas highlighted in red, orange and yellow.

To illustrate the importance of this data, Table 1-14 details the amount of built, nonresidential space by type in each AOI. Note that while the AOIs comprise just 8.5 percent of the land area in the city, they house nearly one-third of all nonresidential, built space. Furthermore, they include more than 40 percent of all offices, public facilities and lodging accommodations. Obviously, how these areas change in the future will have a significant impact on total employment and the distribution of both employment and population within the city.

TABLE 1-14  
NONRESIDENTIAL SQUARE FOOTAGE BY TYPE BY AOI

Area of Interest	Retail	Lodging	Office	Med. Office	Institution	Public	Manufacturing	Warehouse	Other	Total
44th Street	1,440,822	524,767	1,297,944	25,627	126,310	1,010,365		418,239	2,880	4,846,954
ASU West	790,333		114,652	5,001	168,920	1,369,183	36,891		680	2,485,660
Camelback East	3,892,632	747,496	12,658,729	104,670	216,798	615,365		151,894	15,430	18,403,014
Camelback West	883,948	69,300	642,701	12,358	4,951,946	925,093	12,855	308,473	3,266	7,809,940
Capital Mall	419,766	29,253	126,696	5,576	313,545	4,418,445	131,160	484,698	78,763	6,007,902
Downtown	1,212,816	1,125,364	4,753,275	1,678	1,029,834	20,919,006	226,543	638,824	413,727	30,321,067
Eastlake-Garfield	833,737	100,073	208,077	31,476	1,083,809	1,934,568	471,850	1,223,408	16,958	5,903,956
Gateway	1,442,020	1,104,068	3,522,135	78,751	864,854	4,189,203	911,371	3,513,815	493,296	16,119,513
I-10 West	1,948,685	807,352	551,108	35,259	273,871	2,194,067	344,937	7,990,521	12,411	14,158,211
Metrocenter	2,880,251	245,647	425,520	76,641	135,015	224,768			3,240	3,991,082
Midtown	1,326,594	831,347	11,642,496	1,138,672	2,820,504	1,566,986		168,631	132,293	19,627,523
North 19th Ave	894,220	738,676	2,403,999	280,263	654,623	791,456		609,980	7,740	6,380,957
Paradise Valley Mall	2,716,317	245,623	606,372	11,547	170,201	114,960			32,222	3,897,242
Solano	1,728,898		521,862	316,228	847,218	257,470		108,557	4,179	3,784,412
South Central	1,826,154	69,475	276,317	459,979	722,327	1,131,744	670,557	3,639,619	26,043	8,822,215
Uptown	1,199,858	96,012	1,266,529	79,157	624,936	1,575,618	3,284	151,296	43,182	5,039,872
TOTAL	25,437,050	6,734,453	41,018,412	2,662,883	15,004,711	43,238,297	2,809,448	19,407,955	1,286,310	157,599,519
	16.1%	4.3%	26.0%	1.7%	9.5%	27.4%	1.8%	12.3%	0.8%	100.0%
Share of City	30.3%	41.7%	51.5%	36.8%	38.0%	44.9%	9.0%	15.8%	20.5%	32.6%

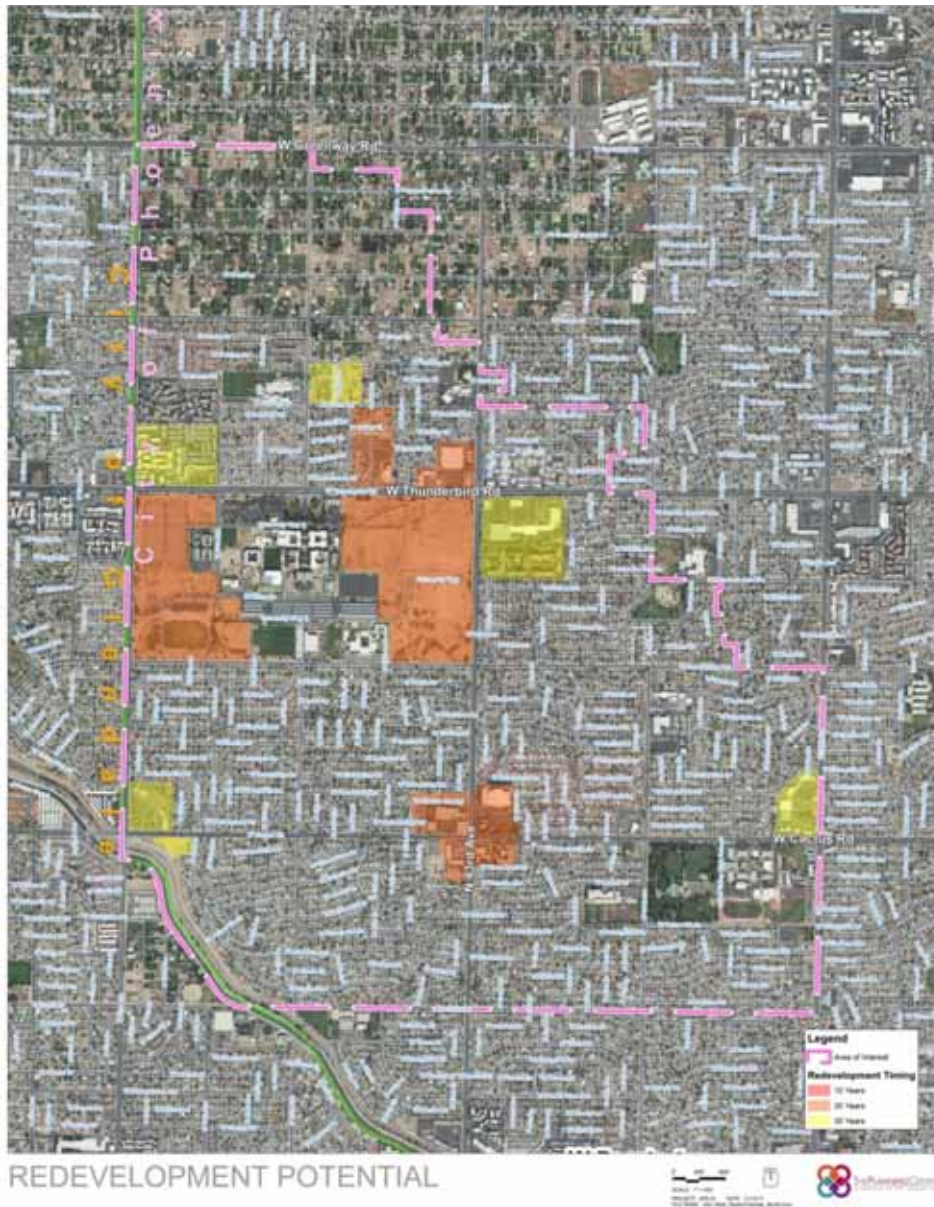
Source: Maricopa County Assessor, 2018 Master File; Applied Economics, 2017.

In addition, parcel data, 2010 census data, 2015 ACS data, current indicators of housing distress and HUD/USPS vacancy rates were gathered for each AOI. The parcel data details (land-use, land and improvement value and age of improvement) also supported the analysis of the redevelopment potential in each AOI.

### 1.4.1 ASU WEST

This area lies between Peoria Avenue and Greenway Road, from 35<sup>th</sup> Avenue to 51<sup>st</sup> Avenue (Map 1-4). ASU's Thunderbird campus is expanding internally, but there is currently no development around it. The single family housing surrounding the site is established and likely will not convert for another 10 years, as demand and expansion of light rail moves to the Glendale area. The large, irrigated lots north of Acoma Drive are established, well kept, and not likely to change. Areas around Thunderbird Road and 43<sup>rd</sup> Avenue may redevelop to similar uses or piecemeal pockets of small single family homes may combine into a new high-density residential product. Roughly 86 percent of the housing inventory in this AOI is single family and the balance is multi-family. Approximately 31 percent of the area's population is minority. Residential indicators of distress are estimated at 1,342 households for 2015, of which about 43 percent were renters.

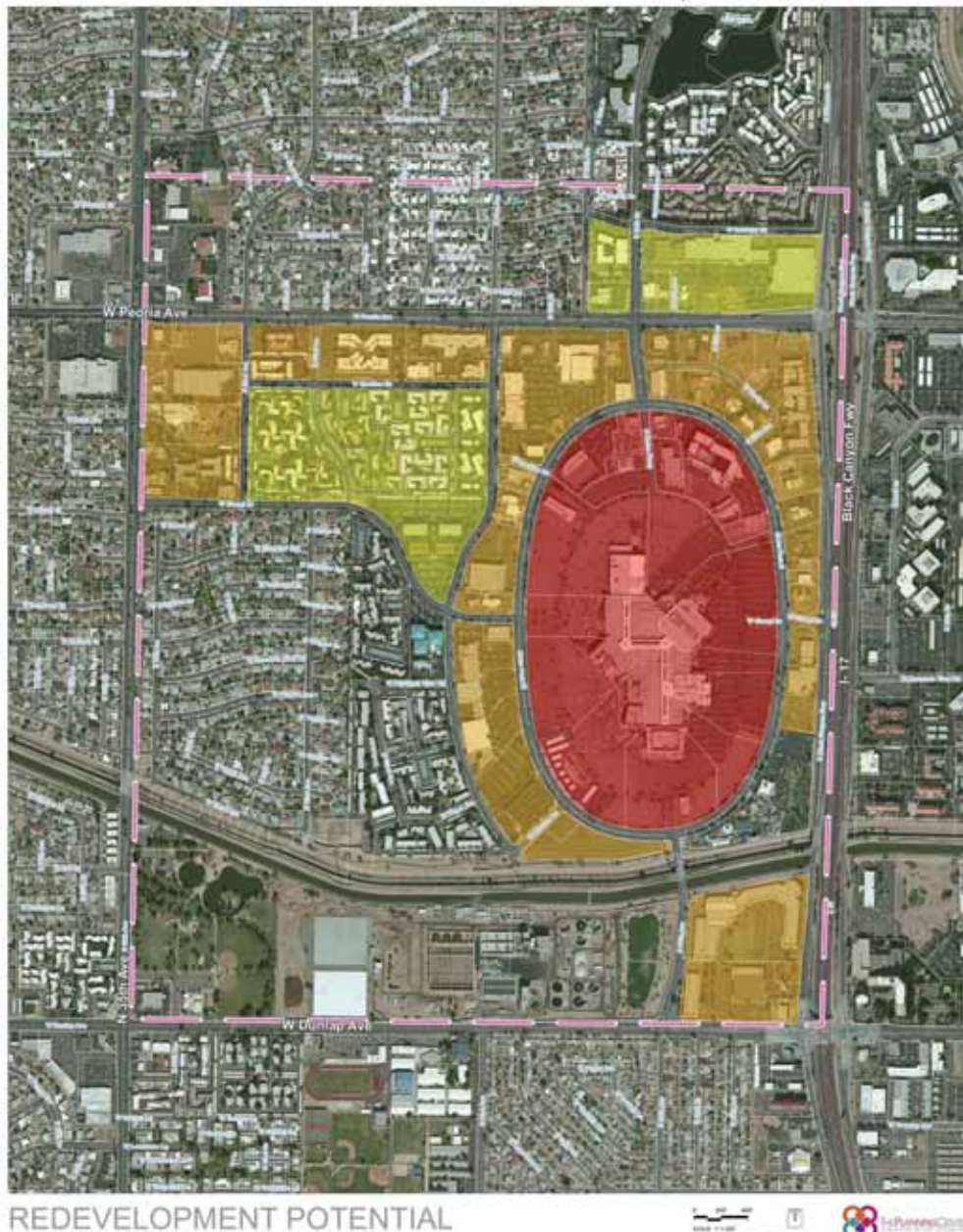
MAP 1-4  
REDEVELOPMENT POTENTIAL IN THE ASU WEST AOI



### 1.4.2 METROCENTER

Located between Peoria and Olive Avenues, from 35<sup>th</sup> Avenue to I-17, this area includes a light rail alignment (Map 1-5). Loop roads are to remain as shown on all future plans. An extension of the light rail into the site on the east side of Cheryl Drive is planned. The area is converting to outdoor mixed-use, with a high-density residential component. Affordable housing with connections to 19<sup>th</sup> Avenue and north is needed in this area. Approximately 25 percent of the AOI's housing inventory is single family and the balance is multi-family; about 43 percent of the area's population is minority. Residential indicators of distress are estimated at 460 households for 2015, of which about 87 percent were renters.

MAP 1-5  
REDEVELOPMENT POTENTIAL IN THE METROCENTER AOI

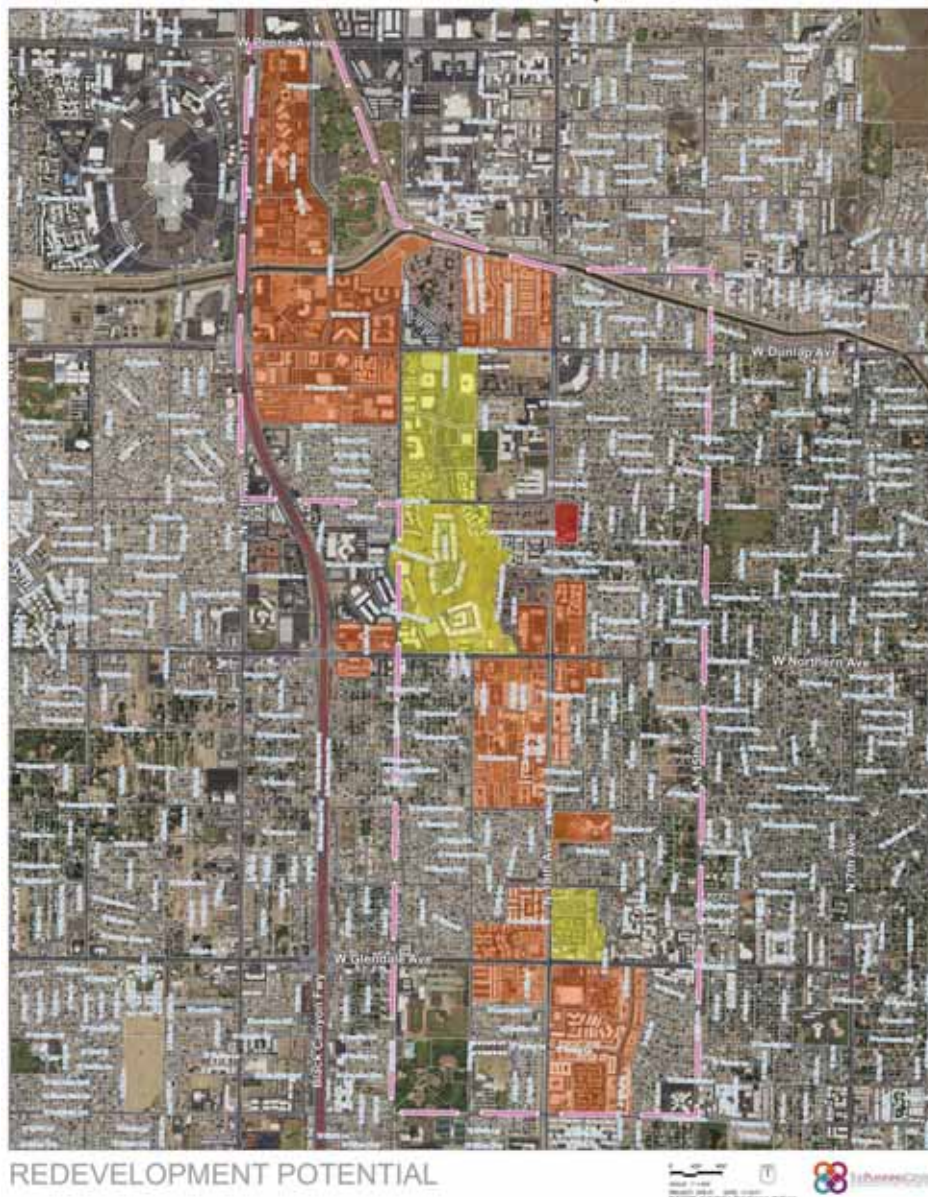




### 1.4.3 NORTH 19<sup>TH</sup> AVENUE

This area is located between Peoria and Maryland Avenues, from 15<sup>th</sup> Avenue to 25<sup>th</sup> Avenue, and includes light rail access along 19<sup>th</sup> Avenue (Map 1-6). The potential light rail extension across the I-17 freeway will likely revitalize the area, allowing for redevelopment and improvements to existing office buildings and new high-density housing. There is potential to revitalize or remove the executive golf course and utilize it for high-density residential. Older developments will likely be acquired and repositioned for higher-density uses that are better suited with the commercial/retail uses along Dunlap Avenue and the mixed-use/office at 19<sup>th</sup> and Northern Avenues. About 30 percent of the housing inventory in this AOI is single family and the balance is multi-family. Roughly 55 percent of the area's population is minority. Residential indicators of distress are estimated at 3,240 households for 2015, of which about 88 percent were renters.

MAP 1-6  
REDEVELOPMENT POTENTIAL IN THE NORTH 19<sup>TH</sup> AVENUE AOI



#### 1.4.4 PARADISE VALLEY MALL

This area lies between Shea Boulevard and Thunderbird Road, from Tatum Boulevard to 40<sup>th</sup> Street (Map 1-7). In the distant future, there is the possibility of bus rapid transit or light rail connecting Tatum Road and Shea Boulevard via the Piastewa Freeway (SR 51). Existing road loops in the area are likely to be kept and the surrounding homes will remain. Some redevelopment and infill activity is anticipated in this area going forward. In the long-term, the mall may be converted into an outdoor/mixed-use development with high-density residential, although PADs for Costco and Target would remain; other PADS with a Tatum frontage may be reutilized or removed and redesigned. Approximately 43 percent of the housing inventory in this area is single family and the balance is multi-family. About 25 percent of the area's population is minority. Residential indicators of distress are estimated at 1,115 households for 2015, of which about 66 percent were renters.

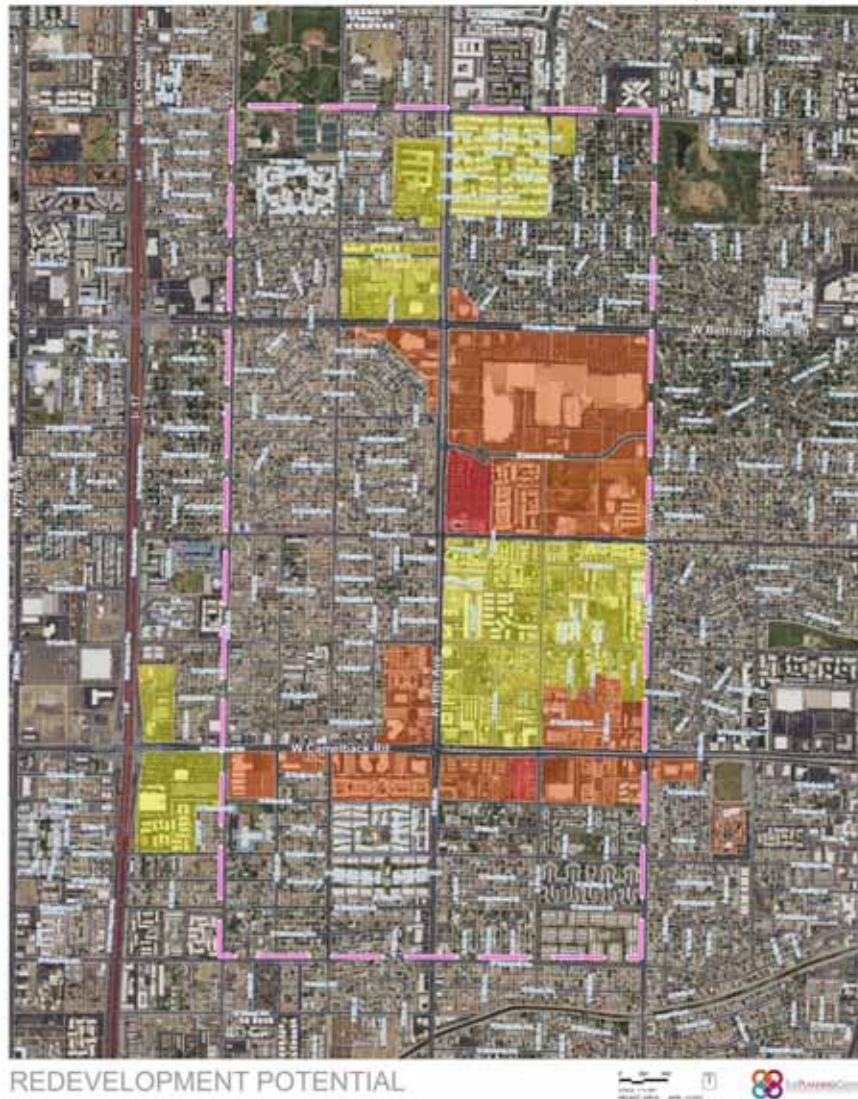
MAP 1-7  
REDEVELOPMENT POTENTIAL IN THE PARADISE VALLEY MALL AOI



### 1.4.5 SOLANO

Bordered by Maryland and Campbell Avenues, from 15<sup>th</sup> Avenue to 25<sup>th</sup> Avenue, this region is due north of the Midtown AOI (Map 1-8). Existing mixed-use development includes Christown Mall and existing office spaces. New developments along Camelback Road include retail, senior living and the Native American Connections affordable housing community at 17<sup>th</sup> Avenue. Additional mixed-use/multi-family development has occurred at Missouri Avenue and 19<sup>th</sup> Avenue. The area north of Bethany Home Road is well established and contains some large lots with irrigation. The high-density Westwood Neighborhood has a high crime rate and is a prime location for reinvestment and revitalizing. The area includes a light rail alignment, which will likely spur some redevelopment and infill activity going forward. About 47 percent of the housing inventory in this AOI is single family and the balance is multi-family. Roughly 66 percent of the area's population is minority. Residential indicators of distress are estimated at 2,133 households for 2015, of which about 88 percent were renters.

MAP 1-8  
REDEVELOPMENT POTENTIAL IN THE SOLANO AOI



### 1.4.6 CAMELBACK EAST

Located between Missouri and Campbell Avenues, from 48<sup>th</sup> Street to 7<sup>th</sup> Street, this AOI is located in the heart of east Phoenix (Map 1-9). Extensive redevelopment and infill activity is anticipated in the area going forward. As an “auto corridor” that is supported by the city, Camelback Road between the Piestewa Freeway and 44<sup>th</sup> Street will continue to see primarily commercial and office uses. There is a multi-family PAD near Marlette Avenue and 7th Street, just north of AOI boundary. The northwest corner of Camelback Road and 44<sup>th</sup> Street will likely be revised as mixed-use with high-density residential and retail uses and a new site plan. Approximately 49 percent of the housing inventory in this AOI is single family and the balance is multi-family. About 32 percent of the area’s population is minority. Residential indicators of distress are estimated at 2,455 households for 2015, of which about 58 percent were renters.

MAP 1-9  
REDEVELOPMENT POTENTIAL IN THE CAMELBACK EAST AOI



REDEVELOPMENT POTENTIAL





### 1.4.8 UPTOWN

Contained within the area bordered by Missouri Avenue and Indian School Road, from 15<sup>th</sup> Avenue to 7<sup>th</sup> Street, this area contains light rail access and offers residents an easy commute to downtown Phoenix (Map 1-11). Extensive redevelopment and infill activity is anticipated going forward. Increased rezoning for high-density residential and the Walkable Urban Code is occurring along 7<sup>th</sup> Street and 3<sup>rd</sup> Street. The current 2-story building limit that exists in most of the area may be revised up to 4 stories in the future. The Camelback Walkable Urban Code extends to 19<sup>th</sup> Avenue and further to I-17 in long-term goals. SRP is coordinating the Grand Canal Scape design project to improve interaction and access along the canal. This AOI contains pockets of vacant land and lots that are optimal for combining to create communities with higher-density and increase property values. A site at Central Avenue and Indian School Road will likely be developed as multi-family. About 52 percent of the housing inventory in this AOI is single family and the balance is multi-family. Roughly 35 percent of the area's population is minority. Residential indicators of distress are estimated at 1,200 households for 2015, of which about 76 percent were renters.

MAP 1-11  
REDEVELOPMENT POTENTIAL IN THE UPTOWN AOI



#### 1.4.9 MIDTOWN

Located between I-10 and Indian School Road, from 7<sup>th</sup> Avenue to 7<sup>th</sup> Street, this area is due north of downtown Phoenix and is a major employment hub that contains light rail access (Map 1-12). Continued mixed-use development and increased densities are expected along 3<sup>rd</sup> and 7<sup>th</sup> Streets, north of the Deck Park Tunnel. Developers are looking to increase the building height along the freeway corridor from 75 feet to 250 feet; while some increases have been approved, requests in areas adjacent to historic neighborhoods with high values are contentious. Development along Central Avenue will likely remain residential with some mixed-use. The proposed redevelopment of Park Central Mall would include tech office, retail and mixed-use around the site. Extensive redevelopment and infill is anticipated along 3<sup>rd</sup> Street, between Earll Drive and Flower Street, which is currently mixed-use and multi-family. Roughly 32 percent of the housing inventory in this AOI is single family and the balance is multi-family. About 34 percent of the area's population is minority. Residential indicators of distress are estimated at 1,571 households for 2015, of which about 73 percent were renters.

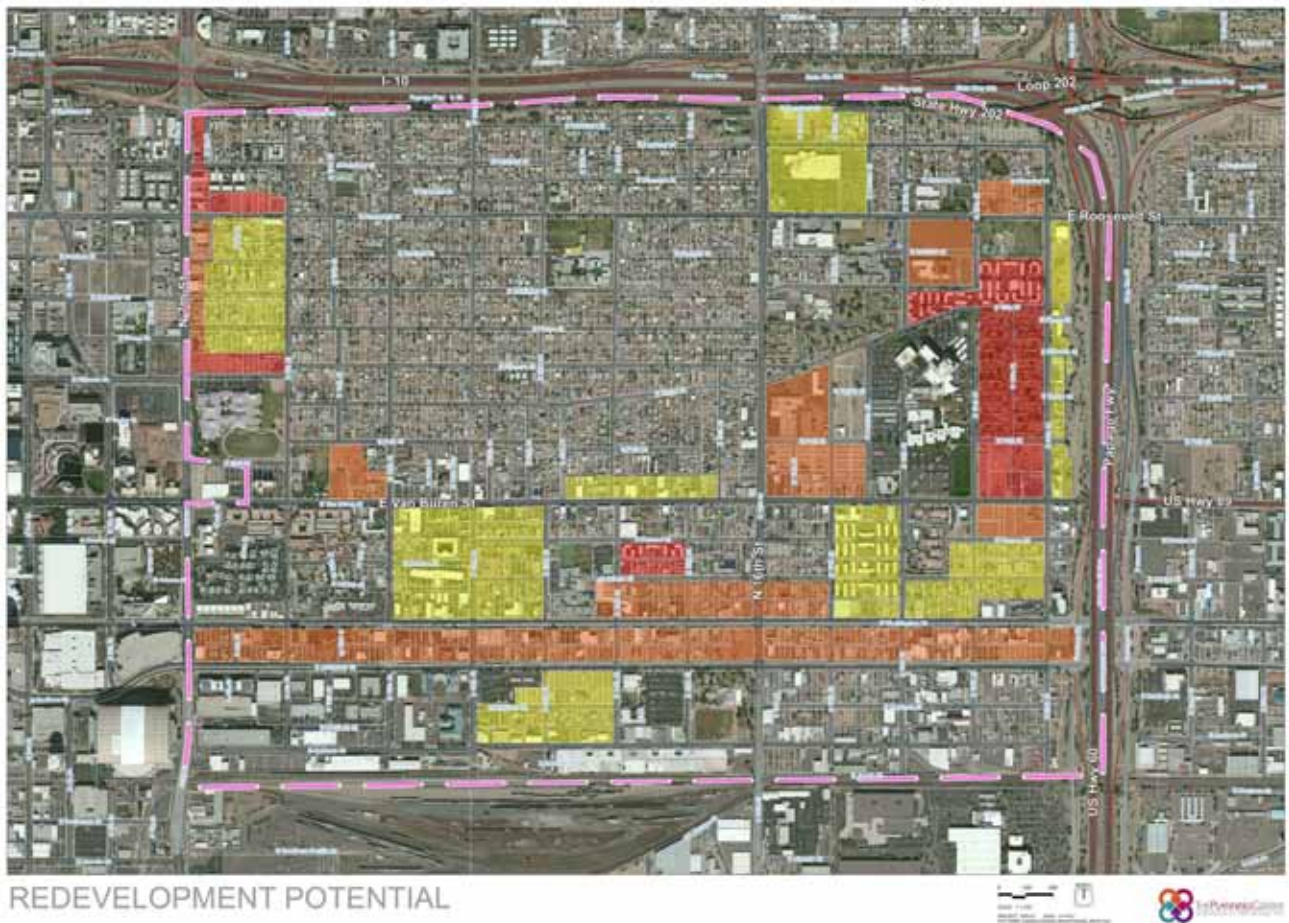
MAP 1-12  
REDEVELOPMENT POTENTIAL IN THE MIDTOWN AOI



#### 1.4.10 EASTLAKE-GARFIELD

Due east of the Phoenix Downtown Redevelopment Area, this region represents an extension of downtown (Map 1-13). Within the last 10 years, substantial redevelopment has occurred and much more is expected. A significant amount of public housing is situated in Garfield, where gentrification is also expected to continue. Most of the rezoning cases here are to allow for increased density and height on east side of the AOI. Areas north of Van Buren Street and east of 16<sup>th</sup> Street contain workforce housing and not market rate housing. New development is typically high-density residential with small parks or markets. Members of the Garfield community are very active and some areas will likely require historic designation in order to maintain the character of the community. Areas south of Van Buren Street, between 16<sup>th</sup> Street and 7<sup>th</sup> Street, offer prime locations for redevelopment, but there is little interest currently. There are high-benefit areas that are close to light rail stops and the freeway and some city-owned property that is being offered for development. About 46 percent of the AOI's housing inventory is single family and the balance is multi-family. Approximately 80 percent of the area's population is minority. Residential indicators of distress are estimated at 1,456 households for 2015, of which about 70 percent were renters.

MAP 1-13  
REDEVELOPMENT POTENTIAL IN THE EASTLAKE-GARFIELD AOI





### 1.4.11 44<sup>TH</sup> STREET

Contained within the area bordered by Campbell Avenue and McDowell Road, between 40<sup>th</sup> Street and 48<sup>th</sup> Street, this region includes the southern portion of the Arcadia neighborhood (Map 1-14). This AOI is primarily a mix of residential and office. There have been a lot of residential to office conversions along 44<sup>th</sup> Street, while maintaining the residential building adjacent to the arterials. Residents in this community are active and scrutinize new development; they typically demand high quality development. The core of this area is focused at Thomas Road and 44<sup>th</sup> Street, and this is likely the area from which redevelopment or increased development will expand. Roughly 50 percent of the inventory in this AOI is single family and the balance is multi-family. Over 50 percent of the area's population is minority. Residential indicators of distress are estimated at 2,142 households for 2015, of which about 80 percent were renters.

MAP 1-14  
REDEVELOPMENT POTENTIAL IN THE 44<sup>TH</sup> STREET AOI



### 1.4.12 I-10 WEST

Located within the area between Van Buren Street and McDowell Road, from 33<sup>rd</sup> Avenue to 83<sup>rd</sup> Avenue, this area will ultimately include a light rail alignment originating in downtown Phoenix (Map 1-15). In the short-term, high density infill development is likely along the I-10 freeway in vacant parcels, while redevelopment of the warehouse and industrial uses will occur over the next 20 to 30 years. On the north side of I-10, hotels/motels and convenience stores will likely need retrofitting as they deteriorate; more affordable, high-density housing options are needed to provide a workforce for the area south of the freeway. This area will become more appealing as development of the light rail extension branches out to the west valley. About 58 percent of the housing inventory in this AOI is single family and the balance is multi-family. The majority of the area's population (92 percent) is minority. Residential indicators of distress are estimated at 8,257 households for 2015, of which about 75 percent were renters.

MAP 1-15  
REDEVELOPMENT POTENTIAL IN THE I-10 WEST AOI



### 1.4.13 CAPITAL MALL

Contained within the area bordered by Grant and Roosevelt Streets, from 7<sup>th</sup> Avenue to I-17, this area is a governmental employment hub; the area will ultimately include light rail access, therefore, extensive redevelopment is likely to occur (Map 1-16). The extension of the light rail to the capitol will likely spur development on the area's west side. Industrial development along the rail line will continue, although improvements and reinvestment will likely stay to the north, along 7th Avenue and Grand Avenue as it cuts at Van Buren Street. There has been a recent increase in the number of cafes and small retail stores along Grand Avenue, north of Van Buren Street, and reinvestment in hotels and apartments. About 45 percent of the housing inventory in this AOI is single family and the balance is multi-family. Roughly 85 percent of the area's population is minority. Residential indicators of distress are estimated at 1,172 households for 2015, of which about 91 percent were renters.

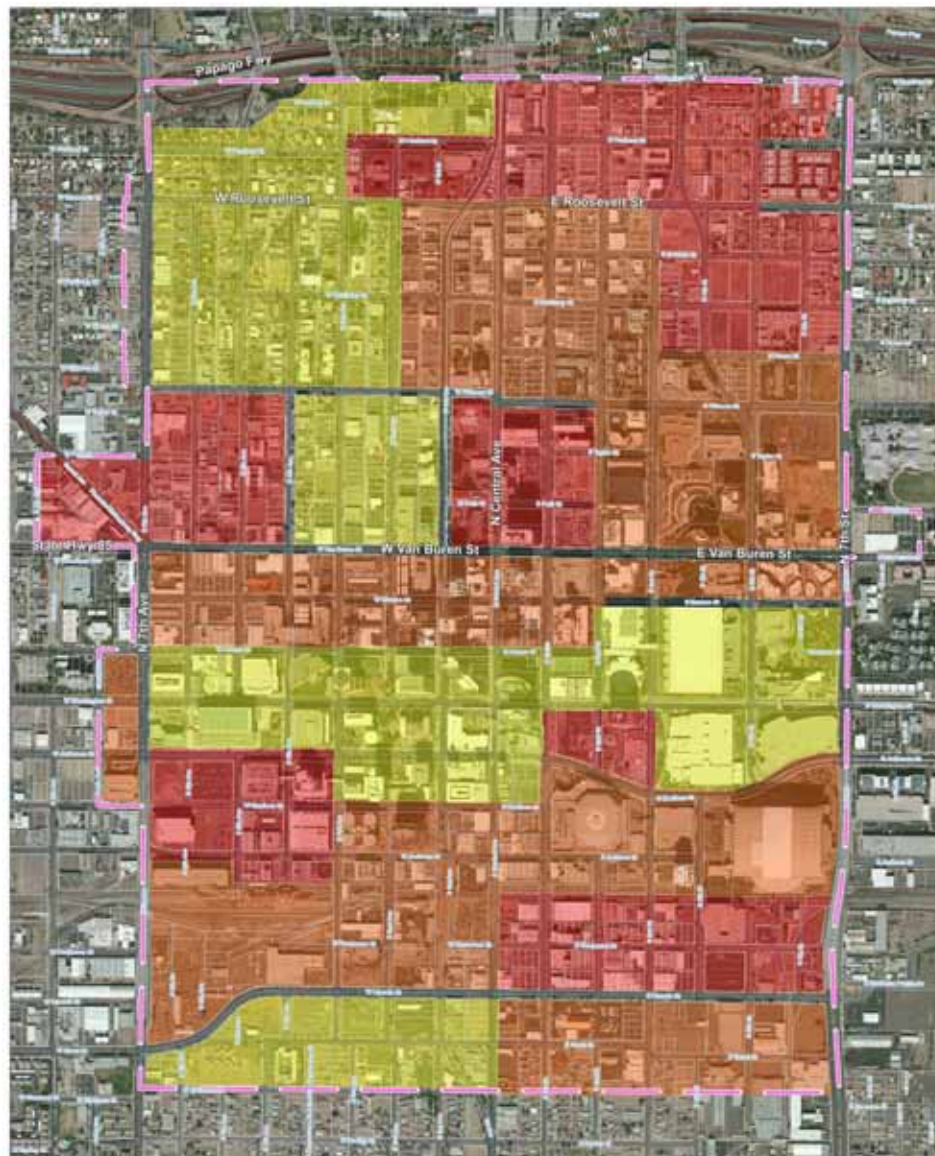
MAP 1-16  
REDEVELOPMENT POTENTIAL IN THE CAPITAL MALL AOI



#### 1.4.14 DOWNTOWN

Located between Grant Street and McDowell Road, from 7<sup>th</sup> Avenue to 7<sup>th</sup> Street, this region offers light rail access, numerous sports/entertainment facilities and is a university, healthcare and governmental employment hub (Map 1-17). Extensive gentrification has occurred in the area, which is expected to continue in the future. Continued growth of high-density, mixed-use projects, especially along rail corridors, is expected. There are parcels of city-owned land in this AOI that are for sale. Developers are requesting increased heights and densities, along with variety mixed-uses; the city will not approve a single use of high-density residential for apartments any longer in order to encourage the downtown growth and the Walkable Code. Roughly 14 percent of the housing inventory in this AOI is single family and the balance is multi-family. About 58 percent of the area's population is minority. Residential indicators of distress are estimated at 701 households for 2015, of which about 90 percent were renters.

MAP 1-17  
REDEVELOPMENT POTENTIAL IN THE DOWNTOWN AOI



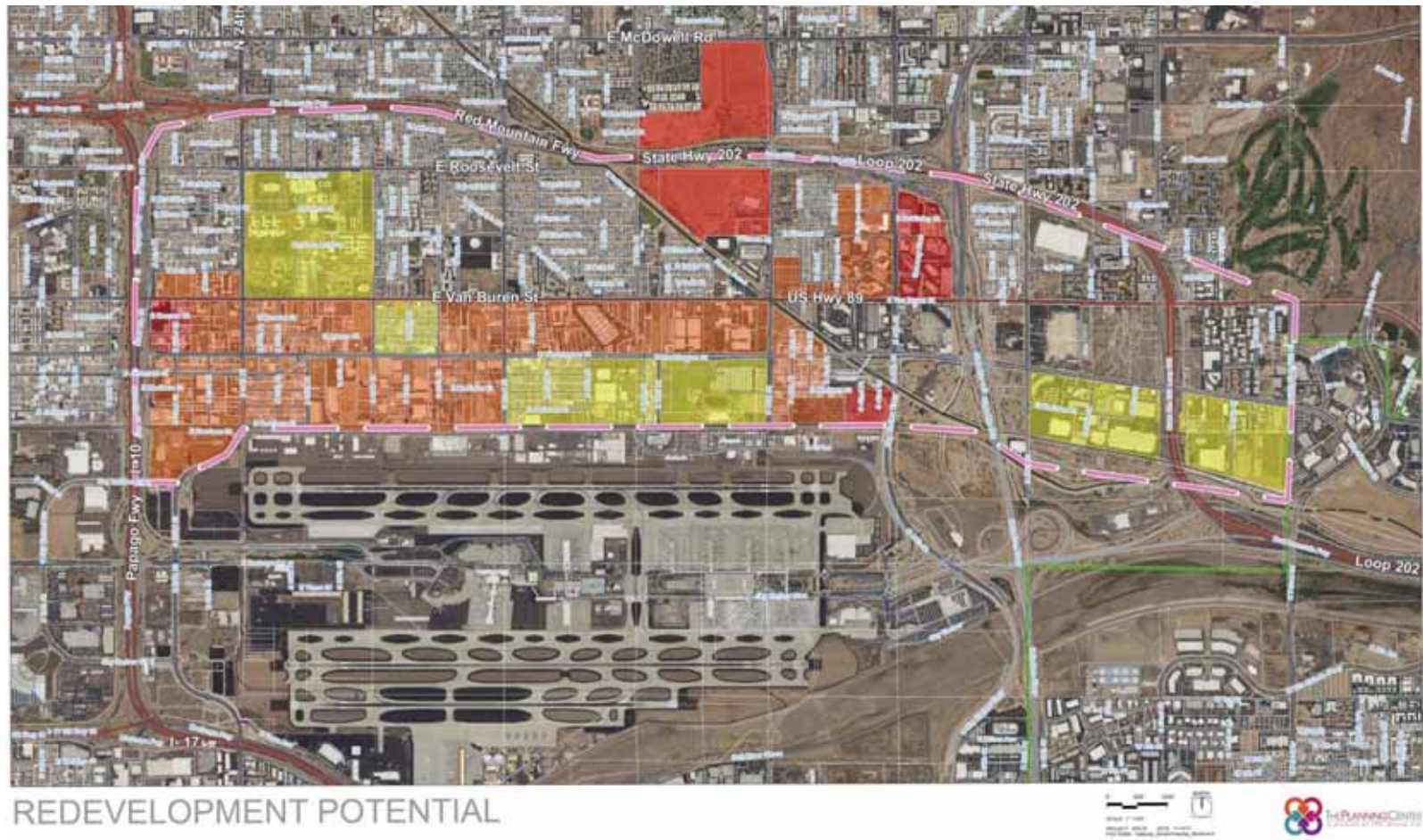
REDEVELOPMENT POTENTIAL



### 1.4.15 GATEWAY

Contained within the area bordered by I-10 and Grant Road, from 24<sup>th</sup> Street to Priest Drive, this region includes the area near Phoenix Sky Harbor Airport (Map 1-18). About 86 percent of the housing inventory in this area is single family and the balance is multi-family. Roughly 31 percent of the area's population is minority. Residential indicators of distress are estimated at 1,845 households for 2015, of which about 76 percent were renters.

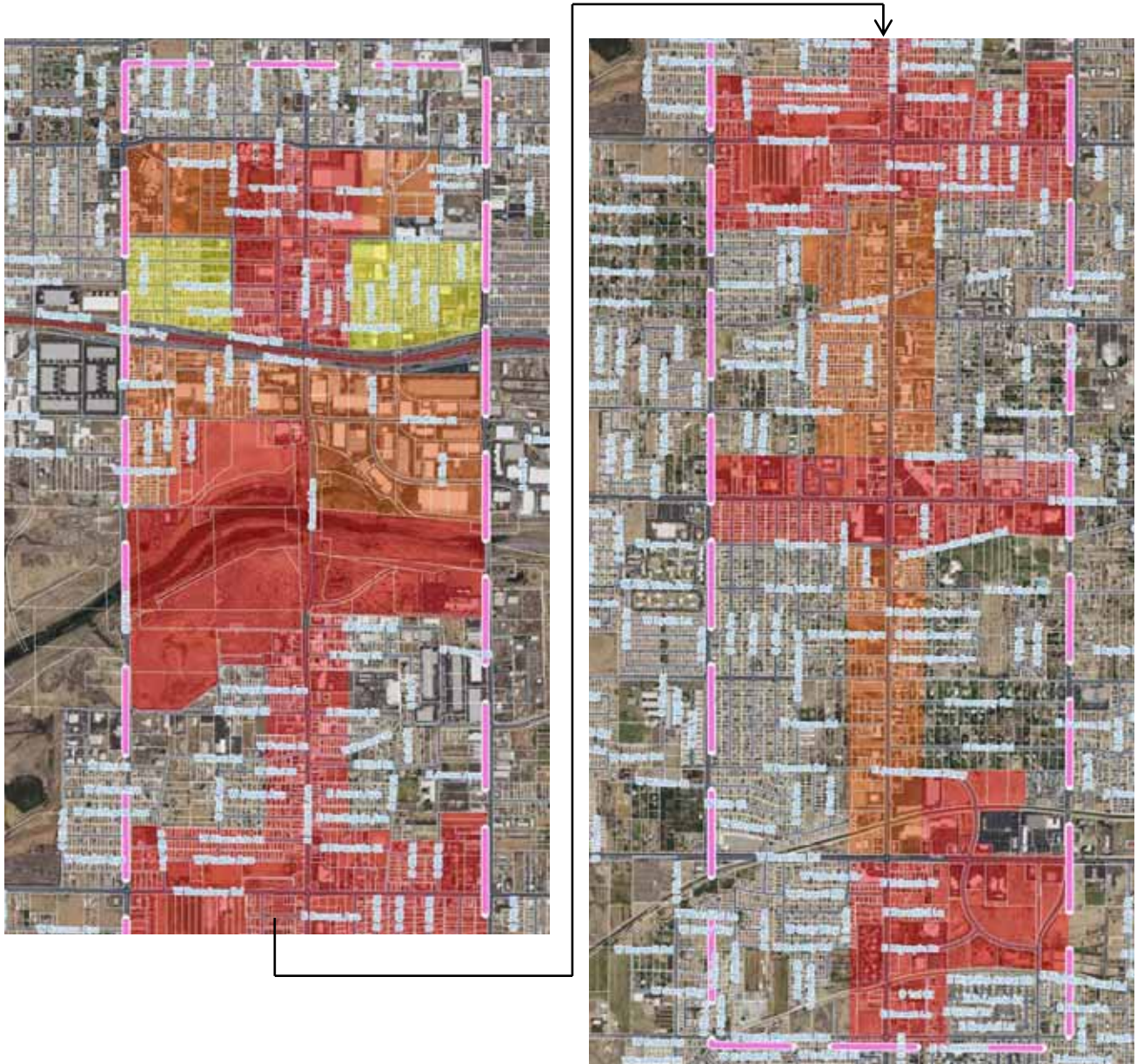
MAP 1-18  
REDEVELOPMENT POTENTIAL IN THE GATEWAY AOI



### 1.4.16 SOUTH CENTRAL

Located between Grant Street and Baseline Road, from 7<sup>th</sup> Avenue to 7<sup>th</sup> Street, this region includes a light rail alignment along Central Avenue which has resulted in, and will continue to expedite, redevelopment in the area (Map 1-19). An extension of the light rail down Central Avenue, with five stops south of the river, is planned for 2019. The new light rail stops are: The Audubon Center south of the river, Broadway Road, Rouser, Southern and Baseline Road. Additional Park and Ride locations will be located at Baseline and Broadway Roads. Additional multi-family development along Central Avenue is likely; in fact, a new mixed-use, multi-family project with an education component is in the works just south of the river on Central Avenue.

MAP 1-19  
REDEVELOPMENT POTENTIAL IN THE SOUTH CENTRAL AOI



Although much of area south of river is in disrepair, technology companies and data center operators are interested in the area along the light rail corridor and north of the river. The AOI contains a few scattered areas with large-lot residences and established irrigated lots (such as south of Broadway between 7<sup>th</sup> Avenue and 15<sup>th</sup> Avenue and south of Vineyard between Central Avenue and 7th Street). There is also some development interest south of Fremont Road and north of South Mountain Avenue. About 66 percent of the housing inventory in this AOI is single family and the balance is multi-family. About 90 percent of the area's population is minority. Residential indicators of distress are estimated at 1,752 households for 2015, of which about 67 percent were renters.

## 1.5 REGIONAL DEMOGRAPHIC AND ECONOMIC TRENDS

The final component of the Task 1 data collection effort was focused on regional trends. This work provided additional insight into the baseline projections for the region by examining major demographic and economic trends.

### 1.5.1 DEMOGRAPHIC TRENDS

A variety of demographic trends for the county and metro area were used to guide the small area population projections for the City of Phoenix. The information on demographic trends includes population by age, fertility rates, migration patterns, and seasonal and retiree population totals. Although most of the information is not available below the county level, the City of Phoenix comprises close to 40 percent of the county population.

#### 1.5.1.1 Population by Age

The data on population by age is from the state demographer and is published by the Arizona Office of Economic Opportunity. The information presented here includes historical data for 2010 and 2016 and projections through 2050, with a base year of 2015. In both cases, data for the United States is also included for comparative purposes.

As the Baby Boomer generation (persons born in approximately 1945 through 1965) ages, older cohorts will make up a larger share of the total population. This is true both nationally and in Arizona. Currently, 14.6 percent of the population in Maricopa County is 65 or older, compared to 11.7 percent of the county population in 2000 (Table 1-15). Nationally, about 15.2 percent of the population is 65 and older, compared to 12.4 percent in 2000. Thus, despite popular perceptions about Maricopa County being a retirement area, the share of the population 65 and older is actually slightly below the national average, but it is increasing at about the same rate.

Projections of population by age through 2050 are available from the U.S. Census Bureau for the nation as a whole, and from the state demographer for Maricopa County. As the Baby Boomer generation reaches retirement age, which is now just beginning to happen, the share of the population 65 and over in Maricopa County is expected to grow to 21.0 percent by 2050 (Table 1-16). By that time, the youngest of the Baby Boomers will be in their mid-eighties. The aging of this large generation is supplemented by the fact that life expectancies will continue to increase, and so the share of population 85 and older, while still less than five percent, will be two and a half times larger than it is now. The population under 20 in Maricopa County is projected to decline slightly, from 28.2 percent of the total in 2015 to 24.1 percent in 2050, due primarily to slight declines in long-term birth rates.



**TABLE 1-15  
POPULATION BY AGE – MARICOPA COUNTY AND THE UNITED STATES  
2000 TO 2016**

Year	Total	0 to 4	5 to 9	10 to 14	15 to 19	20 to 24	25 to 29	30 to 34	35 to 39	40 to 44	45 to 49	50 to 54	55 to 59	60 to 64	65 to 69	70 to 74	75 to 79	80 to 84	85+
<b>Maricopa County</b>																			
<b>Population by Age</b>																			
2000	3,071,419	241,991	199,244	211,099	214,899	224,449	248,899	241,649	247,899	228,291	194,919	171,949	159,910	137,909	97,909	91,971	79,979	91,979	40,191
2010	3,817,117	181,770	181,709	177,219	178,899	208,971	178,704	204,421	189,999	199,819	201,909	241,499	209,481	199,949	148,179	109,219	84,109	89,991	99,094
2016	4,341,997	181,799	189,990	199,099	209,909	299,900	917,119	291,974	181,011	199,919	178,011	147,999	197,999	214,909	209,171	199,499	109,919	79,990	79,101
<b>Share of Total Population</b>																			
2000	100.0%	7.9%	6.5%	7.1%	7.0%	7.3%	8.0%	7.9%	8.1%	7.4%	6.3%	5.6%	5.2%	4.5%	3.2%	3.0%	2.6%	3.0%	1.3%
2010	100.0%	4.8%	4.8%	4.6%	4.7%	5.5%	4.7%	5.2%	5.0%	5.2%	4.7%	6.3%	5.5%	5.2%	3.9%	2.9%	2.3%	2.3%	2.6%
2016	100.0%	4.3%	4.4%	4.6%	4.8%	6.9%	21.1%	4.4%	4.2%	4.1%	4.1%	3.4%	4.6%	5.0%	4.6%	2.5%	2.3%	1.8%	1.8%
<b>United States</b>																			
<b>Population by Age</b>																			
2000	291,411,909	19,179,799	20,949,909	20,919,071	20,219,970	19,994,001	19,991,999	20,910,999	21,709,994	21,441,999	20,091,404	17,999,909	19,499,297	10,909,447	9,999,909	8,997,441	7,419,919	4,999,997	4,299,997
2010	309,749,999	12,101,991	12,949,997	12,977,194	12,040,949	11,999,999	11,101,949	19,991,999	20,179,941	20,990,994	21,709,991	21,299,129	19,994,909	18,917,914	12,999,299	9,179,199	7,917,779	5,749,917	5,499,499
2016	329,117,919	15,917,097	15,419,779	15,819,299	11,129,979	11,991,029	11,990,994	11,799,999	10,779,909	19,994,191	20,947,921	21,999,099	21,990,109	19,999,099	18,920,099	11,910,247	8,997,999	5,999,999	6,990,991
<b>Share of Total Population</b>																			
2000	100.0%	6.6%	7.2%	7.0%	6.9%	6.8%	7.0%	7.3%	7.4%	7.2%	6.2%	6.3%	6.7%	3.8%	3.4%	2.8%	2.6%	1.7%	1.5%
2010	100.0%	3.9%	4.2%	4.2%	3.6%	3.7%	3.6%	6.2%	6.5%	6.5%	6.8%	6.4%	6.4%	4.0%	3.0%	2.4%	1.8%	1.8%	1.8%
2016	100.0%	4.8%	4.6%	4.8%	3.5%	3.7%	3.6%	3.6%	3.3%	6.1%	6.4%	6.7%	6.7%	6.0%	5.7%	3.6%	2.8%	1.8%	2.0%

Source: Bureau of the Census, County Population by Characteristics Database 2010-2016; 2000 Census.

**TABLE 1-16**  
**PROJECTED POPULATION BY AGE – MARICOPA COUNTY**  
**2015 TO 2050**

Year	Total	0 to 4	5 to 9	10 to 14	15 to 19	20 to 24	25 to 29	30 to 34	35 to 39	40 to 44	45 to 49	50 to 54	55 to 59	60 to 64	65 to 69	70 to 74	75 to 79	80 to 84	85+
2015	4,076,438	273,769	288,798	291,214	296,929	298,298	271,514	284,446	269,737	268,851	260,642	262,181	242,583	208,454	188,167	137,969	96,132	67,710	69,045
2020	4,480,899	296,324	285,813	305,173	322,450	328,431	313,663	287,659	296,844	279,379	278,378	269,554	272,125	253,343	217,206	185,615	125,970	81,554	81,421
2025	4,885,981	321,957	308,248	301,374	338,435	353,754	344,369	330,787	299,807	306,089	287,851	286,290	278,119	282,501	262,173	213,012	167,316	105,340	98,560
2030	5,280,059	345,193	334,689	324,667	334,222	367,109	368,505	361,914	343,259	309,131	314,554	295,077	293,859	286,561	289,751	255,694	192,129	139,833	123,914
2035	5,665,917	360,058	358,506	352,252	359,040	363,564	383,708	388,603	376,335	353,127	317,304	321,677	302,059	301,709	292,977	281,780	230,315	160,579	162,324
2040	6,030,950	370,538	373,215	376,050	387,042	388,607	380,979	404,581	404,028	387,102	361,470	323,599	328,044	308,608	306,635	284,719	253,877	192,635	199,220
2045	6,371,650	381,771	383,686	390,412	410,412	416,341	405,412	401,377	419,559	414,564	395,169	367,288	328,887	333,818	312,227	297,044	257,567	213,129	242,989
2050	6,698,376	396,660	395,026	400,622	424,219	439,496	432,770	425,454	416,356	429,944	422,335	400,543	371,818	333,503	336,462	302,641	269,419	217,557	283,551
2015	100.0%	6.7%	7.1%	7.1%	7.3%	7.3%	6.7%	7.0%	6.6%	6.6%	6.4%	6.4%	6.0%	5.1%	4.6%	3.4%	2.4%	1.7%	1.7%
2020	100.0%	6.6%	6.4%	6.8%	7.2%	7.3%	7.0%	6.4%	6.6%	6.2%	6.2%	6.0%	6.1%	5.7%	4.8%	4.1%	2.8%	1.8%	1.8%
2025	100.0%	6.6%	6.3%	6.2%	6.9%	7.2%	7.0%	6.8%	6.1%	6.3%	5.9%	5.9%	5.7%	5.8%	5.4%	4.4%	3.4%	2.2%	2.0%
2030	100.0%	6.5%	6.3%	6.1%	6.3%	7.0%	7.0%	6.9%	6.5%	5.9%	6.0%	5.6%	5.6%	5.4%	5.5%	4.8%	3.6%	2.6%	2.3%
2035	100.0%	6.4%	6.3%	6.2%	6.3%	6.4%	6.8%	6.9%	6.6%	6.2%	5.6%	5.7%	5.3%	5.3%	5.2%	5.0%	4.1%	2.8%	2.9%
2040	100.0%	6.1%	6.2%	6.2%	6.4%	6.4%	6.3%	6.7%	6.7%	6.4%	6.0%	5.4%	5.4%	5.1%	5.1%	4.7%	4.2%	3.2%	3.3%
2045	100.0%	6.0%	6.0%	6.1%	6.4%	6.5%	6.4%	6.3%	6.6%	6.5%	6.2%	5.8%	5.2%	5.2%	4.9%	4.7%	4.0%	3.3%	3.8%
2050	100.0%	5.9%	5.9%	6.0%	6.3%	6.6%	6.5%	6.4%	6.2%	6.4%	6.3%	6.0%	5.6%	5.0%	5.0%	4.5%	4.0%	3.2%	4.2%

Arizona Department of Administration, Office of Employment & Population Statistics, 12/11/2015

On a national level, the share of population over 65 years of age was estimated at 14.9 percent in 2015 and it is expected to increase to 22.1 percent by 2050 (Table 1-17). Although the starting level is higher nationally than in Maricopa County, the amount of increase over time is about the same. At the same time, the share of population under 20, which was estimated at 25.6 percent of the total in 2015, is projected to decrease to 22.3 percent by 2050. Compared to Maricopa County, this represents a smaller share of the population under age 20 currently, and a smaller reduction over time. Nationally, the share of population under 20 and over 65 will be approximately equal by 2050, whereas in Maricopa County the under 20 population will still be slightly larger than the over 65 population by 2050.

**TABLE 1-17**  
**PROJECTED POPULATION BY AGE – UNITED STATES**  
**2015 TO 2050**

Year	Total	0 to 4	5 to 9	10 to 14	15 to 19	20 to 24	25 to 29	30 to 34	35 to 39	40 to 44	45 to 49	50 to 54	55 to 59	60 to 64	65 to 69	70 to 74	75 to 79	80 to 84	85+
2015	321,369	19,965	20,463	20,590	21,092	22,740	22,473	21,659	20,346	20,178	20,817	22,312	21,811	19,093	16,094	11,500	8,126	5,806	6,304
2020	334,505	20,568	20,274	20,735	21,048	22,059	23,722	23,168	22,060	20,568	20,204	20,638	21,879	21,141	18,194	14,882	10,112	6,527	6,726
2025	438,413	21,010	20,889	20,555	21,219	22,077	23,103	24,450	23,586	22,291	20,613	20,063	20,294	21,265	20,202	16,891	13,154	8,191	98,560
2030	359,402	21,178	21,347	21,182	21,060	22,299	23,179	23,878	24,898	23,840	22,351	20,506	19,777	19,799	20,397	18,830	15,013	10,737	9,131
2035	370,336	21,268	21,529	21,650	21,706	22,183	23,450	23,995	24,360	25,176	23,919	22,257	20,260	19,351	19,071	19,091	16,819	12,343	11,908
2040	380,221	21,471	21,632	21,842	22,190	22,866	23,377	24,302	24,507	24,668	25,274	23,844	22,023	19,880	18,704	17,940	17,143	13,924	14,634
2045	389,396	21,775	21,845	21,952	22,395	23,383	24,098	24,259	24,838	24,840	24,798	25,219	23,629	21,653	19,283	17,664	16,212	14,294	17,259
2050	398,329	22,147	22,158	22,171	22,516	23,615	24,646	25,004	24,813	25,190	24,995	24,781	25,023	23,275	21,054	18,294	16,042	13,634	18,971
2015	100.0%	6.2%	6.4%	6.4%	6.6%	7.1%	7.0%	6.7%	6.3%	6.3%	6.5%	6.9%	6.8%	5.9%	5.0%	3.6%	2.5%	1.8%	2.0%
2020	100.0%	6.1%	6.1%	6.2%	6.3%	6.6%	7.1%	6.9%	6.6%	6.1%	6.0%	6.2%	6.5%	6.3%	5.4%	4.4%	3.0%	2.0%	2.0%
2025	100.0%	4.8%	4.8%	4.7%	4.8%	5.0%	5.3%	5.6%	5.4%	5.1%	4.7%	4.6%	4.6%	4.9%	4.6%	3.9%	3.0%	1.9%	22.5%
2030	100.0%	5.9%	5.9%	5.9%	5.9%	6.2%	6.4%	6.6%	6.9%	6.6%	6.2%	5.7%	5.5%	5.5%	5.7%	5.2%	4.2%	3.0%	2.5%
2035	100.0%	5.7%	5.8%	5.8%	5.9%	6.0%	6.3%	6.5%	6.6%	6.8%	6.5%	6.0%	5.5%	5.2%	5.1%	5.2%	4.5%	3.3%	3.2%
2040	100.0%	5.6%	5.7%	5.7%	5.8%	6.0%	6.1%	6.4%	6.4%	6.5%	6.6%	6.3%	5.8%	5.2%	4.9%	4.7%	4.5%	3.7%	3.8%
2045	100.0%	5.6%	5.6%	5.6%	5.8%	6.0%	6.2%	6.2%	6.4%	6.4%	6.4%	6.5%	6.1%	5.6%	5.0%	4.5%	4.2%	3.7%	4.4%
2050	100.0%	5.6%	5.6%	5.6%	5.7%	5.9%	6.2%	6.3%	6.2%	6.3%	6.3%	6.2%	6.3%	5.8%	5.3%	4.6%	4.0%	3.4%	4.8%

Bureau of the Census, 2014 National Population Projections, December 2014.

### 1.5.1.2 Fertility Rates

Historic and projected fertility rates are one of the driving factors behind the changing age structure of the population. The fertility rate is defined as the number of births in a given year divided by the population aged 15 to 45 years. Maricopa County experienced a significant decline in fertility rates during the recession, as unstable housing and employment situations discouraged families from having children, and because of the impacts of SB1070 on immigration. The fertility rate in Maricopa County dropped from a peak of 4.15 percent in 2006 to a low of 3.23 percent in 2013. However, as the economy began to recover, fertility rates returned to more normal, long-term levels of around 3.31 percent by 2015 (Table 1-18).

Based on projections from the state demographer, long-term fertility rates are projected to remain around 3.3 percent or higher through 2032, and then decline gradually through the remainder of the period. By 2050, fertility rates in Maricopa County are projected to be about 3.11 percent. Based on projections from the U.S. Census Bureau, national fertility rates are projected to decline slightly as well; however, the national decline is projected to begin earlier, around 2020, before stabilizing at a rate of about 3.0 percent by 2035.

**TABLE 1-18  
HISTORIC AND PROJECTED FERTILITY RATES-MARICOPA COUNTY**

Year	Births	Population Age 15-44	Fertility Rate
2005	62,232	1,556,365	4.00%
2006	66,160	1,594,282	4.15%
2007	65,931	1,610,747	4.09%
2008	62,667	1,621,666	3.86%
2009	57,663	1,620,260	3.56%
2010	54,229	1,609,802	3.37%
2011	53,361	1,622,271	3.29%
2012	54,475	1,645,184	3.31%
2013	53,848	1,668,088	3.23%
2014	55,285	1,691,545	3.27%
2015	56,002	1,689,775	3.31%
2016	56,294	1,712,967	3.29%
2017	57,257	1,738,742	3.29%
2018	58,274	1,768,357	3.30%
2019	59,323	1,800,028	3.30%
2020	60,383	1,828,424	3.30%
2025	65,682	1,973,241	3.33%
2030	69,633	2,084,139	3.34%
2035	72,123	2,224,377	3.24%
2040	74,148	2,352,339	3.15%
2045	76,638	2,467,665	3.11%
2050	79,904	2,568,239	3.11%

Source: Arizona Department of Administration, Office of Employment & Population Statistics, 12/11/2015; Arizona Department of Health Services (2005 to 2014).

### 1.5.1.3 Migration Patterns

In-migration typically accounts for over 60 percent of population growth in Maricopa County. During the past recession, in-migration all but ceased due to a combination of poor economic conditions and reduced mobility due to national declines in housing prices. In addition, with the passage of SB1070 in 2010, an estimated 200,000 undocumented immigrants left the state.<sup>1</sup> However, by 2011 in-migration slowly began to rise and by 2015 it had stabilized, according to estimates from the state demographer.

According to the Statistics of Income data from the Internal Revenue Service, about 20 percent of in-migration to Maricopa County over the past 10 years has been from within Arizona, an average of 79 percent has been from other states and 1 percent has been from foreign countries (Table 1-19); note that these figures are based on the number of exemptions from tax returns filed by residents in Maricopa County rather than actual population counts. The IRS data indicates lower levels of foreign migration than do estimates from the state.

**TABLE 1-19**  
**HISTORICAL MIGRATION LEVELS BASED ON TAX RETURN DATA FOR MARICOPA COUNTY**

	2006-07	2007-08	2008-09	2009-10	2010-11	2011-12	2012-13	2013-14	2014-15
Total In-Migration US	140,371	133,523	124,884	107,242	121,929	146,538	148,319	140,514	102,175
Same State	20,954	23,291	29,317	19,686	30,377	32,675	31,944	28,648	21,928
Different State	119,417	110,232	95,567	87,556	91,552	113,863	116,375	111,866	80,247
Total In-Migration Foreign	2,779	3,003	2,485	1,401	1,443	1,973	2,064	2,090	1,823
Total In-Migration US and Foreign	143,150	136,526	127,369	108,643	123,372	148,511	150,383	142,604	103,998
Maricopa County Non-Migrants	2,583,195	2,742,317	2,811,447	2,784,035	2,777,261	3,006,087	3,035,273	3,042,061	3,099,006
Migrant Share of Total	na	4.74%	4.33%	3.76%	4.25%	4.71%	4.72%	4.48%	3.25%
Estimated Resident Population	3,663,915	3,753,413	3,808,829	3,821,136	3,824,058	3,843,370	3,884,705	3,944,859	4,008,651
Ratio of Population to Exemptions	1.34	1.30	1.30	1.32	1.32	1.22	1.22	1.24	1.25

Source: Internal Revenue Service, Statistics of Income, County to County Migration Inflows. Based on number of personal exemptions. Resident population estimates from Arizona Department of Administration.

<sup>1</sup> The Phoenix Business Journal, "Demographics are destiny for growing numbers of Latinos, until they change," September 15, 2017.

In-migration is projected to account for 64 to 65 percent of population growth in Maricopa County through 2030 and then increase to 72 to 73 percent of population growth from 2042 through 2050 (Table 1-20). According to the state demographer, domestic migration currently accounts for about three-quarters of all net migration; that figure is projected to drop from 76 percent in 2017 to 37 percent by 2050, when the majority of net migration in Maricopa County is expected to be from foreign sources. However, these projections are highly speculative since they are affected by future global economic conditions and U.S. immigration policy changes over time.

**TABLE 1-20  
PROJECTED MIGRATION LEVELS FOR MARICOPA COUNTY**

Year	Net Domestic Migration	Net Foreign Migration	Total Net Migration	Share of Population Growth
2010	177	1,561	1,738	0%
2011	9,363	7,686	17,049	38%
2012	35,963	7,706	43,669	61%
2013	31,429	8,356	39,785	58%
2014	33,358	9,791	43,149	59%
2015	39,673	10,408	50,081	64%
2016	35,491	12,204	47,695	64%
2017	39,231	12,406	51,637	64%
2018	39,869	13,442	53,311	65%
2019	38,825	14,737	53,562	65%
2020	37,039	16,047	53,086	64%
2025	31,175	19,428	50,603	63%
2030	28,030	23,122	51,152	65%
2035	27,351	24,734	52,085	69%
2040	23,861	26,346	50,207	71%
2045	20,400	27,958	48,358	73%
2050	17,099	29,570	46,669	72%

Arizona Department of Administration, Office of Employment & Population Statistics, 12/11/2015; Bureau of the Census County Population Estimates and Components of Change, 2010-2015.

#### 1.5.1.4 Seasonal and Retiree Population

Other important components of the demographic picture in Maricopa County are the seasonal and retiree populations. Although the seasonal population does not show up in estimates of resident population, it does create a significant increase in the number of people living in the metro area in the winter months. Up until 2003-04, Arizona State University published annual estimates of the “snowbird” population, at which time the seasonal population in the Valley was estimated at about 300,000 people. Since that time, there has not been a source of seasonal population estimates for the region. However, it is possible to look at vacant housing units held for seasonal use as a measure of capacity for seasonal residents.

The U.S. Census Bureau defines seasonal units as vacant units that are intended for occupancy only during certain seasons of the year. According to the 2000 and 2010 censuses and the American Community Survey, the number of seasonal units in the City of Phoenix has increased from about 4,500 in 2000 to over 10,200 in 2016 (Table 1-21); seasonal units currently account for about 1.7 percent of the total housing inventory. In Maricopa County, there are an estimated 76,900 seasonal units, accounting for about 4.5 percent of the total housing stock. However, previous “snowbird” estimates, which included large numbers of people living in RV parks, would indicate that the number of seasonal residents is significantly higher than what could be accommodated in the number of seasonal units reported by the U.S. Census Bureau.

**TABLE 1-21  
SEASONAL HOUSING UNITS IN PHOENIX AND MARICOPA COUNTY**

	2000	2010	2016
<b>Seasonal Units</b>			
Phoenix	4,545	6,598	10,246
Maricopa County	49,584	63,938	76,916
<b>Total Units</b>			
Phoenix	495,832	590,149	611,421
Maricopa County	1,250,231	1,639,279	1,711,390
<b>Percent Seasonal</b>			
Phoenix	0.9%	1.1%	1.7%
Maricopa County	4.0%	3.9%	4.5%

Source: 2000 Decennial Census; American Community Survey 1 year data for 2010 and 2016.

The retirement population described here includes year-round residents who migrated to Arizona in their retirement years. Historically, this has been defined as people 65 and over, although many individuals are now working longer due to financial needs. Because of the large size of the Baby Boomer generation, the number of retirees in the state is projected to increase significantly over the next 20 years. According to the census, the senior migration rate declined

during the recession; however, by 2015, the migration rate for seniors returned to a pre-recession level of 5 percent. While the majority of retirees prefer to age in place, people who move often do so to be closer to family or to leave colder or high-cost states. According to the Brookings Institute, the five most popular states for migrants 55 and older between 2010 and 2013 were Florida, Arizona, South Carolina, Texas and North Carolina. <sup>2</sup>

Based on an analysis of U.S. Census Bureau migration data by age by SmartAsset, the top ten cities where people 60 and older migrated in 2014 included Mesa (#1), Phoenix (#4), Chandler (#6) and Scottsdale (#9). <sup>3</sup> Gilbert was number 11 on the list. The article indicated that the primary draw of Arizona cities was the warm, dry climate, recreation and amenities, and the relatively low cost of living. Most large cities across the country are losing retirees, although Phoenix is not following that trend.

United Van Lines also publishes information on migration patterns by reason for moving. For Arizona, 31 percent of all inbound moves, and 9 percent of outbound moves, were for retirement; Arizona ranked 10th among the most popular states for inbound retirement moves in 2016. <sup>4</sup> The largest share of moves to and from Arizona (40 percent of inbound and 53 percent of outbound) was job-related.

The Census Current Population Survey also tracks data on movers (persons living in a different house last year) that is segmented by age. Table 1-22 shows data for the Phoenix metro area based on microdata for March 2017. About 5.6 percent of residents age 60 and older moved to the Phoenix metro area within the previous year, with the most mobile groups being the 60 to 64 and 70 to 74 year old cohorts. About 3.5 percent of the 5.6 percent over older residents moved from within Arizona, and 2.2 percent moved from out of state.

**TABLE 1-22**  
**IN-MIGRATION FOR RESIDENTS AGE 60 AND OVER LIVING IN THE PHOENIX METRO AREA**

	Existing Residents	Moved in Past Year	Percent Moved	Moved in Past Year	
				Moved In-State	Moved from Out of State
Total 60 and older	900,829	53,671	5.6%	3.5%	2.2%
60 to 64	245,703	21,703	8.1%	5.6%	2.5%
65 to 69	200,726	8,719	4.2%	1.8%	2.4%
70 to 74	167,538	14,333	7.9%	4.0%	3.9%
75 to 79	142,469	5,293	3.6%	2.4%	1.2%
80 and older	144,393	3,623	2.4%	2.4%	0.0%

Source: Current Population Survey Microsample Data, March 2017.

<sup>2</sup> Robaton, Anna, CNBC.com, “Most retirees stay put-but those who move head here,” November 6, 2015.

<sup>3</sup> Wallace, Nick, SmartAsset.com, “Where are Retirees Moving?” May 4, 2016.

<sup>4</sup> United Van Lines, 40<sup>th</sup> Annual National Movers Study, 2016. ([https://www.unitedvanlines.com/contact-united/news/movers-study-2016?utm\\_source=dynamic&utm\\_medium=press&utm\\_content=moversStudy2016&utm\\_campaign=National-Movers-Study](https://www.unitedvanlines.com/contact-united/news/movers-study-2016?utm_source=dynamic&utm_medium=press&utm_content=moversStudy2016&utm_campaign=National-Movers-Study))



## 1.5.2 ECONOMIC TRENDS

The metro Phoenix economy has traditionally been a growth economy and job creation has been the primary driver for non-retirement in-migration, however, the structure of the economy has changed significantly in the past ten to fifteen years. In the rapid expansion period leading up to the recession, construction became a dominant employment sector, therefore, when the housing sector collapsed this resulted in much larger job losses in metro Phoenix than in other parts of the country. While the regional economy has returned to pre-recession employment levels, the distribution of employment by sector has changed. Construction has rebounded, but it does not represent as large a share of the economy as it did in the mid-2000s. Additionally, the manufacturing sector has continued to shrink and the services sector has grown. Declining manufacturing employment is a national trend that began prior to the last recession, as well. Understanding the makeup of the regional economy in terms of industries, as well as occupations, is important for projecting employment growth.

### 1.5.2.1 Employment by Industry

Current and projected employment by industry is available for the Phoenix metro area from the Arizona Office of Economic Opportunity.<sup>5</sup> Historical data is based on the Bureau of Labor Statistics, Quarterly Census of Employment and Wages (QCEW). In order to show the impact of changes that have occurred since the last recession, the data shown here is for 2007 and 2016.

Total industry employment in the metro area has now reached 1.93 million, which is about three percent above the pre-recession level of 1.88 million and represents a relatively low growth rate over nine years (Table 1-23). The loss of nearly 314,000 jobs in metro Phoenix from the peak in December 2007 to the trough in July 2010 was the largest job loss ever seen in the regional economy, and it took a number of years to make up those losses. While the jobs did eventually come back, they are now in different sectors; thus, the overall structure of the economy has changed.

- The construction sector, which represented about 9 percent of the total economy in 2007, now has about 64,000 fewer jobs than in 2007 and totals only 5 percent of the total economy. However, this shift significantly reduces the region's vulnerability in the next economic downturn.
- The manufacturing sector is now 13 percent below 2007 job levels (about 18,000 fewer jobs), which reflects a longer-term trend that is not simply a product of the recession. A significant portion of those losses were in computer and electronics manufacturing. Wholesale trade is also down about 13 percent (about 12,000) jobs since 2007.

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<sup>5</sup> Historical data is available at the county level through QCEW, but projections are only available at the metro level, thus all data is shown here at the metro level.

- Retail trade, which represents the largest sector of the economy, has approximately the same number of jobs now as in 2007, despite the fact that the population has grown by about 11 percent since then. The majority of growth in this sector has been in non-store retail, such as fulfillment centers, rather than in brick and mortar retail.
- The largest growth in the regional economy since the recession has been in the health care sector, which has added over 70,000 net new jobs since 2007 and includes growth in ambulatory care and doctor’s offices, hospitals and nursing homes.
- The finance/insurance and professional service sectors have also added about 33,000 net new jobs over nine years, followed by hospitality (hotels and restaurants) with 22,000 new jobs. Another large service sector, administrative services, is still down about 3 percent, but has gained back over 47,000 jobs since 2010.
- The government sector, which includes federal, state and local government employees, is still down about 13 percent over 2007 levels. Note that these totals exclude local government employees that work in education where the number of jobs has increased since 2007.

**TABLE 1-23**  
**HISTORICAL INDUSTRY EMPLOYMENT TRENDS-PHOENIX METRO AREA**

NAICS	Industry	Total Employment		% Change 2007-16
		2007	2016	
000000	Total All Industries	1,875,320	1,933,064	3%
110000	Agriculture, Forestry, Fishing and Hunting	9,320	8,342	-10%
210000	Mining	3,232	3,178	-2%
220000	Utilities	8,860	8,256	-7%
230000	Construction	167,931	103,951	-38%
310000	Manufacturing	137,008	119,025	-13%
420000	Wholesale Trade	85,659	74,100	-13%
440000	Retail Trade	233,507	233,399	0%
480000	Transportation and Warehousing	56,997	65,594	15%
510000	Information	30,801	35,259	14%
520000	Finance and Insurance	111,841	129,552	16%
530000	Real Estate and Rental and Leasing	39,420	39,412	0%
540000	Professional, Scientific, and Technical Services	98,990	108,520	10%
550000	Management of Companies and Enterprises	22,758	28,457	25%
560000	Administrative and Support and Waste Mgmt	198,670	192,430	-3%
610000	Educational Services	117,448	133,852	14%
620000	Health Care and Social Assistance	172,087	242,148	41%
710000	Arts, Entertainment, and Recreation	25,563	30,988	21%
720000	Accommodation and Food Services	159,958	182,242	14%
810000	Other Services (except Government)	51,543	51,808	1%
900000	Government	97,616	85,387	-13%

Source: Bureau of Labor Statistics, Quarterly Census of Employment and Wages; Arizona Office of Economic Opportunity, Industry Projections Data, 3-9-17.

Industry employment projections (at the sector level) for the Phoenix metro area produced by the University of Arizona (U of A) were used to guide the projections for the City of Phoenix. In terms of future job growth, the region is projected to add close to 1.4 million new wage and salary jobs by 2047 (final year of the U of A projection series) and 1.8 million total jobs (Table 1-24). New jobs in health care and professional and business services make up the largest growth sectors, representing about 46 percent of total job growth. The retail, finance and insurance and accommodations and food services sectors are each expected to make up about 9 to 12 percent of the job growth between 2017 and 2047 in the metro area. Nationally, health care is also projected to be the highest growth sector over this time period, followed by construction and professional services. It is interesting to note that in the U of A projections, the construction sector is projected to grow moderately from 2017 to 2027, but then remain relatively unchanged through 2047. Declines are projected in natural resources and mining as well as utilities, but these sectors make up a relatively small share of overall employment in the metro area.

Since population growth in the metro area has historically been job-driven, it is also relevant to look at projected employment to population ratios over time. Based on the U of A projections, there are currently 0.57 jobs per person in the Phoenix metro area. This ratio is expected to increase to 0.61 jobs per person by 2037 as the age structure of the population shifts beyond the Baby Boomer retirement era and the share of the labor force that is of working age increases.

**TABLE 1-24**  
**INDUSTRY EMPLOYMENT PROJECTIONS-PHOENIX METRO AREA**  
**(Data in thousands)**

NAICS	Industry	2017	2027	2037	2047	2017 - 2047	
						Change	Percent
	Total Non-Farm Wage & Salary Employment	2,030.61	2,559.84	3,014.23	3,417.34	1,386.73	68%
11-21	Natural Resources and Mining	3.19	2.70	1.94	1.28	-1.92	-60%
22	Utilities	8.33	7.42	6.98	6.89	-1.43	-17%
23	Construction	109.89	125.86	125.02	126.54	16.65	15%
31-33	Manufacturing	122.17	137.18	137.81	141.46	19.29	16%
42	Wholesale Trade	79.01	93.86	108.41	119.81	40.81	52%
44-45	Retail Trade	240.68	304.74	357.69	401.11	160.43	67%
441	Motor Vehicles and Parts Retail	31.76	37.16	41.98	46.75	14.99	47%
444	Building Material, Retail Garden Supply	17.61	23.19	28.23	33.43	15.82	90%
445	Food and Beverage Retail	39.95	45.67	50.27	54.10	14.16	35%
442,443,446-454	Other Retail Trade	151.37	198.73	237.22	266.83	115.46	76%
48-49	Transportation and Warehousing	67.34	79.08	83.18	84.10	16.76	25%
51	Information	36.06	41.61	51.55	63.62	27.56	76%
52	Finance and Insurance	142.89	183.61	221.69	261.03	118.15	83%
53	Real Estate, Rental, and Leasing	41.24	49.17	56.66	63.93	22.69	55%
54-56	Professional and Business Services	352.31	478.84	565.02	645.67	293.36	83%
61	Educational Services	46.78	56.57	68.68	80.67	33.89	72%
6111	K-12	13.77	17.72	22.82	28.33	14.57	106%
6112-6117	Post Secondary	33.01	38.85	45.86	52.34	19.33	59%
62	Health Care and Social Assistance	254.99	379.41	511.56	605.67	350.68	138%
71	Arts, Entertainment, and Recreation	31.32	39.59	48.11	57.08	25.76	82%
72	Accommodation and Food Services	193.47	235.90	277.44	320.90	127.43	66%
721	Accommodation	25.96	26.71	27.34	27.97	2.01	8%
722	Food Services and Drinking Places	167.51	209.19	250.09	292.93	125.42	75%
81	Other Services	62.53	79.39	95.72	111.34	48.81	78%
	Government	238.39	264.91	296.76	326.22	87.83	37%
92	Federal Government	22.98	22.97	25.21	27.20	4.22	18%
	State and Local Government	215.41	241.95	271.55	299.02	83.61	39%
61	State and Local Govt Education	115.59	127.20	141.05	151.88	36.30	31%
92	Other State and Local Government	99.83	114.74	130.50	147.14	47.31	47%
	Total Employment	2,655.48	3,334.13	3,919.76	4,436.08	1,780.60	67%
	Total Population	4,630.99	5,548.66	6,423.46	7,248.79	2,617.80	57%

Source: University of Arizona Eller School of Management, Economic and Business Research Center, Q3 2017.

### 1.5.2.2 Employment by Occupation

Looking at growth in various occupations is another way to understand the structure of the regional economy. The advantage of looking at occupational employment is that it translates more easily than industry employment into different types of buildings/land-uses that are relevant for water demand projections.

The data here includes current information for 2016 from the Bureau of Labor Statistics, Occupational Employment Statistics (OES) and projections for 2024 from the Arizona Office of Economic Opportunity (AOEO). Note that the AOEO publishes short-term occupational projections for 2018, with a base year of 2016, and long-term projections for 2024, with a base year of 2014. However, there are significant inconsistencies between the short and long-term projections and the current OES data from the Bureau of Labor Statistics. In this case, the 2016 data was taken directly from OES, but there were still inconsistencies with the 2024 projections for individual occupations, so the annual growth rate projected by AOEO from 2014 to 2024 was applied to the 2016 base data to yield new 2024 projections. National projected growth rates by occupation are also included.

The largest occupational categories are listed below. Each of these occupations currently includes at least 77,000 workers in the Phoenix metro area.

- Information and records clerks
- Retail sales workers
- Food preparation and service
- Construction trades
- Business operations specialists
- Health diagnosing and treating practitioners

Growth of about 25 percent is projected for occupational employment between 2016 and 2024, which is substantially higher than the 5 percent job growth that is projected nationally (Table 1-25). The highest growing occupations in terms of numbers of new jobs are similar to the largest occupations, including construction trades (28,000 new jobs), information and records clerks (25,000 new jobs), food preparation and service (19,000 new jobs), retail sales workers (18,000 new jobs), business operations specialists (13,000 new jobs), health diagnosing and treating practitioners (12,000 new jobs). All of these occupations, except retail sales, also have above average projected growth nationally.

**TABLE 1-25  
CURRENT AND PROJECTED OCCUPATIONAL EMPLOYMENT-PHOENIX METRO AREA**

SOC	Occupation	Employment		Change 2016-2024		National
		2016	2024	Number	Percent Change	Percent Change
<b>00-0000</b>	<b>Total, All Occupations</b>	<b>1,935,280</b>	<b>2,412,852</b>	<b>477,572</b>	<b>25%</b>	<b>5%</b>
<b>11-0000</b>	<b>Management Occupations</b>	<b>11,460</b>	<b>13,568</b>	<b>2,108</b>	<b>18%</b>	<b>4%</b>
11-1000	Top Executives	37,010	44,125	7,115	19%	5%
11-2000	Advertising, Marketing, Public Relations, Sales Managers	13,060	15,188	2,128	16%	5%
11-3000	Operations Specialties Managers	27,970	33,108	5,138	18%	6%
11-9000	Other Management Occupations	29,740	35,212	5,472	18%	4%
<b>13-0000</b>	<b>Business and Financial Operations Occupations</b>	<b>108,850</b>	<b>133,328</b>	<b>24,478</b>	<b>22%</b>	<b>7%</b>
13-1000	Business Operations Specialists	64,420	77,783	13,363	21%	6%
13-2000	Financial Specialists	34,730	43,399	8,669	25%	8%
<b>15-0000</b>	<b>Computer and Mathematical Occupations</b>	<b>76,340</b>	<b>95,798</b>	<b>19,458</b>	<b>25%</b>	<b>10%</b>
15-2000	Mathematical Science Occupations	4,830	7,002	2,172	45%	23%
<b>17-0000</b>	<b>Architecture and Engineering Occupations</b>	<b>35,450</b>	<b>38,859</b>	<b>3,409</b>	<b>10%</b>	<b>2%</b>
17-1000	Architects, Surveyors, and Cartographers	2,150	2,597	447	21%	5%
17-2000	Engineers	18,050	19,768	1,718	10%	3%
17-3000	Drafters, Engineering Technicians, and Mapping Technicians	10,830	11,676	846	8%	-1%
<b>19-0000</b>	<b>Life, Physical, and Social Science Occupations</b>	<b>11,190</b>	<b>13,218</b>	<b>2,028</b>	<b>18%</b>	<b>6%</b>
19-1000	Life Scientists	1,870	2,205	335	18%	5%
19-2000	Physical Scientists	1,860	2,195	335	18%	5%
19-3000	Social Scientists and Related Workers	2,930	3,467	537	18%	10%
19-4000	Life, Physical, and Social Science Technicians	3,210	3,793	583	18%	4%
<b>21-0000</b>	<b>Community and Social Service Occupations</b>	<b>28,190</b>	<b>33,661</b>	<b>5,471</b>	<b>19%</b>	<b>8%</b>
21-1000	Counselors, Social Workers, and Social Service Specialists	27,420	32,897	5,477	20%	9%
21-2000	Religious Workers	710	806	96	14%	4%
<b>23-0000</b>	<b>Legal Occupations</b>	<b>14,910</b>	<b>17,657</b>	<b>2,747</b>	<b>18%</b>	<b>4%</b>
23-1000	Lawyers, Judges, and Related Workers	9,220	10,939	1,719	19%	4%
23-2000	Legal Support Workers	5,680	6,706	1,026	18%	4%
<b>25-0000</b>	<b>Education, Training, and Library Occupations</b>	<b>94,420</b>	<b>115,177</b>	<b>20,757</b>	<b>22%</b>	<b>6%</b>
25-1000	Postsecondary Teachers	8,630	10,903	2,273	26%	9%
25-2000	Primary, Secondary, and Special Education School Teachers	45,740	55,455	9,715	21%	5%
25-3000	Other Teachers and Instructors	10,420	12,740	2,320	22%	7%
25-4000	Librarians, Curators, and Archivists	2,110	2,405	295	14%	3%
25-9000	Other Education, Training, and Library Occupations	19,580	23,703	4,123	21%	5%
<b>27-0000</b>	<b>Arts, Design, Entertainment, Sports, and Media Occupations</b>	<b>23,350</b>	<b>27,133</b>	<b>3,783</b>	<b>16%</b>	<b>3%</b>
27-1000	Art and Design Workers	7,470	8,564	1,094	15%	2%
27-2000	Entertainers and Performers, Sports and Related Workers	4,410	5,167	757	17%	5%
27-3000	Media and Communication Workers	7,540	8,811	1,271	17%	3%
27-4000	Media and Communication Equipment Workers	2,850	3,343	493	17%	4%
<b>29-0000</b>	<b>Healthcare Practitioners and Technical Occupations</b>	<b>107,250</b>	<b>127,945</b>	<b>20,695</b>	<b>19%</b>	<b>13%</b>
29-1000	Health Diagnosing and Treating Practitioners	64,480	76,943	12,463	19%	13%
29-2000	Health Technologists and Technicians	38,630	46,041	7,411	19%	13%
29-9000	Other Healthcare Practitioners and Technical Occupations	2,090	2,512	422	20%	8%
<b>31-0000</b>	<b>Healthcare Support Occupations</b>	<b>46,620</b>	<b>55,974</b>	<b>9,354</b>	<b>20%</b>	<b>18%</b>
31-1000	Nursing, Psychiatric, and Home Health Aides	20,320	24,356	4,036	20%	20%
31-2000	Occupational Therapy and Physical Therapist Assistants	2,000	2,615	615	31%	32%
31-9000	Other Healthcare Support Occupations	24,090	28,667	4,577	19%	15%
<b>33-0000</b>	<b>Protective Service Occupations</b>	<b>52,380</b>	<b>60,757</b>	<b>8,377</b>	<b>16%</b>	<b>4%</b>
33-1000	Supervisors of Protective Service Workers	5,730	6,415	685	12%	3%
33-2000	Fire Fighting and Prevention Workers	3,730	4,101	371	10%	4%
33-3000	Law Enforcement Workers	19,370	21,457	2,087	11%	3%
33-9000	Other Protective Service Workers	23,290	28,056	4,766	20%	4%
<b>35-0000</b>	<b>Food Preparation and Serving Related Occupations</b>	<b>179,090</b>	<b>213,934</b>	<b>34,844</b>	<b>19%</b>	<b>5%</b>
35-1000	Supervisors of Food Preparation and Serving Workers	16,340	19,964	3,624	22%	8%
35-2000	Cooks and Food Preparation Workers	42,660	50,096	7,436	17%	4%
35-3000	Food and Beverage Serving Workers	94,980	114,462	19,482	21%	6%
35-9000	Other Food Preparation and Serving Related Workers	20,750	24,043	3,293	16%	2%
<b>37-0000</b>	<b>Building and Grounds Cleaning and Maintenance Occupations</b>	<b>55,070</b>	<b>67,159</b>	<b>12,089</b>	<b>22%</b>	<b>5%</b>
37-1000	Supervisors of Building Maintenance Workers	4,600	5,619	1,019	22%	5%
37-2000	Building Cleaning and Pest Control Workers	36,310	43,790	7,480	21%	5%
37-3000	Grounds Maintenance Workers	14,160	17,769	3,609	25%	5%

**TABLE 1-25 (continued)**  
**CURRENT AND PROJECTED OCCUPATIONAL EMPLOYMENT-PHOENIX METRO AREA**

SOC	Occupation	Employment		Change 2016-2024		National Percent Change
		2016	2024	Number	Percent Change	
<b>39-0000</b>	<b>Personal Care and Service Occupations</b>	<b>65,200</b>	<b>78,882</b>	<b>13,682</b>	<b>21%</b>	<b>11%</b>
39-1000	Supervisors of Personal Care and Service Workers	3,750	4,380	630	17%	8%
39-2000	Animal Care and Service Workers	2,520	3,030	510	20%	8%
39-3000	Entertainment Attendants and Related Workers	7,390	8,533	1,143	15%	5%
39-4000	Funeral Service Workers	460	505	45	10%	2%
39-5000	Personal Appearance Workers	6,780	7,806	1,026	15%	8%
39-6000	Baggage Porters, Bellhops, and Concierges	1,090	1,238	148	14%	7%
39-7000	Tour and Travel Guides	**	650	**	**	4%
39-9000	Other Personal Care and Service Workers	39,540	49,007	9,467	24%	13%
<b>41-0000</b>	<b>Sales and Related Occupations</b>	<b>221,480</b>	<b>257,200</b>	<b>35,720</b>	<b>16%</b>	<b>4%</b>
41-1000	Supervisors of Sales Workers	24,010	27,540	3,530	15%	4%
41-2000	Retail Sales Workers	122,500	140,248	17,748	14%	4%
41-3000	Sales Representatives, Services	32,250	39,474	7,224	22%	6%
41-4000	Sales Representatives, Wholesale and Manufacturing	23,620	26,838	3,218	14%	5%
41-9000	Other Sales and Related Workers	18,400	21,896	3,496	19%	2%
<b>43-0000</b>	<b>Office and Administrative Support Occupations</b>	<b>353,570</b>	<b>413,422</b>	<b>59,852</b>	<b>17%</b>	<b>2%</b>
43-1000	Supervisors of Office and Administrative Support Workers	28,260	33,991	5,731	20%	7%
43-2000	Communications Equipment Operators	940	812	-128	-14%	-26%
43-3000	Financial Clerks	42,160	47,273	5,113	12%	-4%
43-4000	Information and Record Clerks	117,740	142,720	24,980	21%	6%
43-5000	Material Scheduling, Dispatching, and Distributing Workers	52,930	59,976	7,046	13%	-1%
43-6000	Secretaries and Administrative Assistants	50,660	58,121	7,461	15%	2%
43-9000	Other Office and Administrative Support Workers	50,660	59,244	8,584	17%	1%
<b>45-0000</b>	<b>Farming, Fishing, and Forestry Occupations</b>	<b>3,750</b>	<b>4,080</b>	<b>330</b>	<b>9%</b>	<b>-5%</b>
45-1000	Supervisors of Farming, Fishing, and Forestry Workers	170	175	5	3%	0%
45-2000	Agricultural Workers	3,230	3,522	292	9%	-5%
<b>47-0000</b>	<b>Construction and Extraction Occupations</b>	<b>78,310</b>	<b>109,791</b>	<b>31,481</b>	<b>40%</b>	<b>8%</b>
47-1000	Supervisors of Construction and Extraction Workers	10,030	14,226	4,196	42%	8%
47-2000	Construction Trades Workers	67,710	95,341	27,631	41%	8%
47-3000	Helpers, Construction Trades	2,070	3,022	952	46%	12%
47-4000	Other Construction and Related Workers	2,770	3,532	762	28%	6%
47-5000	Extraction Workers	480	592	112	23%	7%
<b>49-0000</b>	<b>Installation, Maintenance, and Repair Occupations</b>	<b>74,510</b>	<b>89,537</b>	<b>15,027</b>	<b>20%</b>	<b>5%</b>
49-1000	Supervisors of Installation, Maintenance, and Repair Workers	8,830	10,499	1,669	19%	4%
49-2000	Electrical and Electronic Equipment Installers, and Repairers	7,690	9,003	1,313	17%	0%
49-3000	Vehicle and Mobile Equipment Installers, and Repairers	25,220	29,203	3,983	16%	5%
49-9000	Other Installation, Maintenance, and Repair Occupations	32,810	40,632	7,822	24%	6%
<b>51-0000</b>	<b>Production Occupations</b>	<b>86,160</b>	<b>96,051</b>	<b>9,891</b>	<b>11%</b>	<b>-2%</b>
51-1000	Supervisors of Production Workers	6,770	7,458	688	10%	-2%
51-2000	Assemblers and Fabricators	17,820	19,670	1,850	10%	0%
51-3000	Food Processing Workers	5,350	6,179	829	15%	2%
51-4000	Metal Workers and Plastic Workers	17,050	18,377	1,327	8%	-4%
51-6000	Textile, Apparel, and Furnishings Workers	6,100	6,637	537	9%	-9%
51-7000	Woodworkers	2,630	3,313	683	26%	0%
51-8000	Plant and System Operators	1,460	1,625	165	11%	0%
51-9000	Other Production Occupations	21,290	24,139	2,849	13%	-2%
<b>53-0000</b>	<b>Transportation and Material Moving Occupations</b>	<b>119,760</b>	<b>140,320</b>	<b>20,560</b>	<b>17%</b>	<b>4%</b>
53-1000	Supervisors of Transportation and Material Moving Workers	4,680	5,513	833	18%	2%
53-2000	Air Transportation Workers	3,620	3,795	175	5%	2%
53-3000	Motor Vehicle Operators	46,390	55,041	8,651	19%	4%
53-4000	Rail Transportation Workers	**	1,823	**	**	-2%
53-5000	Water Transportation Workers	**	466	**	**	7%
53-6000	Other Transportation Workers	4,040	4,628	588	15%	5%
53-7000	Material Moving Workers	56,030	67,084	11,054	20%	4%

Source: Arizona Dept of Administration, Office of Employment and Population Statistics in cooperation with the U.S. Bureau of Labor Statistics, April 2016.

The next step was to assign these occupations to different land-uses/ building types. The building types include manufacturing/industrial, warehouse, office, retail, lodging, institutional, government and non-site based work. A greater level of occupational detail was used for these assignments than is shown in Table 1-25. The results show the following breakdown of future employment by building type.

- Manufacturing 11%
- Warehouse 3%
- Office 39%
- Retail 22%
- Lodging 1%
- Institutional 6%
- Government 7%
- Non-Site 11%

### 1.5.3 WORKFORCE TRENDS

Since employment growth is the primary driver for population growth, it is important to factor a variety of workforce trends into the projection process; therefore, in addition to long-term labor force participation rates, this section also discusses trends in work-at-home, remote employment and super-commuting arrangements.

#### 1.5.3.1 Labor Force Participation Rates

The labor force participation rate represents the share of the population over 16 years that is in the labor force. The labor force includes both employed people and people who are looking for work. Nationally, the labor force participation rate began to decline starting in 2000 and it has continued to decline over the past two decades. The data shown in Table 1-26 goes back to 2007 when the participation rate nationally was 64.8 percent; it has now declined to 61.7 percent. This means that 61.7 percent of the population over 16 years is currently working or willing to work. Locally, the participation rate has dropped even more dramatically, from 69 percent in 2007 in Maricopa County to 62.5 percent in 2016. Although Maricopa County had a much higher rate of labor force participation than the nation in 2007, this has not historically been the case. In 2000, the labor force participation rate nationally was 69.6 percent versus 68.7 percent locally, so it would appear that the decline locally simply occurred later in Maricopa County. Although there was a slight increase in the participation rate in Maricopa County in 2015 and 2016 (which may be the result of improving economic conditions locally), the dominant long-term trend is still a declining local participation rate.



**TABLE 1-26**  
**LABOR FORCE PARTICIPATION RATE TRENDS**

	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
<b>City of Phoenix</b>										
Population (age 16+)	1,101,542	1,107,204	1,108,084	1,110,860	1,131,236	1,158,090	1,182,296	1,208,571	1,235,379	1,264,480
Labor Force	774,498	786,598	789,497	734,054	719,757	718,025	721,884	736,880	756,982	778,292
Participation Rate	70.3%	71.0%	71.2%	66.1%	63.6%	62.0%	61.1%	61.0%	61.3%	61.6%
<b>Maricopa County</b>										
Population (age 16+)	2,818,160	2,866,239	2,901,471	2,929,572	2,980,085	3,046,218	3,108,656	3,175,774	3,247,954	3,322,060
Labor Force	1,945,290	1,970,741	1,966,607	1,919,590	1,894,633	1,895,398	1,911,209	1,958,806	2,019,144	2,076,894
Participation Rate	69.0%	68.8%	67.8%	65.5%	63.6%	62.2%	61.5%	61.7%	62.2%	62.5%
<b>United States</b>										
Population (age 16+)	236,136,029	238,744,406	241,245,386	243,914,554	246,329,127	248,732,434	250,979,216	253,334,765	255,650,865	257,955,453
Labor Force	153,124,000	154,287,000	154,142,000	153,889,000	153,617,000	154,975,000	155,389,000	155,922,000	157,130,000	159,187,000
Participation Rate	64.8%	64.6%	63.9%	63.1%	62.4%	62.3%	61.9%	61.5%	61.5%	61.7%

Source: Bureau of Labor Statistics, Local Area Unemployment Statistics; Census Bureau County Population Estimates; Census Bureau National Intercensal Datasets, 2016.

According to BLS projections, the national participation rate is projected to continue to decrease gradually, declining by 2.5 percentage points over the next ten years. There are several factors that are causing this decline.

The large Baby Boomer population, which is having an effect on a wide range of demographic and economic trends, is having a dominant effect on labor force participation as this generation begins to retire.<sup>6</sup> While there has been an upward trend in participation rates for individuals 55 and older, as longevity and health status have improved, it has not been enough to offset the Baby Boomer retirement impact.

There has also been a decline in the number of women who work. Labor force participation by women began to increase beginning in 1950 and peaked at 60 percent in 1999, but has been declining since that time as more women choose to stay home with children.

The third major trend that is impacting the labor force participation rate is reduced participation by persons aged 16 to 24 years, which has declined over 10 percent in the past decade. This is due to increased enrollment in post-secondary education, as well as an increase in time spent on homework and extracurricular activities, both potentially in response to the historically high college earnings premium.<sup>7</sup> It has also been the case in the service sector that some teen workers have been crowded out by lower-skilled, adult workers.

While the recession did have some impact on labor force participation, due to the number of discouraged workers (defined as individuals who are no longer looking for work), only about three-quarters of a percentage point of the decline since 2007 nationally can be attributed to poor economic conditions.<sup>8</sup> The increase in the number of discouraged workers was partially

<sup>6</sup> Farley, Robert, The Wire, "Declining Labor Force Participation Rates," March 11, 2015.

<sup>7</sup> Federal Reserve Bank of Cleveland, Labor Force Participation: Recent Development and Future Prospects," September 2014.

<sup>8</sup> Ibid.

offset by older workers having to delay their retirement due to a loss of home equity and stock market investment value. There has been no significant rise in the labor force participation rate nationally during the economic recovery, although the labor force participation rate increased locally in 2015 and 2016.

### 1.5.3.2 Work-At-Home Trends

The work-at-home population includes self-employed individuals that are often in professional services occupations and do business from their home. However, these individuals actually comprise a fairly small percentage of the workforce. The majority of people who work at home are employed by a company that allows them to work remotely one or more days per week.

Data is available from the Bureau of Labor Statistics, American Time Use Survey that provides some insights on the characteristics of the work-at-home population nationally; this data includes individuals who typically work at home at least some of the time. About 16 percent of the individuals are self-employed and the remainder work for a larger company (Table 1-27). The majority, 83 percent, have only one job. Over 60 percent of the work-at-home group is college educated and about 70 percent work in business, financial or professional services; an additional 11 percent work in sales.

Locally, estimates of the work-at-home population are available from the American Community Survey based on “journey to work” data. In the City of Phoenix, the work-at-home labor force accounts for about 5.3 percent of the workforce, up from 4.3 percent in 2007 (Table 1-28). Although the nation as a whole has experienced a similar increase in the share of individuals working at home, the City of Phoenix has consistently been slightly above the national average.

The majority of the increase in work-at-home rates can be attributed to employers’ willingness to allow employees to work remotely and improvements in technology. While local projections of the work-at-home labor force do not exist, it may be the case that as employment density for office space increases, employers will allow, or require, more people to work remotely for at least some portion of the work week.

**TABLE 1-27**  
**CHARACTERISTICS OF THE WORK-AT-HOME POPULATION: UNITED STATES**

	Total	Work at Home		Work at Workplace	
		Number	Percent	Number	Percent
Total Employed Persons	110,592	24,703		92,045	
Full Time	90,275	20,214	82%	75,881	82%
Part Time	20,318	4,489	18%	16,164	18%
Jobholder Status					
Single Job	97,319	20,439	83%	81,430	88%
Multiple Jobs	13,273	4,264	17%	10,616	12%
Class of Worker (primary job only)					
Wage and Salary	101,800	19,574	84%	87,151	96%
Self-Employed	6,757	3,633	16%	3,373	4%
Educational Attainment					
Less than High School	6,546	577	2%	5,599	6%
High School Graduate	23,076	2,740	11%	20,714	23%
Some College or Associate's Degree	23,846	4,914	20%	20,361	22%
Bachelor's Degree	25,494	8,047	33%	19,678	21%
Graduate Degree	17,225	7,429	30%	12,177	13%
Unknown	14,405	996	4%	13,516	15%
Occupation (primary job)					
Management, Business, Financial	19,797	6,748	29%	14,946	17%
Professional and Related	27,954	9,315	40%	21,483	24%
Service	18,158	1,726	7%	16,165	18%
Sales and Related	11,358	2,550	11%	9,719	11%
Office and Administrative Support	11,611	1,317	6%	10,420	12%
Construction and Extraction	4,826	445	2%	4,348	5%
Installation, Maintenance, Repair	2,511	160	1%	2,340	3%
Production	5,474	421	2%	4,991	6%
Transportation, Material Moving	6,294	341	1%	5,585	6%

Source: Bureau of Labor Statistics, American Time Use Survey-2016 Results

Based on average day. Persons working at home may also work some days at workplace.

**TABLE 1-28  
WORK-AT-HOME TRENDS: CITY OF PHOENIX AND UNITED STATES**

Year	City of Phoenix		United States	
	Workers 16 and Older	Work at Home Share	Workers 16 and Older	Work at Home Share
2007	699,789	4.3%	139,259,684	4.1%
2008	721,642	4.6%	143,995,967	4.1%
2009	688,643	4.5%	138,591,804	4.3%
2010	620,072	5.9%	136,941,010	4.3%
2011	647,188	4.8%	138,269,979	4.3%
2012	656,502	4.7%	140,862,960	4.4%
2013	668,896	4.6%	142,962,379	4.4%
2014	691,350	5.8%	145,870,653	4.5%
2015	717,880	5.3%	148,324,160	4.6%
2016	758,639	5.7%	150,377,159	5.0%

Source: American Community Survey, 1 Year Data, 2010-2016.

### 1.5.3.3 Super-Commuting

The final workforce trend addressed in this analysis is super-commuting. Super-commuters are generally defined as people who live outside of the metropolitan area where they work. Super-commuters typically travel once or twice weekly for work, often by air, and represent a growing segment of the work force. Super-commuters position themselves to take advantage of higher salaries by working in a large urban area, but enjoy a lower cost of living by residing outside of that area. Some super-commuters also work in multiple offices located in different cities. Super-commuting is increasing in the central counties of ten of the largest metro areas in the nation, with the exception of Atlanta and Minneapolis. The largest city-pair for super-commuting is Dallas and Houston where about 13.2 percent of the workforce in each market super-commutes; Maricopa County ranked third at 8.6 percent of the workforce, based on data from the Census Longitudinal Employer-Household Dynamics dataset for 2009.<sup>9</sup> Updated data for 2015 from this same source shows that 7.6 percent of the workforce in Maricopa County lives outside of the metro area.

In general, super-commuters tend to be young, under age 29, and are likely to be middle class earning less than \$40,000 per year; the lower income level may be indicative of the fact that these are generally younger workers who have less experience.

For Phoenix, this trend primarily reflects people working in the Phoenix metro area but living elsewhere in the state (Table 1-29). The share of people who live in the Phoenix metro area and work in another metro area is very small, accounting for only 0.6 percent of the workforce in

<sup>9</sup> Moss, Mitchel and Carson Qing, Rudin Center for Transportation at New York University Wagner School of Public Service, "The Emergence of the Super-Commuter," February 2012.

2016, according to American Community Survey data. In contrast, 7.6 percent of the people who work in the Phoenix metro area live in another metro area.

**TABLE 1-29  
PLACE OF RESIDENCE FOR WORKERS IN THE PHOENIX METRO AREA**

<u>Metro Area of Residence</u>	<u>Count</u>	<u>Share</u>
Phoenix-Mesa	1,767,798	92.4%
Tucson	59,426	3.1%
Prescott	21,517	1.1%
Lake Havasu-Kingman	9,386	0.5%
Yuma	7,951	0.4%
Flagstaff	7,824	0.4%
Payson	6,483	0.3%
Sierra Vista-Douglas	5,289	0.3%
Show Low	3,758	0.2%
Los Angeles-Long Beach	3,226	0.2%
Nogales	1,952	0.1%
Riverside-San Bernardino	1,911	0.1%
Safford	1,496	0.1%
San Diego	1,331	0.1%
All other locations	14,550	0.8%

Source: Census Longitudinal Employer-Household Dynamics, 2016.

The super-commuting trend requires that we change the way we view metropolitan areas, making them less self-contained as an economic unit. Labor sheds are becoming increasingly inter-regional as improvements in technology and transportation, like high-speed rail, enable this type of commuting pattern. The pattern of super-commuting across the country also reinforces the notion of mega-regional areas, with a prime example being the Sun Corridor from Phoenix to Tucson.

#### 1.5.4 POPULATION PROJECTION COMPARISON

In order to provide a regional control total and guidance on projected growth rates, one of the tasks in preparing the small area projections was to compile data from various sources on projected population. In trying to compare these projections, there are challenges in terms of both geography and time horizon. At the sub-city level, MAG is the primary source of estimates and projections for population and employment that rely on a sophisticated modeling process using a significant amount of primary local data. While there are private vendors (such as Applied Geographic Solutions, Claritas, EMSI, GeoLytics and others) that sell demographic data at the zip code or census tract level, their projections are based on national models and are limited in their accuracy at the small-area level, particularly in fast growing areas. Also, projection data from these private data vendors is often limited to a five year time horizon. The projections presented here are for the county and metro area, and include data from the state

demographer published by the Arizona Office of Economic Opportunity, the University of Arizona Forecasting Project, the Greater Phoenix Blue Chip Forecast, and private vendor Woods & Poole.

The data from the state demographer includes a high, medium and low series that extends to 2050. The medium series is used as the county control total by MAG. Projected annual population growth rates for Maricopa County over the next five years range from a low of 1.5 percent to a high of 2.3 percent (Table 1-30). Growth rates decline by about 0.1 percent per year between 2020 and 2025, then continue to decline over the next 25 years to between 0.7 percent and 1.35 percent by 2050. These result in a 2050 population for the county ranging from 5.9 million to 7.5 million. The projections for the MSA are slightly higher in terms of annual growth rates after 2025, due to the amount of long-term growth projected for Pinal County. Total population estimates for the metro area in 2050 range from 6.8 million to 8.7 million.

The University of Arizona Forecasting Project also produces long-term population projections through 2050, but only for the metro area. Over the next ten years, the annual rate of growth for the medium series from the University of Arizona falls between the low and medium series from the state demographer.

The Greater Phoenix Blue Chip Economic Forecast is compiled by the Seidman Research Institute at Arizona State University and is a consensus forecast of the projected annual rate of change based on input from 12 local organizations. These organizations include the ASU Economic Outlook Center, the University Of Arizona Eller College Of Management, the Joint Legislative Budget Committee, Arizona Public Service Company, Salt River Project and four private economic consulting firms. This is a short-term forecast through 2018 for the metro area in which annual growth rates are projected at 2 percent for 2017 and 2.2 percent for 2018, which is between the medium and high series from the state demographer.

For comparative purposes, a projection set from Woods & Poole is also included for both the county and the metro area through 2050. Woods & Poole Economics, Inc. is an experienced, independent firm in Washington DC that specializes in long-term county economic and demographic projections. They use a top-down dynamic model that allocates a U.S. control total to counties and assumes that growth in one part of the country will result in declines in other parts of the country. Employment projections are created using an export-based approach; these projections then become the basis for population projections in the Woods & Poole model. The Woods & Poole projections show less variation in the annual growth rates over time with a much longer period of continuous growth at approximately the same rate. Annual growth rates average 1.71 for the county to 1.74 for the metro area. These annual growth rates are projected through 2025 with minimal decreases. By 2050, annual growth rates drop to 1.43 percent and 1.46 percent for the county and metro area, respectively. For the county, this is significantly higher than the 2050 growth rate projected by the state demographer. The 2050 projected population from Woods & Poole is estimated at 7.2 million for the county and 8.0 million for the metro area.

Among the projection sources shown here, there is some variation between the rate of growth and the point at which long-term growth will begin to slow as the area approaches build-out. However, the university and private sources all fall within the range of growth covered by the low, medium and high series from the state demographer.

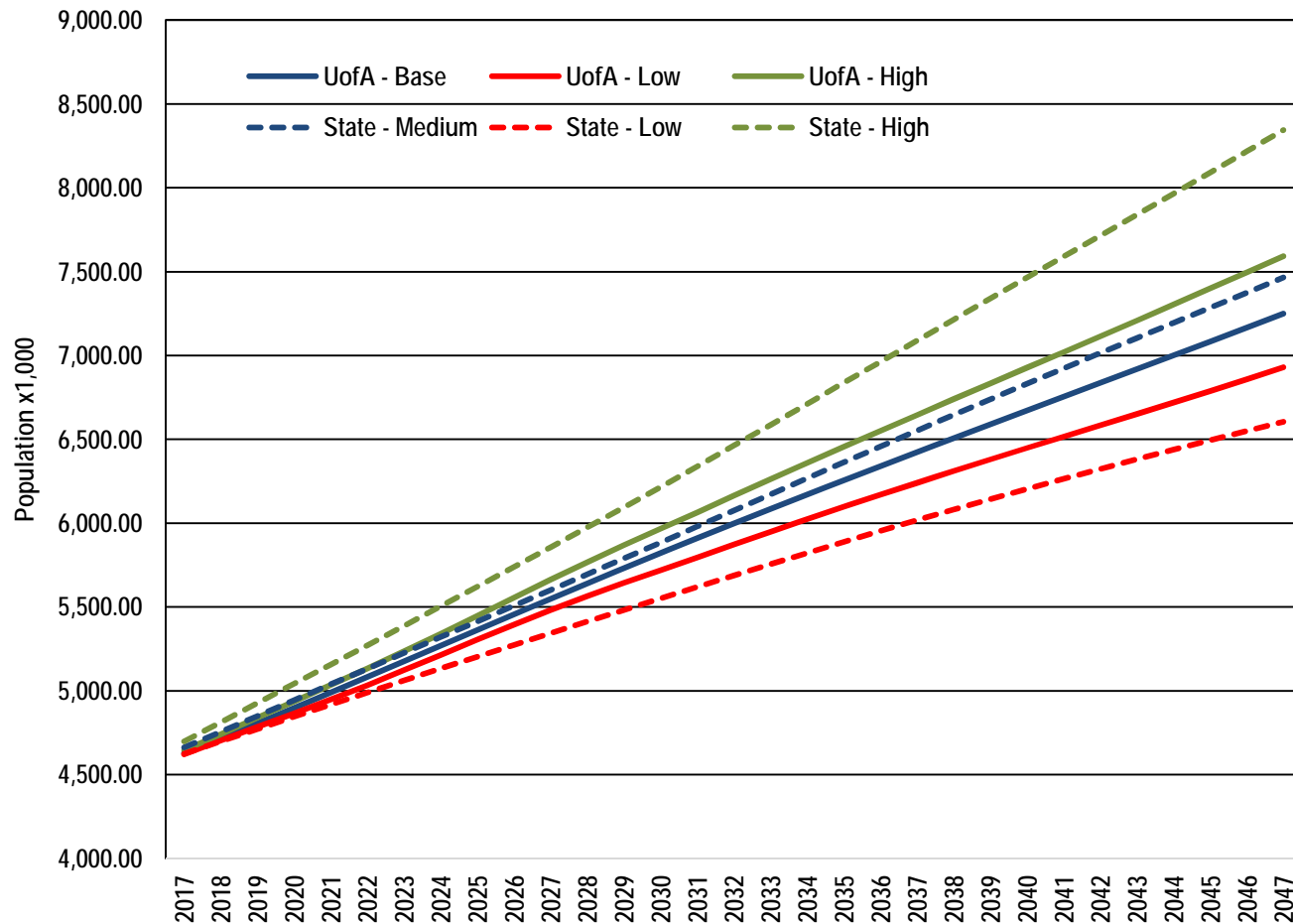
**TABLE 1-30  
COMPARATIVE POPULATION PROJECTIONS FOR MARICOPA COUNTY AND THE PHOENIX MSA**

	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2035	2040	2045	2050
<b>AZ Office of Economic Opportunity</b>																				
<b>Population Projections</b>																				
Maricopa County-Low Series	4,076,400	4,138,000	4,202,100	4,267,200	4,332,200	4,396,700	4,460,200	4,523,100	4,585,400	4,647,000	4,708,100	4,767,800	4,826,800	4,885,100	4,942,700	4,999,800	5,272,300	5,516,700	5,730,800	5,921,800
Maricopa County-Medium Series	4,076,400	4,152,800	4,233,300	4,315,600	4,398,400	4,480,900	4,562,700	4,644,000	4,724,900	4,805,600	4,886,000	4,965,300	5,044,300	5,123,100	5,201,600	5,280,100	5,665,900	6,031,000	6,371,600	6,698,400
Maricopa County-High Series	4,076,400	4,167,500	4,264,300	4,363,700	4,463,900	4,564,100	4,663,600	4,762,900	4,862,200	4,961,400	5,060,900	5,159,600	5,258,600	5,357,700	5,457,200	5,557,100	6,058,500	6,549,600	7,025,200	7,498,100
<b>Annual Growth Rate</b>																				
Maricopa County-Low Series	na	1.51%	1.55%	1.55%	1.52%	1.49%	1.44%	1.41%	1.38%	1.34%	1.31%	1.27%	1.24%	1.21%	1.18%	1.16%	1.09%	0.93%	0.78%	0.67%
Maricopa County-Medium Series	na	1.87%	1.94%	1.94%	1.92%	1.88%	1.83%	1.78%	1.74%	1.71%	1.67%	1.62%	1.59%	1.56%	1.53%	1.51%	1.46%	1.29%	1.13%	1.03%
Maricopa County-High Series	na	2.23%	2.32%	2.33%	2.30%	2.24%	2.18%	2.13%	2.08%	2.04%	2.01%	1.95%	1.92%	1.88%	1.86%	1.83%	1.80%	1.62%	1.45%	1.35%
<b>Population Projections</b>																				
Phoenix MSA-Low Series	4,482,900	4,552,400	4,625,000	4,698,700	4,772,400	4,845,600	4,918,000	4,990,000	5,061,700	5,132,900	5,204,000	5,274,000	5,343,600	5,412,900	5,481,900	5,550,800	5,888,000	6,204,100	6,494,300	6,766,300
Phoenix MSA-Medium Series	4,482,900	4,569,800	4,661,600	4,755,500	4,850,100	4,944,400	5,038,200	5,132,000	5,225,700	5,319,700	5,413,900	5,507,400	5,601,200	5,695,400	5,789,800	5,884,900	6,362,600	6,831,700	7,284,900	7,733,900
Phoenix MSA-High Series	4,482,900	4,587,100	4,698,000	4,812,000	4,927,100	5,042,100	5,156,900	5,272,000	5,387,600	5,503,700	5,620,800	5,737,700	5,855,700	5,974,500	6,094,500	6,215,800	6,836,800	7,464,800	8,090,800	8,729,300
<b>Annual Growth Rate</b>																				
Phoenix MSA-Low Series	na	1.55%	1.59%	1.59%	1.57%	1.53%	1.49%	1.46%	1.44%	1.41%	1.39%	1.35%	1.32%	1.30%	1.27%	1.26%	1.21%	1.07%	0.94%	0.84%
Phoenix MSA-Medium Series	na	1.94%	2.01%	2.01%	1.99%	1.94%	1.90%	1.86%	1.83%	1.80%	1.77%	1.73%	1.70%	1.68%	1.66%	1.64%	1.62%	1.47%	1.33%	1.23%
Phoenix MSA-High Series	na	2.32%	2.42%	2.43%	2.39%	2.33%	2.28%	2.23%	2.19%	2.15%	2.13%	2.08%	2.06%	2.03%	2.01%	1.99%	2.00%	1.84%	1.68%	1.58%
<b>UA Economic Forecasting Project</b>																				
Phoenix MSA-Low Series	4,482,906	4,550,388	4,621,145	4,703,772	4,785,654	4,864,639	4,947,953	5,033,244	5,123,345	5,213,557	5,304,636	5,394,474	5,482,142	5,564,640	5,643,209	5,719,530	6,097,043	6,449,165	6,788,232	
Phoenix MSA-Medium Series	4,482,906	4,550,388	4,630,989	4,717,395	4,806,459	4,897,713	4,990,216	5,083,091	5,176,453	5,269,502	5,362,566	5,455,612	5,548,659	5,640,389	5,731,045	5,820,920	6,255,758	6,672,037	7,083,665	
Phoenix MSA-High Series	4,482,906	4,550,388	4,644,506	4,740,115	4,839,877	4,936,614	5,035,509	5,133,751	5,235,454	5,339,955	5,447,767	5,555,950	5,662,436	5,767,455	5,868,124	5,966,893	6,455,117	6,927,215	7,400,530	
<b>Annual Growth Rate</b>																				
Phoenix MSA-Low Series	na	1.51%	1.55%	1.79%	1.74%	1.65%	1.71%	1.72%	1.79%	1.76%	1.75%	1.69%	1.63%	1.50%	1.41%	1.35%	1.32%	1.16%	1.05%	na
Phoenix MSA-Medium Series	na	1.51%	1.77%	1.87%	1.89%	1.90%	1.89%	1.86%	1.84%	1.80%	1.77%	1.74%	1.71%	1.65%	1.61%	1.57%	1.49%	1.33%	1.23%	na
Phoenix MSA-High Series	na	1.51%	2.07%	2.06%	2.10%	2.00%	2.00%	1.95%	1.98%	2.00%	2.02%	1.99%	1.92%	1.85%	1.75%	1.68%	1.64%	1.46%	1.37%	na
<b>Greater Phoenix Blue Chip Consensus</b>																				
Phoenix MSA	4,575,000	4,666,500	4,759,830	4,864,546	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
Phoenix MSA		2.00%	2.00%	2.20%	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
<b>Woods &amp; Poole</b>																				
<b>Population Projections</b>																				
Maricopa County	4,167,947	4,237,006	4,310,295	4,384,776	4,460,498	4,537,406	4,615,519	4,694,849	4,775,358	4,857,088	4,939,904	5,023,757	5,108,641	5,194,451	5,281,271	5,369,060	5,811,868	6,263,257	6,726,450	7,207,657
Phoenix MSA	4,574,531	4,651,621	4,733,402	4,816,542	4,901,096	4,987,004	5,074,289	5,162,965	5,252,993	5,344,418	5,437,096	5,530,971	5,626,041	5,722,189	5,819,509	5,917,959	6,415,397	6,923,907	7,447,135	7,992,065
<b>Annual Growth Rate</b>																				
Maricopa County	na	1.66%	1.73%	1.73%	1.73%	1.72%	1.72%	1.72%	1.71%	1.71%	1.71%	1.70%	1.69%	1.68%	1.67%	1.66%	1.65%	1.55%	1.48%	1.43%
Phoenix MSA	na	1.69%	1.76%	1.76%	1.76%	1.75%	1.75%	1.75%	1.74%	1.74%	1.73%	1.73%	1.72%	1.71%	1.70%	1.69%	1.68%	1.59%	1.51%	1.46%

Source: Arizona Department of Administration, Office of Employment & Population Statistics, 12/11/2015; Arizona State University W.P. Carey School of Business, Seidman Research Institute, Blue Chip Economic Forecast, Q3, 2017; University of Arizona Eller School of Management, Economic and Business Research Center, August 2017; Woods and Poole Complete Economic and Demographic Data Source, 2018.

A graphic comparison of the base, low and high projection series from the State of Arizona and the University of Arizona is shown in Figure 1-1. The high series from the University of Arizona is very similar to the medium series from the state. The state projections are significantly more extreme on both the high and low end, but these series represent a uniform percentage difference above and below the state medium series, rather actual differences in underlying economic and development conditions that may change the rate of growth.

**FIGURE 1-1  
COMPARATIVE POPULATION PROJECTIONS FOR THE PHOENIX MSA**





## 2.0 Growth & DEVELOPMENT TRENDS

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This section of the report is associated with Task 2 of the City of Phoenix Demographic Study and describes the data and methodology used to develop projections of the overall change in population and employment expected to occur in the City of Phoenix through 2050. The amount of change is a function of the growth in the metropolitan area, development and redevelopment potential, and the market characteristics of specific portions of the city. Information in this section details the development of population and employment projections for Maricopa County, analyzes sub-county growth patterns, and discusses projections for specific areas within the City of Phoenix.

### 2.1 COUNTY AND CITY SOCIOECONOMIC CONTROL TOTALS

#### 2.1.1 COUNTY POPULATION

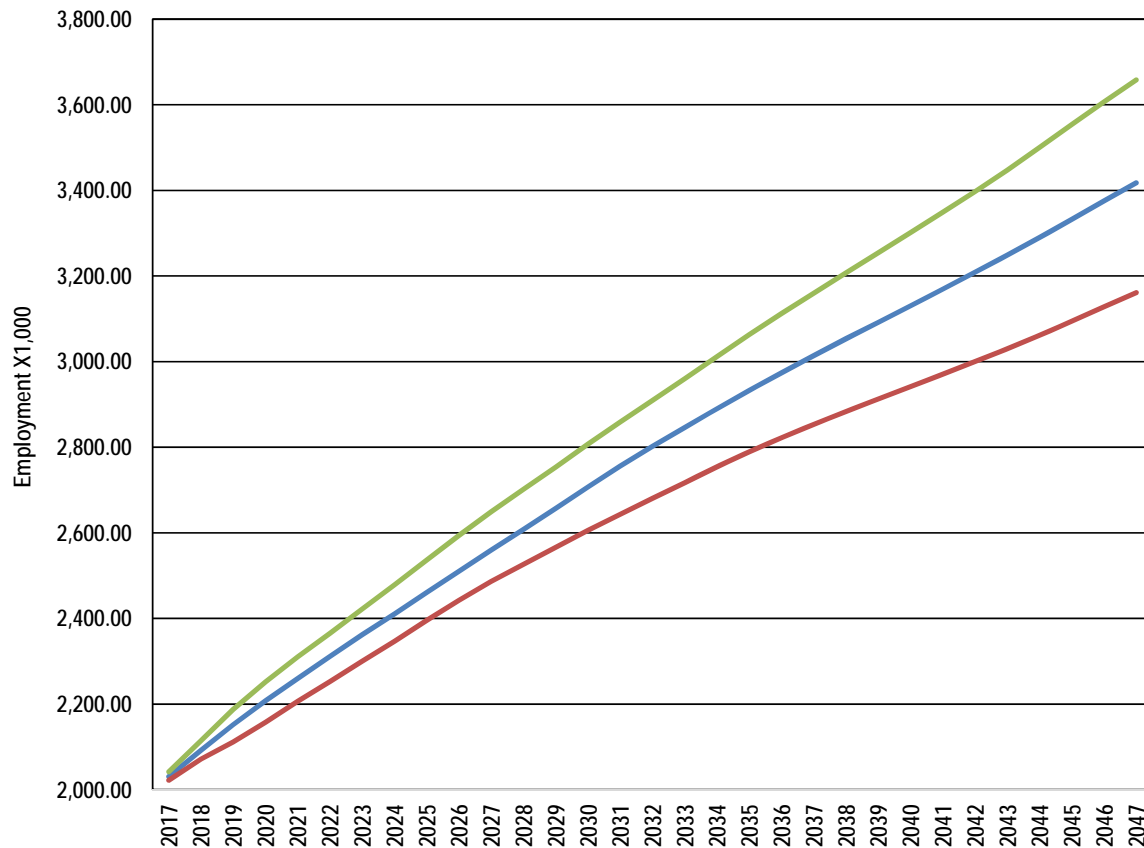
As outlined at the end of Section 1 of this report, a variety of sources are available for long-term population and employment projections for the metropolitan area. In trying to compare and utilize these projections, there are challenges in terms of geography, content and time horizon. Since one of the goals of the analysis is examine the impact of a range of possibilities and since the U of A projections fall within a narrow range of the State's projections, it was decided that the State's projection series (see Figure 1-1) would be used for the projection of population in Maricopa County since it would better illustrate the range of possibilities for the region and the City of Phoenix.

#### 2.1.2 COUNTY EMPLOYMENT

Since the long-term projections from the State of Arizona only include population, it was necessary to obtain employment and employment by industry from another source. Information from the University of Arizona Forecasting Project was used to add this information as follows. First, the overall ratio of population to employment under each of the three U of A growth scenarios was calculated, analyzed and applied to the State's population projection to get employment by industry for the metropolitan area. These projections were then adjusted to exclude Pinal County. This adjustment was based on Pinal County's current share of metropolitan area employment by industry (at the 2-digit NAICS level of detail) and long-term projections of employment by industry for both Maricopa and Pinal counties from Woods & Poole (W&P) Economics.

The results of these calculations show total employment in Maricopa County under the mid-growth scenario increasing from about 2.0 million jobs in 2017 to over 3.4 million jobs in 2047, as illustrated in Figure 2-1.

**FIGURE 2-1  
EMPLOYMENT PROJECTIONS FOR MARICOPA COUNTY**

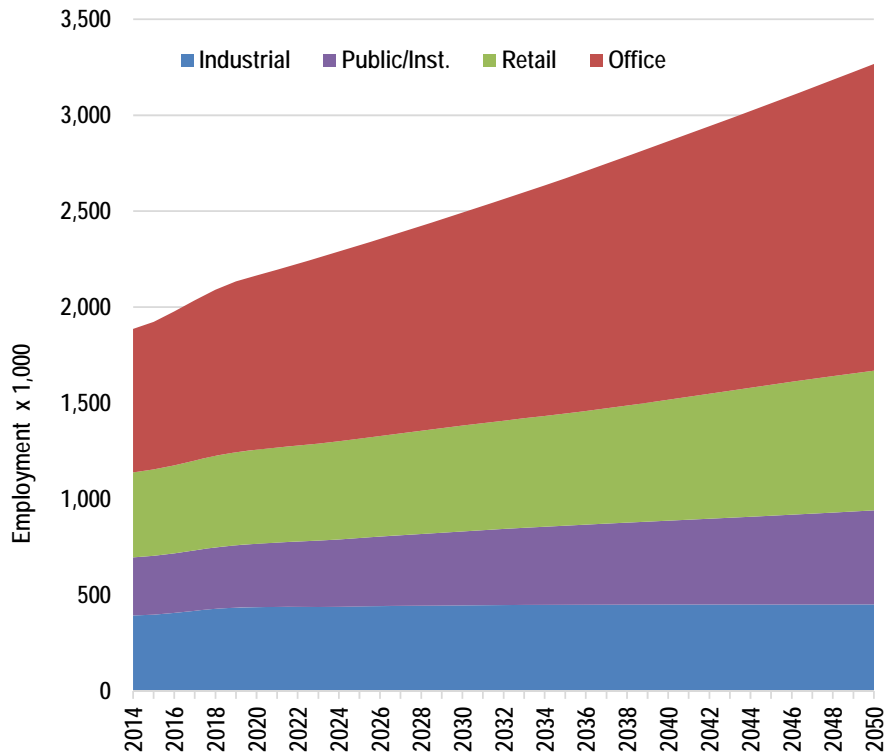


### 2.1.2.1 Employment by Industry

Equally important to the volume of employment growth is its likely impact on development by land-use, which in turn has implications on the geographic distribution of employment growth within the region. To illustrate what the projected structure of employment by industry may imply to land-use, broad industrial categories were assigned to “dominant” land-use categories, as illustrated in Figure 2-2. While it is understood that changes in activity in a particular industry often have an impact on real estate development in multiple land-use categories, the illustration is important to understanding how the future economy will impact the city.

The results of these calculations show very little employment growth in “industrial” industries, as automation decreases the need for workers. However, there will still be the need for millions of square feet of additional industrial space. The next lowest level of employment growth is in the public and institutional sectors where gains in productivity are expect to offset some of the increase driven by population and employment growth.

**FIGURE 2-2  
GENERALIZED EMPLOYMENT BY LAND-USE FOR MARICOPA COUNTY  
MID-GROWTH SCENARIO**



Sources:

- University of Arizona, MSA Economic Forecasts, 2018.
- State of Arizona, County Population Forecasts, 2015.
- Applied Economics, 2018.

NAICS	Sector	Dominant Land Use
11	Agriculture, Forestry, Fishing and Hunting	Industrial
21	Mining, Quarrying, and Oil and Gas Extraction	Industrial
22	Utilities	Industrial
23	Construction	Industrial
31-33	Manufacturing	Industrial
42	Wholesale Trade	Industrial
44-45	Retail Trade	Retail
48-49	Transportation and Warehousing	Industrial
51	Information	Office
52	Finance and Insurance	Office
53	Real Estate and Rental and Leasing	Office
54	Professional, Scientific, and Technical Services	Office
55	Management of Companies and Enterprises	Office
56	Administrative and Support Services	Office
61	Education Services	Public/Inst.
62	Health Care and Social Assistance	Office
71	Arts, Entertainment, and Recreation	Retail
721-722	Accommodation, Food and Drinking Places	Retail
81	Other Services	Public/Inst.
92	Government Total	Public/Inst.

The greatest employment increases are expected in industries that primarily drive retail and office real estate development. While the demand for office-type space appears to be the greatest, the variety of personal and professional services now occupying space in retail centers illustrates how the difference between these categories can be blurred. To better reflect how changes in employment by industry may impact development, a two-step procedure was used to translate the data to employment by land-use based on occupations, which are much easier to assign to land-use categories than are industries.

#### 2.1.2.2 Employment by Occupation

The Bureau of Labor Statistics, 2016-26 National Employment Matrix details the distribution of employment in 336 industries by 819 occupations for the U.S. The industrial detail was collapsed into 24 categories that corresponded to the employment by industry detail available from the U of A projection series. Next, the employment by occupation information from the National Employment Matrix was divided by total employment in each industry category to calculate the share of employment by occupation in the 819 categories within each industry.

The result of this part of the process is shown in Table 2-1 below and aggregated into broad occupational categories for illustration purposes. As the table shows, the breakdown of employment in each industry encompasses a wide variety of occupations. Some industries have very high concentrations of workers in a particular occupation, such as educators in K-12 education, while others are much more diverse and therefore much more likely to impact several types of real estate development.

In much the same way, some occupations are highly concentrated in a particular industry while others, such as management, business and financial operations and office and administrative workers, are found in every industry. Some categories, such as legal occupations, have a relatively small number of workers and some are not a large part of the workforce in any industry but tend to have some presence in nearly every industrial sector.

**TABLE 2-1  
OCCUPATIONAL CATEGORY BY INDUSTRY PROJECTION SECTOR**

Occupations	Natural Resources and Mining	Utilities	Construction	Non-Durable Manufacturing	Durable Goods Manufacturing	Wholesale Trade	Motor Vehicles and Parts Retail	Building Material, Retail Garden Supply	Food and Beverage Retail	Other Retail Trade	Transportation and Warehousing	Publishing and Telecommunications	Other Information	Finance and Insurance	Real Estate, Rental, and Leasing	Professional and Business Services	K-12	Post Secondary	Health Care and Social Assistance	Arts, Entertainment, and Recreation	Accommodation	Food Svcs and Drinking Places	Other Services	Government
Management	15.9%	7.0%	6.1%	3.8%	6.1%	7.1%	4.6%	2.7%	1.8%	2.5%	3.1%	7.7%	6.8%	8.2%	11.6%	7.4%	3.8%	7.0%	3.4%	4.0%	4.4%	2.2%	4.6%	5.1%
Business and financial operations	2.6%	8.1%	3.4%	2.0%	4.2%	5.0%	2.0%	1.3%	0.5%	1.0%	1.8%	7.0%	8.7%	24.5%	5.6%	11.1%	0.7%	5.3%	1.7%	3.0%	1.5%	0.2%	4.9%	2.5%
Computer and mathematical	0.5%	3.8%	0.2%	0.4%	2.8%	3.0%	0.2%	0.1%	0.1%	0.5%	0.5%	17.6%	22.6%	6.9%	0.7%	9.9%	0.8%	3.4%	0.7%	0.4%	0.1%	0.0%	0.8%	1.8%
Architecture and engineering	1.8%	9.4%	1.3%	0.7%	7.7%	1.1%	0.0%	0.1%	0.0%	0.0%	0.4%	0.4%	2.3%	0.1%	0.1%	5.3%	0.0%	0.5%	0.0%	0.0%	0.0%	0.0%	0.1%	0.2%
Life, physical, and social science	1.9%	1.7%	0.0%	0.7%	1.0%	0.3%	0.0%	0.0%	0.0%	0.0%	0.0%	0.1%	0.0%	0.0%	0.0%	1.9%	0.5%	3.2%	0.5%	0.1%	0.0%	0.0%	0.2%	1.6%
Community and social service	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.1%	0.1%	0.2%	2.3%	2.6%	5.5%	0.1%	0.0%	0.0%	7.8%	2.4%
Legal	0.3%	0.3%	0.0%	0.0%	0.1%	0.1%	0.1%	0.0%	0.0%	0.0%	0.0%	0.3%	0.3%	0.9%	0.4%	3.5%	0.0%	0.1%	0.0%	0.0%	0.0%	0.0%	0.1%	0.0%
Education, training, and library	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.1%	0.0%	1.3%	0.1%	0.0%	0.0%	0.5%	66.6%	44.4%	2.7%	0.0%	0.1%	0.0%	4.2%	57.8%
Arts, design, entertainment, sports, and media	0.0%	0.4%	0.1%	0.8%	0.7%	1.2%	0.1%	0.9%	0.3%	1.1%	0.1%	26.2%	8.1%	0.3%	0.9%	2.2%	1.1%	3.7%	0.2%	8.8%	0.4%	0.1%	3.7%	2.1%
Healthcare practitioners and technical	0.2%	0.4%	0.1%	0.1%	0.2%	0.5%	0.0%	0.0%	1.8%	5.2%	0.1%	0.1%	0.0%	0.8%	0.3%	2.0%	1.8%	2.8%	33.0%	0.3%	0.0%	0.0%	0.4%	2.2%
Healthcare support	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.1%	0.3%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.9%	0.2%	0.5%	18.5%	0.2%	0.5%	0.0%	1.0%	0.3%
Protective service	0.2%	1.0%	0.1%	0.1%	0.1%	0.1%	0.1%	0.2%	0.2%	0.4%	0.7%	0.3%	0.1%	0.1%	1.4%	4.1%	1.1%	1.4%	0.4%	4.8%	2.2%	0.3%	0.8%	1.2%
Food preparation and serving related	0.0%	0.0%	0.0%	2.2%	0.0%	0.1%	0.0%	0.0%	12.6%	1.6%	0.2%	4.0%	0.0%	0.0%	0.8%	0.6%	4.5%	1.0%	2.7%	14.5%	24.9%	89.8%	2.1%	3.1%
Building and grounds cleaning and maintenance	1.5%	0.5%	0.5%	1.1%	0.4%	0.4%	0.6%	1.1%	0.8%	0.6%	0.4%	0.4%	0.1%	0.2%	6.7%	9.6%	4.3%	2.8%	2.2%	8.6%	28.7%	0.5%	8.5%	3.7%
Personal care and service	0.0%	0.0%	0.0%	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.8%	0.4%	5.2%	0.0%	0.0%	1.1%	0.7%	1.7%	1.5%	11.8%	29.4%	7.3%	0.1%	20.0%	1.6%
Sales and related	1.0%	1.7%	2.2%	4.7%	2.8%	25.5%	37.5%	56.9%	43.3%	62.0%	1.4%	9.7%	13.6%	14.3%	22.3%	5.2%	0.1%	0.8%	0.4%	7.9%	2.7%	3.2%	3.4%	0.3%
Office and administrative support	5.7%	17.6%	9.7%	8.6%	9.3%	22.8%	13.1%	19.7%	24.7%	14.4%	17.2%	15.7%	17.7%	43.1%	21.3%	20.9%	6.4%	16.2%	14.2%	9.0%	18.7%	0.8%	14.6%	10.3%
Farming, fishing, and forestry	40.4%	0.1%	0.0%	1.0%	0.1%	0.7%	0.0%	1.0%	0.1%	0.1%	0.1%	0.0%	0.0%	0.0%	0.0%	0.1%	0.0%	0.1%	0.0%	0.1%	0.1%	0.0%	0.0%	0.0%
Construction and extraction	10.7%	5.3%	62.4%	0.4%	1.8%	0.4%	0.0%	1.5%	0.0%	0.3%	0.6%	0.6%	0.2%	0.0%	1.2%	1.5%	0.2%	0.6%	0.1%	0.4%	0.2%	0.0%	0.2%	0.3%
Installation, maintenance, and repair	4.1%	26.0%	8.8%	5.5%	4.9%	6.6%	27.5%	2.5%	0.3%	2.3%	6.1%	1.3%	15.7%	0.2%	18.2%	1.8%	1.0%	1.5%	0.7%	3.5%	5.1%	0.1%	11.3%	1.2%
Production	3.3%	14.9%	1.7%	54.8%	51.3%	5.3%	0.6%	1.1%	7.0%	1.4%	1.5%	0.4%	1.9%	0.0%	0.6%	4.8%	0.1%	0.3%	0.4%	0.3%	2.1%	0.5%	4.5%	0.1%
Transportation and material moving	7.9%	1.5%	3.2%	13.0%	6.5%	19.9%	13.8%	10.7%	6.5%	5.0%	65.4%	1.5%	1.7%	0.0%	6.5%	6.0%	2.7%	0.5%	0.7%	2.4%	1.2%	2.1%	6.5%	1.9%

Sources: Bureau of Labor Statistics, 2016-26 National Employment Matrix; Applied Economics, 2018.

### 2.1.2.3 Employment by Land-Use

In order to translate projected employment by occupation into employment by land-use, each of the 819 occupational categories included in the BLS National Employment Matrix were assigned to one or more of the model land-use categories. In many cases it was possible to assign an occupation to just one land-use, for others it was necessary assign fractions to two or more land-use categories. Where splits were necessary, they were based on the relative sizes of the categories being assigned and the consultant team's knowledge of employment patterns in the City of Phoenix. The process included the option to assign some of the employment in occupations to no land-use category because some of the employment is not expected to be site-based; this means that some of the people working in these occupations do not work at a building or may work at home. This process is consistent with the employment projection methodology used by MAG.

The matrix multiplication of the employment by occupation and the share of each occupation by land-use results in the projection of employment by land-use. Table 2-2 shows the projected employment by land-use for Maricopa County based on the mid-range scenario. With an overall projected increase of 1.4 million jobs (82 percent), the mid-growth scenario shows the greatest increases in the office (96 percent) and retail (88 percent) land-use categories; this is consistent with the data presented in section 2.2.1. Institutional and lodging employment are also expected to exceed the overall growth rate, while the manufacturing, warehouse and government land-use categories grow at somewhat lower rates.

As a cross-check for this method of calculating employment, employment by land-use for 2017 was compared to the amount of built, nonresidential space in Maricopa County as reported by the Maricopa County Assessor's office; with this information, we were able to verify that the implied square feet per employee by land-use type fell within the range of the values used by MAG in their modeling process. In addition, the calculation was applied to projected employment to forecast the amount of new, nonresidential space that could be supported in the future. This calculation included assumptions about how employment density rates may change over time.

**TABLE 2-2**  
**OCCUPATIONAL CATEGORY BY INDUSTRY PROJECTION SECTOR**  
**MID-GROWTH SCENARIO**  
**(1,000's of Jobs)**

Year	Mfg/Ind	Warehouse	Office	Retail	Lodging	Institutional	Non-Site	Total Govt	Total
2015	155.37	129.69	631.61	352.47	23.25	165.06	135.95	136.45	1,729.84
2016	159.57	134.61	657.56	365.27	23.87	169.24	142.36	138.41	1,790.88
2017	163.42	138.68	681.00	378.07	24.42	173.17	147.77	139.87	1,846.40
2018	168.29	142.53	703.37	390.35	25.05	177.14	154.60	142.48	1,903.81
2019	172.61	146.26	726.05	402.17	25.63	181.23	159.40	145.38	1,958.73
2020	176.05	149.54	747.48	412.33	26.15	185.33	163.59	148.60	2,009.06
2021	179.08	152.60	767.89	422.00	26.67	189.43	167.40	150.51	2,055.57
2022	181.99	155.43	787.78	431.41	27.19	193.49	170.68	152.78	2,100.75
2023	184.60	158.05	807.27	440.48	27.70	197.76	173.66	154.95	2,144.47
2024	187.02	160.51	826.46	449.41	28.21	202.27	176.51	156.95	2,187.32
2025	189.41	163.12	845.58	458.35	28.72	206.84	179.48	158.84	2,230.33
2026	191.63	165.77	864.65	467.39	29.23	211.43	182.31	160.63	2,273.04
2027	193.63	168.20	883.59	476.49	29.75	216.04	185.20	162.40	2,315.31
2028	195.36	170.51	902.39	485.49	30.26	220.59	188.00	164.41	2,357.01
2029	197.11	172.87	921.37	494.73	30.79	225.06	190.71	166.87	2,399.51
2030	198.93	175.22	940.67	504.15	31.34	229.64	193.56	169.99	2,443.50
2031	200.71	177.47	959.87	513.45	31.88	234.41	196.41	172.06	2,486.25
2032	202.12	179.53	978.01	522.35	32.40	239.10	199.12	174.55	2,527.18
2033	203.49	181.34	995.25	531.04	32.90	243.69	201.67	176.91	2,566.29
2034	205.00	183.16	1,011.96	539.90	33.39	248.24	204.16	179.27	2,605.08
2035	206.51	184.85	1,028.20	548.78	33.88	252.69	206.43	181.62	2,642.98
2036	208.09	186.48	1,043.75	557.56	34.36	256.98	208.62	183.99	2,679.82
2037	209.48	188.00	1,058.87	565.99	34.81	261.12	210.77	186.25	2,715.29
2038	210.88	189.48	1,073.44	574.17	35.25	265.10	212.93	188.42	2,749.67
2039	212.20	190.83	1,087.52	582.11	35.67	268.91	214.93	190.47	2,782.64
2040	213.57	192.20	1,101.63	589.96	36.09	272.60	216.90	193.01	2,815.95
2041	215.03	193.66	1,116.00	597.74	36.50	276.18	218.87	194.63	2,848.60
2042	216.42	195.18	1,130.28	605.35	36.90	279.64	220.98	196.69	2,881.44
2043	217.90	196.77	1,144.87	613.08	37.30	283.01	223.03	198.78	2,914.74
2044	219.51	198.41	1,159.75	620.85	37.70	286.31	225.13	200.91	2,948.56
2045	221.19	200.09	1,174.84	628.72	38.11	289.54	227.35	203.14	2,982.97
2046	222.89	201.84	1,190.20	636.67	38.51	292.69	229.43	205.44	3,017.66
2047	224.51	203.50	1,204.82	644.36	38.89	295.73	231.44	207.71	3,050.96
2048	226.76	205.54	1,216.92	650.83	39.28	298.69	233.77	209.79	3,081.59
2049	229.00	207.58	1,228.96	657.27	39.67	301.65	236.08	211.87	3,112.08
2050	231.24	209.60	1,240.95	663.68	40.06	304.59	238.38	213.94	3,142.44
2015-50	75.87	79.92	609.34	311.21	16.81	139.53	102.43	77.49	1,412.60
Change	49%	62%	96%	88%	72%	85%	75%	57%	82%

Sources: Arizona Department of Administration; University of Arizona; Bureau of Labor Statistics; Applied Economics, 2018.

As shown in Table 2-3, 2017 employment in Maricopa totaled nearly 1.85 million jobs and resulted in an overall average of 485 square feet of nonresidential space per job. By land-use, the rate ranges from an implied low of 214 square feet per job (office space) to a high of 1,490 square feet per job (warehouse space). The only significant variation between these rates and those used by MAG are in the manufacturing and warehouse categories, which are more similar in the MAG model. The difference results from how the various types of industrial uses are classified; if the total for the two categories is taken together, the result is a rate that is very close to that used by MAG.

**TABLE 2-3  
EMPLOYMENT AND NONRESIDENTIAL BUILT SPACE  
MARICOPA COUNTY: 2017-2050  
MID-GROWTH SCENARIO**

	Mfg.	Warehouse	Office	Retail	Lodging	Inst.	Non-Site	Govt.	Total
<b>Employment (000s)</b>									
2017	163.42	138.68	681.00	378.07	24.42	173.17	147.77	139.87	1,846.40
2050	231.24	209.60	1,240.95	663.68	40.06	304.59	238.38	213.94	3,142.44
Change	67.82	70.92	559.96	285.61	15.64	131.42	90.62	74.07	1,296.04
<b>Square Feet (000s)</b>									
2017	53,014	206,632	145,840	194,152	26,491	85,629	0	184,111	895,870
2050	73,360	330,736	257,831	308,395	42,133	144,768	0	272,989	1,430,213
Change	20,345	124,103	111,991	114,243	15,642	59,140	0	88,878	534,343
<b>Square Feet / Employee</b>									
2017	324	1,490	214	514	1,085	494	0	1,316	485
2050	317	1,578	208	465	1,052	475	0	1,276	455

Applying future employment density rates, the mid-range employment projection of 3.14 million jobs in 2050 would result in about 1.43 billion square feet of built space. The 534 million square foot increase in space would result in the amount of space per job slipping from 485 square feet in 2017 to 455 square feet in 2050. The increase in built space includes the addition of over 124 million square feet of warehouse space that is driven by the strength of the sector and the ever-increasing ratio of square feet per worker. Office and retail space should expand at levels similar to that of industrial spaces, but these sectors will be driven by much larger gains in employment.



### 2.1.3 CITY POPULATION AND EMPLOYMENT GROWTH

This section explores how the changes in population and employment in Maricopa County will likely impact the City of Phoenix. This effort serves as method of evaluating and, when necessary, modifying sub-county projections prepared by the Maricopa Association of Governments (MAG) based on actual development activity since those projections were prepared. This evaluation focuses on the projections for the City of Phoenix and a limited number of large areas within the city. More detailed information on the development and redevelopment potential in smaller parts of the city that were used to modify the MAG projections is presented in sections 2.3 and 2.4.

#### 2.1.3.1 Sub-County Development

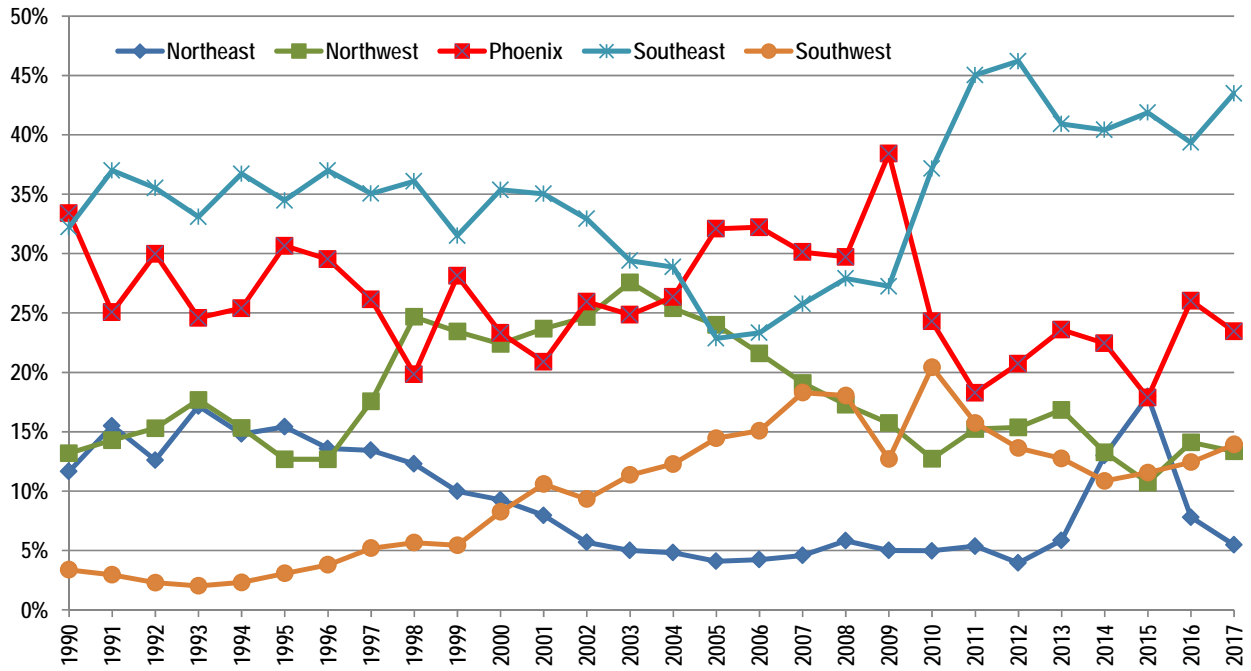
The share of new housing units in Maricopa County built in the city increased from 27 percent to 32 percent between 1990 and 2009, but the figure has declined to about 23 percent since then, as shown in Table 2-4 and Figure 2-3. Some of this decline stems from the lack of available and desirable land for new single family homes and delays in the construction of the Loop 202 in the southwest portion of the city; the lack of supply drove many home buyers to the eastern and western regions of the metro area. The City of Phoenix has, however, maintained a reasonable market share by hosting some 35 percent of the county’s new multi-family units since 2010, as shown in Figure 2-4.

**TABLE 2-4**  
**HOUSING UNITS COMPLETED BY REGION**  
**MARICOPA COUNTY: 1990 - 2017**

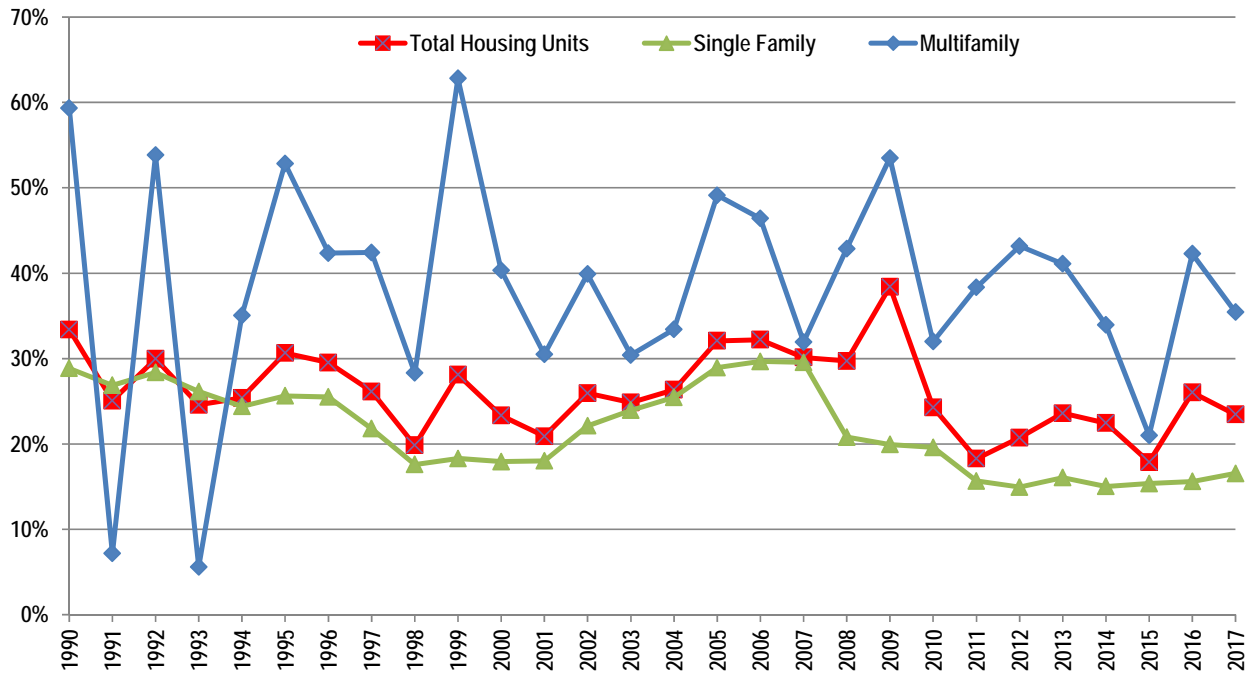
Region	Historical Completions (Units)					
	1990-94	1995-99	2000-04	2005-09	2010-14	2015-17
Northeast	12,868	24,013	13,636	7,655	3,950	5,896
Northwest	13,571	35,132	51,471	34,714	8,087	7,677
Rural County	4,631	4,655	3,702	4,024	92	132
Phoenix	23,650	50,392	50,565	53,783	12,284	13,594
Southeast	30,842	65,523	67,308	41,552	22,878	24,805
Southwest	2,149	8,883	21,608	26,552	7,804	7,590
Total	87,711	188,598	208,290	168,280	55,095	59,694
Share of County						
Northeast	15%	13%	7%	5%	7%	10%
Northwest	15%	19%	25%	21%	15%	13%
Rural County	5%	2%	2%	2%	0%	0%
Phoenix	27%	27%	24%	32%	22%	23%
Southeast	35%	35%	32%	25%	42%	42%
Southwest	2%	5%	10%	16%	14%	13%

Source: MAG, Residential Building Permit Completions, 2018.

**FIGURE 2-3**  
**SHARE OF TOTAL HOUSING UNIT COMPLETIONS BY REGION**



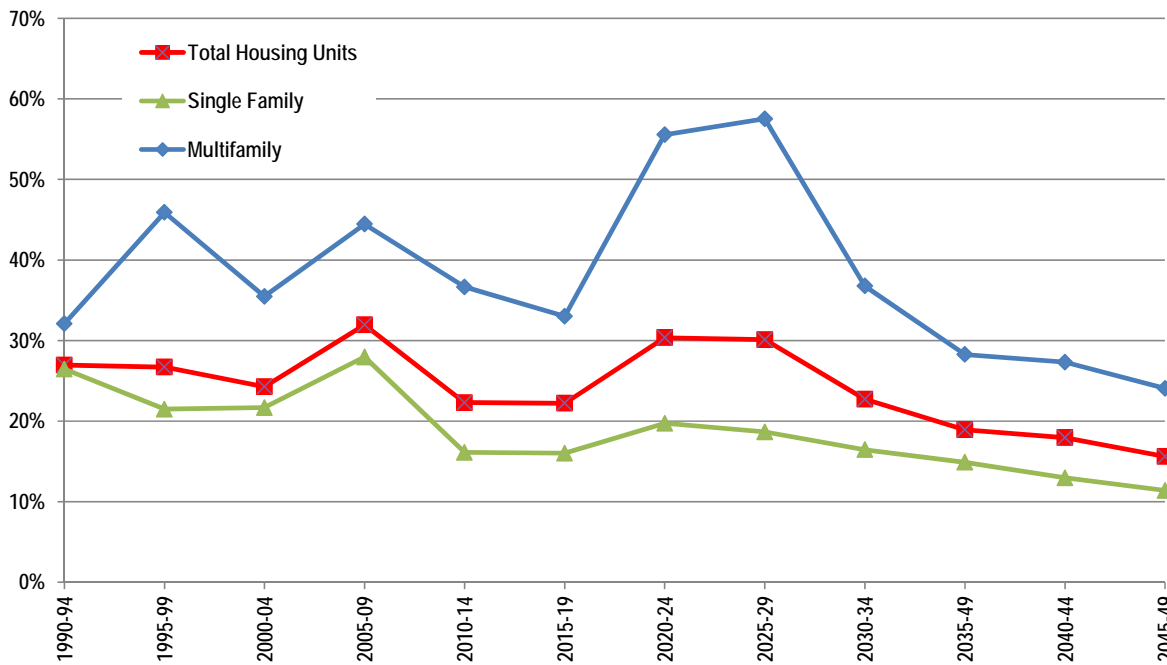
**FIGURE 2-4**  
**PHOENIX SHARE OF HOUSING UNIT COMPLETIONS BY TYPE**



The city’s share of the county’s new housing units was projected based on the housing unit potential and market absorption trends for each of the four growth areas and MAG projections; the data is further augmented by an assessment of redevelopment potential for the balance of the city. This two-tiered approach added detail and accuracy to the socioeconomic projections for each of the growth areas, which are linked to development impact fees, while remaining consistent with the city’s allocation of regional growth through the MAG model. In the end, this process resulted in projections that indicate slightly less long-term growth for the city compared to the MAG projections. The new projections show less-than-expected growth from 2015 to 2019 and slightly more growth in the 2020 to 2024 period, when the projects in the southwestern part of the city are expected to come to fruition.

Figure 2-5 shows the Phoenix share of total new housing units as remaining flat in the 2015 to 2019 period (at about 22 percent of all housing units) and then increasing to about 30 percent of all housing units during the 2020 to 2029 period; this increase is driven by growth in the level of single family development activity, which comprises the majority of all housing units added, and is compounded by increases in new multi-family development.

**FIGURE 2-5  
PHOENIX SHARE OF HOUSING UNIT COMPLETIONS BY TYPE**

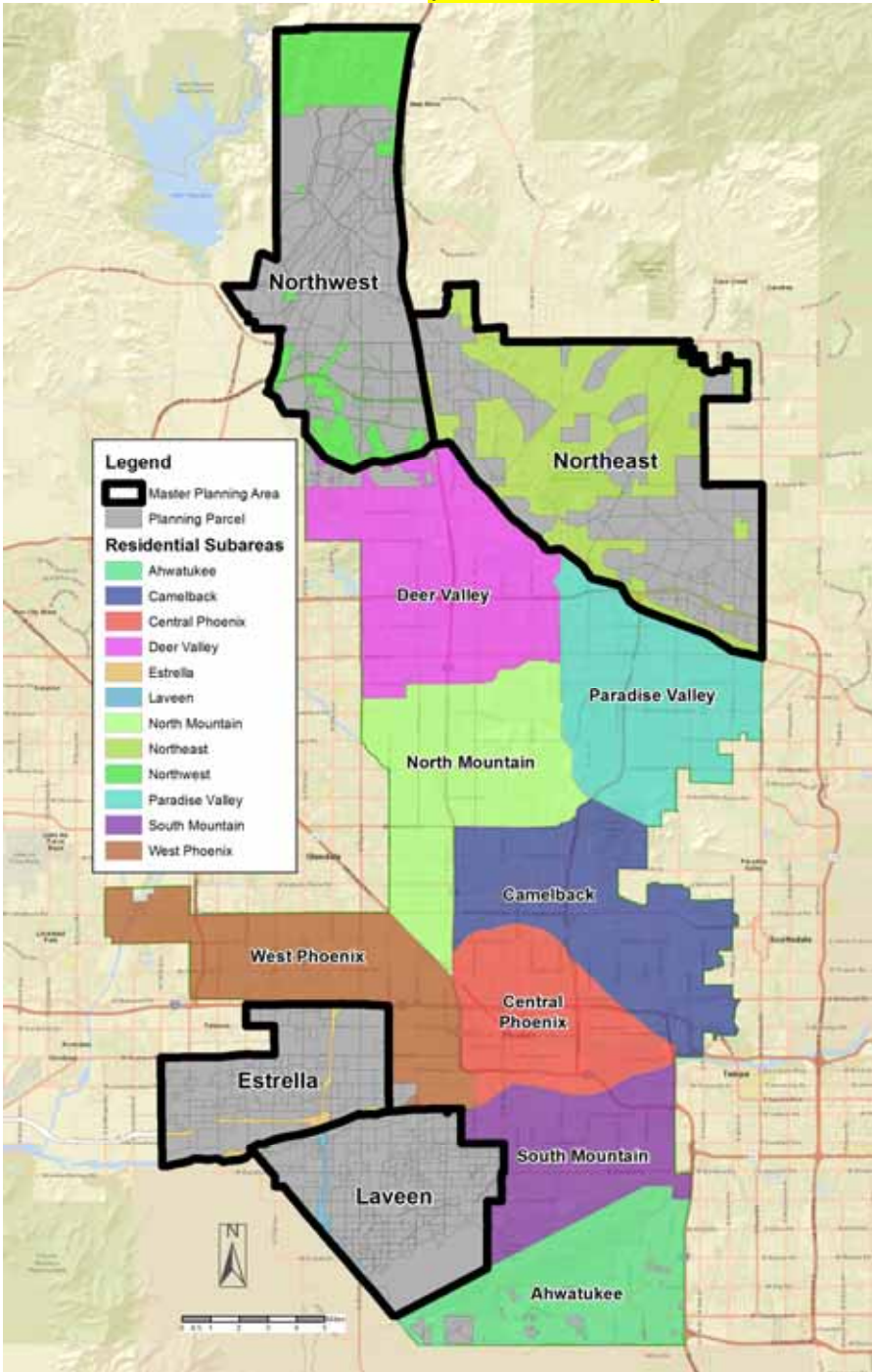


Like housing, an increase in employment in the city is projected based on the nonresidential development potential and market absorption trends for each of the four growth areas and MAG employment projections, which were also augmented by an assessment of redevelopment potential for the balance of the city.

2.1.3.2 Sub-City Residential Development

Sub-city residential development was projected for the twelve market areas that were defined within the city using LUAs, as shown in Map 2-1. Within the growth market areas, the projections were derived based on specific assumptions about the current and future

**MAP 2-1**  
**MARKET AREAS (NEED NEW MAP)**



development of “Planning Parcels” (also known as “large parcels”); these Planning Parcels encompass all of the potentially developable land in each MP area, as detailed in section 2.3 of this report. Growth was allocated to the Planning Parcels based on past growth trends, the amount of land available for development by use, active development projects, known development plans and infrastructure availability. Extra effort was applied to the projections for Planning Parcels during the first ten years since they directly impact near-term infrastructure plans and hence development impact fees. Planning Parcels were also created in specific portions of the Ahwatukee and Deer Valley market areas that are subject to development impact fees.

The projections for the other eight residential subareas were calculated using MAG housing unit projections by LUA. These projections were adjusted based on the assessment of redevelopment potential in the 16 “Areas of Interest” identified in this study. This assessment resulted in the identification of over 300 specific “Redevelopment Planning Parcels”, shown in Map 2-2 and detailed in section 2.4. The potential impact of redevelopment was calculated at the LUA level of geography, with the result being based on the difference between the current and future number of housing units and nonresidential built space by type, as detailed in Table 2-5.

**TABLE 2-5**  
**IMPACT OF REDEVELOPMENT PARCELS**

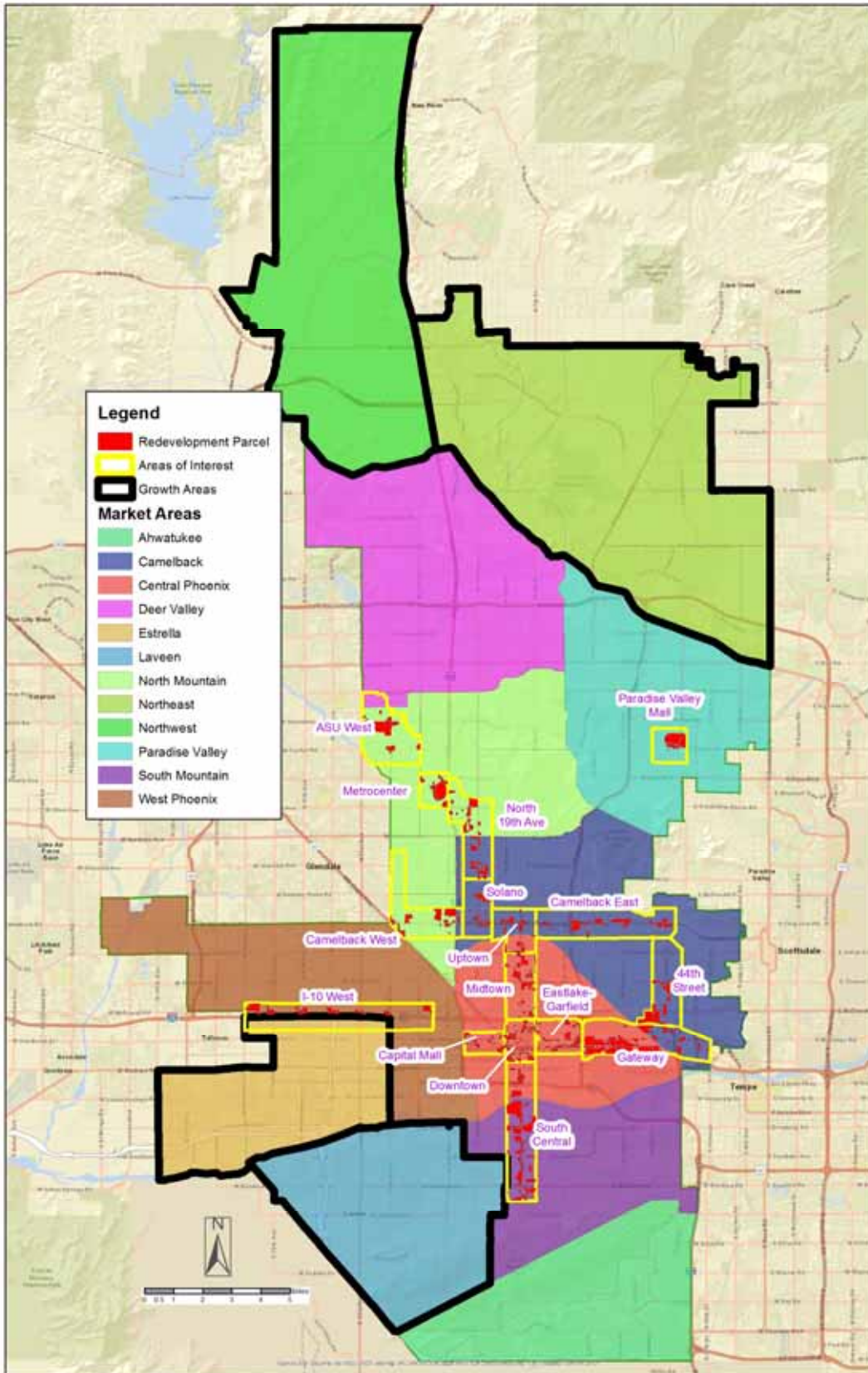
	Residential	Non-Residential				Total
		Retail	Office	Industrial	Public/Other	
Acres	1,493	1,326	1,139	485	126	3,077
New Development *	31,095	14,734	13,862	4,220	3,133	35,949
Replaced Development *	5,299	15,380	7,115	4,315	4,648	31,457
Net Gain	25,796	-646	6,747	-95	-1,515	4,491

Source: Applied Economics, The Planning Center, 2018.

\* Multifamily units and 1,000s of non-residential square feet.

The resulting allocation of new housing units by LUA are shown aggregated for the residential market area in Table 2-6. The total number of new housing units between 2015 and 2049 is projected at roughly 207,000 units, slightly less than MAG’s 2016 projection of 224,000 housing units for the same period.

**MAP 2-2  
AREA OF INTEREST REDEVELOPMENT PARCELS**



**TABLE 2-6  
ACTUAL AND PROJECTED HOUSING UNIT ADDITIONS BY MARKET AREA**

Market Area	Historical and Projected Completions (Units)										
	1990-94	1995-99	2000-04	2005-09	2010-14	2015-17	2015-19	2020-29	2030-39	2040-49	2015-49
Ahwatukee	7,910	8,854	1,443	691	182	581	721	2,544	138	56	3,459
Camelback	544	3,378	4,217	2,893	1,256	2,819	4,619	9,070	3,872	2,814	20,375
Central Phoenix	-610	1,536	3,096	2,470	1,179	2,512	3,957	19,270	7,258	2,150	32,635
Deer Valley	3,974	9,404	5,648	6,111	1,649	812	1,662	1,760	1,642	2,648	7,712
<b>Estrella</b>	48	204	6,074	6,267	990	522	1,281	8,320	3,682	744	14,027
<b>Laveen</b>	85	235	5,770	11,044	1,282	1,363	2,463	13,648	3,752	286	20,149
North Mountain	1,664	3,056	1,086	500	151	173	233	5,740	1,576	683	8,232
<b>Northeast</b>	1,305	8,120	4,368	9,206	3,424	2,893	5,596	22,387	18,887	15,437	62,307
<b>Northwest</b>	3	16	136	1,128	106	30	202	3,582	4,822	10,629	19,235
Paradise Valley	7,153	7,300	2,884	2,967	598	583	933	450	1,585	1,585	4,553
South Mountain	323	1,885	4,363	2,735	812	784	1,584	3,770	3,076	729	9,159
West Phoenix	786	4,352	4,320	4,292	599	483	953	610	2,244	1,781	5,588
<b>TOTAL</b>	<b>23,185</b>	<b>48,340</b>	<b>43,405</b>	<b>50,304</b>	<b>12,228</b>	<b>13,555</b>	<b>24,204</b>	<b>91,151</b>	<b>52,534</b>	<b>39,542</b>	<b>207,431</b>
Market Area											
Ahwatukee	34%	18%	3%	1%	1%	4%	3%	3%	0%	0%	2%
Camelback	2%	7%	10%	6%	10%	21%	19%	10%	7%	7%	10%
Central Phoenix	-3%	3%	7%	5%	10%	19%	16%	21%	14%	5%	16%
Deer Valley	17%	19%	13%	12%	13%	6%	7%	2%	3%	7%	4%
<b>Estrella</b>	0%	0%	14%	12%	8%	4%	5%	9%	7%	2%	7%
<b>Laveen</b>	0%	0%	13%	22%	10%	10%	10%	15%	7%	1%	10%
North Mountain	7%	6%	3%	1%	1%	1%	1%	6%	3%	2%	4%
<b>Northeast</b>	6%	17%	10%	18%	28%	21%	23%	25%	36%	39%	30%
<b>Northwest</b>	0%	0%	0%	2%	1%	0%	1%	4%	9%	27%	9%
Paradise Valley	31%	15%	7%	6%	5%	4%	4%	0%	3%	4%	2%
South Mountain	1%	4%	10%	5%	7%	6%	7%	4%	6%	2%	4%
West Phoenix	3%	9%	10%	9%	5%	4%	4%	1%	4%	5%	3%

Source: Applied Economics, 2019.

### 2.1.3.3 Sub-City Employment Changes

Within the MP Areas, the projections were derived based on specific assumptions about the Planning Parcels that were based on past growth trends, the amount of land available for development by use, active development projects, known development plans and infrastructure availability.

Employment projections for the balance of the city were calculated using MAG employment by land-use projections, by LUA. These projections were adjusted based on the assessment of redevelopment potential in the 16 "Areas of Interest" identified in this study, as described in the residential section above.

## 2.2 DEVELOPMENT CHARACTERISTICS AND TRENDS

In order to develop employment and population projections for the growth, infill and redevelopment areas identified in the Phoenix market, it is necessary to discern the particular characteristics associated with that residential and commercial development that will have an impact on future water demand and wastewater generation. These characteristics act as “drivers” that are likely to change population and employment densities in the future.

### 2.2.1 LAND-USE CATEGORIES

Since land-use categories provide the basis for modeling the effect of development on the projections, the number of core land-use designations was expanded in order to better identify the driving characteristics associated with particular types of development activity. The land-use designations used in this analysis include:

- None/Low Intensity
- Single Family
- Multi-family
- Multi-family Equivalent (Hotels, Dormitories, Assisted Living, etc.)
- Office
- Retail
- Industrial
- Institutional (Education, Healthcare, Sports, Religious, etc.)
- Government/Utility
- Mixed Use

In addition to increasing the number of core land-use designations, “sub-classification” categories were created in order to significantly expand the level of detail and more specifically identify the type of development that is anticipated. Table 2-7 depicts the categories and sub-classifications employed in this study.



**TABLE 2-7  
LAND USE CATEGORIES**

1-Digit Land Use	Core Designation	Key Ratio (1)	2-Digit Land Use	Sub Classification Using Ratio 1	Key Ratio (2)	3-Digit Land Use	Sub Classification Using Ratio 2
0	No/Low Intensity	Employment Per Acre	01	Vacant	Acres	011	Vacant
			02	Resource Based	Acres	021	Agriculture
			03	Passive Open Space / Flood Control	Acres	022	Diary or Feedlot
			04	Active Open Space	Acres	023	Mining/Sand & Gravel
			05	Transportation	Acres	031	Cemeteries
					033	HOA Open Space/Storm Drainage	
					041	Golf Courses	
					042	Race Tracks / Shooting Ranges	
					043	Landfills / Reclamation Sites	
					051	Transportation	
1	Single Family	Units Per Acre	11	< 2 DU/AC	000s Sq.Ft. Per DU	111	< 2 DU/AC
			12	2.01 - 3.5 DU/AC	000s Sq.Ft. Per DU	121	2.01 - 3.5 DU/AC, Small Unit
			13	3.51 - 4.5 DU/AC	000s Sq.Ft. Per DU	122	2.01 - 3.5 DU/AC, Large Unit
			14	4.51 - 6 DU/AC	000s Sq.Ft. Per DU	131	3.51 - 4.5 DU/AC, Small Unit
			15	> 6.01 - 8 DU/AC	000s Sq.Ft. Per DU	132	3.51 - 4.5 DU/AC, Large Unit
			16	> 8 DU/AC	000s Sq.Ft. Per DU	141	4.51 - 6 DU/AC, Small Unit
			17	Mobile Home	000s Sq.Ft. Per DU	142	4.51 - 6 DU/AC, Large Unit
					161	> 8 DU/AC	
					171	Mobile Home	
2	Multifamily	Units Per Acre	21	< 10 DU/AC	000s Sq.Ft. Per DU	211	< 10 DU/AC
			22	10.01 - 15 DU/AC	000s Sq.Ft. Per DU	221	10.01 - 15 DU/AC, Small Unit
			23	15.01 - 30 DU/AC	000s Sq.Ft. Per DU	222	10.01 - 15 DU/AC, Large Unit
			24	30.01 - 50 DU/AC	000s Sq.Ft. Per DU	231	15.01 - 30 DU/AC, Small Unit
			25	50.01 + DU/AC	000s Sq.Ft. Per DU	232	15.01 - 30 DU/AC, Large Unit
					242	30.01 - 50 DU/AC, Large Unit	
					251	> 50.01 DU/AC, Small Unit	
					252	> 50.01 DU/AC, Large Unit	
3	Multifamily Equivalent	Multifamily Equivalent Units Per Acre	31	< 14 MEU/AC	Intensity Factor Per MEU	3X1	Basic Motel/Hotel
			32	14.01 - 30 MEU/AC	Intensity Factor Per MEU	3X2	Full Service Motel/Motel/Resort
			33	30.01 - 50 MEU/AC	Intensity Factor Per MEU	3X3	Long-Term Motel/Short Term Apt/Time Share
			34	50.01 + MEU/AC	Intensity Factor Per MEU	3X4	Student/Military Dormitories Assisted But Independent Living Long Term Care/Nursing Facility
4	Office	000s Sq.Ft. Per Acre (FAR)	41	Office, Population Based	Employees Per Square Foot	411	Office, PB, General
			42	Office, Employment Based	Employees Per Square Foot	421	Office, EB, General
			43	Business Park - Office or R/D	Employees Per Square Foot	422	Office, EB, Backoffice
						423	Office, EB, Call Center
						424	Office, EB, IT Focus
						431	Business Park - R&D Focus
5	Retail	000s Sq.Ft. Per Acre (FAR)	51	Strip Retail	Employees + Customers Per Square Foot	511	Strip Retail - Regular
			52	Neighborhood Retail - Grocery Anchor	Employees + Customers Per Square Foot	512	Strip Retail - High % Services
			53	Community Retail - Non-Grocery Anchor	Employees + Customers Per Square Foot	513	Strip Retail With Coin-Operated Laundromat
			54	Regional Mall	Employees + Customers Per Square Foot	521	Neighborhood - Regular
			55	Power Center	Employees + Customers Per Square Foot	522	Neighborhood - High % Services
			56	Auto/RV/Transportation	Employees + Customers Per Square Foot	531	Community - Regular
			57	Stand-Alone Self Storage	Employees + Customers Per Square Foot	532	Community - High % Services
			58	Stand-Alone Entertainment Centers	Employees + Customers Per Square Foot	541	Regional Mall - Regular
						542	Regional Mall - High % Services
						551	Power Center (Big Box Retailer Focus)
			561	Auto/RV/Transportation			
			562	Car Wash or Gas Station/Car Wash			
			571	Self Storage			
			581	Sole Activity Centers			
			582	Multiple Activity Centers/Theme Parks			
			583	Stand Alone Movie Theaters			
6	Industrial	000 Sq.Ft. Per Acre (FAR)	61	Warehouse	Employees Per Square Foot	611	Warehouse - Primarily Storage
			62	Light Industrial/Assembly	Employees Per Square Foot	612	Warehouse - Heavy Trucking Use
			63	Industrial/Manufacturing	Employees Per Square Foot	621	Standard Light Industrial
			64	Data Center/Server Farm	Employees Per Square Foot	622	Large-Scale Commercial Laundry
			65	Commercial Park/Industrial Oriented	Employees Per Square Foot	631	Industrial/Manufacturing (General)
			66	Hauled Waste and Septage	Employees Per Square Foot	632	Semiconductor/Plating/Other Big Ind Water Users
						633	Industrial/Mfg - Bottling/Food/Similar
			641	Data Center/Server Farm			
			651	Commercial Park/Industrial Oriented			
			661	Hauled Waste and Septage			
7	Institutional	000 Sq.Ft. Per Acre (FAR)	71	K-12 Education	Employees + Students Per Square Foot	711	Elementary School
			72	Post-Secondary Education	Employees + Students Per Square Foot	712	High School
			73	Health Care	Employees + Patients Per Square Foot	721	2-year / Vocational
			74	Social Organizations	Employees + Clients Per Square Foot	722	4-year / General Education
			75	Other		723	4-year & Graduate / Professional
						731	Hospital
						732	Out-Patient Surgery/Clinic/Similar
			733	Medical Research/Education Center			
			734	Veterinary Clinic/Other Animal Facilities			
			741	Community Groups			
			742	Religious Organizations			
			751	Sports Arena, Sport Facility			
			752	Other Non-Profit			
8	Government/Utility	000 Sq.Ft. Per Acre (FAR)	81	General Administration	Employees Per Square Foot	811	General Administration
			82	Public Safety	Employees/Trips Per Square Foot	821	Police Facilities
			83	Public Utilities / Works	Employees Per Square Foot	822	Fire Facilities
			84	Parks	Employees + Customers Per Square Foot	823	Military or Other Public Safety Facilities
						831	Water Facilities
						832	Wastewater Facilities
						833	Street Facilities
						834	Waste Management & General Public Works
						835	Electric Utility - Generation & Transmission
						836	Other Utility (Gas, Cable, Etc.)
			841	Neighborhood Parks			
			842	Community Parks			
			843	Regional Parks			
9	Mixed Use	% SF, MF, Retail, Office, Etc.	91	Mixed Use Residential	Depends On Use	911	
			92	Mixed Use Retail	Depends On Use	921	
			93	Mixed Use Office	Depends On Use	931	
			94	Mixed Use Public	Depends On Use	941	

## 2.2.2 RESIDENTIAL DEVELOPMENT

### 2.2.2.1 Single Family

The Arizona housing market has gradually recovered from the Great Recession, but it is happening at a more moderate level than some other regions of the country. Generally, housing production levels have increased modestly since 2012, although valuation levels have not yet returned to pre-recession levels. Like other moderate growth areas, Phoenix lacks inventory, therefore prices are rising accordingly and homebuilding is strong. Millennial/GenX buyers currently comprise about 40 percent of sales activity and it is expected that this trend will continue to increase, in both the short and long-term, as the group’s preference for rentals starts to give way to home ownership. Smaller, renovated, central city and close-in suburban locations currently characterize Millennial’s preferences. Fueled by employment growth, in-migration and the ascendancy of Millennial/GenX households into home ownership, demand for housing is anticipated to grow consistently. However, long-term projections (12-20 years) need to also accommodate for the ultimate demise of the Boomer households and the volume of resale units that will be absorbed by younger buyers. Experts predict that a serious market correction may occur as a shortage of ownership housing shifts to an over-supply and motivates valuation declines. Additional trends and developmental factors are summarized in the “Single Family Real Estate & Development Data Collection Form” that appears in Appendix A.

For residential development within the single family land-use category, the projected population (and therefore water and wastewater use) varies depending on the size and character of each planned project. These important characteristics are captured using the sub-classifications shown in Table 2-8. First, density is characterized by the number of planned units per acre (ranging from less than 2 to more than 8 dwelling units per acre) and then size is assessed based on the amount of square feet per dwelling unit (ranging from less than 2,000 square feet to more than 8,000 square feet per unit).

**TABLE 2-8  
SINGLE FAMILY LAND USE SUB-CLASSIFICATIONS**

1-Digit Land Use	Core Designation	Key Ratio (1)	2-Digit Land Use	Sub Classification Using Ratio 1	Key Ratio (2)	3-Digit Land Use	Sub Classification Using Ratio 2
1	Single Family	Units Per Acre	11	< 2 DU/AC	000s Sq.Ft. Per DU	111	< 2 DU/AC
			12	2.01 - 3.5 DU/AC	000s Sq.Ft. Per DU	121	2.01 - 3.5 DU/AC, Small Unit
			13	3.51 - 4.5 DU/AC	000s Sq.Ft. Per DU	122	2.01 - 3.5 DU/AC, Large Unit
			14	4.51 - 6 DU/AC	000s Sq.Ft. Per DU	131	3.51 - 4.5 DU/AC, Small Unit
			15	> 6.01 - 8 DU/AC	000s Sq.Ft. Per DU	132	3.51 - 4.5 DU/AC, Large Unit
			16	> 8 DU/AC	000s Sq.Ft. Per DU	141	4.51 - 6 DU/AC, Small Unit
			17	Mobile Home	000s Sq.Ft. Per DU	142	4.51 - 6 DU/AC, Large Unit
						151	> 6.01 - 8 DU/AC
						161	> 8 DU/AC
						171	Mobile Home

### 2.2.2.2 Multi-family

Although the multi-family housing market in Arizona has typically moved up and down in three to four-year cycles; the fall-out from the Great Recession, coupled with the ascendancy of younger generations into the housing market, has created healthy market conditions in Phoenix over the last seven years. Arizona, Atlanta, parts of Florida, Las Vegas and Sacramento are all “post-housing bust” markets that were treated as “toxic” by lenders and builders after the recession; unlike other markets (like New York City, parts of California, Miami, and Seattle), these markets did not attain a more immediate increase in housing growth. As a result, the strong multi-family market in Phoenix (five percent average vacancy and year-over-year rent hikes) is expected to continue for some years to come. According to a recent Colliers report, nearly 1,500 apartments came online in Phoenix during the first quarter of 2017 and more than 10,000 units were under construction. In the short-term, development is likely to be concentrated in the east valley and central Phoenix, as millennials generally prefer rentals in the central city and close-in suburbs. Detached, single family rentals are being offered in Phoenix, but the market is in an early stage of development; production is currently limited due to questions that remain about the long-term nature of this new market. Additional trends and developmental factors are summarized in the “Multi-family Real Estate & Development Data Collection Form” that appears in Appendix A.

As with single family developments, multi-family land-use projects vary considerably based on density and size, and these characteristics have a significant impact on the population projections associated with new developments. In order to capture these effects, the multi-family land-use category includes sub-classifications (Table 2-9) based on the number of units per acre (ranging from less than 10 to more than 50 units per acre) and overall size (ranging from less than 10,000 square feet to more than 50,000 square feet per unit).

**TABLE 2-9  
MULTI-FAMILY LAND USE SUB-CLASSIFICATIONS**

1-Digit Land Use	Core Designation	Key Ratio (1)	2-Digit Land Use	Sub Classification Using Ratio 1	Key Ratio (2)	3-Digit Land Use	Sub Classification Using Ratio 2
2	Multifamily	Units Per Acre	21	< 10 DU/AC	000s Sq.Ft. Per DU	211	< 10 DU/AC
			22	10.01 - 15 DU/AC	000s Sq.Ft. Per DU	221	10.01 - 15 DU/AC, Small Unit
			23	15.01 - 30 DU/AC	000s Sq.Ft. Per DU	222	10.01 - 15 DU/AC, Large Unit
			24	30.01 - 50 DU/AC	000s Sq.Ft. Per DU	231	15.01 - 30 DU/AC, Small Unit
			25	50.01 + DU/AC	000s Sq.Ft. Per DU	232	15.01 - 30 DU/AC, Large Unit
						241	30.01 - 50 DU/AC, Small Unit
						242	30.01 - 50 DU/AC, Large Unit
						251	> 50.01 DU/AC, Small Unit
			252	> 50.01 DU/AC, Large Unit			

## 2.2.3 COMMERCIAL, INDUSTRIAL AND INSTITUTIONAL DEVELOPMENT

### 2.2.3.1 Retail

Much of the growth in retail development in Phoenix is coming from restaurants and small, boutique shops that are locating in new or redeveloped neighborhood centers, including open-air and pedestrian-friendly spaces. These centers tend to service a smaller geographic area than

the regional malls and power centers that were built in the past, and they typically offer products and services that mirror neighborhood demographics. New entertainment centers offer mixed uses and are often located near amenities, including visitor attractions and transportation corridors. Additional trends and developmental factors are summarized in the various “Retail Real Estate & Development Data Collection Forms” that appear in Appendix A.

The effect of retail development on water and wastewater use varies widely depending on the type of project; therefore, sub-classifications for the retail land-use category were expanded to differentiate developments based on size (square feet per acre). These classifications are broken down further based on the anticipated number of employees and customers per square foot, as shown in Table 2-10.

**TABLE 2-10  
RETAIL LAND USE SUB-CLASSIFICATIONS**

1-Digit Land Use	Core Designation	Key Ratio (1)	2-Digit Land Use	Sub Classification Using Ratio 1	Key Ratio (2)	3-Digit Land Use	Sub Classification Using Ratio 2
5	Retail	000s Sq.Ft. Per Acre (FAR)	51	Strip Retail	Employees + Customers Per Square Foot	511	Strip Retail - Regular
			52	Neighborhood Retail - Grocery Anchor	Employees + Customers Per Square Foot	512	Strip Retail - High % Services
			53	Community Retail - Non-Grocery Anchor	Employees + Customers Per Square Foot	513	Strip Retail With Coin-Operated Laundromat
			54	Regional Mall	Employees + Customers Per Square Foot	521	Neighborhood - Regular
			55	Power Center	Employees + Customers Per Square Foot	522	Neighborhood - High % Services
			56	Auto/RV/Transportation	Employees + Customers Per Square Foot	531	Community - Regular
			57	Stand-Alone Self Storage	Employees + Customers Per Square Foot	532	Community - High % Services
			58	Stand-Alone Entertainment Centers	Employees + Customers Per Square Foot	541	Regional Mall - Regular
						542	Regional Mall - High % Services
						551	Power Center (Big Box Retailer Focus)
						561	Auto/RV/Transportation
						562	Car Wash or Gas Station/Car Wash
						571	Self Storage
						581	Sole Activity Centers
						582	Multiple Activity Centers/Theme Parks
						583	Stand Alone Movie Theaters

### 2.2.3.2 Office

Office development in suburban Phoenix is often being driven by major companies that are looking for large tracts of land on which to build inexpensive space (generally concrete tilt-up structures that are one or two stories tall). Businesses also tend to cluster in locations that are employment centers where they can more easily attract employees, often from competitors. Recent trends also suggest that companies are more likely to open several suburban branch locations that service a smaller geographic area instead of building a larger, consolidated office. Sufficient parking facilities and access to transportation corridors continue to be key location drivers. While new development on more centrally located properties is limited, there are some infill locations that can accommodate new, high-rise projects. Additional trends and developmental factors are summarized in the various “Office Real Estate & Development Data Collection Forms” that appear in Appendix A.

In order to better model the effect of office development, several sub-classifications were added based on size (thousands of square feet per acre) and the number of anticipated employees per square foot. These sub-classifications are presented in Table 2-11 below.

**TABLE 2-11  
OFFICE LAND USE SUB-CLASSIFICATIONS**

1-Digit Land Use	Core Designation	Key Ratio (1)	2-Digit Land Use	Sub Classification Using Ratio 1	Key Ratio (2)	3-Digit Land Use	Sub Classification Using Ratio 2
4	Office	000s Sq.Ft. Per Acre (FAR)	41	Office, Population Based	Employees Per Square Foot	411	Office, PB, General
			42	Office, Employment Based	Employees Per Square Foot	421	Office, EB, General
			43	Business Park - Office or R/D	Employees Per Square Foot	422	Office, EB, Backoffice
						423	Office, EB, Call Center
						424	Office, EB, IT Focus
						431	Business Park - R&D Focus

### 2.2.3.3 Industrial

Local service industries are often the key drivers of growth in the industrial sector. While the current inventory of industrial buildings is limited, which has created a very tight market, continued industrial development is expected due to the availability of affordable land in the Phoenix market. Issues pertaining to power requirements, access to transportation corridors and restrictive zoning requirements can impede development. The expansion of distribution facilities is also expected to continue as companies try to speed delivery to their customers and locate centers approximately every 250 miles. Additional trends and developmental factors are summarized in the various “Industrial Real Estate & Development Data Collection Forms” that appear in Appendix A.

Given that the wide variety of types of industrial buildings have an equally divergent impact on water and wastewater use, anticipated development was first characterized based on size (square feet per acre) and then on employment density (employees per square foot). These sub-classifications are presented in Table 2-12 below.

**TABLE 2-12  
INDUSTRIAL LAND USE SUB-CLASSIFICATIONS**

1-Digit Land Use	Core Designation	Key Ratio (1)	2-Digit Land Use	Sub Classification Using Ratio 1	Key Ratio (2)	3-Digit Land Use	Sub Classification Using Ratio 2
6	Industrial	000 Sq.Ft. Per Acre (FAR)	61	Warehouse	Employees Per Square Foot	611	Warehouse - Primarily Storage
			62	Light Industrial/Assembly	Employees Per Square Foot	612	Warehouse - Heavy Trucking Use
			63	Industrial/Manufacturing	Employees Per Square Foot	621	Standard Light Industrial
			64	Data Center/Server Farm	Employees Per Square Foot	622	Large-Scale Commercial Laundry
			65	Commercial Park/Industrial Oriented	Employees Per Square Foot	631	Industrial/Manufacturing (General)
			66	Hauled Waste and Septage	Employees Per Square Foot	632	Semiconductor/Plating/Other Big Ind Water Users
						633	Industrial/Mfg - Bottling/Food/Similar
						641	Data Center/Server Farm
						651	Commercial Park/Industrial Oriented
						661	Hauled Waste and Septage

### 2.2.3.4 Hotel

Hotels tend to cluster in locations where they can share resources, such as parking and easy access to transportation corridors and local restaurants; often times, the location determines the type of hotel. For instance, long-term stay hotels are frequently found near employment and medical centers, while full-service hotels and resorts are more likely to be located near recreational facilities. Many of the newest hotels in the area are limited to three stories (due to zoning restrictions in suburban areas) and they often do not have on-site restaurants. There is an increasing demand for brand name, business and family-friendly hotels, due to the fact that

Millennials are increasingly using alternative lodging options (towable trailers, homestays and apartment sharing) for their personal travel needs. Additional trends and developmental factors are summarized in the “Multi-family Equivalent-Hotel/Lodging Real Estate & Development Data Collection Form” that appears in Appendix A.

Distinctions among the various types of hotel developments are presented in Table 2-13 below and are based on the anticipated number of units per acre and the corresponding “intensity” of those units.

**TABLE 2-13  
MULTI-FAMILY EQUIVALENT: HOTEL LAND USE SUB-CLASSIFICATIONS**

1-Digit Land Use	Core Designation	Key Ratio (1)	2-Digit Land Use	Sub Classification Using Ratio 1	Key Ratio (2)	3-Digit Land Use	Sub Classification Using Ratio 2
3	Multifamily Equivalent	Multifamily Equivalent Units Per Acre	31	< 14 MEU/AC	Intensity Factor Per MEU	3X1	Basic Motel/Hotel
			32	14.01 - 30 MEU/AC	Intensity Factor Per MEU	3X2	Full Service Hotel/Motel/Resort
			33	30.01 - 50 MEU/AC	Intensity Factor Per MEU	3X3	Long-Term Hotel/Short Term Apt/Time Share

### 2.2.3.5 Health Care

While large hospitals are continuing to consolidate campuses, smaller urgent/emergency care and specialty clinics are being developed throughout the metro area. These new facilities are often strategically located to cater to a particular demographic (i.e. aging population or young families). Although zoning restrictions can be a factor, specialty clinics often locate in redeveloped strip malls. Since hospitals employ large numbers of people, multi-family and retail development tends to cluster around new medical facilities. Additional trends and developmental factors are summarized in the “Multi-family Equivalent–Hospitals/Clinics Real Estate & Development Data Collection Form” that appears in Appendix A.

The development impact associated with healthcare institutions is highly variable, therefore sub-classifications were created based on size (square feet per acre) and employment/patient-density (employees and patients per square foot), as shown in Table 2-14 below.

**TABLE 2-14  
MULTI-FAMILY EQUIVALENT: HOSPITALS/CLINICS SUB-CLASSIFICATIONS**

1-Digit Land Use	Core Designation	Key Ratio (1)	2-Digit Land Use	Sub Classification Using Ratio 1	Key Ratio (2)	3-Digit Land Use	Sub Classification Using Ratio 2
7	Institutional	000 Sq.Ft. Per Acre (FAR)	73	Health Care	Employees + Patients Per Square Foot	731	Hospital
						732	Out-Patient Surgery/Clinic/Similar
						733	Medical Research/Education Center
						734	Veterinary Clinic/Other Animal Facilities

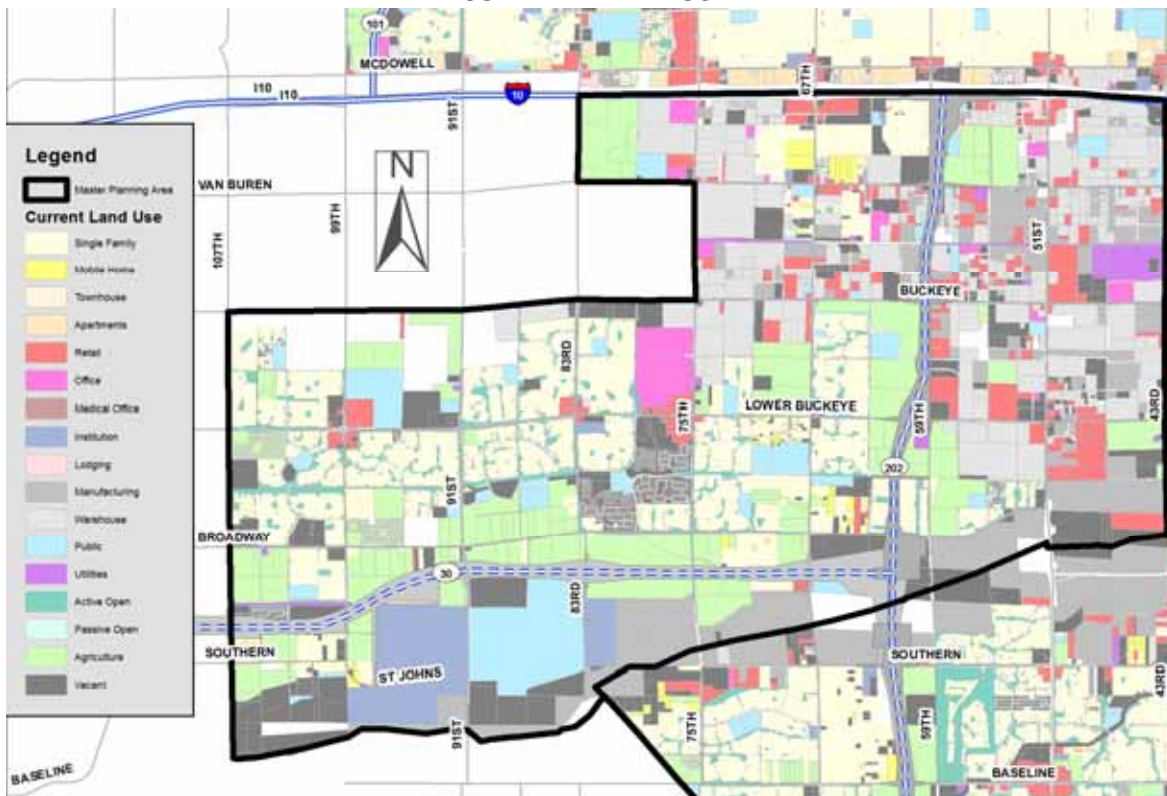
## 2.3 GROWTH AREA LAND-USE ASSUMPTIONS

The purpose of this section is to detail the development assumptions created for the Planning Parcels in each of the **growth market areas**. As described in section 2.1.3.2, projections of absorption were developed for each Planning Parcel based on past growth trends, the amount of land available for development by use, active development projects, known development plans and infrastructure availability. The sections that follow summarize the results for each MP Area.

### 2.3.1 ESTRELLA

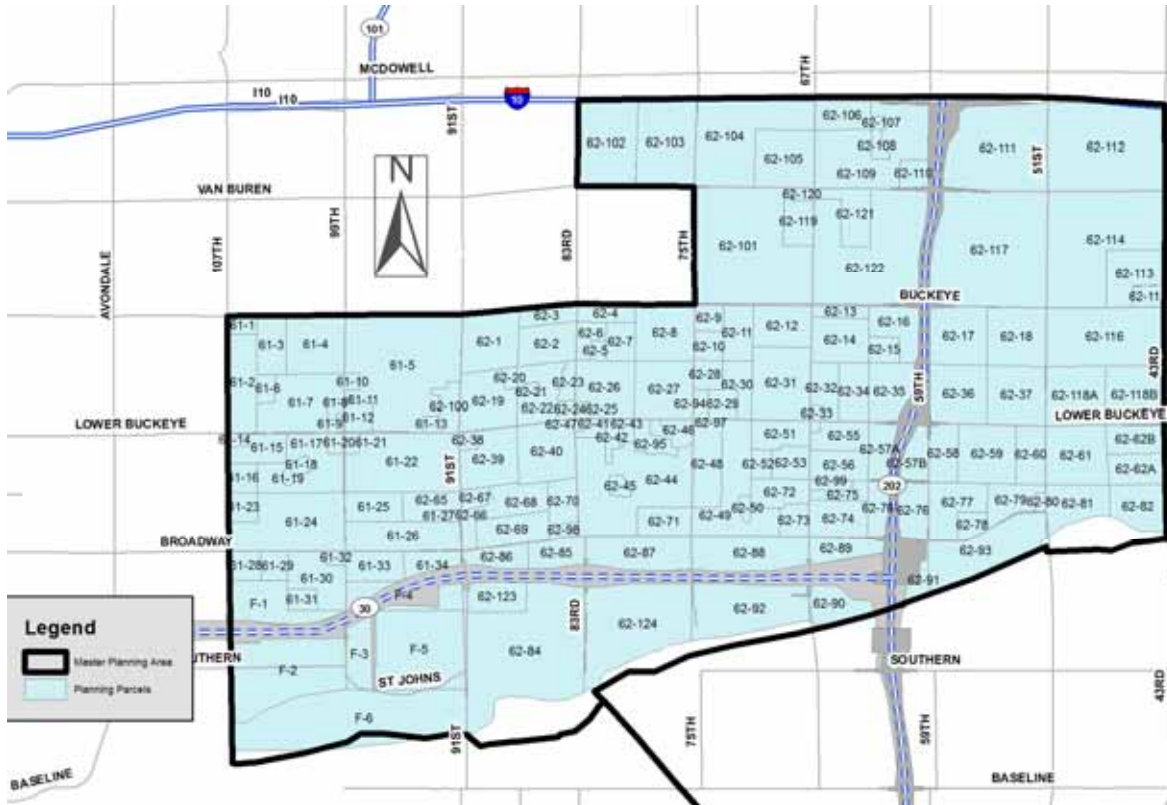
The Estrella growth market area consists of about 32 square miles in southwest Phoenix (west of 43<sup>rd</sup> Avenue between Interstate 10 and the Salt River). Current land-use, shown in Map 2-3 consists primarily of a mix of industrial and residential uses, however, a significant amount of vacant and agricultural land remains for development in the area. Some of this land is expected to develop in the near-term due to the completion of the Loop 202 freeway, while other lands will likely take longer to develop, like those along the future 30 Freeway.

**MAP 2-3  
ESTRELLA GROWTH MARKET AREA  
CURRENT LAND-USE**



The 167 Planning Parcels identified in the Estrella area (shown in Map 2-4), include the potential for approximately 13,700 additional housing units, about two-thirds of which (8,800 units) will be single family units, as shown in Table 2-15. Absorption projections show about 8,500 of these units developing over the next ten or so years; the vast majority of the balance is projected to develop over the following seven to ten years.

**MAP 2-4  
ESTRELLA GROWTH MARKET AREA  
PLANNING PARCELS**



In the case of nonresidential development, there exists a total potential for an additional 36.9 million square feet of space, about 73 percent of which will involve industrial land-uses. Retail, office and public facilities each comprise between seven and eight percent of the total potential. About 51 percent of this development (19 million square feet) is expected to occur in the next 10 years, with about 90 percent of the total being absorbed by 2050.



**TABLE 2-15**  
**ESTRELLA GROWTH MARKET AREA**  
**PLANNING PARCELS POTENTIAL**

Land Use	Acres	Residential Units			Non-Residential Square Feet (x1,000)		
		Total	Built	Potential	Total	Built	Potential
Multifamily	256	4,949	0	4,949	0	0	0
Single Family	7,194	24,749	15,960	8,789	0	0	0
Industrial	7,549	0	0	0	77,619	50,777	26,842
Office	282	0	0	0	3,492	445	3,047
Retail	561	0	0	0	4,026	996	3,031
Public	1,836	0	0	0	4,013	1,426	2,587
Other	131	0	0	0	1,373	0	1,373
Open Space	1,326	0	0	0	0	0	0
<b>Total</b>	<b>19,134</b>	<b>29,698</b>	<b>15,960</b>	<b>13,738</b>	<b>90,523</b>	<b>53,644</b>	<b>36,879</b>

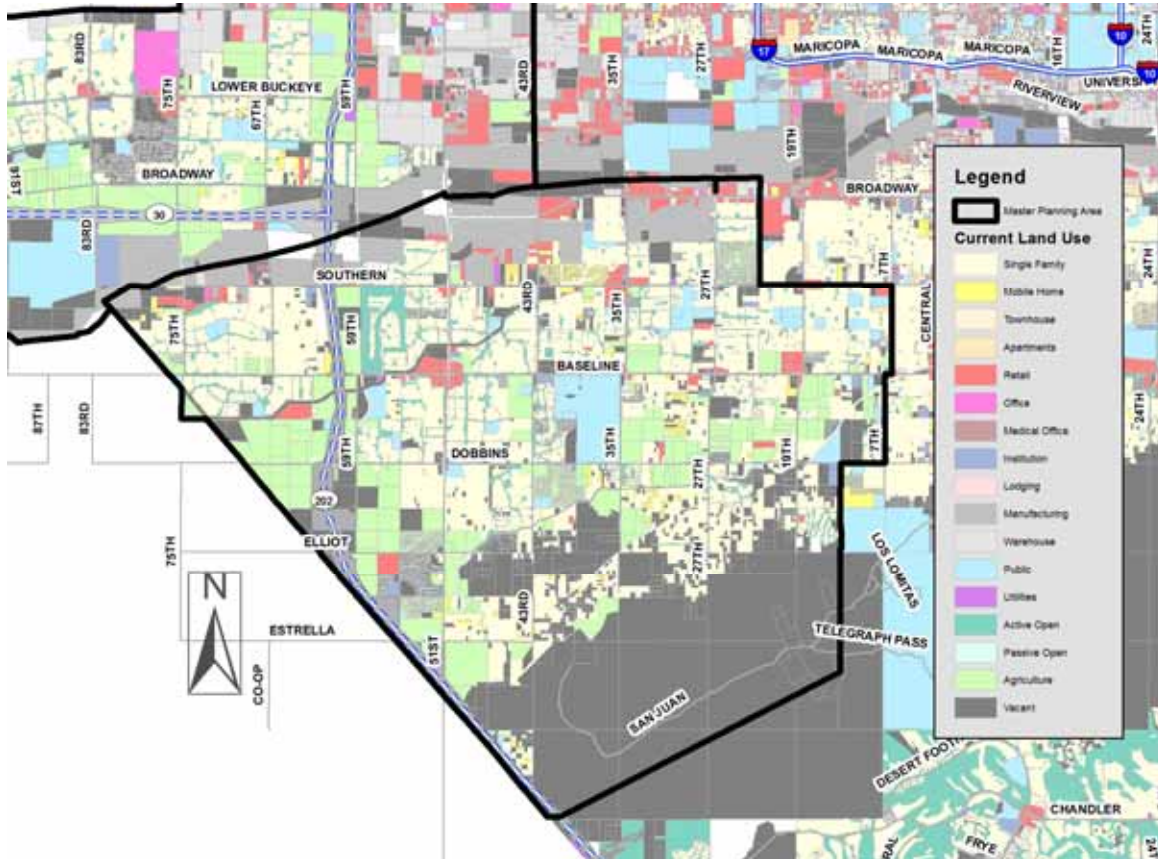
Sources: City of Phoenix, Applied Economics, 2018.

### 2.3.2 LAVEEN

The Laveen growth market areas consists of about 39 square miles in southwest Phoenix (west of 7<sup>th</sup> Avenue between the Salt River and South Mountain). Current land-uses, shown in Map 2-5, consist primarily of residential uses; industrial uses can be found in the north, adjacent to the Salt River. The Laveen area contains a large amount of vacant and agricultural land for future development which is expected to be bolstered by the completion of the Loop 202 freeway.

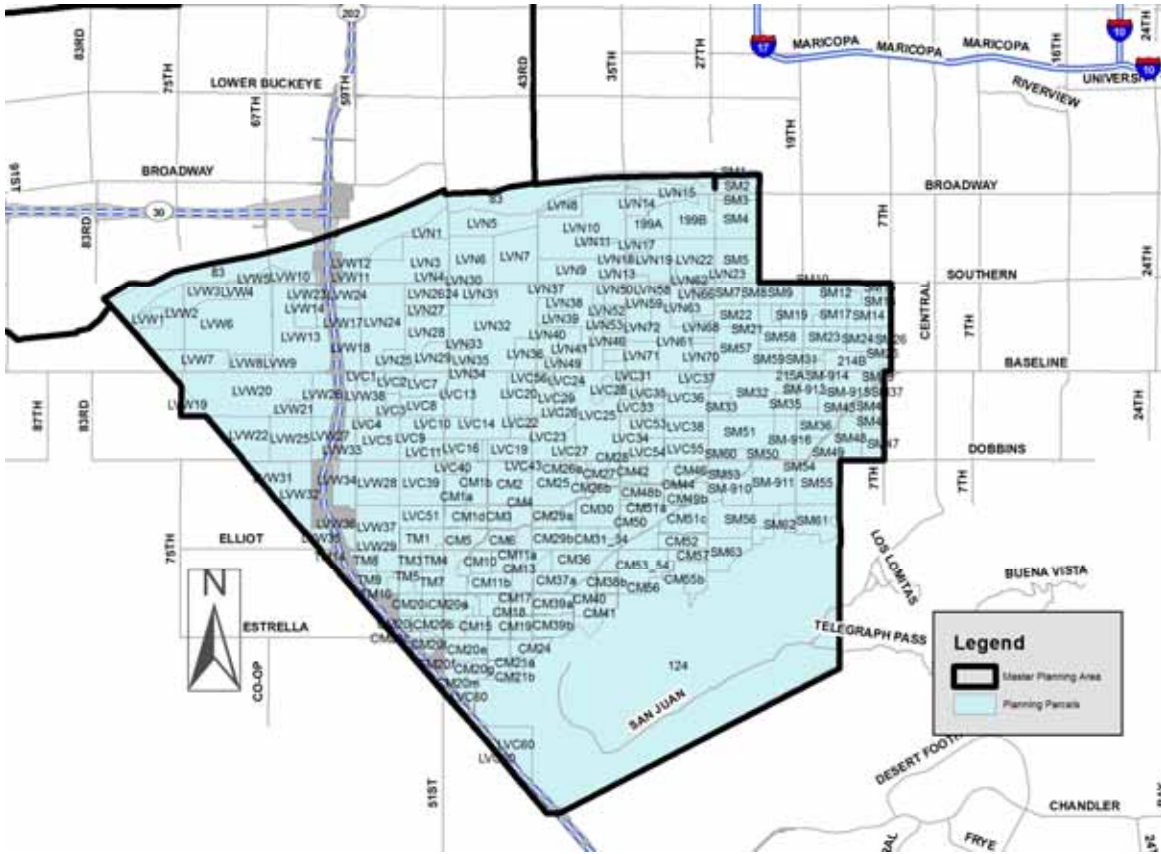
The 336 Planning Parcels identified in the Laveen area (shown in Map 2-6), include the potential for approximately 19,200 additional housing units, equal to about 80 percent of current inventory. Of this potential, some 72 percent are expected to be single family units (13,900), as shown in Table 2-16. Absorption projections show about 13,500 of these units developing over the next ten or so years, with the vast majority of the balance being added to inventory in the following 5 to 10 years.

**MAP 2-5  
LAVEEN GROWTH MARKET AREA  
CURRENT LAND-USE**



The nonresidential development potential in the Laveen MP Area totals roughly 14.8 million square feet, over three times the current inventory of about 4.1 million square feet. About 70 percent of this potential consists of retail, office and public uses, development that was driven by the addition of nearly 60,000 new residents in the area. The industrial development potential in the area consists of about 2.5 million square feet (17 percent of the total), most of which is concentrated near the Salt River in the far northern part of the area. About 31 percent of this development (4.6 million square feet) is expected to occur in the next 10 years, with about 70 percent being absorbed by 2050.

**MAP 2-6  
LAVEEN GROWTH MARKET AREA  
PLANNING PARCELS**



**TABLE 2-16  
LAVEEN GROWTH MARKET AREA  
PLANNING PARCELS POTENTIAL**

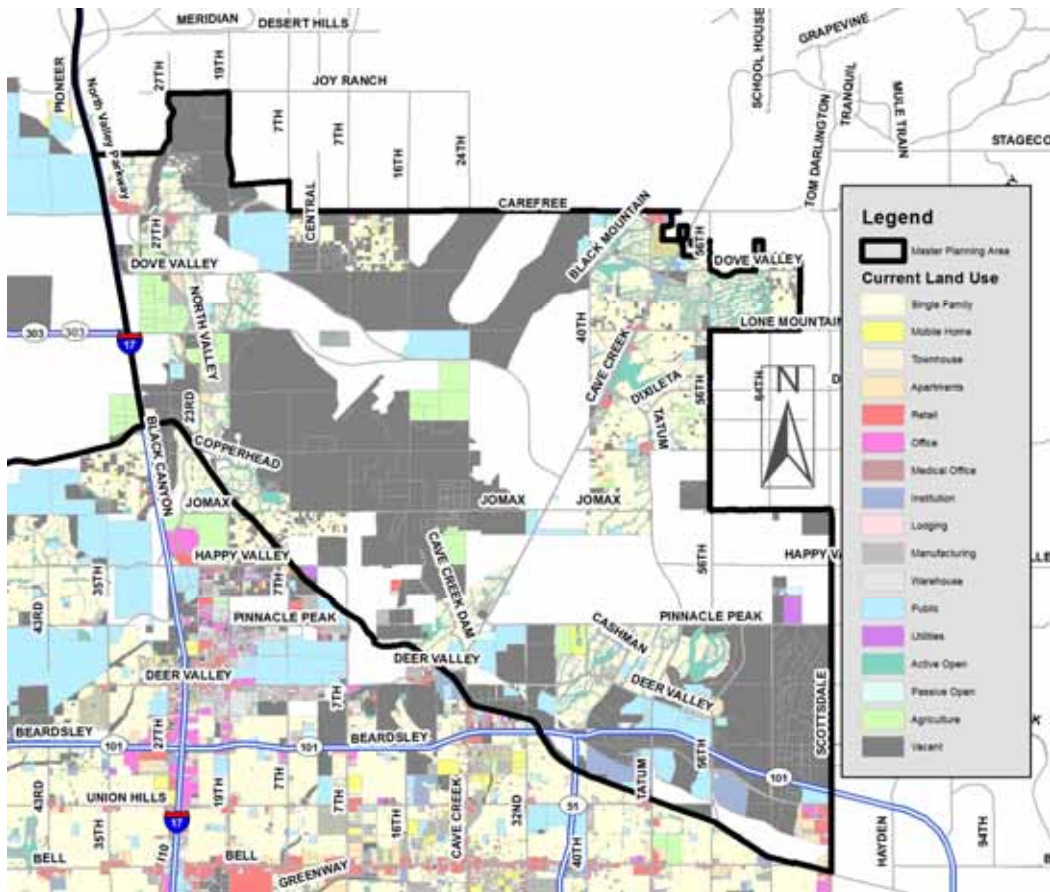
Land Use	Acres	Residential Units			Non-Residential Square Feet (x1,000)		
		Total	Built	Potential	Total	Built	Potential
Multifamily	326	5,768	474	5,294	0	0	0
Single Family	14,952	37,154	23,263	13,891	0	0	0
Industrial	1,371	0	0	0	3,059	572	2,487
Office	129	0	0	0	2,648	23	2,625
Retail	697	0	0	0	6,797	1,904	4,893
Public	364	0	0	0	3,956	701	3,255
Other	865	0	0	0	2,416	916	1,501
Open Space	5,469	0	0	0	0	0	0
<b>Total</b>	<b>24,173</b>	<b>42,921</b>	<b>23,737</b>	<b>19,184</b>	<b>18,875</b>	<b>4,115</b>	<b>14,760</b>

Sources: City of Phoenix, Applied Economics, 2018.

### 2.3.3 NORTHEAST

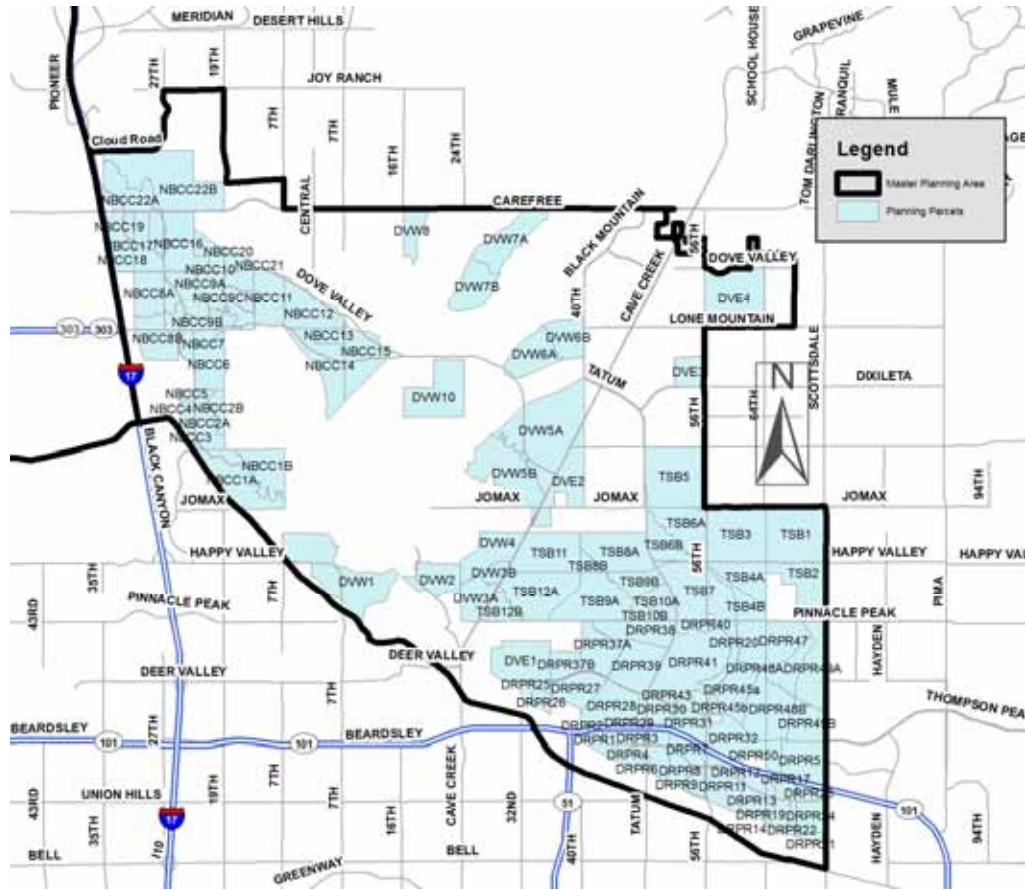
The Northeast MP Area consists of about 87 square miles in northeast Phoenix (west of Scottsdale Road to Interstate 17, between the Central Arizona Project canal and Carefree Highway). Current development in the area, shown in Map 2-7, consists primarily of single family housing and some commercial. The majority of the land, however, is vacant since a significant amount is held in the Phoenix Sonoran Preserve. The rate of development in the area is expected to accelerate as ownership and drainage issues are resolved in the Desert Ridge area and new development emerges along the Sonoran Parkway.

**MAP 2-7  
NORTHEAST GROWTH MARKET AREA  
CURRENT LAND-USE**



The 117 Planning Parcels identified in the Northeast Area (shown in Map 2-8), include the potential for approximately 71,800 additional housing units, about 65 percent of which (46,600 units) will be single family units, as shown in Table 2-17. Absorption projections show about 22,000 of these units developing over the next ten or so years, with the area approaching build-out by 2050.

**MAP 2-8  
NORTHEAST GROWTH MARKET AREA  
PLANNING PARCELS**



In the case of nonresidential development, there exists a total potential for an additional 39.1 million square feet of space, about 64 percent of which will consist of office and retail uses. Public and other types of nonresidential development comprise the majority of the balance; a very small amount of the potential is envisioned for industrial uses in this area. About 20 percent of this development (7.8 million square feet) is expected in the next 10 years; about 67 percent is expected to be absorbed by 2050. Since residential land-uses will be fully absorbed by then, it is likely that some of the land earmarked for nonresidential uses in this area will be down-zoned into residential uses during the coming decades.

**TABLE 2-17  
NORTHEAST GROWTH MARKET AREA  
PLANNING PARCELS POTENTIAL**

Land Use	Acres	Residential Units			Non-Residential Square Feet (x1,000)		
		Total	Built	Potential	Total	Built	Potential
Multifamily	1,685	34,066	8,881	25,185	0	0	0
Single Family	20,270	58,147	11,557	46,590	0	0	0
Industrial	379	0	0	0	3,621	850	2,771
Office	1,023	0	0	0	16,905	1,839	15,065
Retail	1,342	0	0	0	12,746	2,862	9,884
Public	394	0	0	0	4,593	382	4,211
Other	1,356	0	0	0	9,619	2,471	7,147
Open Space	755	0	0	0	0	0	0
<b>Total</b>	<b>27,204</b>	<b>92,213</b>	<b>20,438</b>	<b>71,775</b>	<b>47,483</b>	<b>8,405</b>	<b>39,078</b>

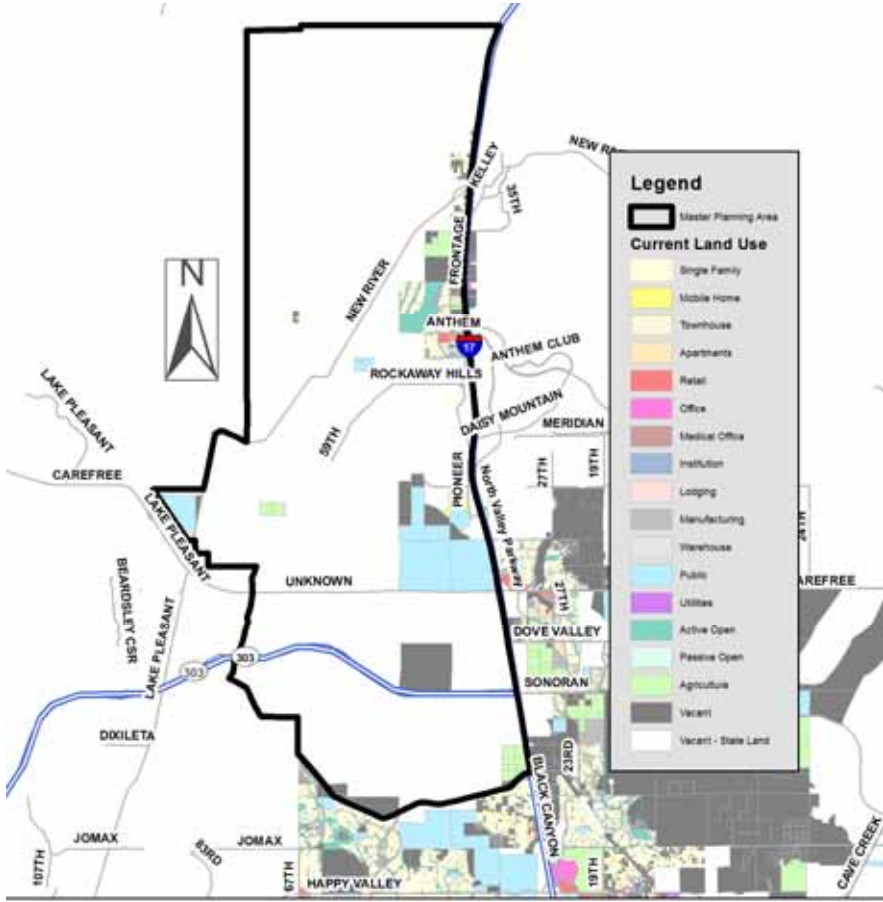
Sources: City of Phoenix, Applied Economics, 2018.

#### 2.3.4 NORTHWEST

The Northwest MP Area consists of about 71.5 square miles in northwest Phoenix (west of Interstate 17 and north of the Central Arizona Project canal). Current land-use, shown in Map 2-9, consists primarily of vacant land with the exception of development west of Anthem, and the State Department of Game and Fish offices and the Ben Avery shooting range along Carefree Highway (State Route 74). Very little development is expected in the area over the next 10 years, although residential development immediately on the west side of Interstate 17, between Pioneer Road and Rockaway Hills Boulevard, is likely.

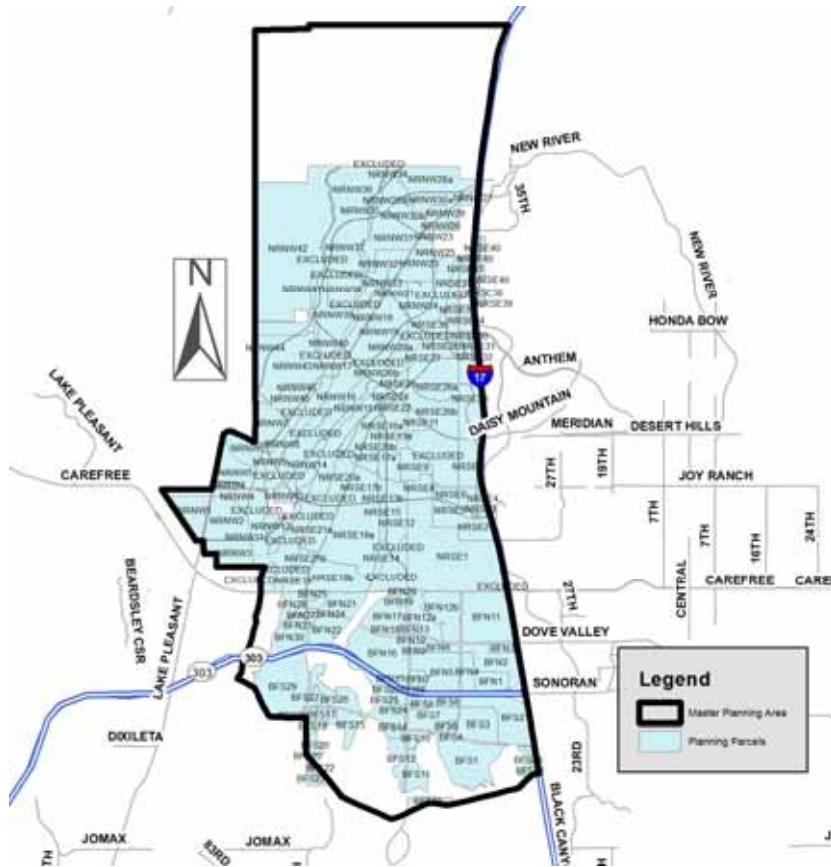
The 161 Planning Parcels identified in the Northwest Area (shown in Map 2-10), include the potential for approximately 68,200 additional housing units. Of this potential, about 53 percent of the units (36,300) are expected to be single family, as shown in Table 2-18. Absorption projections show only about 3,500 of these units developing over the next ten years or so and about 40 percent (26,500 units) being built by 2050.

**MAP 2-9  
NORTHWEST GROWTH MARKET AREA  
CURRENT LAND-USE**



The nonresidential development potential in the Northwest MP Area totals a whopping 79.5 million square feet of space, with about 52 percent of it being industrial (based on the current general plan). The remaining 38.3 million square feet of potential space consists primarily of office and retail uses. As the population of the area grows, it is likely that more land will be used for public and institutional purposes than the current plans indicate. About 1.0 percent of this development potential (875,000 square feet) is expected in the next 10 years and another 7.5 percent (6 million square feet) is expected by 2050.

**MAP 2-10  
NORTHWEST GROWTH MARKET AREA  
PLANNING PARCELS**



**TABLE 2-18  
NORTHWEST GROWTH MARKET AREA  
PLANNING PARCELS POTENTIAL**

Land Use	Acres	Residential Units			Non-Residential Square Feet (x1,000)		
		Total	Built	Potential	Total	Built	Potential
Multifamily	2,253	31,917	0	31,917	0	0	0
Single Family	14,237	37,681	1,386	36,295	0	0	0
Industrial	4,811	0	0	0	41,548	393	41,155
Office	1,656	0	0	0	14,689	72	14,617
Retail	2,434	0	0	0	21,544	946	20,597
Public	1,920	0	0	0	2,251	131	2,120
Other	405	0	0	0	1,000	0	1,000
Open Space	505	0	0	0	0	0	0
<b>Total</b>	<b>28,219</b>	<b>69,598</b>	<b>1,386</b>	<b>68,212</b>	<b>81,032</b>	<b>1,543</b>	<b>79,489</b>

Sources: City of Phoenix, Applied Economics, 2018.



## 2.4 AREA OF INTEREST DEVELOPMENT ASSUMPTIONS

This section describes the information compiled for potential redevelopment projects in the 16 designated Areas of Interest (AOI). In Task 1, base data was assembled for each of the AOIs from a variety of different sources; this data was supplemented by interviews with City of Phoenix village planner in order to identify the portions of each area that hold the greatest potential for infill and redevelopment. Parcels that may have redevelopment potential in the next 10, 20 and 20+ years were also identified.

In Task 2, the analysis was refined and extended to identify specific parcels for redevelopment, to develop assumptions about the most likely land-use(s) for each “large parcel”, and to estimate when redevelopment activity could be expected to begin. This assessment was performed through analysis of the available secondary information, known development plans, meetings with village planners and windshield surveys. In all, the effort resulted in the identification of some 300 potential projects containing just over 4,500 acres of land. Of this potential, about 1,500 acres were identified for multi-family residential development; about 80 percent of the 3,000-acre balance consists of land designated for retail and office uses.

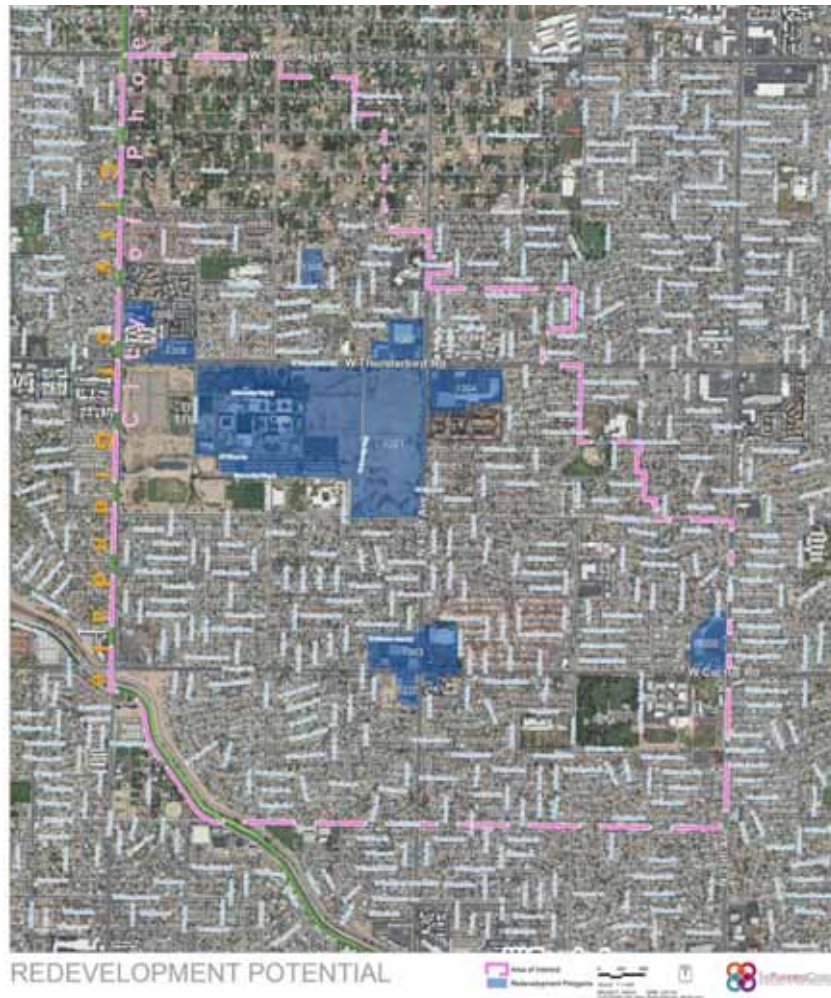
The following sections summarize this information for each AOI and provide estimates of the type and amount of new development that could reasonably be expected to result. While the results of this analysis are based on specific parcels, the goal of this study was to assess the general amount of redevelopment potential so that the city could determine if it is likely to have a significant impact on the demand for various types of city services. Therefore, the exact location and nature of the assumed future projects are not as important as the order-of-magnitude estimate of their overall impact.

### 2.4.1 ASU WEST

This area lies between Peoria Avenue and Greenway Road, from 35<sup>th</sup> Avenue to 51<sup>st</sup> Avenue (Map 2-11). ASU's Thunderbird campus is expanding internally, but there is currently no development around it. The single family housing surrounding the campus is established and likely will not convert for another 10 years. Areas around Thunderbird Road and 43<sup>rd</sup> Avenue may convert to similar uses or piecemeal pockets of small, single family homes may combine into a new, high-density residential product.

Approximately 86 percent of the inventory in the ASU West AOI is comprised of single family units. Roughly 31 percent of the area's population is minority. Residential indicators of distress are estimated at 1,342 households for 2015, of which about 43 percent were renters. Ten redevelopment projects are anticipated in this AOI totaling 276 acres, 1,266 residential units and over 3.3 million square feet of other uses. In terms of size, the top projects are: ASU West (122 acres), Public/Private Partnership (69 acres), 43<sup>rd</sup> Avenue and Cactus (25 acres), and 43<sup>rd</sup> Avenue and Thunderbird Street (2 projects totaling 32 acres).

MAP 2-11  
REDEVELOPMENT POTENTIAL IN THE ASU WEST AOI



## 2.4.2 METROCENTER

Located between Peoria and Olive Avenues, from 35<sup>th</sup> Avenue to I-17, this area includes a light rail alignment (Map 2-12). Loop roads are to remain as shown on all future plans and an extension of the light rail into the site on the east side of Cheryl Drive is planned. The area is converting to outdoor mixed-use, with a high-density, residential component.

Approximately 25 percent of the housing inventory in the Metrocenter AOI is single family and the balance is multi-family. About 43 percent of the area's population is minority and residential indicators of distress are estimated at 460 households for 2015, of which about 87 percent were renters. The 11 redevelopment projects anticipated in this AOI total 209 acres, 797 residential units and over 1.4 million square feet of other uses. In terms of size, the top projects include: Metrocenter (113 acres), Metro Market Place (21 acres), Peter Piper Pizza (17 acres), Premiere Inns (15 acres) and Office (14 acres).

MAP 2-12  
REDEVELOPMENT POTENTIAL IN THE METROCENTER AOI



### 2.4.3 NORTH 19<sup>TH</sup> AVENUE

This area is located between Peoria and Maryland Avenues, from 15<sup>th</sup> Avenue to 25<sup>th</sup> Avenue, and includes light rail access along 19<sup>th</sup> Avenue (Map 2-13). The potential light rail extension across the I-17 freeway will likely revitalize the area, allowing for redevelopment, improvements to existing office buildings, and new, high-density housing. Older developments will likely be acquired and repositioned for higher-density uses that are better suited to the area.

About 30 percent of the inventory in the North 19<sup>th</sup> Avenue AOI is comprised of single family units and the balance is multi-family. Roughly 55 percent of the area's population is minority. Residential indicators of distress are estimated at 3,240 households for 2015, of which about 88 percent were renters. Twenty-two redevelopment projects are anticipated in this AOI totaling 286 acres, 3,493 residential units and over 1.2 million square feet of other uses. In terms of size, the top projects include: The Royal Palm (54 acres), El Caminito (44 acres), 17<sup>th</sup> Avenue residential (36 acres), Devry (21 acres), US Storage (20 acres) and Orangewood Avenue (20 acres).

MAP 2-13  
REDEVELOPMENT POTENTIAL IN THE NORTH 19<sup>TH</sup> AVENUE AOI



#### 2.4.4 PARADISE VALLEY MALL

This area lies between Shea Boulevard and Thunderbird Road, from Tatum Boulevard to 40<sup>th</sup> Street (Map 2-14). In the distant future, there is the possibility of bus rapid transit or light rail connecting Tatum Road and Shea Boulevard via the Piestewa Freeway (SR 51). Some redevelopment and infill activity is anticipated and, in the long-term, the mall may be converted into an outdoor/mixed-use development that includes high-density residential.

About 43 percent of the inventory in the Paradise Valley AOI is comprised of single family housing and the balance is multi-family. About 25 percent of the area's population is minority. Residential indicators of distress are estimated at 1,115 households for 2015, of which about 66 percent were renters. Five redevelopment projects are anticipated in this AOI, totaling 198 acres, 692 residential units and over 2.9 million square feet of other uses. In terms of size, the top projects include: PV Mall (119 acres), East (50 acres), and Cactus (25 acres).

MAP 2-14  
REDEVELOPMENT POTENTIAL IN THE PARADISE VALLEY MALL AOI



## 2.4.5 SOLANO

Bordered by Maryland and Campbell Avenues, from 15<sup>th</sup> Avenue to 25<sup>th</sup> Avenue, this region is due north of the Midtown AOI (Map 2-15). Existing mixed-use developments includes Christown Mall and existing office spaces. New developments along Camelback Road include retail, senior living and the Native American Connections affordable housing community at 17<sup>th</sup> Avenue. The high-density Westwood Neighborhood has a high crime rate and is a prime location for reinvestment and revitalizing. The area includes a light rail alignment, which will likely spur some redevelopment and infill activity going forward.

About 47 percent of the housing inventory in the Solano AOI is single family and the balance is multi-family. Roughly 66 percent of the area's population is minority. Residential indicators of distress are estimated at 2,133 households for 2015, of which about 88 percent were renters. Fifteen redevelopment projects are anticipated in this AOI totaling 147 acres, 1,056 residential units and 869,632 square feet of other uses. In terms of size, the top projects include: Christown (64 acres), 19<sup>th</sup> Avenue Corridor (16 acres), Park & Ride (10 acres), Bowlero (10 acres), Liquor Basket (10 acres) and Family Dollar (10 acres).

MAP 2-15  
REDEVELOPMENT POTENTIAL IN THE SOLANO AOI



## 2.4.6 CAMELBACK EAST

Located between Missouri and Campbell Avenues, from 48<sup>th</sup> Street to 7<sup>th</sup> Street, this AOI is located in the heart of east Phoenix (Map 2-16). Extensive redevelopment and infill activity is anticipated in the area going forward. As an “auto corridor” that is supported by the city, Camelback Road between the Piestewa Freeway and 44<sup>th</sup> Street will continue to see primarily commercial and office uses. The northwest corner of Camelback Road and 44<sup>th</sup> Street, however, will likely be revised as mixed-use with high-density residential and retail uses and a new site plan.

Approximately 49 percent of the housing inventory in the Camelback East AOI is single family and the balance is multi-family. About 32 percent of the area’s population is minority. Residential indicators of distress are estimated at 2,455 households for 2015, of which about 58 percent were renters. Extensive redevelopment and infill is anticipated going forward. The 19 redevelopment projects that are anticipated in this AOI total 265 acres, 1,795 residential units and over 2.001 million square feet of other uses. In terms of size, the top projects include: Camelback Colonnade (37 acres), The Colonnade (33 acres), Biltmore Plaza Shopping Center (29 acres), Biltmore (28 acres), and Camelback (19 acres).

MAP 2-16  
REDEVELOPMENT POTENTIAL IN THE CAMELBACK EAST AOI

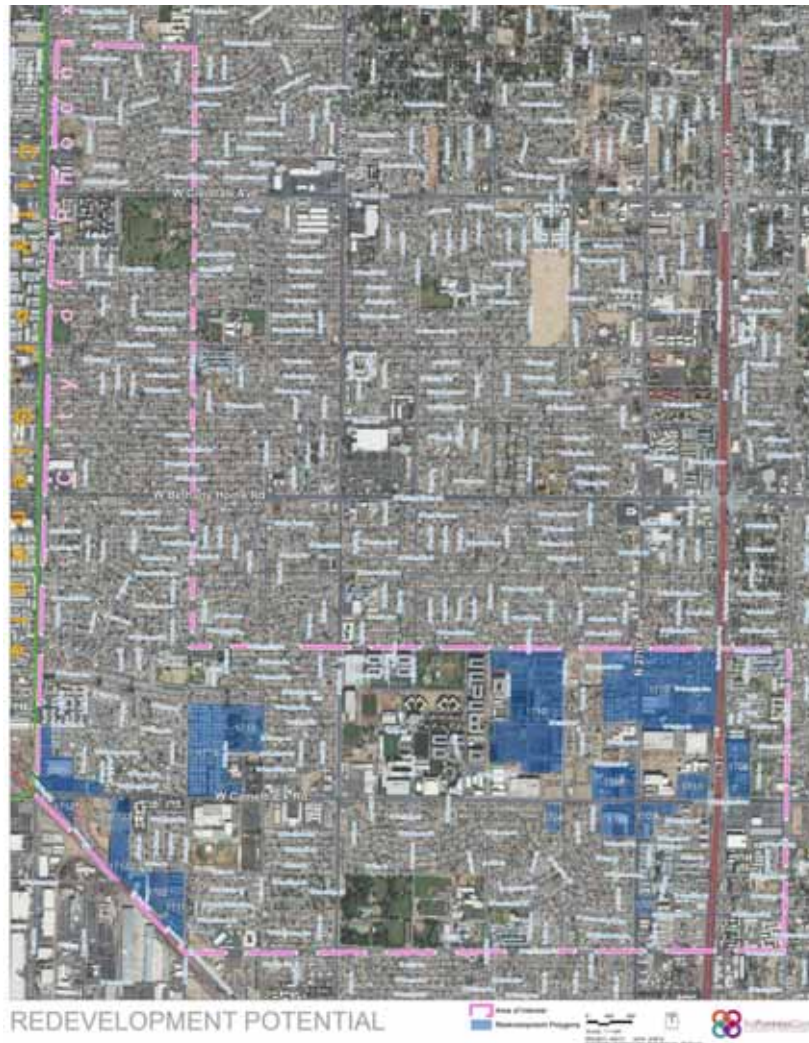


#### 2.4.7 CAMELBACK WEST

This region is contained in the area between Northern and Campbell Avenues, from 43<sup>rd</sup> Avenue to 25<sup>th</sup> Avenue (Map 2-17). Rezoning cases have been focused on redevelopment along Highway 60, on the north side. Community core centers are located at Glendale Avenue and 35<sup>th</sup> Avenue, and also continue along Camelback Road. Although improvements are likely, existing established neighborhoods in the area are likely to remain.

Approximately 59 percent of the housing inventory in the Camelback West AOI is single family and the balance is multi-family. About 81 percent of the area's population is minority. Residential indicators of distress are estimated at 2,779 households for 2015, of which about 76 percent were renters. The 17 redevelopment projects that are anticipated in this AOI total 225 acres, 2,102 residential units and over 1.5 million square feet of other uses. In terms of size, the top projects include: 27<sup>th</sup> Avenue and Missouri (56 acres), GCU (56 acres), 39<sup>th</sup> Avenue and Camelback (25 acres), 37<sup>th</sup> Avenue (14 acres), and U-Haul (13 acres).

MAP 2-17  
REDEVELOPMENT POTENTIAL IN THE CAMELBACK WEST AOI





## 2.4.8 UPTOWN

Contained within the area bordered by Missouri Avenue and Indian School Road, from 15<sup>th</sup> Avenue to 7<sup>th</sup> Street, this area contains light rail access and offers residents an easy commute to downtown Phoenix (Map 2-18). Extensive redevelopment and infill activity is anticipated going forward. SRP is coordinating the Grand Canal Scape design project to improve interaction and access along the canal. This AOI contains pockets of vacant land and lots that are optimal for consolidation to create high-density communities with increased property values.

About 52 percent of the housing inventory in the Uptown AOI is single family and the balance is multi-family. Roughly 35 percent of the area's population is minority. Residential indicators of distress are estimated at 1,200 households for 2015, of which about 76 percent were renters. The 18 redevelopment projects anticipated in this AOI total 166 acres, 883 residential units and nearly 1.2 million square feet of other uses. In terms of size, the top projects include: Mixed-Use (27 acres), Light Rail Station (17 acres), Collier Parcel (15 acres), Agave Farms (13 acres) and Melrose (12 acres).

MAP 2-18  
REDEVELOPMENT POTENTIAL IN THE UPTOWN AOI



## 2.4.9 MIDTOWN

Located between I-10 and Indian School Road, from 7<sup>th</sup> Avenue to 7<sup>th</sup> Street, this area is due north of downtown Phoenix and is a major employment hub that contains light rail access (Map 2-19). Continued mixed-use development and increased densities are expected along 3<sup>rd</sup> and 7<sup>th</sup> Streets, north of the Deck Park Tunnel. Developers are looking to increase the building height along the freeway corridor, which has been contentious in areas adjacent to historic neighborhoods. Development along Central Avenue will likely remain residential, with some mixed-use and extensive redevelopment, and infill is anticipated along 3<sup>rd</sup> Street, between Earll Drive and Flower Street. The proposed redevelopment of Park Central Mall would include tech office, retail and mixed-use around the site.

Roughly 32 percent of the housing inventory in the Midtown AOI is single family and the balance is multi-family. About 34 percent of the area's population is minority. Residential indicators of distress are estimated at 1,571 households for 2015, of which about 73 percent were renters. Twenty-one redevelopment projects are anticipated in this AOI totaling of 235 acres, 1,717 residential units and over 1.55 million square feet of other uses. In terms of size, the top projects include: Park Central (39 acres), Central (37 acres), Central and Thomas (29 acres), Windsor Place (21 acres), McDowell and 3<sup>rd</sup> Street (14 acres), and Cigna (13 acres).

MAP 2-19  
REDEVELOPMENT POTENTIAL IN THE MIDTOWN AOI



## 2.4.10 EASTLAKE-GARFIELD

Due east of the Phoenix Downtown Redevelopment Area, this region represents an extension of downtown (Map 2-20). Within the last 10 years, substantial redevelopment has occurred and much more is expected. New development is typically high-density residential with small parks or markets. Members of the Garfield community are very active and likely will require some areas of historic designation in order to maintain the character of the community. Some high-benefit areas, which are close to light rail stops and the freeway, and some city-owned properties are being offered for development.

About 46 percent of the Eastlake-Garfield AOI's housing inventory is single family and the balance is multi-family. Approximately 80 percent of the area's population is minority. Residential indicators of distress are estimated at 1,456 households for 2015, of which about 70 percent were renters. The 23 redevelopment projects that are anticipated in this AOI total 163 acres, 1,025 residential units and 860,000 square feet of other uses. In terms of size, the top projects include: Hochani Park (26 acres), East Light Rail Corridor (19 acres), 20<sup>th</sup> Street & Monroe (18 acres) and First Convenience Bank (13 acres).

MAP 2-20  
REDEVELOPMENT POTENTIAL IN THE EASTLAKE-GARFIELD AOI



#### 2.4.11 44<sup>TH</sup> STREET

Contained within the area bordered by Campbell Avenue and McDowell Road, between 40<sup>th</sup> Street and 48<sup>th</sup> Street, this region includes the southern portion of the Arcadia neighborhood (Map 2-21). This AOI is primarily a mix of residential and office. Residents in this community are active and scrutinize new development for quality. The core of this area is at Thomas Road and 44<sup>th</sup> Street, which is likely the point from which development will expand.

Roughly 50 percent of the housing inventory in the 44<sup>th</sup> Street AOI is single family and the balance is multi-family. Over 50 percent of the area's population is minority. Residential indicators of distress are estimated at 2,142 households for 2015, of which about 80 percent were renters. Seventeen redevelopment projects are anticipated in this AOI totaling of 330 acres, 3,497 residential units and over 1.07 million square feet of other uses. In terms of size, the top projects include: State Land (111 acres), Shopping Center (50 acres), Housing on McDowell (33 acres), 44<sup>th</sup> Street and McDowell (27 acres), and 40th Street and McDowell (24 acres).

MAP 2-21  
REDEVELOPMENT POTENTIAL IN THE 44<sup>TH</sup> STREET AOI



## 2.4.12 I-10 WEST

Located within the area between Van Buren Street and McDowell Road, from 33<sup>rd</sup> Avenue to 83<sup>rd</sup> Avenue, this area will ultimately include a light rail alignment originating in downtown Phoenix (Map 2-22). In the short-term, high-density, infill development is likely along the I-10 freeway in vacant parcels, while redevelopment of the warehouse and industrial uses will occur over the next 20 to 30 years. On the north side of I-10, hotels/motels and convenience stores will likely need retrofitting as they deteriorate; more affordable, high-density housing options are needed to provide a workforce for the area south of the freeway. This area will become more appealing as development of the light rail extension branches out to the west valley.

About 58 percent of the housing inventory in the I-10 West AOI is single family and the balance is multi-family. The majority of the area's population (92 percent) is minority. Residential indicators of distress are estimated at 8,257 households for 2015, of which about 75 percent were renters. The 16 redevelopment projects anticipated in this AOI total 694 acres, 2,317 residential units and nearly 6.5 million square feet of other uses. In terms of size, the top projects include: 83<sup>rd</sup> Avenue and I-10 (132 acres), Industrial (107 acres), Roosevelt Ag (79 acres), Loop 202 (75 acres), and McDowell Ag (61 acres), Walgreens (43 acres), Estrella Vista (41 acres) and US Surplus (41 acres).

MAP 2-22  
REDEVELOPMENT POTENTIAL IN THE I-10 WEST AOI

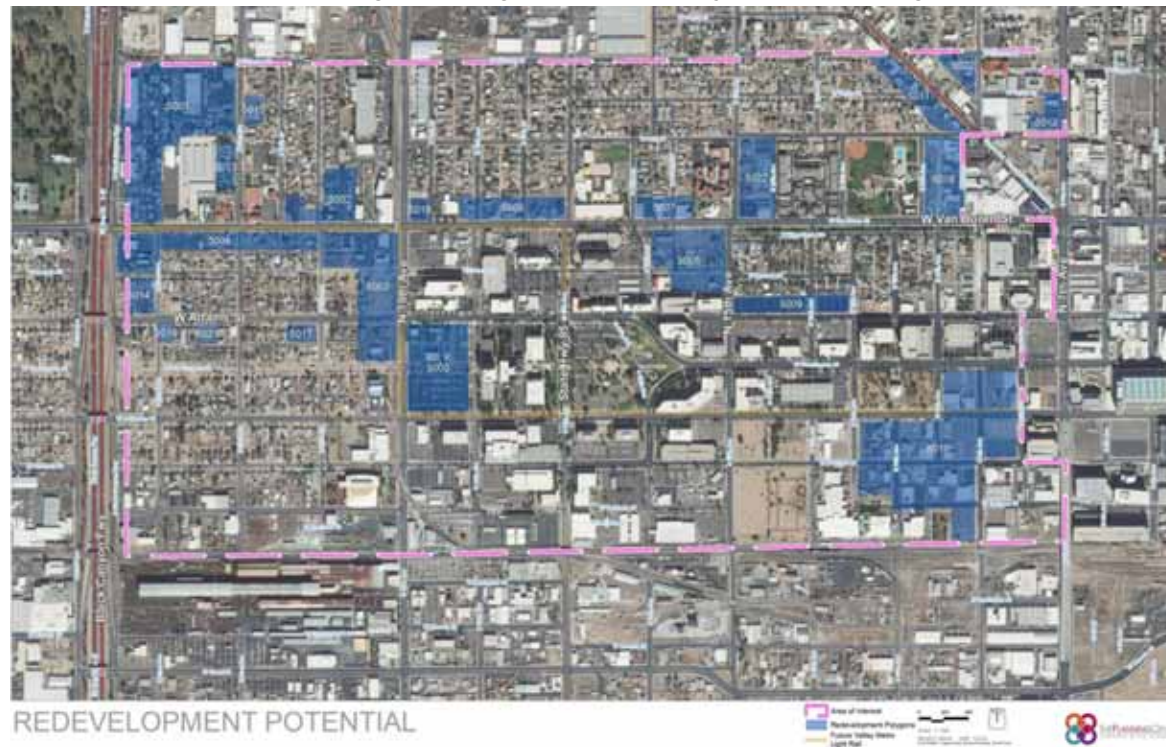


### 2.4.13 CAPITAL MALL

Contained within the area bordered by Grant and Roosevelt Streets, from 7<sup>th</sup> Avenue to I-17, this area is a governmental employment hub; the area will ultimately include light rail access, therefore, extensive redevelopment is likely to occur (Map 2-23). The extension of the light rail to the capitol is expected to spur development on the area's west side. Industrial development along the rail line will continue, although improvements and reinvestment will likely stay to the north, along 7th Avenue and Grand Avenue (at Van Buren Street).

About 45 percent of the housing inventory in the Capital Mall AOI is single family and the balance is multi-family. Roughly 85 percent of the area's population is minority. Residential indicators of distress are estimated at 1,172 households for 2015, of which about 91 percent were renters. Twenty-two redevelopment projects are anticipated in this AOI totaling 110 acres, 1,100 residential units and 451,351 square feet of other uses. In terms of size, the top projects include: Library Park (27 acres), Parts Authority (18 acres) and Auto Action (11 acres).

MAP 2-23  
REDEVELOPMENT POTENTIAL IN THE CAPITAL MALL AOI



#### 2.4.14 DOWNTOWN

Located between Grant Street and McDowell Road, from 7<sup>th</sup> Avenue to 7<sup>th</sup> Street, this region offers light rail access, numerous sports/entertainment facilities and is a university, healthcare and governmental employment hub (Map 2-24). Extensive gentrification has occurred in the area, which is expected to continue in the future. Continued growth of high-density, mixed-use projects, especially along rail corridors, is expected. Developers are requesting increased heights and densities for a variety of mixed-uses in accordance with the city's desire to encourage downtown growth and the Walkable Code.

Roughly 14 percent of the housing inventory in the Downtown AOI is single family and the balance is multi-family. About 58 percent of the area's population is minority. Residential indicators of distress are estimated at 701 households for 2015, of which about 90 percent were renters. Thirty-seven redevelopment projects are anticipated in this AOI totaling 199 acres, 3,346 residential units and more than 2.46 million square feet of other uses. In terms of size, the top projects include: South 7<sup>th</sup> Avenue (13 acres), 7<sup>th</sup> Avenue and Van Buren (12 acres), Ultimate Consignment (12 acres), Van Buren and 4<sup>th</sup> Avenue (11 acres), Central Avenue and Fillmore (11 acres), Roosevelt and 3<sup>rd</sup> Street (11 acres), and UA Campus (10 acres).

MAP 2-24  
REDEVELOPMENT POTENTIAL IN THE DOWNTOWN AOI



## 2.4.15 GATEWAY

Contained within the area bordered by I-10 and Grant Road, from 24<sup>th</sup> Street to Priest Drive, this region includes the area near Phoenix Sky Harbor Airport (Map 2-25). About 86 percent of the housing inventory in the Gateway AOI is single family and the balance is multi-family. Roughly 31 percent of the area's population is minority. Residential indicators of distress are estimated at 1,845 households for 2015, of which about 76 percent were renters. The 29 redevelopment projects anticipated in this AOI total 823 acres, 1,456 residential units and over 6.39 million square feet of other uses. In terms of size, the top projects include: Harrison Street (90 acres), Park & Swap (76 acres), Sky Harbor Inn (68 acres), State Land (67 acres), 24<sup>th</sup> Street and Washington (52 acres), International Paper (43 acres) and WESCO Distribution (40 acres).

MAP 2-25  
REDEVELOPMENT POTENTIAL IN THE GATEWAY AOI



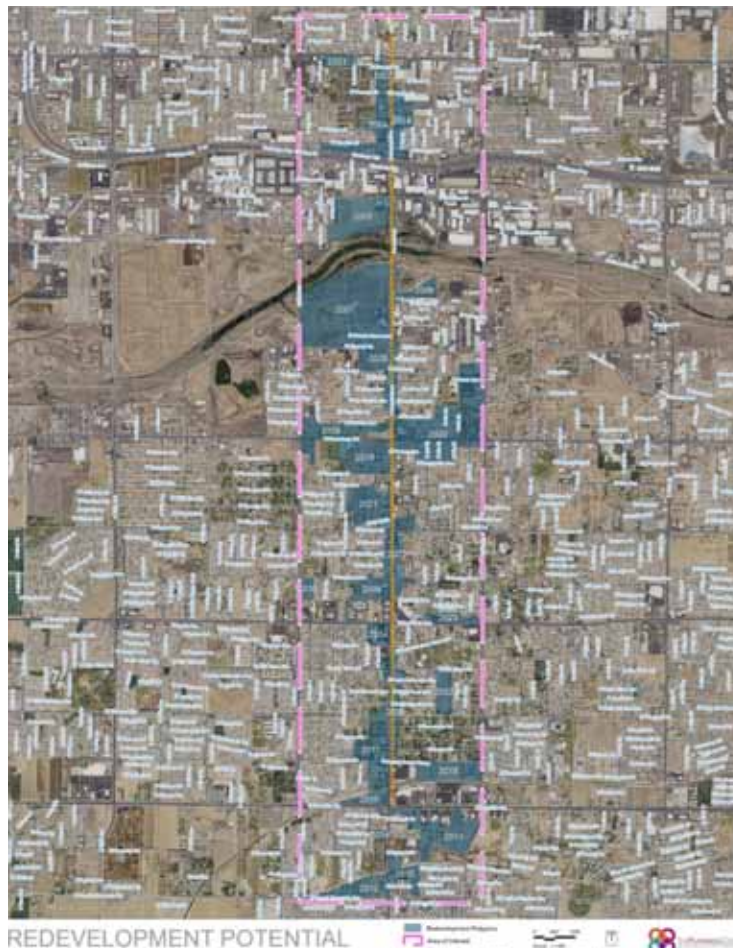


#### 2.4.16 SOUTH CENTRAL

Located between Grant Street and Baseline Road, from 7<sup>th</sup> Avenue to 7<sup>th</sup> Street, this region includes a light rail alignment along Central Avenue which has resulted in, and will continue to expedite, redevelopment in the area (Map 2-26). An extension of the light rail down Central Avenue, with five stops south of the river, is planned for 2019 and additional Park and Ride locations will be located at Baseline and Broadway Roads. Additional multi-family development along Central Avenue is likely; in fact, a new mixed-use, multi-family project with an education component is in the works just south of the river on Central Avenue. Technology companies and data center operators are interested in the area along the light rail corridor and north of the river.

About 66 percent of the housing inventory in the South Central AOI is single family and the balance is multi-family. About 90 percent of the area's population is minority. Residential indicators of distress are estimated at 1,752 households for 2015, of which about 67 percent were renters. Twenty-seven redevelopment projects are anticipated in this AOI totaling 678 acres, 4,415 residential units and over 3.65 million square feet of other uses. In terms of size, the top projects include: South Rio Salado (127 acres), East Broadway (96 acres), North Rio Salado (40 acres) and South Central Corridor West (35 acres).

MAP 2-26  
REDEVELOPMENT POTENTIAL IN THE SOUTH CENTRAL AOI



### 3.0 Socioeconomic Projections

This section of the White Paper is associated with Task 3 of the City of Phoenix Demographic Study and describes the resulting socioeconomic projections for the city’s impact fee areas. These projections include the change in population and employment expected to occur in the City of Phoenix through 2050 under three different scenarios based on low-, mid- and high-growth population projections for Maricopa County (prepared by the State of Arizona) and an assessment of the city’s overall capture rate of that growth. The results for the mid-scenario are intended for use in the 2020 update of the city’s development impact fees, while the low and high scenarios are to be used to analyze the impact that the growth scenarios could have on long-term service, resource and infrastructure needs.

#### 3.1 MID-SCENARIO RESULTS

Projections of the number of new single family and multifamily housing units from Task 2 were used to create projections of households and population for each of the 75 LUAs within the city. All total, the mid-scenario includes the addition of 199,000 housing units in the city between 2015 and 2050. This is 12.7 percent less than the MAG (c2016) projection of about 224,000 additional housing units. The majority of the difference stems from the fact that actual additions for the 2015 to 2020 period have lagged the projection by some 16,000 housing units, likely due to delays in new housing projects in both the southern (Laveen & Estrella) and northern (Northeast & Northwest) growth markets.

TABLE 3-1  
MID-SCENARIO PROJECTED POPULATION AND HOUSEHOLDS  
CITY OF PHOENIX PLANNING AREA

	Group			Households	Housing Units		
	Total Population	Quarters Population	Household Population		Total	Single Family	Multifamily
2015	1,538,658	25,015	1,513,643	546,849	607,056	437,661	169,395
2020	1,627,167	29,191	1,598,894	579,166	632,397	449,782	182,615
2030	1,845,762	37,497	1,789,686	643,592	700,031	486,730	213,301
2040	2,023,754	46,797	1,964,910	706,078	761,544	510,690	250,854
2050	2,143,879	54,251	2,088,832	750,896	805,901	527,632	278,269
<b>Change</b>							
2015-2020	88,509	4,176	85,251	32,317	25,341	12,121	13,220
2020-2030	218,595	8,306	190,793	64,426	67,634	36,948	30,686
2030-2040	177,992	9,300	175,223	62,486	61,513	23,960	37,553
2040-2050	120,125	7,454	123,922	44,818	44,358	16,942	27,415
Total	605,221	29,236	575,189	204,047	198,845	89,971	108,874

Source: Applied Economics, 2019.

The housing unit forecasts, combined with projected changes in occupancy rates and household size, result in projections of households and household population. The projections of group

quarter population were taken directly from the MAG projections and are included in the projection of total population. The projected 2050 household population of 2.09 million persons is about 14.4 percent less than the MAG (c2016) projection, which is a slightly wider margin than for housing units; the difference is driven by larger declines in household population due to increased multifamily development. Table 3-2 details the data for population, households and housing units by impact fee area for the period between 2020 and 2030.

**TABLE 3-2  
MID-SCENARIO PROJECTED POPULATION AND HOUSEHOLDS  
IMPACT FEE AREAS**

	Household		Housing Units		
	Population	Households	Total	Single Family	Multifamily
<b>2020</b>					
Ahwatukee	83,883	33,908	35,080	26,999	8,081
Deer Valley	15,409	4,947	5,330	5,026	304
Estrella North	11,514	3,097	3,438	2,709	729
Estrella South	47,412	12,993	14,710	14,705	5
Laveen East	19,751	5,959	6,468	6,124	344
Laveen West	56,003	16,903	18,863	18,861	2
Non Fee Area	1,278,310	468,151	510,699	346,227	164,472
Northeast	56,882	22,394	25,600	19,645	5,955
Northwest	29,731	10,815	12,209	9,486	2,723
Total	1,598,894	579,166	632,397	449,782	182,615
<b>2030</b>					
Ahwatukee	89,673	35,796	37,010	28,413	8,597
Deer Valley	15,089	4,868	5,380	5,076	304
Estrella North	13,287	3,598	3,918	2,719	1,199
Estrella South	69,891	19,539	22,550	20,250	2,300
Laveen East	25,457	7,780	8,417	8,073	344
Laveen West	88,285	27,353	30,562	27,162	3,400
Non Fee Area	1,337,490	489,712	527,992	347,734	180,258
Northeast	97,664	36,130	43,230	30,984	12,246
Northwest	52,850	18,815	20,972	16,319	4,653
Total	1,789,686	643,592	700,031	486,730	213,301
<b>Change 2020 - 2030</b>					
Ahwatukee	5,790	1,888	1,930	1,414	516
Deer Valley	-320	-79	50	50	0
Estrella North	1,773	501	480	10	470
Estrella South	22,480	6,546	7,840	5,545	2,295
Laveen East	5,706	1,822	1,949	1,949	0
Laveen West	32,282	10,451	11,699	8,301	3,398
Non Fee Area	59,180	21,561	17,293	1,507	15,786
Northeast	40,782	13,736	17,630	11,339	6,291
Northwest	23,119	8,000	8,763	6,833	1,930
Total	190,793	64,426	67,634	36,948	30,686

Source: Applied Economics, 2019.

Employment projections were derived based on specific assumptions about the Planning Parcels in the four growth markets; these assumptions were based on past growth trends, the amount of land available for development by use, active development projects, known development plans and infrastructure availability. Employment projections for the balance of the city were calculated using MAG employment by land-use projections, by LUA. These projections were adjusted based on the assessment of redevelopment potential in the 16 AOIs identified in this study.

Employment was modeled using five land-use categories (retail, office, industrial, public and other), plus work-at-home employment. The projections of work-at-home employment were taken directly from the MAG projections. The amount of new, non-residential building in each land-use category was projected for each of the Market Areas. This results in a projection of nearly 188 million square feet of additional space between 2015 and 2050, as shown in Table 3-3. The retail, office and industrial uses each add about a quarter of the new space, with the public and other categories comprising nearly equal parts of the remaining quarter.

**TABLE 3-3**  
**MID-SCENARIO PROJECTED NON-RESIDENTIAL SQUARE FOOTAGE**  
**CITY OF PHOENIX PLANNING AREA**  
**(Thousands of Square Feet)**

	Total	Retail	Office	Industrial	Public	Other
2015	469,120	98,493	85,705	147,651	94,542	42,729
2020	518,909	109,413	97,206	163,769	99,145	49,375
2030	570,207	121,362	107,120	178,285	107,136	56,303
2040	615,115	133,440	119,350	187,409	112,804	62,113
2050	656,948	145,983	131,818	194,913	117,057	67,176
<b>Change</b>						
2015-2020	49,789	10,920	11,502	16,119	4,603	6,646
2020-2030	51,298	11,949	9,914	14,516	7,990	6,929
2030-2040	44,908	12,078	12,230	9,124	5,668	5,809
2040-2050	41,833	12,543	12,468	7,505	4,254	5,063
Total	187,828	47,490	46,113	47,262	22,515	24,447

Source: Applied Economics, 2019.

Table 3-4 shows the projection of employment by land-use for the city resulting from the absorption of the new, non-residential space. The projections show the addition of about 431,000 new jobs, with the majority of the increase (65 percent) occurring in the retail and office land-use categories. It should be noted that the retail land-use category has come to include a much broader range of types of users, particularly personal service providers, blurring the definition into host of types of commercial properties. The industrial and other categories are each expected to represent about 11 percent of the growth, with public only representing about 5 percent of the growth. The remaining 9 percent of the growth is expected to occur in the work-at-home land-use category, which is projected to grow by 83 percent, from about 43,000 workers in 2015 to nearly 80,000 workers by 2050.

**TABLE 3-4  
MID-SCENARIO PROJECTED EMPLOYMENT BY LAND-USE  
CITY OF PHOENIX PLANNING AREA**

	Total	Retail	Office	Industrial	Public	Other	At Home
2015	806,067	151,111	292,658	122,436	50,262	146,506	43,094
2020	903,860	172,523	334,283	136,336	54,489	157,438	48,791
2030	1,009,423	197,811	369,236	151,154	62,238	170,905	58,079
2040	1,123,952	225,829	418,420	160,780	67,777	182,524	68,621
2050	1,237,102	254,445	469,555	168,695	71,926	192,650	79,831
<b>Change</b>							
2015-2020	97,793	21,412	41,625	13,900	4,227	10,932	5,697
2020-2030	105,563	25,288	34,952	14,818	7,749	13,467	9,288
2030-2040	114,529	28,018	49,185	9,626	5,540	11,619	10,542
2040-2050	113,150	28,616	51,134	7,915	4,149	10,126	11,210
Total	431,035	103,334	176,897	46,259	21,664	46,144	36,737

Source: Applied Economics, 2019.

Table 3-5 details the projected amount of new square footage by impact fee area for the period between 2020 and 2030. It shows the addition of about 51 million square feet of new space, with nearly a third (17 million square feet) being located in non-impact fee areas of the city. The Estrella North and Estrella South impact fee areas receive about another third of all the new space to be added (driven by strong increases in the industrial inventory) and comprise some 86 of all additions in the city during the period. In the Estrella areas those increases are projected to be accompanied by growth in the non-basic uses due to population growth. The Northeast and Northwest impact fee areas will also experience sizable increases due to strong population growth.

**TABLE 3-5  
MID-SCENARIO PROJECTED NON-RESIDENTIAL SQUARE FOOTAGE  
IMPACT FEE AREAS  
(Thousands of Square Feet)**

	Total	Retail	Office	Industrial	Public	Other
<b>2020</b>						
Ahwatukee	9,894	3,616	2,077	1,101	2,224	876
Deer Valley	125	5	0	0	102	17
Estrella North	47,700	1,335	1,867	42,262	1,991	245
Estrella South	16,648	1,563	1,322	11,093	1,570	1,100
Laveen East	1,736	610	0	74	569	483
Laveen West	5,935	1,890	77	769	2,183	1,017
Non Fee Area	423,634	96,018	90,807	107,212	87,797	41,798
Northeast	8,962	2,515	799	390	1,637	3,620
Northwest	4,276	1,861	257	868	1,072	217
<b>Total</b>	<b>518,909</b>	<b>109,413</b>	<b>97,206</b>	<b>163,769</b>	<b>99,145</b>	<b>49,375</b>
<b>2030</b>						
Ahwatukee	10,320	3,757	2,362	1,101	2,224	876
Deer Valley	200	5	0	0	177	17
Estrella North	53,719	1,584	2,193	46,933	2,452	557
Estrella South	28,177	2,834	2,476	18,772	2,667	1,428
Laveen East	2,803	1,137	0	74	1,109	483
Laveen West	11,102	3,433	1,217	958	3,665	1,830
Non Fee Area	440,497	101,002	95,903	108,395	90,466	44,731
Northeast	13,670	3,720	1,658	390	2,813	5,088
Northwest	9,720	3,891	1,311	1,662	1,563	1,292
<b>Total</b>	<b>570,207</b>	<b>121,362</b>	<b>107,120</b>	<b>178,285</b>	<b>107,136</b>	<b>56,303</b>
<b>Change 2020 - 2030</b>						
Ahwatukee	426	141	285	0	0	0
Deer Valley	75	0	0	0	75	0
Estrella North	6,019	249	326	4,671	461	312
Estrella South	11,529	1,271	1,154	7,679	1,097	328
Laveen East	1,067	527	0	0	540	0
Laveen West	5,167	1,543	1,140	189	1,482	813
Non Fee Area	16,863	4,983	5,096	1,183	2,668	2,933
Northeast	4,708	1,205	859	0	1,176	1,468
Northwest	5,444	2,030	1,054	794	491	1,075
<b>Total</b>	<b>51,298</b>	<b>11,949</b>	<b>9,914</b>	<b>14,516</b>	<b>7,990</b>	<b>6,929</b>

Source: Applied Economics, 2019.

### 3.2 LOW-SCENARIO RESULTS

Projections of the number of new single family and multifamily housing units from Task 2 were used to create conservative projections of households and population for each of the 75 LUAs within the city. All total, the low-scenario includes the addition of nearly 159,000 housing units in the city between 2015 and 2050 (Table 3-6). This is 29 percent less than the MAG (c2016) projection of about 224,000 additional housing units. The majority of the difference stems from the fact that actual additions for the 2015 to 2020 period have lagged the projection by some 16,000 housing units, likely due to delays in new housing projects in both the southern (Laveen & Estrella) and northern (Northeast & Northwest) growth markets.

**TABLE 3-6  
LOW-SCENARIO PROJECTED POPULATION AND HOUSEHOLDS  
CITY OF PHOENIX PLANNING AREA**

	Group			Households	Housing Units		
	Total Population	Quarters Population	Household Population		Total	Single Family	Multifamily
2015	1,538,658	25,015	1,513,643	546,849	607,056	437,661	169,395
2020	1,636,272	29,191	1,607,081	579,165	632,444	449,831	182,613
2030	1,811,760	37,940	1,773,820	632,700	687,788	479,671	208,116
2040	1,942,909	47,408	1,895,501	680,447	733,494	499,140	234,355
2050	2,040,603	54,963	1,985,640	713,956	765,899	513,878	252,021
<b>Change</b>							
2015-2020	97,614	4,176	93,438	32,316	25,388	12,170	13,218
2020-2030	175,488	8,749	166,739	53,535	55,344	29,840	25,503
2030-2040	131,149	9,468	121,681	47,747	45,707	19,468	26,239
2040-2050	97,694	7,555	90,139	33,509	32,404	14,738	17,666
Total	501,945	29,948	471,997	167,107	158,843	76,217	82,626

Source: Applied Economics, 2019.

The housing unit forecasts, combined with projected changes in occupancy rates and household size, result in projections of households and household population. The projections of group quarter population were taken directly from the MAG projections and are included in the projection of total population. The low-scenario projected 2050 household population of 1.99 million persons is about 14.4 percent less than the MAG (c2016) projection, which is a slightly wider margin than for housing units; the difference is driven by larger declines in household population due to increased multifamily development. Table 3-7 details the low-scenario data for population, households and housing units by impact fee area for the period between 2020 and 2030.

**TABLE 3-7  
LOW-SCENARIO PROJECTED POPULATION AND HOUSEHOLDS  
IMPACT FEE AREAS**

	Household		Housing Units		
	Population	Households	Total	Single Family	Multifamily
<b>2020</b>					
Ahwatukee	83,883	33,908	35,080	26,999	8,081
Deer Valley	15,409	4,947	5,330	5,026	304
Estrella North	11,514	3,097	3,438	2,709	729
Estrella South	47,412	12,993	14,710	14,705	5
Laveen East	19,751	5,959	6,468	6,124	344
Laveen West	56,003	16,903	18,863	18,861	2
Non Fee Area	1,278,310	468,151	510,699	346,227	164,472
Northeast	56,882	22,394	25,600	19,645	5,955
Northwest	29,731	10,815	12,209	9,486	2,723
Total	1,598,894	579,166	632,397	449,782	182,615
<b>2030</b>					
Ahwatukee	88,559	34,967	36,442	27,906	8,536
Deer Valley	15,996	5,131	5,673	5,326	347
Estrella North	12,048	3,255	3,544	2,719	825
Estrella South	66,664	18,408	21,238	19,201	2,037
Laveen East	25,031	7,724	8,373	8,029	344
Laveen West	80,138	24,991	27,922	25,242	2,680
Non Fee Area	1,345,384	488,145	526,075	347,706	178,369
Northeast	90,804	32,836	39,022	28,296	10,726
Northwest	49,195	17,244	19,499	15,246	4,253
Total	1,773,820	632,700	687,788	479,671	208,116
<b>Change 2020 - 2030</b>					
Ahwatukee	4,676	1,058	1,362	907	455
Deer Valley	588	184	343	300	43
Estrella North	534	158	106	10	96
Estrella South	19,252	5,415	6,528	4,496	2,032
Laveen East	5,281	1,765	1,905	1,905	0
Laveen West	24,135	8,088	9,059	6,381	2,678
Non Fee Area	67,074	19,994	15,376	1,479	13,897
Northeast	33,922	10,442	13,422	8,651	4,771
Northwest	19,464	6,429	7,290	5,760	1,530
Total	174,926	53,533	55,391	29,889	25,502

Source: Applied Economics, 2019.

Employment projections were derived based on specific assumptions about the Planning Parcels in the four growth markets; these assumptions were based on past growth trends, the amount of land available for development by use, active development projects, known development plans and infrastructure availability. Employment projections for the balance of the city were calculated using MAG employment by land-use projections, by LUA. These projections were adjusted based on the assessment of redevelopment potential in the 16 AOs identified in this study.



Employment was modeled using five land-use categories (retail, office, industrial, public and other), plus work-at-home employment. The projections of work-at-home employment were taken directly from the MAG projections. The amount of new, non-residential building in each land-use category was projected for each of the Market Areas. The low-scenario data results in a projection of nearly 153 million square feet of additional space between 2015 and 2050, as shown in Table 3-8. This projection is about 34 million less square feet (18 percent) than in the mid-scenario projection. Together, the retail, office and industrial uses add nearly 75 percent of the new space, with the public and other categories each comprising roughly 12 percent.

**TABLE 3-8**  
**LOW-SCENARIO PROJECTED NON-RESIDENTIAL SQUARE FOOTAGE**  
**CITY OF PHOENIX PLANNING AREA**  
**(Thousands of Square Feet)**

	Total	Retail	Office	Industrial	Public	Other
2015	469,120	98,493	85,705	147,651	94,542	42,729
2020	505,157	103,904	95,678	164,319	93,667	47,589
2030	559,238	119,401	108,693	176,280	101,223	53,641
2040	593,779	128,935	117,223	181,197	108,262	58,162
2050	622,680	136,975	124,340	186,076	113,532	61,757
<b>Change</b>						
2015-2020	36,037	5,411	9,973	16,668	-875	4,860
2020-2030	54,082	15,497	13,015	11,962	7,556	6,052
2030-2040	34,541	9,534	8,530	4,917	7,039	4,521
2040-2050	28,901	8,040	7,117	4,879	5,270	3,595
Total	153,561	38,482	38,635	38,425	18,990	19,028

Source: Applied Economics, 2019.

Table 3-9 shows the low-scenario projection of employment by land-use for the city resulting from the absorption of the new, non-residential space. The projections show the addition of about 356,000 new jobs, with the majority of the increase (74 percent) occurring in the retail and office land-use categories. It should be noted that the retail land-use category has come to include a much broader range of types of users, particularly personal service providers, blurring the definition into host of types of commercial properties. The industrial and other categories are each expected to represent about 6 percent of the growth, with the public category representing about 4 percent of the growth. The remaining 10 percent of the growth is expected to occur in the work-at-home land-use category, which is projected to grow by 85 percent, from about 43,000 workers in 2015 to nearly 80,000 workers by 2050.

**TABLE 3-9  
LOW-SCENARIO PROJECTED EMPLOYMENT BY LAND-USE  
CITY OF PHOENIX PLANNING AREA**

	Total	Retail	Office	Industrial	Public	Other	At Home
2015	806,067	151,111	292,658	122,436	50,262	146,506	43,094
2020	889,983	166,570	341,245	130,924	50,269	152,183	48,791
2030	1,006,253	200,673	396,731	136,238	55,920	158,589	58,101
2040	1,089,885	222,860	434,378	139,358	60,912	163,732	68,645
2050	1,161,925	241,251	465,383	142,984	64,707	167,745	79,856
<b>Change</b>							
2015-2020	83,916	15,459	48,587	8,488	7	5,677	5,697
2020-2030	116,271	34,103	55,486	5,314	5,651	6,406	9,310
2030-2040	83,632	22,187	37,647	3,120	4,992	5,143	10,544
2040-2050	72,040	18,391	31,005	3,626	3,795	4,013	11,211
Total	355,858	90,140	172,725	20,548	14,445	21,239	36,762

Source: Applied Economics, 2019.

Table 3-10 details the low-scenario projected amount of new square footage by impact fee area for the period between 2020 and 2030. It shows the addition of about 54 million square feet of new space, with roughly 48 percent (26 million square feet) being located in non-impact fee areas of the city. The Estrella North and Estrella South impact fee areas comprise some 25 percent of all additions in the city during the period (13.6 million) due to strong increases in the industrial inventory. In the Estrella areas those increases are projected to be accompanied by growth in the non-basic uses due to population growth. The Northeast and Northwest impact fee areas will also experience sizable increases due to strong population growth adding about 8.6 million square feet of new built space.

**TABLE 3-10**  
**LOW-SCENARIO PROJECTED NON-RESIDENTIAL SQUARE FOOTAGE**  
**IMPACT FEE AREAS**  
**(Thousands of Square Feet)**

	Total	Retail	Office	Industrial	Public	Other
<b>2020</b>						
Ahwatukee	10,218	3,767	2,193	1,115	2,297	846
Deer Valley	141	5	11	0	103	21
Estrella North	47,700	1,335	1,867	42,262	1,991	245
Estrella South	16,648	1,563	1,322	11,093	1,570	1,100
Laveen East	1,736	610	0	74	569	483
Laveen West	5,929	1,890	77	769	2,183	1,011
Non Fee Area	409,501	90,319	89,152	107,746	82,245	40,038
Northeast	9,009	2,554	799	391	1,637	3,627
Northwest	4,276	1,861	257	868	1,072	217
<b>Total</b>	<b>505,157</b>	<b>103,904</b>	<b>95,678</b>	<b>164,319</b>	<b>93,667</b>	<b>47,589</b>
<b>2030</b>						
Ahwatukee	10,766	3,919	2,257	1,085	2,579	926
Deer Valley	190	20	16	1	103	49
Estrella North	52,395	1,571	2,193	45,622	2,452	557
Estrella South	25,542	2,553	2,171	17,213	2,331	1,274
Laveen East	2,605	1,109	0	74	884	538
Laveen West	10,421	3,149	1,137	875	3,618	1,643
Non Fee Area	435,359	99,363	98,235	109,790	85,162	42,810
Northeast	13,820	3,941	2,106	391	2,687	4,695
Northwest	8,140	3,777	578	1,229	1,406	1,149
<b>Total</b>	<b>559,238</b>	<b>119,401</b>	<b>108,693</b>	<b>176,280</b>	<b>101,223</b>	<b>53,641</b>
<b>Change 2020 - 2030</b>						
Ahwatukee	549	152	65	-30	282	80
Deer Valley	49	15	5	1	0	28
Estrella North	4,695	236	326	3,360	461	312
Estrella South	8,894	990	849	6,120	761	174
Laveen East	869	499	0	0	315	55
Laveen West	4,492	1,259	1,060	106	1,435	632
Non Fee Area	25,859	9,044	9,083	2,043	2,917	2,771
Northeast	4,812	1,387	1,307	1	1,050	1,068
Northwest	3,864	1,916	321	361	334	932
<b>Total</b>	<b>54,082</b>	<b>15,497</b>	<b>13,015</b>	<b>11,962</b>	<b>7,556</b>	<b>6,052</b>

Source: Applied Economics, 2019.

### 3.3 HIGH-SCENARIO RESULTS

Projections of the number of new single family and multifamily housing units from Task 2 were used to create optimistic projections of households and population for each of the 75 LUAs within the city. All total, the high-scenario includes the addition of 239,000 housing units in the city between 2015 and 2050 (Table 3-11). This is 7 percent more than the MAG (c2016) projection of about 224,000 additional housing units. The majority of the difference stems from the fact that actual additions for the 2015 to 2020 period have lagged the projection by some 16,000 housing units, likely due to delays in new housing projects in both the southern (Laveen & Estrella) and northern (Northeast & Northwest) growth markets.

**TABLE 3-11  
HIGH-SCENARIO PROJECTED POPULATION AND HOUSEHOLDS  
CITY OF PHOENIX PLANNING AREA**

	Group			Households	Housing Units		
	Total Population	Quarters Population	Household Population		Total	Single Family	Multifamily
2015	1,538,658	25,015	1,513,643	546,849	607,056	437,661	169,395
2020	1,637,503	29,191	1,608,312	578,137	631,319	448,933	182,386
2030	1,896,175	37,940	1,858,235	659,644	718,380	498,010	220,370
2040	2,089,219	47,408	2,041,811	734,446	792,378	525,323	267,055
2050	2,235,234	54,963	2,180,271	789,118	846,393	543,702	302,690
<b>Change</b>							
2015-2020	98,845	4,176	94,669	31,288	24,263	11,272	12,991
2020-2030	258,672	8,749	249,923	81,507	87,061	49,077	37,984
2030-2040	193,044	9,468	183,576	74,802	73,999	27,313	46,685
2040-2050	146,015	7,555	138,460	54,672	54,014	18,379	35,635
Total	696,576	29,948	666,628	242,269	239,337	106,041	133,295

Source: Applied Economics, 2019.

The housing unit forecasts, combined with projected changes in occupancy rates and household size, result in projections of households and household population. The projections of group quarter population were taken directly from the MAG projections and are included in the projection of total population. The high-scenario projected 2050 household population of nearly 2.2 million persons is about 14.4 percent less than the MAG (c2016) projection, which is a slightly wider margin than for housing units; the difference is driven by larger declines in household population due to increased multifamily development. Table 3-12 details the data for population, households and housing units by impact fee area for the period between 2020 and 2030.

**TABLE 3-12  
HIGH-SCENARIO PROJECTED POPULATION AND HOUSEHOLDS  
IMPACT FEE AREAS**

	Household		Housing Units		
	Population	Households	Total	Single Family	Multifamily
<b>2020</b>					
Ahwatukee	83,706	33,549	35,008	26,945	8,063
Deer Valley	15,516	4,977	5,310	5,006	304
Estrella North	11,797	3,096	3,438	2,709	729
Estrella South	48,825	12,991	14,710	14,705	5
Laveen East	19,853	5,959	6,468	6,124	344
Laveen West	56,293	16,902	18,863	18,861	2
Non Fee Area	1,283,100	467,455	509,713	345,453	164,261
Northeast	58,589	22,394	25,600	19,645	5,955
Northwest	30,632	10,814	12,209	9,486	2,723
<b>Total</b>	<b>1,608,312</b>	<b>578,137</b>	<b>631,319</b>	<b>448,933</b>	<b>182,386</b>
<b>2030</b>					
Ahwatukee	91,216	35,627	37,171	28,713	8,458
Deer Valley	16,342	5,259	5,698	5,278	420
Estrella North	13,879	3,791	4,127	2,719	1,408
Estrella South	77,875	21,738	25,078	22,283	2,795
Laveen East	27,292	8,554	9,248	8,904	344
Laveen West	93,213	29,674	33,164	28,871	4,293
Non Fee Area	1,360,932	492,319	530,645	346,960	183,686
Northeast	116,197	41,480	49,586	35,273	14,313
Northwest	61,289	21,202	23,663	19,010	4,653
<b>Total</b>	<b>1,858,235</b>	<b>659,644</b>	<b>718,380</b>	<b>498,010</b>	<b>220,370</b>
<b>Change 2020 - 2030</b>					
Ahwatukee	7,511	2,078	2,162	1,768	394
Deer Valley	826	282	388	272	116
Estrella North	2,082	695	689	10	679
Estrella South	29,050	8,747	10,368	7,578	2,790
Laveen East	7,439	2,596	2,780	2,780	0
Laveen West	36,920	12,772	14,301	10,010	4,291
Non Fee Area	77,832	24,863	20,932	1,507	19,425
Northeast	57,608	19,086	23,986	15,628	8,358
Northwest	30,657	10,388	11,454	9,524	1,930
<b>Total</b>	<b>249,923</b>	<b>81,507</b>	<b>87,061</b>	<b>49,077</b>	<b>37,984</b>

Source: Applied Economics, 2019.

Employment projections were derived based on specific assumptions about the Planning Parcels in the four growth markets; these assumptions were based on past growth trends, the amount of land available for development by use, active development projects, known development plans and infrastructure availability. Employment projections for the balance of the city were calculated using MAG employment by land-use projections, by LUA. These projections were adjusted based on the assessment of redevelopment potential in the 16 AOs identified in this study.

Employment was modeled using five land-use categories (retail, office, industrial, public and other), plus work-at-home employment. The projections of work-at-home employment were taken directly from the MAG projections. The amount of new, non-residential building in each land-use category was projected for each of the Market Areas. The high-scenario data results in a projection of 220 million square feet of additional space between 2015 and 2050, as shown in Table 3-13. This about 33 million more square feet that is added in the mid-scenario projection series. Together, the retail, office and industrial uses add 75 percent of the new space, with the public and other categories each comprising about 12 percent of the total.

**TABLE 3-13**  
**HIGH-SCENARIO PROJECTED NON-RESIDENTIAL SQUARE FOOTAGE**  
**CITY OF PHOENIX PLANNING AREA**  
**(Thousands of Square Feet)**

	Total	Retail	Office	Industrial	Public	Other
2015	469,120	98,493	85,705	147,651	94,542	42,729
2020	510,523	105,866	97,807	163,854	94,735	48,261
2030	599,945	130,577	119,048	185,016	107,135	58,168
2040	655,642	146,050	132,412	194,752	116,830	65,598
2050	689,720	156,692	143,211	198,052	122,396	69,369
<b>Change</b>						
2015-2020	41,404	7,373	12,102	16,204	193	5,532
2020-2030	89,421	24,711	21,242	21,162	12,400	9,907
2030-2040	55,697	15,473	13,363	9,736	9,695	7,430
2040-2050	34,078	10,642	10,800	3,300	5,567	3,771
Total	220,600	58,198	57,507	50,401	27,854	26,640

Source: Applied Economics, 2019.

Table 3-14 shows the high-scenario projection of employment by land-use for the city resulting from the absorption of the new, non-residential space. The projections show the addition of about 505,000 new jobs, with the majority of the increase (77 percent) occurring in the retail and office land-use categories. It should be noted that the retail land-use category has come to include a much broader range of types of users, particularly personal service providers, blurring the definition into host of types of commercial properties. The industrial and other categories are each expected to represent about 6 percent of the growth, with public only representing about 4 percent of the growth. The remaining 7 percent of the growth is expected to occur in the work-at-home land-use category, which is projected to grow by 85 percent, from about 43,000 workers in 2015 to nearly 80,000 workers by 2050.

**TABLE 3-14  
HIGH-SCENARIO PROJECTED EMPLOYMENT BY LAND-USE  
CITY OF PHOENIX PLANNING AREA**

	Total	Retail	Office	Industrial	Public	Other	At Home
2015	806,067	151,111	292,658	122,436	50,262	146,506	43,094
2020	902,727	169,339	349,200	130,924	51,177	153,296	48,791
2030	1,087,832	224,775	442,171	139,793	59,254	163,738	58,101
2040	1,215,075	260,757	501,584	147,339	64,816	171,934	68,645
2050	1,311,604	285,796	549,682	152,025	67,833	176,412	79,856
<b>Change</b>							
2015-2020	96,660	18,228	56,542	8,488	915	6,790	5,697
2020-2030	185,105	55,436	92,971	8,869	8,077	10,442	9,310
2030-2040	127,243	35,983	59,413	7,546	5,563	8,196	10,544
2040-2050	96,528	25,039	48,098	4,686	3,016	4,478	11,211
Total	505,537	134,685	257,024	29,589	17,571	29,906	36,762

Source: Applied Economics, 2019.

Table 3-15 details the high-scenario projected amount of new square footage by impact fee area for the period between 2020 and 2030. It shows the addition of about 89 million square feet of new space, with just over half (45 million square feet) being located in non-impact fee areas of the city. The Estrella North and Estrella South impact fee areas together comprise about another quarter of all the new space to be added driven by strong increases in the industrial inventory totaling about 72 percent of the Phoenix total industrial additions. In the Estrella areas those increases are projected to be accompanied by growth in the non-basic uses due to population growth. The Northeast and Northwest impact fee areas will also experience sizable increases, especially in office and retail uses, due to strong population growth.

**TABLE 3-15**  
**HIGH-SCENARIO PROJECTED NON-RESIDENTIAL SQUARE FOOTAGE**  
**IMPACT FEE AREAS**  
**(Thousands of Square Feet)**

	Total	Retail	Office	Industrial	Public	Other
<b>2020</b>						
Ahwatukee	10,218	3,767	2,193	1,115	2,297	846
Deer Valley	141	5	11	0	103	21
Estrella North	47,700	1,335	1,867	42,262	1,991	245
Estrella South	16,648	1,563	1,322	11,093	1,570	1,100
Laveen East	1,736	610	0	74	569	483
Laveen West	5,935	1,890	77	769	2,183	1,017
Non Fee Area	414,861	92,281	91,281	107,282	83,313	40,705
Northeast	9,009	2,554	799	391	1,637	3,627
Northwest	4,276	1,861	257	868	1,072	217
Total	510,523	105,866	97,807	163,854	94,735	48,261
<b>2030</b>						
Ahwatukee	10,766	3,919	2,257	1,085	2,579	926
Deer Valley	190	20	16	1	103	49
Estrella North	54,930	1,584	2,193	48,144	2,452	557
Estrella South	30,982	3,156	2,794	20,407	3,049	1,576
Laveen East	2,858	1,137	0	74	1,109	538
Laveen West	12,603	4,016	1,369	1,037	4,175	2,007
Non Fee Area	460,266	107,157	106,910	112,464	88,521	45,213
Northeast	17,786	5,449	2,695	391	3,247	6,004
Northwest	9,564	4,140	814	1,412	1,899	1,298
Total	599,945	130,577	119,048	185,016	107,135	58,168
<b>Change 2020 - 2030</b>						
Ahwatukee	549	152	65	-30	282	80
Deer Valley	49	15	5	1	0	28
Estrella North	7,230	249	326	5,882	461	312
Estrella South	14,334	1,593	1,472	9,314	1,479	476
Laveen East	1,122	527	0	0	540	55
Laveen West	6,668	2,126	1,292	268	1,992	990
Non Fee Area	45,404	14,876	15,630	5,182	5,208	4,508
Northeast	8,778	2,895	1,896	1	1,610	2,377
Northwest	5,288	2,279	557	544	827	1,081
Total	89,421	24,711	21,242	21,162	12,400	9,907

Source: Applied Economics, 2019.



# Appendix A: Development Trend Data Collection Forms

**CITY OF PHOENIX  
RESIDENTIAL: SINGLE FAMILY  
REAL ESTATE & DEVELOPMENT DATA COLLECTION FORM**

<b>Sector:</b>	<b>Type:</b>		
Residential	Single Family		
<b>Macro Sector Trends:</b>			
SF densities vary depending on location but higher density development is occurring with more frequency, especially on in-fill lots and in places where land value is high. Aging in place and possible tax law changes could significantly impact market by reducing housing values; although US death rate is expected to increase dramatically, new residents attracted to the state should keep metro area population stable.			
<b>Building Design Trends:</b>			
New trends in higher density housing (i.e. "small lot rentals", "cluster" developments) - looks like MF in terms of units but it is actually SF. Higher densities restricted in places where the it is believed that it will negatively impact the existing neighborhood (i.e. historic areas, higher-end developments).			
<b>Development and Infrastructure Demand Characteristics:</b>			
	Direction: Up/Down/NC	Amount: Percent	Comments
Market Strength	Up		<i>Labor is tight and time to finish construction has increased</i>
Development Density (FAR/Units Per Acre)	Up		
Occupancy Characteristics:	NC		
Occupant Density (SF/employee or pop/household)	Down		
Water Demand	NC		
Wastewater Generation	NC		
<b>Other Key Infrastructure Needs / Impacts:</b>			
<b>Locational Factors:</b>			
Some 4-corner commercial is converting to SF; in-fill parcels attract higher density projects.			
<b>Seasonal/Transient Population Impacts:</b>			

**CITY OF PHOENIX  
RESIDENTIAL: MULTI-FAMILY  
REAL ESTATE & DEVELOPMENT DATA COLLECTION FORM**

**Sector:**

Residential

**Type:**

Multi Family

**Macro Sector Trends:**

New development trends in response to increase demand for housing in the city by Millennials and expanded senior housing options.

**Building Design Trends:**

New trends in higher density housing (i.e. "small lot rentals", "cluster" developments) - looks like MF in terms of units but it is actually SF. Higher densities restricted in places where the it is believed that it will negatively impact the existing neighborhood (i.e. historic areas, higher-end developments).

**Development and Infrastructure Demand Characteristics:**

	Direction: Up/Down/NC	Amount: Percent	Comments
<b>Market Strength</b>	Up		<i>Growth expected in East Valley and Central Phoenix units.</i>
<b>Development Density (FAR/Units Per Acre)</b>	NC		
<b>Occupancy Characteristics:</b>			<i>Changes in the way units are counted by Census has changed; new forms of group quarters (i.e. expanded senior housing market) may affect trends.</i>
<b>Occupant Density (SF/employee or pop/household)</b>	Down		
<b>Water Demand</b>	NC?		
<b>Wastewater Generation</b>	NC		

**Other Key Infrastructure Needs / Impacts:**

Water demands vary significantly depending on the type of multi family development.

**Locational Factors:**

Some 4-corner commercial is converting to residential; in-fill parcels attract higher density projects.

**Seasonal/Transient Population Impacts:**

**CITY OF PHOENIX  
RETAIL: NEIGHBORHOOD/COMMUNITY  
REAL ESTATE & DEVELOPMENT DATA COLLECTION FORM**

**Sector:**

Retail

**Type:**

Neighborhood/Community

**Macro Sector Trends:**

Growth coming from restaurants- some new restaurants on PAD sites; adding more signage to attract tenants; serves small area; targets for redev - old buildings too big; need smaller spaces & less grocery stores, more fitness, services & non-chain retail. Skate parks, trampoline centers etc., will continue to expand to provide an experience.

**Building Design Trends:**

Buildings/footprints will get smaller or have more tenants in smaller spaces; more PAD sites; more combining of freestanding shops into one-stop/convenience centers; fewer large/big-box spaces; more open space and pedestrian-friendly redevelopment.

**Development and Infrastructure Demand Characteristics:**

	Direction: Up/Down/NC	Amount: Percent	Comments
<b>Market Strength</b>	NC	0	
<b>Development Density (FAR/Units Per Acre)</b>	Re-dev up 10 to 20%	15	<i>Trend to PADS for re-dev /new dev; new dev has less sit-down restaurants- more 3,500-5,000sf with drive-thru; new dev starts with big-box anchor, then wrap-around with in-lines stores/PADS.</i>
<b>Occupancy Characteristics:</b>	Down	10	
<b>Occupant Density (SF/employee or pop/household)</b>	Up	10	
<b>Water Demand</b>	Up	20	
<b>Wastewater Generation</b>	Up	10	

**Other Key Infrastructure Needs / Impacts:**

Trip generation; restaurant & PAD sites have limited parking availability, especially at peak times.

**Locational Factors:**

Centers try to mix restaurants & stores that have peak parking needs @ different times; want traffic patterns that are going away from work; when anchor tenants leave a commercial center it is cost prohibitive to re-use space as smaller stores so they often rent to Goodwill, trampoline parks etc., that can use the large space as-is.

**Seasonal/Transient Population Impacts:**

**CITY OF PHOENIX  
RETAIL: REGIONAL  
REAL ESTATE & DEVELOPMENT DATA COLLECTION FORM**

**Sector:**

Retail

**Type:**

Regional

**Macro Sector Trends:**

Maybe no more regional indoor malls; more small, boutiques and high-end stores in new spaces, including open-air. A lot of attempts to reuse without re-building have failed.

**Building Design Trends:**

Smaller big-box stores with less inventory on hand; smaller retail stores like Target with product mix that matches the neighborhood demographics; easier in/out compared with super stores.

**Development and Infrastructure Demand Characteristics:**

	Direction: Up/Down/NC	Amount: Percent	Comments
<b>Market Strength</b>	Down	25	<i>Look at very new centers in Gilbert/Surprise and successful reuse developments</i>
<b>Development Density (FAR/Units Per Acre)</b>	NC	0	<i>new dev/in-fill has same look - still have big-box anchors in outlying area (i.e.. Desert Ridge)</i>
<b>Occupancy Characteristics:</b>	Down	10	
<b>Occupant Density (SF/employee or pop/household)</b>	Up	10	
<b>Water Demand</b>	Up	10	
<b>Wastewater Generation</b>	Up	10	

**Other Key Infrastructure Needs / Impacts:**

**Locational Factors:**

Smaller footprints, potentially multi-story, mostly in heavily urban areas.

**Seasonal/Transient Population Impacts:**

**CITY OF PHOENIX  
RETAIL: ENTERTAINMENT  
REAL ESTATE & DEVELOPMENT DATA COLLECTION FORM**

**Sector:**

Retail

**Type:**

Entertainment

**Macro Sector Trends:**

New development around or integrated with various types of entertainment. This including sports facilities, theaters, concert / performance venues, aquariums and other nature-related spectacles, casinos, etc.

**Building Design Trends:**

Mixed-use, destination centers. Often cluster.

**Development and Infrastructure Demand Characteristics:**

	Direction: Up/Down/NC	Amount: Percent	Comments
<b>Market Strength</b>	Up	20	
<b>Development Density (FAR/Units Per Acre)</b>	Up	20	
<b>Occupancy Characteristics:</b>	NC	0	
<b>Occupant Density (SF/employee or pop/household)</b>	Up	20	
<b>Water Demand</b>	Varies	0	
<b>Wastewater Generation</b>	Varies	0	

**Other Key Infrastructure Needs / Impacts:**

**Locational Factors:**

Clusted in high-accessibility areas, often near visitor areas.

**Seasonal/Transient Population Impacts:**

Both generates and attracts seasonal and transient populations.

**CITY OF PHOENIX  
OFFICE: ADMINISTRATIVE  
REAL ESTATE & DEVELOPMENT DATA COLLECTION FORM**

**Sector:**

Office

**Type:**

Admin

**Macro Sector Trends:**

Retail on ground floor of high-rise office is being squeezed out and replaced by shared-use areas (shared conference room, gym); similar companies tend to consolidate in a location because they can attract competitor's employees (i.e.. insurance).

**Building Design Trends:**

Companies are willing to pay more for land in suburban areas (like by Mayo) and build cheaper space (2-4 stories), i.e. McKesson at 101; generally will go as high as zoning will allow; outlying areas attract larger buildings with canopy parking or possibly 2-story deck; concrete-tilt is in more suburban areas; demand for mid-town is tough. Park Central is 50% tech (underground) surrounded by retail (stay in 30ft range for height).

**Development and Infrastructure Demand Characteristics:**

	Direction: Up/Down/NC	Amount: Percent	Comments
<b>Market Strength</b>	Up	10	<i>Mid-town is least affordable area; 80% of market is under 3,000sf.</i>
<b>Development Density (FAR/Units Per Acre)</b>	New/Infill: Down	25	<i>New suburban users looking for 5 or 6 or more parking spaces per 1,000.</i>
<b>Occupancy Characteristics:</b>	NC	0	
<b>Occupant Density (SF/employee or pop/household)</b>	Up	50	<i>Unlikely that new office will go in N. Central area because occupancy is too high.</i>
<b>Water Demand</b>	Up	25	
<b>Wastewater Generation</b>	Up	25	

**Other Key Infrastructure Needs / Impacts:**

Need adequate parking for increased employment density.

**Locational Factors:**

Large employers centrally located to attract employees (i.e.. State Farm); Large owner-occupied buildings most likely will be up by USAA or inside Loop 101, north of Bell;

**Seasonal/Transient Population Impacts:**

**CITY OF PHOENIX  
OFFICE: SUBURBAN MEDICAL/SERVICE  
REAL ESTATE & DEVELOPMENT DATA COLLECTION FORM**

**Sector:**

Office

**Type:**

Suburban - Medical/Service

**Macro Sector Trends:**

Retail on ground floor of high-rise office is being squeezed out and replaced by shared-use areas (shared conference room, gym); similar companies tend to consolidate in a location because they can attract competitor's employees (i.e.. insurance).

**Building Design Trends:**

Companies are willing to pay more for land in suburban areas (like by Mayo) and build cheaper space (2-4 stories), i.e. McKesson at 101; generally will go as high as zoning will allow; outlying areas attract larger buildings with canopy parking or possibly 2-story deck; concrete-tilt is in more suburban areas; demand for mid-town is tough. Park Central is 50% tech (underground) surrounded by retail (stay in 30ft range for height).

**Development and Infrastructure Demand Characteristics:**

	Direction: Up/Down/NC	Amount: Percent	Comments
Market Strength	Up	10	
Development Density (FAR/Units Per Acre)	NC	0	<i>What is the rule of thumb for the amount of med/service space needed to serve population?</i>
Occupancy Characteristics:	NC	0	
Occupant Density (SF/employee or pop/household)	Up	10	
Water Demand	Up	10	
Wastewater Generation	NC	0	

**Other Key Infrastructure Needs / Impacts:**

Need adequate parking.

**Locational Factors:**

**Seasonal/Transient Population Impacts:**

**OFFICE SQUARE FEET PER CAPITA**

City	Administrative	Medical	Total
Chandler	31	4	35
Gilbert	13	5	17
Glendale	12	5	17
Mesa	15	4	19
Peoria	5	5	10
<b>Phoenix</b>	<b>48</b>	<b>5</b>	<b>52</b>
Scottsdale	110	12	122
Surprise	3	6	10
Tempe	67	5	72
<b>County Total</b>	<b>35</b>	<b>5</b>	<b>41</b>

Sources: Maricopa County Assessor, 2017; Maricopa Association of Governments, 2016.

**CITY OF PHOENIX  
INDUSTRIAL: GENERAL/MULTI-TENANT  
REAL ESTATE & DEVELOPMENT DATA COLLECTION FORM**

**Sector:**

Industrial

**Type:**

General/Multi-Tenant

**Macro Sector Trends:**

Growing sector but inventory is hard to find so the market is "tight"; tenants are often small businesses that move into these sites because they have grown; local service industries generally drive growth; very hard to predict growth in this market, but growth is likely to continue since land is available and is more affordable (especially compared to CA) - also true for Flex market; growth in this market could increase if the marijuana industry grows (i.e. no buildings left in Las Vegas due to boom in the industry).

**Building Design Trends:**

Space is not easily re-configured - tenant has to take it as-is.

**Development and Infrastructure Demand Characteristics:**

	Direction: Up/Down/NC	Amount: Percent	Comments
<b>Market Strength</b>	Up		Large buildings with multiple doors & multiple tenants (I-10/Avondale); tight market
<b>Development Density (FAR/Units Per Acre)</b>	NC	30-35%	
<b>Occupancy Characteristics:</b>	NC	2-3.5 parking spaces	parking can become a problem for tenants as occupancy increases
<b>Occupant Density (SF/employee or pop/household)</b>	NC		
<b>Water Demand</b>	NC		Can vary greatly.
<b>Wastewater Generation</b>	NC		

**Other Key Infrastructure Needs / Impacts:**

Tenants need power but it is usually there; tenants responsible for improvements.

**Locational Factors:**

Development is driven by low-cost land and zoning (i.e.. Deer Valley) - Scottsdale is expensive and zoning is restrictive.

**Seasonal/Transient Population Impacts:**

None.



**CITY OF PHOENIX  
INDUSTRIAL: DISTRIBUTION  
REAL ESTATE & DEVELOPMENT DATA COLLECTION FORM**

**Sector:**

Industrial

**Type:**

Distribution

**Macro Sector Trends:**

Market has exploded and expansion is expected to continue; retail trend is to establish distribution centers every 250 miles.

**Building Design Trends:**

Very large buildings with high ceilings to rack and store inventory

**Development and Infrastructure Demand Characteristics:**

	Direction: Up/Down/NC	Amount: Percent	Comments
<b>Market Strength</b>	Up	20%	
<b>Development Density (FAR/Units Per Acre)</b>	NC		
<b>Occupancy Characteristics:</b>	NC		
<b>Occupant Density (SF/employee or pop/household)</b>	Down	10%	
<b>Water Demand</b>	NC		
<b>Wastewater Generation</b>	NC		

**Other Key Infrastructure Needs / Impacts:**

Very low water use; more secure parking.

**Locational Factors:**

New construction where land is affordable and not restrained by surrounding development; growth expected to continue on outskirts of area (i.e.. Tolleson) and likely will not be in city for a while. Development most likely along I-10 (easy access to CA ports and intermodal facilities),the Luke flight path and 59th Ave.

**Seasonal/Transient Population Impacts:**

**CITY OF PHOENIX  
MULTI-FAMILY EQUIVALENT: HOTEL/LODGING  
REAL ESTATE & DEVELOPMENT DATA COLLECTION FORM**

**Sector:**

Multifamily Equivalent

**Type:**

Hotel/Lodging

**Macro Sector Trends:**

Millennials prefer towable lodging options (vans, trailers) to hotels; more demand for brand name, economical business/family hotels (i.e.. Hampton Inn); Type of facility also determined by location (i.e.. near major employment center, near medical center, near recreational amenities, near an interstate); there is a very limited number of large conference centers in Phoenix.

**Building Design Trends:**

Hotels tend to cluster and share resources (parking, restaurants); many new hotels are 3-story buildings (often limited by zoning) and do not have on-site restaurants.

**Development and Infrastructure Demand Characteristics:**

	Direction: Up/Down/NC	Amount: Percent	Comments
Market Strength			
Development Density (FAR/Units Per Acre)			<i>generally smaller, 3-story, 120 rooms</i>
Occupancy Characteristics:			
Occupant Density (SF/employee or pop/household)			
Water Demand			<i>less likely to have restaurants on-site</i>
Wastewater Generation			

**Other Key Infrastructure Needs / Impacts:**

**Locational Factors:**

**Seasonal/Transient Population Impacts:**

**CITY OF PHOENIX  
MULTI-FAMILY EQUIVALENT: HOSPITALS/CLINICS  
REAL ESTATE & DEVELOPMENT DATA COLLECTION FORM**

**Sector:**

Multifamily Equivalent

**Type:**

Hospitals/Clinics

**Macro Sector Trends:**

Urgent Care/Emergency centers & specialty/outpatient clinics are being built all around the valley while large hospital locations are consolidating; strategically locating? Catering to aging/mobile population.

**Building Design Trends:**

Clinics often locate in retail strip malls, making them difficult to classify. Zoning can restrict locations.

**Development and Infrastructure Demand Characteristics:**

	Direction: Up/Down/NC	Amount: Percent	Comments
<b>Market Strength</b>			
<b>Development Density (FAR/Units Per Acre)</b>			<i>compare size of existing medical clusters to surrounding population to predict effect of new development</i>
<b>Occupancy Characteristics:</b>			
<b>Occupant Density (SF/employee or pop/household)</b>			
<b>Water Demand</b>			<i>use number of beds to determine water demand</i>
<b>Wastewater Generation</b>			

**Other Key Infrastructure Needs / Impacts:**

Medical facilities employ lots of people.

**Locational Factors:**

Development tends to cluster around medical facilities (ex. of hospital demanding approval of new MF housing to accommodate new employees from an expansion).

**Seasonal/Transient Population Impacts:**