



City of Scottsdale

## Land Use Assumptions

ADOPTED | July 2021

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Modified version: Correction of typos in Table 2 noted in this version.

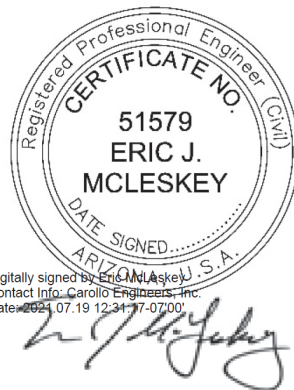




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## LAND USE ASSUMPTIONS

ADOPTED | July 2021



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## Abbreviations

A.R.S.	Arizona Revised Statutes
ASLD	Arizona State Land Department
CAP	Central Arizona Project
City	City of Scottsdale, Arizona
DIA	Development Intensity Area
EDU	Equivalent Demand Units
GIS	Geographic Information System
gpm	gallons per minute
IIP	Infrastructure Improvements Plan
IWRMP	Integrated Water Resources Master Plan
LOS	levels of service
LUA	Land Use Assumptions
MAG	Maricopa Association of Governments
mgd	million gallons per day
SMOC	safe maximum operating capacity
SROG	Sub-Regional Operating Group
TAZ	Traffic Analysis Zone
WRF	water reclamation facility

## 1.0 Introduction

To continue to collect Water and Wastewater Development Fees, the City must comply with the requirements of Arizona Revised Statutes (A.R.S.) §9-463.05. One of those requirements is the preparation and adoption of a Land Use Assumptions (LUA) report which shows:

"...projections of changes in land uses, densities, intensities and population for a specified service area over a period of at least ten years and pursuant to the General Plan of the municipality."

This LUA report complies with that requirement and covers the study planning period from year 2021 through year 2030. For long term planning purposes, this LUA report may cover periods beyond this timeframe, but it is recognized that it must be updated every five (5) years with the City's Infrastructure Improvements Plan (IIP). The City's Water and Wastewater IIP identifies the infrastructure needed to accommodate new growth and associated infrastructure capital costs that represent the "proportionate share" of costs needed to accommodate new Equivalent Demand Units (EDUs); an EDU is equivalent to the water demand or wastewater flow of one detached single family residential dwelling unit. While 1-inch meters and smaller are counted as 1.0 EDU, the conversion of larger meters is based on a 5/8-inch meter with a safe maximum operating capacity (SMOC) of 20 gallons per minute (gpm).

The 2021 LUA Report sets forth the City's current demographic estimates and its projections for future development within the City's service area, which will also be used in the 2021 Water and Wastewater IIP to forecast the amount and cost of infrastructure required by future development. The growth and development assumptions in the LUA Report are consistent with the Planning Framework (the location, timing, and magnitude of growth through year 2055 and the associated water demand and wastewater flow projections) developed for the City's 2021 Integrated Water Resources Master Plan Update (IWRMP), which is being conducted concurrently with the updates to the City's IIP and development fees calculation.

The current demographic estimates (year 2020) are used, (1) to calculate current levels of service (LOS) being provided by the City for water and wastewater services for existing development by the City's existing water and wastewater infrastructure, and (2) as a starting point to project the number of new EDUs that will require water and wastewater services during the 10-year planning period, years 2021 through 2030. New EDUs may be served by either planned new capital projects or the use of excess capacity currently existing in the City's capital facilities (i.e., treatment plants, water distribution & wastewater collection systems, etc.) in anticipation of future development.

The estimates and projections of development in this LUA report are for the City of Scottsdale's Service Area as defined by the statute. However, the City has historically served small areas outside the City's boundaries with water and/or wastewater services, which results in some variation between the water and wastewater service areas.

## 1.1 Water Service Area

The City of Scottsdale's water service area largely coincides with the City boundary and is approximately 185 square miles as shown in Figure 1. It encompasses the area within the City limits, with two exceptions:

- EPCOR Water (private water company) serves approximately 1,420 customers in the built out area west of the Arizona Canal between Jackrabbit Road and Indian Bend Road, which is about one square mile.
- EPCOR Water serves approximately 200 customers in the built out area near the City boundary with the Town of Fountain Hills.

The City also serves approximately 1,400 customers in the built out area outside the City limits in Maricopa County north of Dynamite Boulevard, generally between 56th Street and 68th Street.

In addition, the City has agreements with the Tonto Hills Domestic Water Improvement District and Carefree Water Company to treat and deliver their Central Arizona Project (CAP) allocations to areas outside the City limits; however, these customers are subject to the rates, charges, and development fees of their respective utilities.

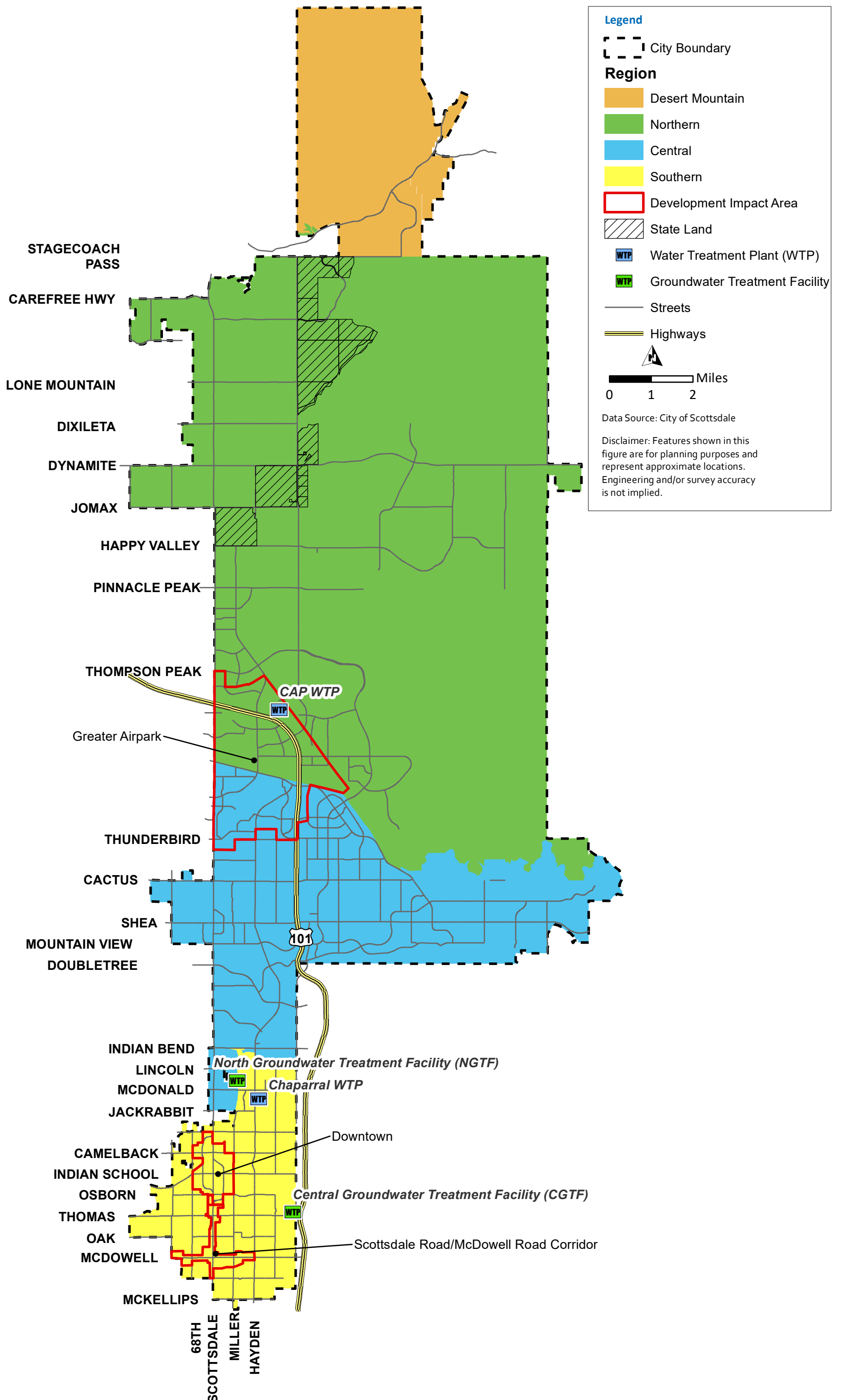
The City's water treatment and distribution system is interconnected and is treated as one integrated system within the City's service area. For City engineering planning purposes, the water service area is sub-divided into four regional planning areas: Desert Mountain, Northern, Central, and Southern. The water system is further sub-divided into pressure zones to regulate the water pressure for customers across the City's many elevation ranges. The water system is also flexible in that water supplies from the north may be conveyed to the south and vice versa.

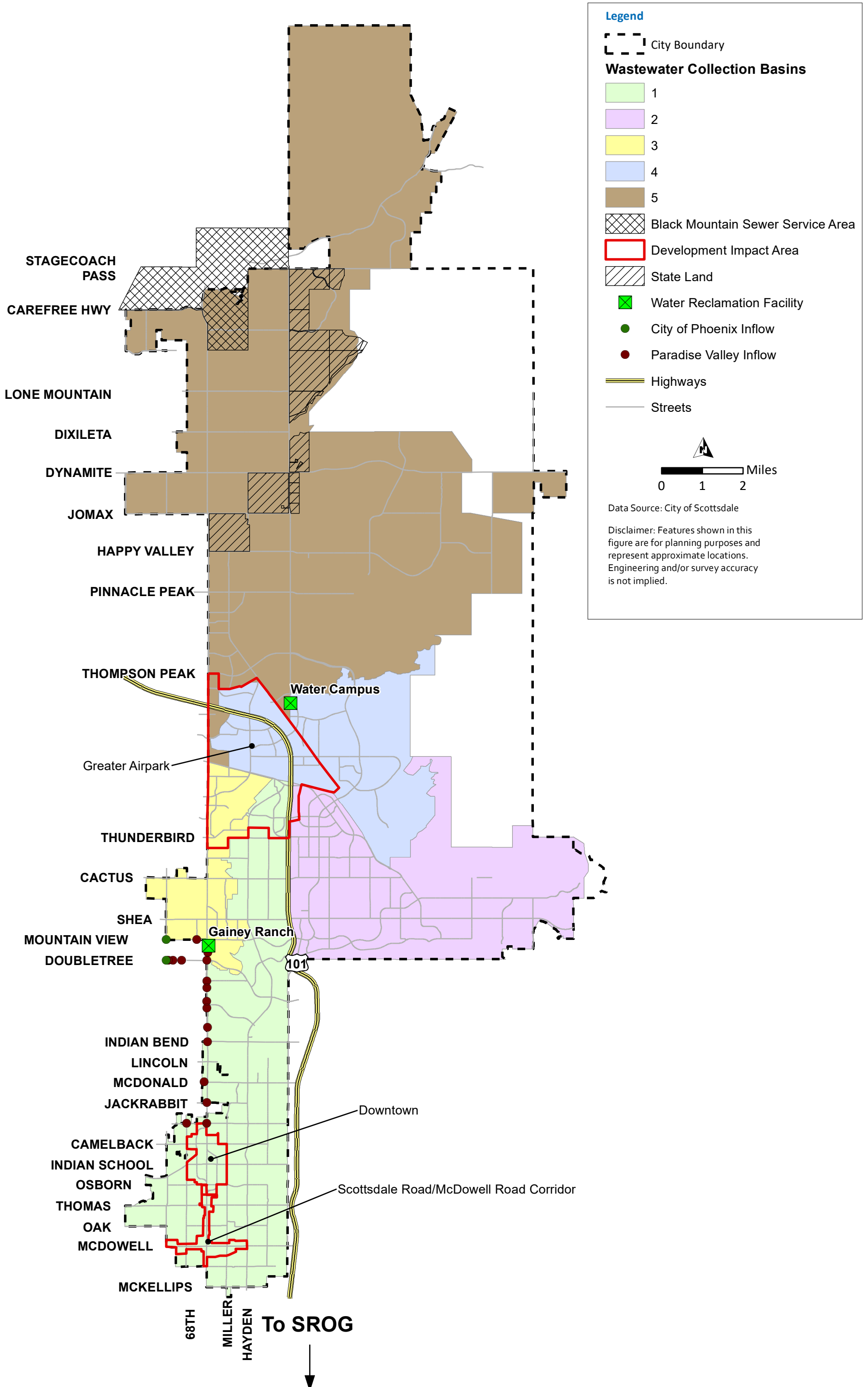
## 1.2 Wastewater Service Area

The City of Scottsdale's wastewater service area largely coincides with the City boundary and is approximately 185 square miles as shown in Figure 2.

In addition to wastewater flows that are generated within Scottsdale, the City has entered into agreements with neighboring communities and providers to transport and/or treat portions of wastewater originating in those communities and service areas as follows:

- **City of Phoenix** – Some City of Phoenix wastewater flows enter the Scottsdale collection system through a metering station and pass through the Scottsdale collection system to the Sub-Regional Operating Group (SROG) system per an existing contract. Some Phoenix flows per contractual arrangements can be pumped to the Water Campus Water Reclamation Facility (WRF) for treatment.
- **Paradise Valley** – The Town of Paradise Valley flows enter through numerous connections along the border between the Town and City of Scottsdale.
- **Black Mountain Sewer Company** – Flows from the Black Mountain Sewer Company enter the City's collection system on North Scottsdale Road near the Carefree Highway.
- **Town of Fountain Hills** – A development in the Town of Fountain Hills discharge to Scottsdale's collection system. There is also a small area within the City limits on the east side at approximately Cactus Road which convey sewer flows to the Fountain Hills Sanitary District facilities.







For collection system planning purposes, the wastewater system is divided into five wastewater flow basins as illustrated in Figure 2. While there are additional ways that the collection system can be divided and subdivided (i.e., tributary areas of selected points in the collection and conveyance system), ultimately the entire wastewater system is managed and operated as a single service area.

### 1.2.1 Septic System Areas

Some areas in the City have existing septic systems and therefore do not contribute wastewater flows to the collection system or water reclamation facilities. Reclaimed water is a valuable resource to the City of Scottsdale and new IIP projects have been proposed to enable the capture/collection of effluent from these septic areas. The IIP projects involve installing new trunk and interceptor sewer collection pipelines in Major and Minor Collector designated Transportation corridors, as defined in the Scottsdale Transportation Master Plan (July 2016) in each of the septic system areas.

## 2.0 Basis of Update

The 2021 LUA analysis includes review of demographic projections for varying land uses within the City's 2021 IIP. This analysis was completed in conjunction with the 2021 IWRMP so that planning criteria, projections and assumptions would be aligned. Key data used in this analysis include:

- 2019 Maricopa Association of Governments (MAG) Socioeconomic Projections for Population and Employment by Municipal Planning Area, Jurisdiction, and Traffic Analysis Zone (TAZ). The 2019 MAG projections are indicative of demographic, development, and permitting trends through December 2018.
- The City of Scottsdale General Plan 2001, as amended.
- The City of Scottsdale Zoning classifications.
- The City of Scottsdale long-range planning group input provided for the Arizona State Land Department (ASLD) parcels located in north Scottsdale.
- Input from the City of Scottsdale for 5- and 10-year growth assumptions in three Development Intensity Areas (DIA), namely: The Greater Airpark, Downtown, and the Scottsdale Rd/McDowell Rd Corridor.

The growth trends data was reviewed and compared to both the 2013 LUA and 2017 LUA projections, which is documented in the following sections.

### 2.1 MAG Socioeconomic and Population Projections

MAG has historically been a source of socioeconomic projections for the 2013 and 2017 LUA reports. For the purposes of this LUA, the 2019 MAG data was used to establish the rate and location of growth within the City. The MAG socioeconomic data was also used to develop the population projections for the IWRMP. The 2019 MAG data for City of Scottsdale population projections are shown in Figure 3. The population projections from similar time periods in the 2013 LUA and 2017 LUA studies are shown for reference.

The 2019 MAG projection trend is complimentary to both the 2013 and 2017 LUA population projections and indicates good alignment with previous projections:

- The 2019 MAG year 2020 estimated population of 253,400 is less than 1 percent lower than the 2017 LUA year 2020 projection of 255,000.
- The 2019 MAG year 2030 estimated population of 281,700 is approximately 3 percent lower than the 2017 LUA year 2030 projection of 290,800.

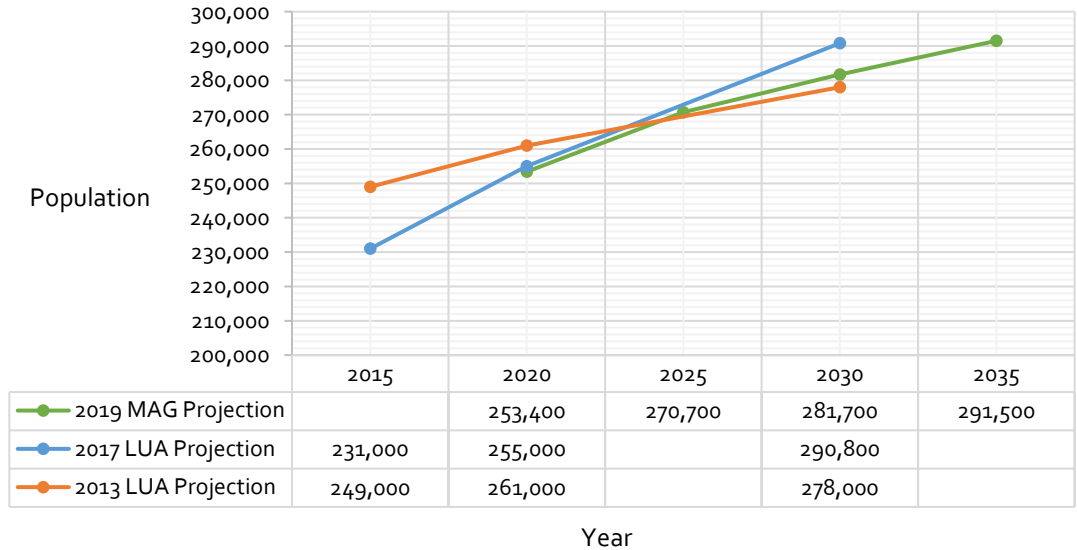


Figure 3 Population Projections

The dwelling unit and employment data (number of employees) along with a linear interpolation of the study period from the MAG projections are summarized in Table 1. Some areas beyond the City of Scottsdale boundary are included as they may receive water service or contribute wastewater flows as noted in the service area descriptions and maps.

Table 1 2019 MAG Employment and Dwelling Unit Projections

Area	2020 Employment	2030 Employment	2020 Dwelling Units	2030 Dwelling Units	Employment Growth	Dwelling Unit Growth
Scottsdale	207,608	235,492	136,454	144,930	27,884	8,476
Northern	18,128	19,100	21,897	24,906	971	3,009
Central	128,626	145,524	64,183	67,482	16,898	3,299
Southern	60,854	70,868	50,374	52,542	10,015	2,168
Outside Scottsdale	319	334	237	243	15	6
<b>Grand Total</b>	<b>207,927</b>	<b>235,826</b>	<b>136,691</b>	<b>145,173</b>	<b>27,899</b>	<b>8,482</b>

## 2.2 Scottsdale General Plan

The City's General Plan 2001 was ratified on March 12, 2002, and has been subsequently updated annually by non-major and major General Plan amendments to the Land Use Map, and is current as of January 2020. The conceptual land use map is depicted in Figure 4.

The following definitions apply to housing within the General Plan:

- Rural Neighborhoods = 1 unit per acre (or more) of land
- Suburban Neighborhoods = 1 to 8 units per acre
- Urban Neighborhoods = 8 or more units per acre

For Mixed Use Neighborhoods, the General Plan does not define the mixture; however, the free market has trended to the following ratios in terms of the North/Central/South sub-areas of the City:

- North: 60% Residential, 30% Resort/Tourism, and 10% Commercial
- Central: 75% Residential, 15% Office, 8% Retail, and 2% Hotel
- South: 70% Residential, 15% Office, 10% Retail, and 5% Hotel

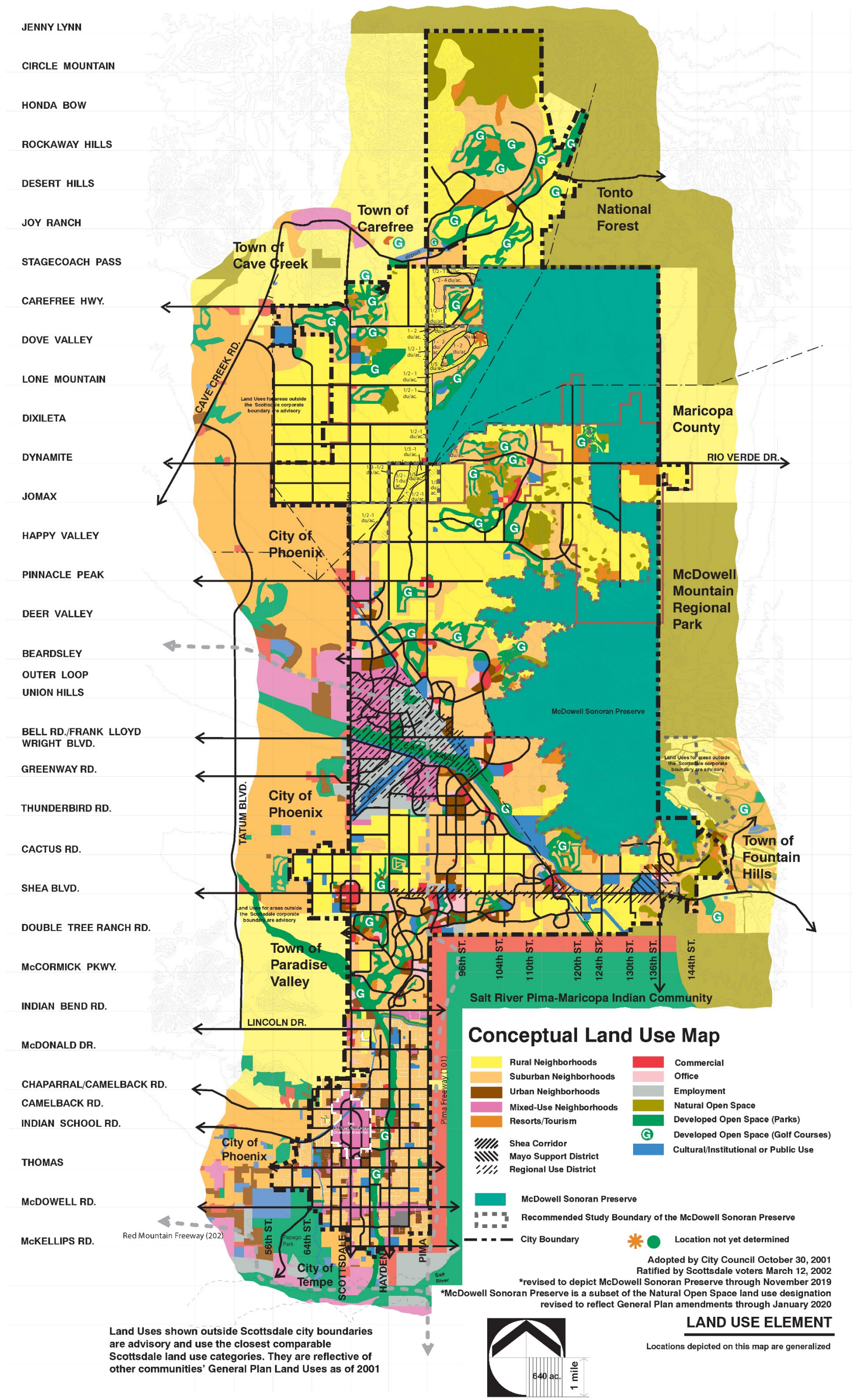
## 2.3 Scottsdale Zoning Classifications

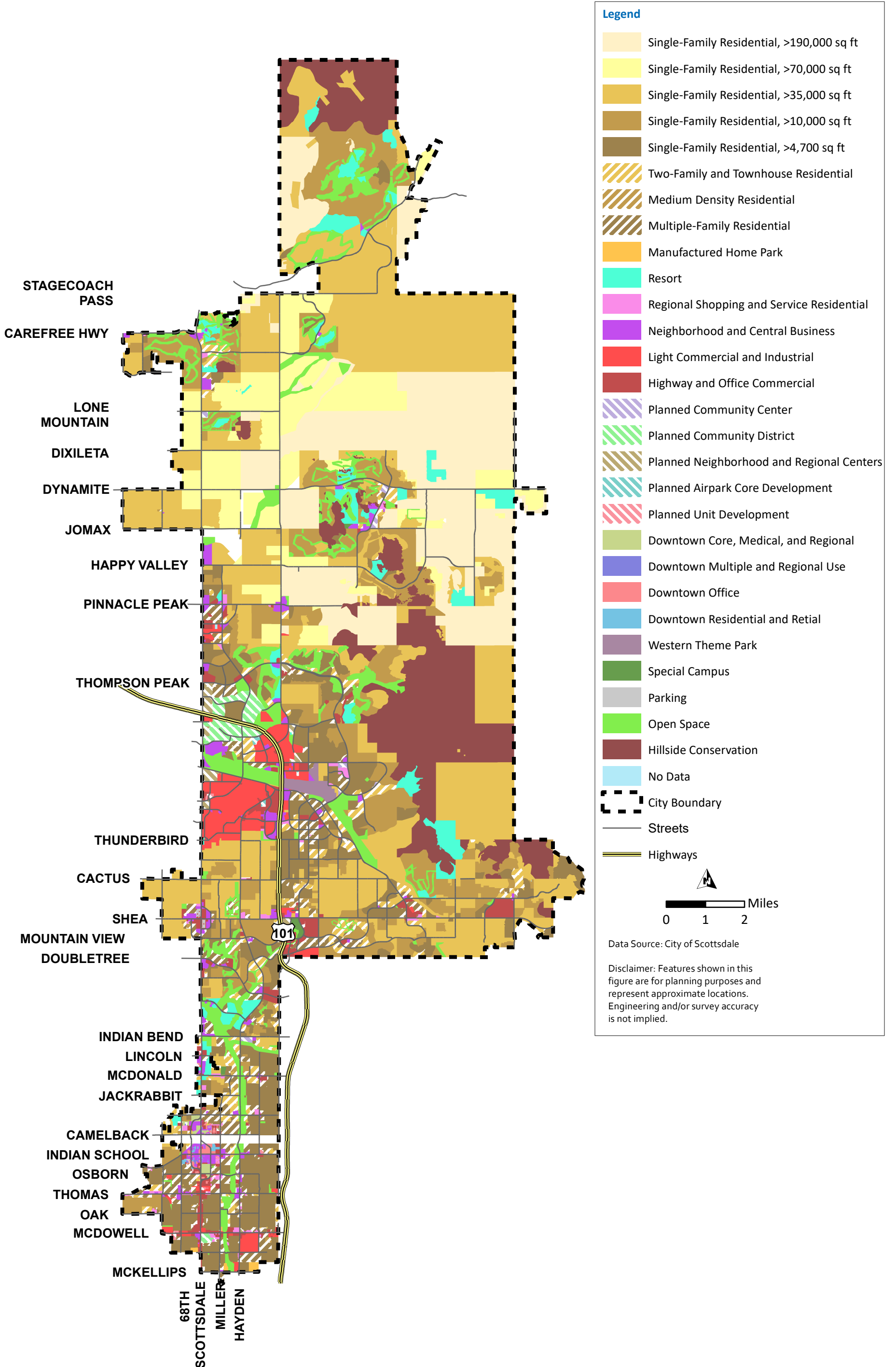
The City's zoning Geographic Information System (GIS) data was used as the basis for preparing the growth, water demand and wastewater flow projections for the IWRMP. The City's zoning information is a more precise way of describing the type of development throughout the City in areas that are developed. The full range of City zoning classifications was consolidated into 28 classifications as shown in Figure 5.

The MAG growth rates in the population projections were used to estimate the timing of development in residential zones. The MAG growth rates in the employments projections were used to estimate the timing of development in non-residential zones.

## 2.4 State Lands

The City's Planning and Development Services Division provided input on near- and long-term development strategies for the State Lands. This information was used to make some adjustments to the timing of development in these areas.





## 2.5 Development Intensity Areas

Scottsdale includes several DIAs where re-development is underway that will increase densities and building heights. These three areas are the Greater Airpark, Downtown, and the Scottsdale/McDowell Road Corridor as shown in Figure 6. Table 2 summarizes the water demand and wastewater flow projections that were used for these DIAs. The timing of these demands are based on the MAG projections.

Table 2 Development Intensity Area (DIA) Water Demand and Wastewater Flow Projections

Development Intensity Area	Year 2020	Year 2030	10-year Increase
<b>Water Demand (mgd)</b>			
Greater Airpark	3.9	5.3	1.4
Downtown	2.7	2.9	0.2
Scottsdale/McDowell Road Corridor	0.6	0.7	0.1
<b>Total</b>	<b>7.2</b>	<b>8.9</b>	<b>1.7</b>
<b>Wastewater Flow (mgd)</b>			
Greater Airpark	2.2	3.1	0.9
Downtown	1.9	2.0	0.1
Scottsdale/McDowell Road Corridor	0.2	0.3	0.1
<b>Total</b>	<b>4.3</b>	<b>5.4</b>	<b>1.1</b>

Abbreviation:  
mgd = million gallons per day

## 3.0 Land Use Growth Summary

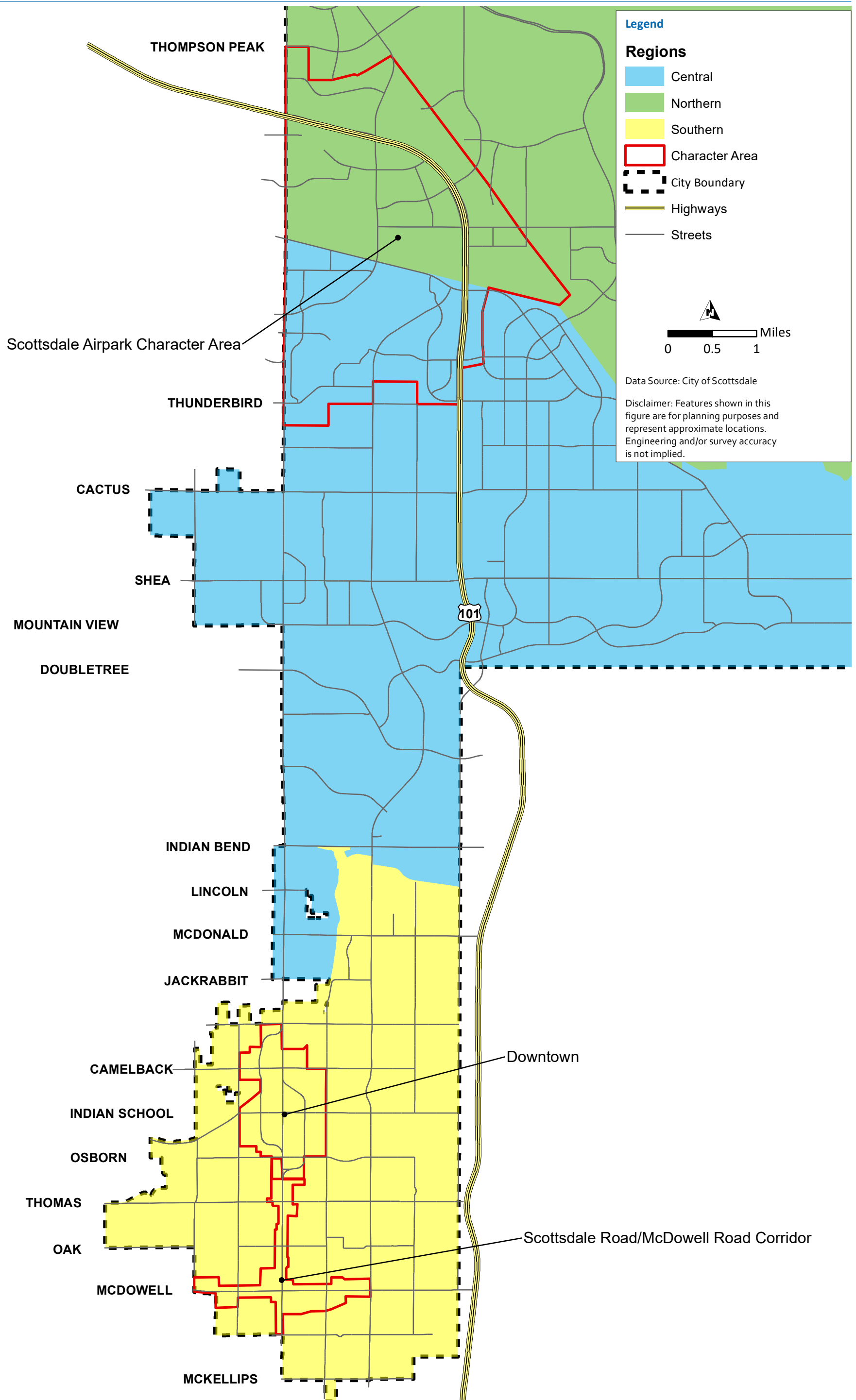
GIS analysis was used to spatially aggregate the acreages in the City's zoning classifications and land use plan using the MAG projections to establish the timing of growth. Table 3 summarizes the acreages that are planned to develop by regional planning area by year 2025 and year 2030.

Figure 7, Figure 8, and Figure 9 show graphical representations of the acreages that are expected to be developed by years 2020, 2025, and 2030, respectively.

Table 3 Acreages Assumed to Develop by Regional Planning Area

Regional Planning Area	Acrees Developed between Year 2020 and 2025	Acrees Developed between Year 2025 and 2030	Total Acres Developed Year 2020 through 2030
Desert Mountain	2,770	247	3,017
Northern	5,730	3,426	9,156
Central	717	328	1,045
Southern	348	157	505
<b>Total</b>	<b>9,565</b>	<b>4,158</b>	<b>13,723</b>

Wastewater Flows in the Greater Airpark and Downtown areas were transposed in Table 2 and have been corrected in this version. The correction of this error does not impact the bottom line Development Intensity Area flow projections.



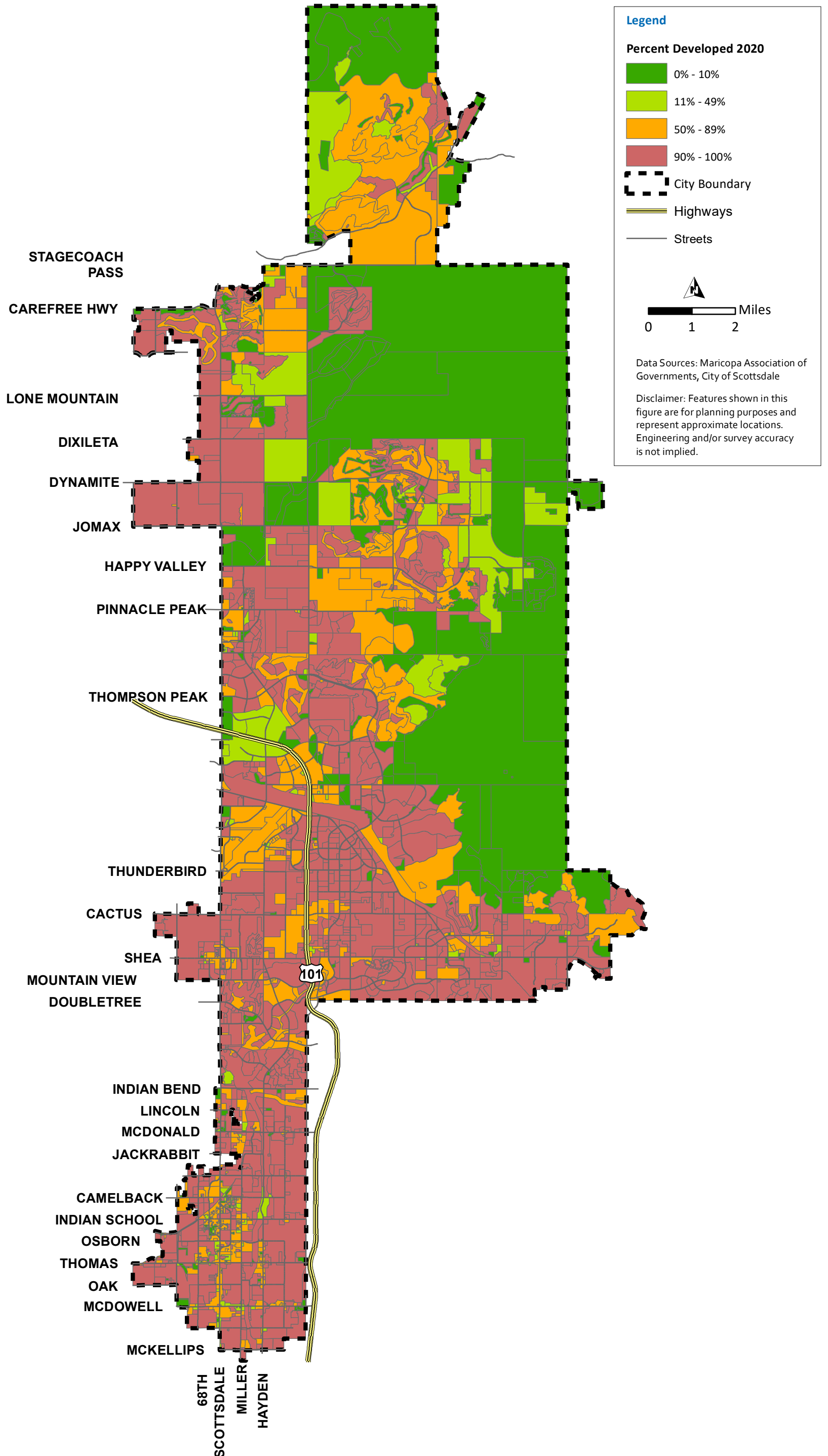


Figure 7 Developed Land Areas in Year 2020



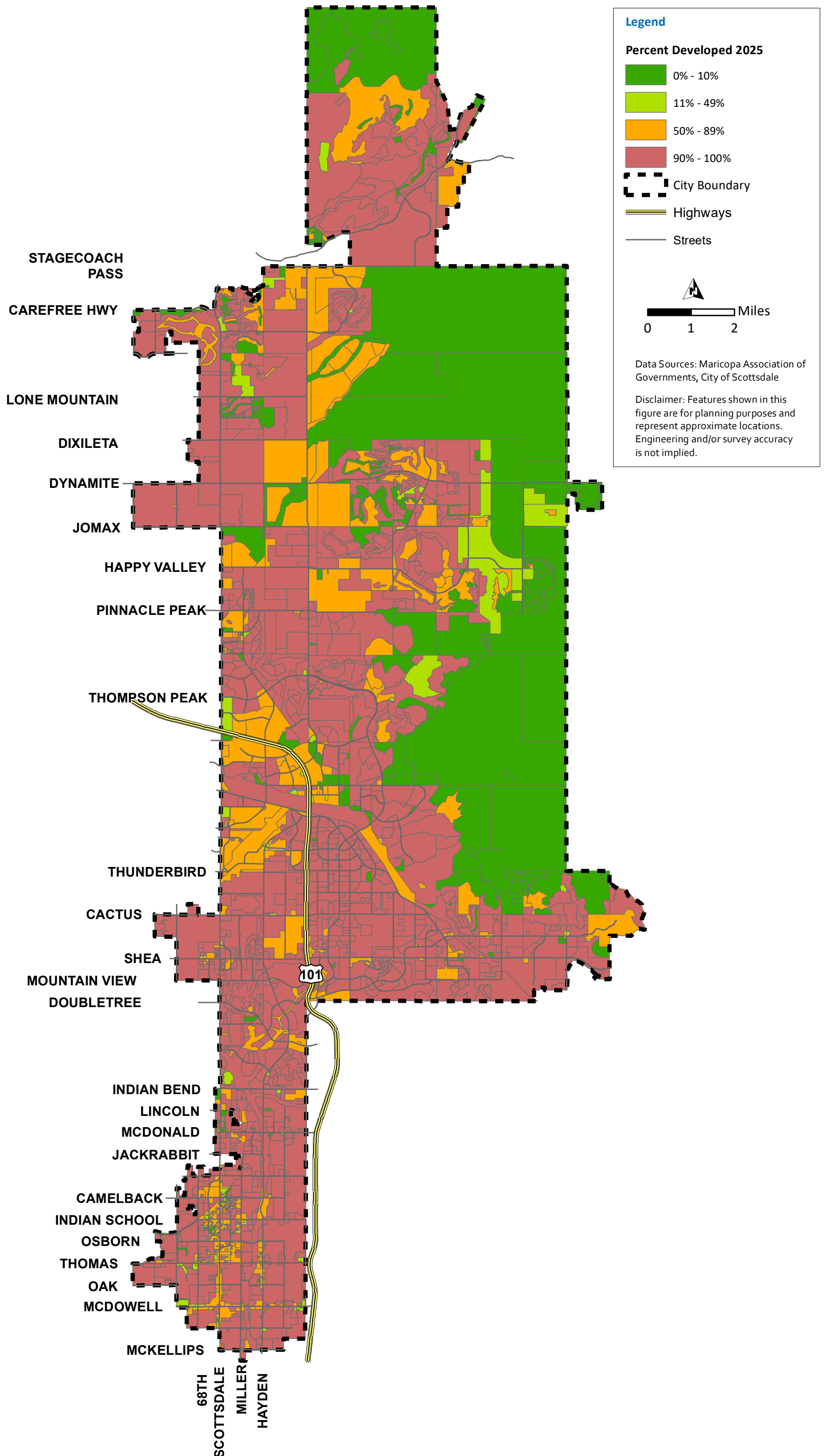


Figure 8 Developed Land Areas in Year 2025

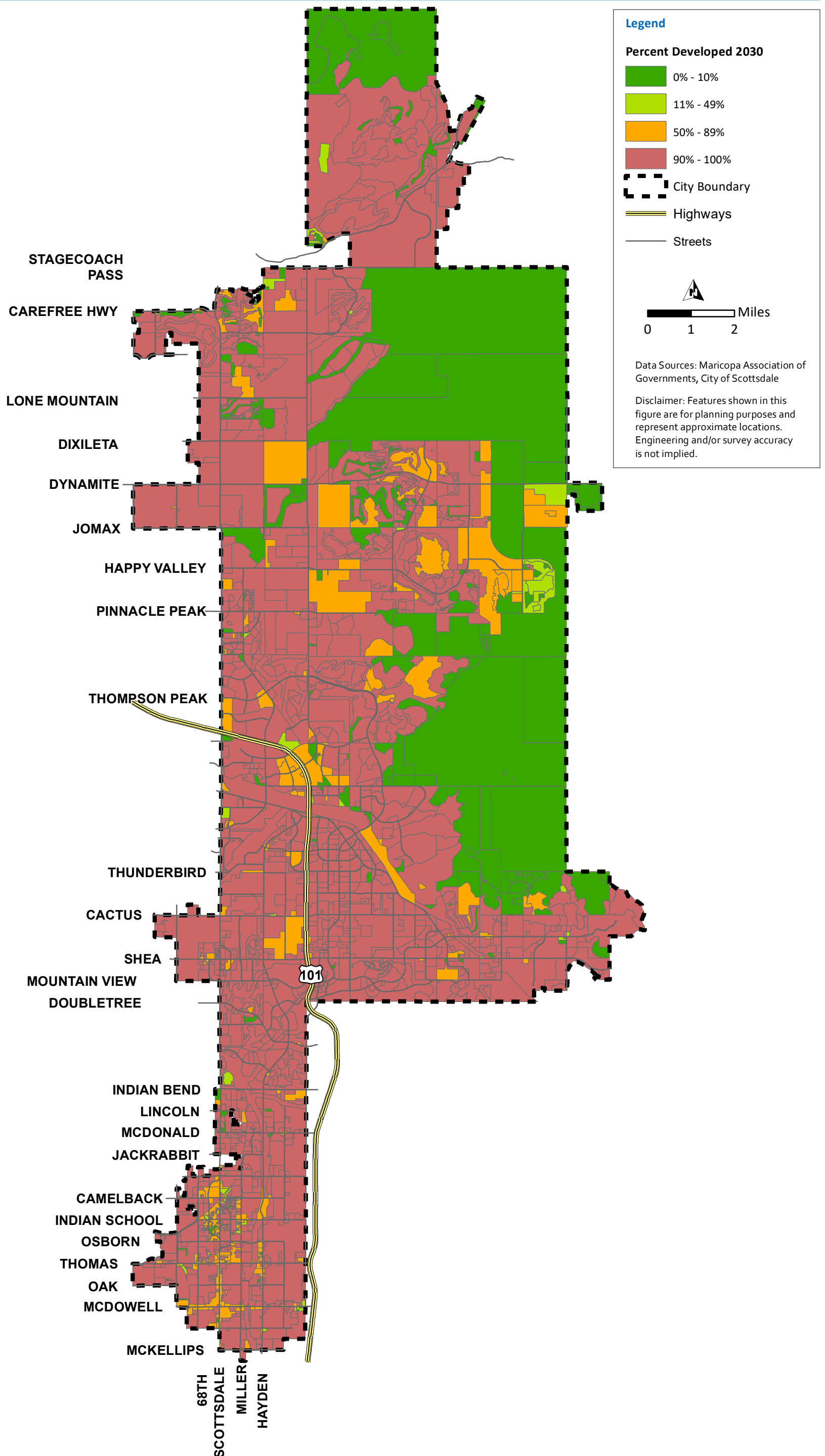


Figure 9 Developed Land Areas in Year 2030

## 4.0 Water Demand and Wastewater Flow Summary

Water demands and wastewater flows were developed in the 2021 IWRMP using the City's current water customer billing data, water production records and wastewater flow monitoring data. Average annual water demand and average annual wastewater flow projections were prepared for the areas expected to develop in each planning period.

A summary of the water demand projections by Regional Planning Area for years 2020, 2025, and 2030 is provided in Table 4. Over the ten year planning period between years 2020 and 2030, the City's average annual water demand is expected to increase by 9.1 mgd.

A summary of the wastewater flow projections by wastewater flow basin is provided in Table 5. Over the ten year planning period between year 2020 and year 2030, the City's average annual wastewater flows area expected to increase by 4.0 mgd.

Table 4 Average Annual Water Demand Projection Summary

Regional Planning Area	Year 2020 (mgd)	Year 2025 (mgd)	Year 2030 (mgd)
Desert Mountain	2.7	4.8	5.0
Northern	22.1	25.0	27.4
Central	28.5	29.1	29.5
Southern	15.6	15.8	16.1
Outside Scottsdale	0.8	0.8	0.8
<b>Total</b>	<b>69.7</b>	<b>75.5</b>	<b>78.8</b>

Table 5 Average Annual Wastewater Flow Projection Summary

Flow Basin	Year 2020 (mgd)	Year 2025 (mgd)	Year 2030 (mgd)
Basin 1	12.0	12.4	12.6
Basin 2	4.9	5.1	5.2
Basin 3	1.6	1.7	1.7
Basin 4	3.4	3.9	4.3
Basin 5	5.9	7.6	8.0
<b>Total</b>	<b>27.8</b>	<b>30.7</b>	<b>31.8</b>