



## Sustainability, Resilience and Innovation Group

### • **CAMP4W Task Force – Service Area Population Data**

#### **Summary**

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This report provides a description of how population growth information is obtained as input for Metropolitan’s planning purposes, including the development of scenarios for the 2020 Integrated Resource Plan Regional Needs Assessment. The Integrated Resource Plan Regional Needs Assessment serves as the analytical basis for the Climate Adaptation Master Plan for Water time-bound resource targets.

#### **Purpose**

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Informational

#### **Attachments**

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Attachment 1: Development of Demographic Growth Forecasts Metropolitan’s 2020 IRP Planning

#### **Detailed Report**

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##### **Population as a Driver of Change for Water Reliability**

The 2020 Integrated Water Resources Plan Regional Needs Assessment (IRP Needs Assessment) introduced a scenario planning approach. The purpose of scenario planning is to broaden the understanding of plausible but uncertain future conditions affecting water supplies and demands. To have scenarios that were meaningful and logically consistent in depicting future conditions, staff undertook a comprehensive identification of the fundamental drivers of change that affect supply stability and demands on Metropolitan. Building upon input received from the Board, member agencies, and the public, four scenarios were developed within a framework that examined and quantified these drivers of change. This exercise provided four sets of assumptions resulting in supply-demand gaps against which various investment options can be tested through the CAMP4W process.

Population growth is one of the primary drivers of water demand. All else equal, an increase in population will result in higher water use. Of course, population is not the only factor affecting water demand at the retail level. Water use efficiency and conservation behaviors also play an important role in overall water usage. The stability of water demand in Southern California even as the population increased by 24 percent between 1990 and 2023 is a testament to the success of water demand management efforts over the last 30 years.

##### **Process for Developing Population Data Used for Planning**

###### Historic Population Estimates

On an annual basis, Metropolitan tracks population changes using county-level estimates from the California Department of Finance (DOF), which are then converted to Metropolitan’s service area. During the decennial Census years (e.g., 2000, 2010, 2020, etc.), population data are also obtained from the U.S. Census Bureau. **Figure 1** shows the historical population in Metropolitan’s service area. Estimates for recent years are routinely revised with each annual data release.

DOF's year-to-year estimates are subject to revision, and uncertainties accumulate over time as new annual estimates move further from the last actual Census count. With each Census, DOF recalibrates population models to the new Census and revises estimates for the years going back to the previous Census. This recalibration can result in significant changes. As an example, for the whole state of California, after the 2010 Census count,

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DOF’s estimate for 2009 changed from 38.5 million to 37.1 million in the pre- and post-Census data. This resulted in a correction of near 1.5 million fewer people in the statewide official population estimates for 2009, with revisions for every year in between 2000 and 2010. For the Metropolitan service area, this resulted in a reduction of more than 700,000 persons that had previously been estimated in 2009, which had implications on planning assumptions for Metropolitan and its member agencies. This incident points to the inherent uncertainty and provisional nature of year-to-year population data.

### Future Population Projections

Metropolitan uses growth forecasts developed by two government agencies – the Southern California Association of Governments (SCAG) and the San Diego Association of Governments (SANDAG) – as inputs to its retail demand model to estimate future urban water demands. SCAG and SANDAG are regional transportation planning agencies for Southern California. Among other responsibilities, SCAG and SANDAG prepare projections of demographic and employment growth. Both planning agencies update their regional growth forecasts approximately every four years. SCAG is the regional planning agency for six counties: Imperial, Los Angeles, Orange, Riverside, San Bernardino, and Ventura. SANDAG is the regional planning agency for San Diego County. See Table 1.

**Table 1. Counties Served by SCAG, SANDAG, and Metropolitan**

County Served	SCAG	SANDAG	Metropolitan* Service Area	% of County Area in Metropolitan’s Service Area	% of County Pop. Served by Metropolitan in 2020
Imperial	✓			0%	0%
Los Angeles	✓		✓	34%	91%
Orange	✓		✓	88%	~100%
Riverside	✓		✓	15%	74%
San Bernardino	✓		✓	1%	40%
Ventura	✓		✓	20%	75%
San Diego		✓	✓	34%	97%

\*Metropolitan service area does not cover the entire county

For IRP analyses prior to the 2020 IRP Needs Assessment as well as for other planning purposes such as the Urban Water Management Plan (UWMP), Metropolitan has used SCAG’s and SANDAG’s demographic growth forecasts as the basis for modeling its retail demand projections. Both SCAG and SANDAG prepare demographic forecasts based on land use data for their respective regions through extensive processes that emphasize input from local planners and are done in coordination with local or regional land use authorities, incorporating essential information to reflect anticipated future populations and land uses. SCAG’s and SANDAG’s projections undergo extensive local review, incorporate zoning information from city and county general plans, and are supported by Environmental Impact Reports. Both SCAG and SANDAG have recently completed new regional growth forecasts in 2024. In order for these regional growth forecasts to be analyzed and used at the Metropolitan service area and member agency level, Metropolitan needs to have access to the forecasts at the U.S. Census Tract and Transportation Analysis Zone level. Metropolitan staff is working on obtaining and incorporating the new SCAG and SANDAG forecasts at the appropriate level of detail for use in Metropolitan’s upcoming major planning cycle for the 2025 UWMP.

For developing the 2020 IRP Needs Assessment analysis, Metropolitan used an alternative methodology to obtain a range of high and low population projections to be consistent with high and low growth scenarios. During the

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2020 IRP process, Metropolitan engaged the services of demographer Mr. Stephen Levy, Director and Senior Economist of the Center for Continuing Study of the California Economy (CCSCE), to produce two alternative demographic growth projections for the IRP planning scenarios. CCSCE provides independent assessments of economic and demographic trends in California to public agencies including SCAG and nonprofit institutions. CCSCE specializes in analyses of California growth trends including projections and implications for public policy.

In developing the alternative demographic projections, CCSCE considered three main drivers for growth in the Metropolitan’s service area:

1. **Immigration** - With birth rates falling and death rates rising, immigration will be the key to how fast the economy grows. The U.S. Census Bureau projected that the U.S. population would grow from the 2019 population by between 36 million and 79 million by 2045, mostly from immigration.
2. **Competitiveness for Jobs** - Southern California’s economy continues to be resilient, fluctuating in a narrow range between 6 percent and 7 percent of U.S. jobs over the past three decades. The composition of U.S. job growth is slightly favorable to Metropolitan’s service area with a focus on trade, tourism, technology, and creativity.
3. **Housing Availability** - Housing supply, housing affordability, and investment in infrastructure are major drivers as to how the region will capture job growth.

Instead of the SCAG and SANDAG growth forecasts, CCSCE used U.S. Census Bureau projections for the U.S. population as a baseline to derive future Six-County and Metropolitan Service Area populations. Foreign immigration was assumed as a major determinant of future growth. The low growth projection assumed a continuation of the relatively low levels of immigration seen in recent years. The high projection assumed a significant increase in immigration prompting the aging of the U.S. population and eventual decline in the labor force that would create opportunities for additional immigrants to replace retiring workers and fill new jobs.

**Table 2** shows the projected net population growth from 2019 to 2045 for Metropolitan’s service area under the 2020 IRP scenarios. The growth in population is approximately 1,190,000 and 5,847,000 people for the low and high scenarios, respectively. In the low growth projection, CCSCE assumed that the overall growth trend would be positive between 2019 and 2045. Even with low growth assumptions, CCSCE did not anticipate a net decrease in population from 2019 over the long term.

**Figure 1** shows how CCSCE’s high and low growth projections compare with each other as well as with the historical population.

**Table 2. Alternative Population Growth Projections**

	2019	SCE A 2045L	SCE B 2045H	SCE C 2045L	SCE D 2045H
CCSCE's Six-County Area Population	22,202,000	23,813,000	28,619,000	23,813,000	28,619,000
CCSCE's In-Service Area Population	19,052,000	20,241,000	24,898,000	20,241,000	24,898,000
MWD's Member Agency Total Population	19,052,000	20,241,000	24,898,000	20,241,000	24,898,000
HH Population	18,722,000	19,922,000	24,505,000	19,922,000	24,505,000
SFR HH Population	12,269,000	12,906,000	15,710,000	12,858,000	15,583,000
MFR HH Population	6,453,000	7,015,000	8,795,000	7,064,000	8,922,000
GQ Population	330,000	320,000	393,000	320,000	393,000
Total Population	19,052,000	20,241,000	24,898,000	20,241,000	24,898,000

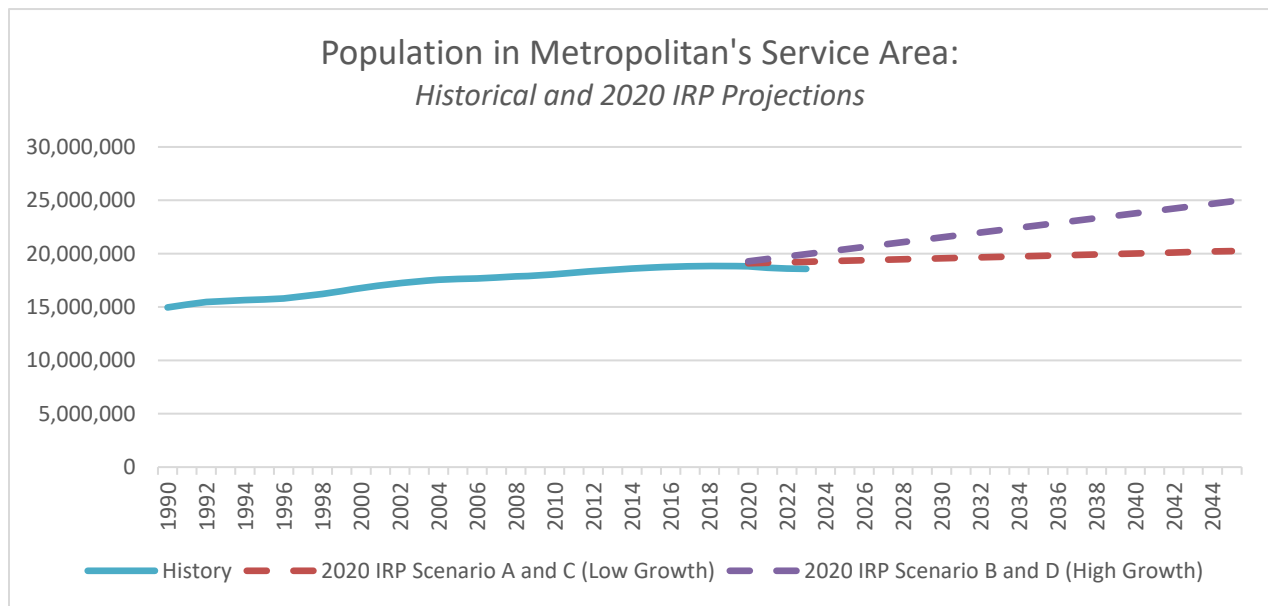
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For an in-depth discussion on CCSCE’s demographic projections that were used for the 2020 IRP Needs Assessment, please see **Attachment 1**.

### Current Population in Metropolitan’s Service Area

As shown in **Figure 1**, the service area’s historical population peaked in 2018 at approximately 18.8 million persons. There are several reasons for the arrested growth over the last 5 years, notably the COVID-19 pandemic and shortage of housing available and affordable for new household formation. For nearly 20 years California has experienced negative net domestic migration, in which the number of people moving out of the state in a year exceeds the number moving in. Since 2016, net domestic outmigration has exceeded net international migration, leaving natural increase as the only source of population growth. Although the demographic shock of the pandemic has abated, growth from natural increase has been constrained by continuing declines in fertility and increased deaths from an aging population. However, the DOF has recently observed evidence of a reversal of the falling trend in statewide population, due to foreign legal immigration rebounding from the pandemic and returning to long-term trends, increased domestic in-migration and slowing domestic out-migration, and natural increase as the number of deaths fell from the pandemic peak.

**Figure 1. Historical Population and 2020 IRP Needs Assessment Scenario Growth Projections**



### Population Data for Metropolitan’s Service Area

Population projections are available on the CAMP4W dashboard, which features an interactive interface allowing you to filter data by agency and scenario. Additionally, all demographic data, including population data, can be accessed on the Metropolitan's website. [Demographic Data Link](#).

# CCSCE

Center for Continuing Study of the California Economy

Technical Memorandum:

## **Development of Demographic Growth Forecasts Metropolitan's 2020 IRP Planning Scenarios**

Stephen Levy  
May 2021

Prepared for:

**Metropolitan Water District of Southern California**

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## List of Acronyms and Definitions

ABAG	Association of Bay Area Governments
BLS	Bureau of Labor Statistics
CCSCE	Center for Continuing Study of the California Economy
DOF	California Department of Finance
GDP	Gross Domestic Product
HH	Household
MWD	Metropolitan Water District of Southern California
REMI	Regional Economic Models, Inc. (demographic and economic models)
RHNA	Regional Housing Needs Assessment
SANDAG	San Diego Association of Governments
SCAG	Southern California Association of Governments
2045H, 2045B, 2045L	Projections for 2045 – High, Base, Low, respectively
Six-County Area	Comprises of Los Angeles, Orange, Riverside, San Bernardino, San Diego, and Ventura counties.
MWD Service Area	Comprises of the areas within the Six-County Area that Metropolitan Water District of Southern California serves.

## Introduction

This report summarizes the development by the Center for Continuing Study of the California Economy (CCSCE) of alternative job, population, and household growth forecasts for the Metropolitan Water District of Southern California (MWD) service area to 2045.

MWD is developing scenarios for water demand and supply that include plausible high and low economic and demographic projections for the service area developed by CCSCE in consultation with MWD staff.

## Forecast Framework

I will use the word forecast as it is used by both MWD and Southern California Association of Governments (SCAG), though technically what we are doing is developing projections—results that flow from a set of assumptions and are not by themselves predictive. Normally the word forecast is used to describe something usually thought of as a prediction as when an economist says GDP is forecast to rise by a certain percent next year.

Regional forecasts (e.g. for the SCAG or MWD service area) are anchored in a national forecast. This is true for CCSCE's work, but also for national models such as REMI.

It is useful to portray the national forecast as providing the “opportunity pie” that affects what share of growth and growth details that can be captured by regional areas such as the MWD service area.

Note also that long-term forecasts assume the economy is in equilibrium, not in recession or high inflation. One result is that for describing growth rates, the usual practice is to have an equilibrium year as the starting point. So I will use 2019, not 2020, when describing growth rates.

A national forecast begins with a forecast of total population. Normally the Census Bureau is the source for national population projections.

For our purposes the next step is to forecast total job levels. The translation from population to jobs includes assumptions about unemployment and labor force participation rates as the major linkages.

The next step as an input to regional job forecasts is to forecast the pattern of national job growth by industry.

In our work the national forecast is anchored in projections from national forecasting organizations such as Bureau of Labor Statistics (BLS) or REMI.



## National Forecast—Assumptions and Key Drivers

In 2020, the Census Bureau published a set of alternative population projections driven solely by alternative assumptions about the level of immigration. This decision and prior expert panel work for SCAG establishes immigration as a major driver of the level of national growth.

<b>Driver</b>	Immigration
<b>Impact on Alternative Forecasts</b>	Major
<b>Quantified</b>	Yes

The Census Bureau alternative projections and their previously published baseline projections are shown below. The alternative projections reflect immigration levels roughly 50% above and below the 2011-15 average used in the baseline projection. The low projection would maintain the low levels of immigration in recent years. The alternative projections also include different birth levels reflecting the size and ethnic composition of the populations.

The higher projections are plausible given the aging of the U.S. population and eventual decline in the labor force that show the need for additional immigrants to replace retiring workers and fill job growth. The higher levels are in line with current administration goals and the support of the broad business community.

In the charts and tables in this memo as well as in the accompanying Excel file, a baseline forecast developed by CCSCE is shown as well as a high and low projection (2045H and 2045L respectively). Though the baseline (2045B) growth numbers are not used by MWD in their scenarios, they are included to show the differences with the high and low scenarios.

	<b>2019</b>	<b>2045L</b>	<b>2045B</b>	<b>2045H</b>
U.S. Population (Millions)	328.2	364.0	381.4	407.4
		<b>19-45L</b>	<b>19-45B</b>	<b>19-45H</b>
Percent Change		10.9%	16.2%	24.1%
		<b>19-45L</b>	<b>19-45B</b>	<b>19-45H</b>
Change (Millions)		35.8	53.2	79.2
Average immigration per year (Millions)		0.65	1.08	1.76

The alternatives create a wide range of population growth, which will anchor our service area forecasts. Between 2019 and 2045 U.S. population growth is 35.8 million (+10.9%) in the low alternative and 79.3 million (+24.1%) in the high alternative.

There can be further impacts at the service area level as:

- 1) the MWD service area has a high concentration of immigrants in the population and workforce and,
- 2) high immigration implies a welcoming and tolerant attitude toward immigrants and foreigners that is important for the service area economy.

Going from U.S. population to U.S. jobs involves assumptions about labor force participation rates and unemployment rates. The 2045 forecast is an equilibrium forecast so the national unemployment rate is assumed to be near 5%. Small variations will not have an impact on the final results. Overall labor force participation rates are assumed to decline as the population ages even as older workers work more.

<b>Driver</b>	<ul style="list-style-type: none"> <li>• Translating population into total jobs</li> <li>• Unemployment rates</li> <li>• Labor force participation rates</li> <li>• Double jobbing rates</li> </ul>
<b>Impact on Alternative Forecasts</b>	Minor
<b>Quantified</b>	No, same translation factors used in all forecast alternatives

CCSCE used the translation ratio shown below from population to jobs that was developed for Association fo Bay Area Governments (ABAG) in late 2019. The translation factors are not major drivers of change.

One result is that population is forecast to grow faster than jobs. This is a direct result of the aging of the population that slows labor force and job growth. But the general pattern of national job growth is similar to the population pattern. In the low alternative jobs grow by 13.6 million (+8.3%) between 2019 and 2045 while in the high alternative job growth is forecast to be 34.6 million (+21.2%).

These results shown below feed into the service area forecast and are the first piece of distinguishing the alternative forecasts.

	2019	2045L	2045B	2045H
Ratio of Population/Jobs	2.02	2.06	2.06	2.06
Jobs (Millions)	162.8	176.4	184.8	197.4
Percent Change		8.3%	13.5%	21.2%
Change		13.6	22.0	34.6

The next and final step in the national forecast is a forecast of job growth by industry. This is an important driver of the service area forecast though CCSCE did not have the scope or find credible evidence to develop alternatives.

<b>Driver</b>	Pattern of Industry Growth
<b>Impact on Alternative Forecasts</b>	Moderate
<b>Quantified</b>	No, but share narrative incorporates qualitative assumptions

The pattern of industry growth is similar in both the BLS projections used by CCSCE and the REMI model forecasts CCSCE worked with for ABAG.

Both show a pattern of industry growth that is favorable for the MWD service area economy. This is integral to the SCAG and San Diego Association of Governments (SANDAG) recent forecasts.

The service area job forecast is anchored in forecasts of the share of “basic” industries—those that can locate anywhere and are tied to national and international markets meaning most goods and services do not serve the local population.

The fastest growing basic industries nationally in terms of job growth are in Information and Professional Services sectors. Included here are entertainment production whether movies, TV, commercials or new forms, a variety of design services and a wide range of high-tech manufacturing and services. In addition, foreign trade and tourism are relatively fast-growing basic industry sectors.

## Six-County Area and Service Area Job Forecast

### Six-County Area Job Forecast

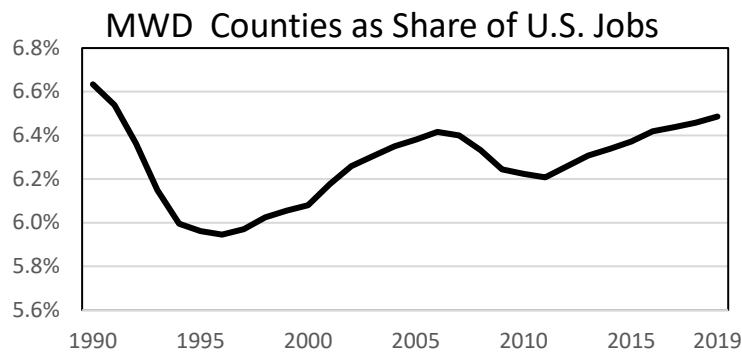
<b>Driver</b>	Six-County Area share of national industry job share
<b>Impact on Alternative Forecasts</b>	Major
<b>Quantified</b>	Yes, with narrative associated

In the 2015-2019 period the Six-County Area recorded a steady increase in the share of U.S. jobs ending with the highest level since before the aerospace/defense induced decline in the early 1990s. Between 2000 and 2019 the Six-County Area share of U.S. jobs stayed in a relatively narrow range of between 6.1% and 6.5%.

The Six-County Area job share depends on

- 1) the composition of U.S. jobs, and
- 2) the share captured by the Six-County Area.

These are drivers of the share forecast.



To develop the low job forecast, CCSCE assumed that the Six-County Area share of U.S. jobs would return to the low point of the 2000-2019 history—6.1%. That assumption plus the low U.S. job forecast results in just 1.9% (0.2 million) job growth between 2019 and 2045.

What drivers could justify the low forecast? This is equivalent to asking:

- 1) What could change the composition of U.S. growth, and
- 2) What would reduce the region's competitive position.

Answers to the first question are:

- 1) Lower immigration would also imply restrictions that convey a less welcoming policy toward foreigners and could reduce activities such as tourism and foreign trade that are strengths of the regional economy.

A slow growth/low immigration U.S. economy as in the low U.S. forecast could also diminish entrepreneurial and skilled labor talent as much has come recently from immigrants. That would reduce job growth in tech sectors where the regional economy has a competitive advantage.

Answers to the second question are the main drivers of competitive position:

- 1) Success in reducing housing costs and expanding supply, and
- 2) Increasing mobility for people and goods.

These are both SCAG and SANDAG's goals, but success can be greater or less affecting the ability for people to live in the region affordably and reduce congestion for people and goods. Low housing production particularly for units that are broadly affordable could lower labor force and job growth in the service area.

The drivers of the high forecast are the same as in the low forecast, **but with different impacts.**

The high forecast depends on major success in meeting housing and mobility goals. High housing costs and long commutes are the major cause of recent out-migration.

High levels of immigration will increase the region's competitive position for two reasons:

- 1) They imply a welcoming attitude toward foreigners that will boost tourism and foreign students, and
- 2) Immigrants are a major source of skilled workers and entrepreneurs in the MWD service area.

The regional job forecast is shown below. Note that the low forecast has very little job growth. [Also](#) note that the job growth forecasts are lower in growth rates by a bit compared to forecast population growth—a result of the continued aging of the region's population and, as a result, declining total labor force participation rates meaning more people are needed to fill a given level of job growth. There is, however, a wide range of forecast growth between the high and low forecasts.

In the Six-County Area and service area tables, the unrounded forecasts are shown so that they match the numbers in the MWD staff worksheets.

	2019	2045L	2045B	2045H
Six County Share of U.S.	6.49%	6.10%	6.36%	6.55%
Six-County Area Jobs (Millions)	10.6	10.8	11.8	12.9
Percent Change		1.9%	11.3%	22.4%
Change (Millions)		0.2	1.2	2.4

## Service Area Job Forecast

The service area job forecast was developed by assuming that the 2019 service area share of Six-County Area jobs would remain in 2045. There was very little change historically and small differences would not have a large impact on the forecast. There are actually two competing forces pointing in opposite directions. On the one hand SCAG and SANDAG are planning for more growth to be within the MWD service area in coastal areas. On the other hand, historically growth in the Six-County Area outside of the service area has been a bit faster.

	2019	2045L	2045B	2045H
Service Area Share of Six-County Area Jobs in 2019	87.3%	87.3%	87.3%	87.3%
Service Area Jobs (Millions)	9.2	9.4	10.3	11.3

## Six-County Area and Service Area Population Forecast

### Six-County Area Population Forecast

<b>Driver</b>	Ratio of population to jobs driven by unemployment and labor force participation rates and double jobbing
<b>Impact on Alternative Forecasts</b>	Minor
<b>Quantified</b>	Yes

In the SCAG and ABAG work and here, the forecast used the ratio of population to jobs in the region in relation to the forecast U.S. ratio. For this forecast, the Six-County Area average ratio for 2010-19 was used. The Six-County Area ratio of population/jobs rises slightly to 2045 similar to the U.S. trend and is not a major factor in our forecast

	2019	2045L	2045B	2045H
Ratio of Population/Jobs Six-County Area/U.S.	1.04	1.07	1.07	1.07
Ratio of Population/Jobs Six-County Area	2.10	2.21	2.21	2.21
Six-County Area Jobs (Millions)	22.2	23.8	26.0	28.6

## Service Area Population Forecast

The 2019 service area share of the Six-County Area population was used for the baseline forecast. For the low forecast 85% was used for the service area share of the Six-County Area and 87% for the high forecast. The explanation is tied to the service area HH forecast and shown in that section. The resulting service area population forecast is calculated by multiplication as shown below.

The forecast growth ranges from 1.2 million (+6.2%) for the low and 5.8 million (+30.7%) for the high forecast alternative.

	2019	2045L	2045B	2045H
Service Area Share of Six-County Area Population	85.8%	85.0%	85.8%	87.0%
Service Area Population (Millions)	19.05	20.24	22.32	24.9
		<b>2019-45L</b>	<b>2019-45B</b>	<b>2019-45H</b>
Percent Change		6.2%	17.2%	30.7%
Change (Millions)		1.2	3.3	5.8

## Six-County Area and Service Area Housing Forecast

<b>Driver</b>	<ul style="list-style-type: none"> <li>Household formation (headship) rates,</li> <li>Regional housing needs assessment (RHNA) requirements for reducing the number of overcrowded and cost burdened households, maintaining a normal vacancy rate and</li> <li>Success in meeting RHNA, and SCAG/SANDAG housing goals</li> </ul>
<b>Impact on Alternative Forecasts</b>	Minor
<b>Quantified</b>	Yes

The housing growth forecasts are split into two parts:

- 1) Relating to growth associated with population growth, and
- 2) Associated with their RHNA “catch up” requirements, including reducing the number of overcrowded and cost burdened residents.

For the household growth related to population growth the persons/household forecast of DOF for 2030 for the service area was used as shown below. It falls a bit from current levels primarily because there are fewer children per household.

The service area shares of Six-County Area growth explained in the next section were used, the same as in the service area population forecasts.

These assumptions produce a range of household growth from just under 0.6 million (+9.1%) in the low forecast to just over 2.1 million (+34.1%) in the high forecast alternative.

	2019	2019-45L	2019-45B	2019-45H
Households from population growth Six-County Area Person per Household	3.06	2.99	2.99	2.99
Six-County Area Households (Millions)	7.2	8.0	8.7	9.6
Service Area Share of Six-County Area Households	86%	85%	86%	87%
Service Area Households (Millions)	6.2	6.8	7.5	8.3
Percent Change		9.10%	20.50%	34.10%
Change (Millions)		0.6	1.3	2.1

The next step was to identify the RHNA related catch-up housing required in the SCAG and SANDAG regions. A portion of the 6<sup>th</sup> cycle RHNA allocations for the SCAG and SANDAG regions relate to future population growth and these are included above.

Another portion related to minimizing the number of overcrowded and cost burdened household (those paying more than 30% of income for housing) and bringing the vacancy rate back up to normal levels. The result (after backing out Imperial County [which is not in MWD's service area](#)) was 800,000 units for the Six-County Area as shown below. These units are a one-time catch up to mitigate existing needs for current residents.

CCSCE and MWD staff worked together to develop alternative assumptions about the success that would be achieved in producing these housing units. We assumed different success rates of 50% (low alternative), 75% (baseline) and 100% (high) to 2045 to illustrate the impact of a range.

There is a feedback from the choice of success rates in meeting the catch up RHNA allocations to the service area share of household and population growth in the low and high alternatives. The catch-up units are primarily for low- and



moderate-income residents and will be built primarily within the MWD service area portions of the Six-County Area. As a result, CCSCE and MWD assumed that the service area would get a slightly higher (87%) share of Six-County Area households and population growth in the high alternative where 100% of the catch-up units are assumed and a slightly lower (85%) share of Six-County Area households and population in the low alternative where only 50% of the catch-up units are assumed to be built.

MWD will also show results for a second high alternative they developed that assumes 75% success in developing the catch-up units.

The result of these assumptions is a range of total HH growth from 0.9 million (+14.5%) in the low forecast alternative to 2.8 million (+45.3%) in the high forecast.

<b>Six-County Area</b>	<b>2019</b>	<b>2019-45L</b>	<b>2019-45B</b>	<b>2019-45H</b>
Total Need (Millions)		0.80	0.80	0.80
Success Rate		50%	75%	100%
Added Household (Millions)		0.40	0.60	0.80
Service Area Share		85%	86%	87%
Service Area Household from unbundling (Millions)	6.22	0.30	0.50	0.70
Total Service Area Household Growth (Millions)		0.90	1.80	2.80
Total Service Area Households	6.22	7.12	8.00	9.03
Percent Change		15%	29%	45%

### Summary of Results with Rounded Numbers

<b>U.S. Population</b>	<b>2019</b>	<b>2045L</b>	<b>2045B</b>	<b>2045H</b>
U.S. Population (Millions)	328.2	364.0	381.4	407.4
		<b>2019-45L</b>	<b>2019-45B</b>	<b>2019-45H</b>
Percent Change		10.9%	16.2%	24.1%
Change (Millions)		35.8	53.2	79.2
<b>U.S. Jobs</b>	<b>2019</b>	<b>2045L</b>	<b>2045B</b>	<b>2045H</b>
Jobs (Millions)	162.8	176.4	184.8	197.4
		<b>2019-45L</b>	<b>2019-45B</b>	<b>2019-45H</b>
Percent Change		8.3%	13.5%	21.2%
Change		13.6	22.0	34.6
<b>Service Area Population</b>	<b>2019</b>	<b>2045L</b>	<b>2045B</b>	<b>2045H</b>
Service Area Population (Millions)	19.1	20.2	22.3	24.9
		<b>2019-45L</b>	<b>2019-45B</b>	<b>2019-45H</b>
Percent Change		6.2%	17.2%	30.7%
Change (Millions)		1.2	3.3	5.8
<b>Service Area Jobs</b>	<b>2019</b>	<b>2045L</b>	<b>2045B</b>	<b>2045H</b>
Service Area Jobs (Millions)	9.2	9.4	10.3	11.3
		<b>2019-45L</b>	<b>2019-45B</b>	<b>2019-45H</b>
Percent Change		1.9%	11.3%	22.4%
Change (Millions)		0.2	1.0	2.1
<b>Service Area Household</b>	<b>2019</b>	<b>2045L</b>	<b>2045B</b>	<b>2045H</b>
Service Area Household (Millions)	6.2	7.1	8.0	9.0
		<b>2019-45L</b>	<b>2019-45B</b>	<b>2019-45H</b>
Percent Change		14.5%	28.8%	45.3%
Total HH Growth (Millions)		0.9	1.8	2.8