2022 RTP SCS Demographic Profile

Tulare County Forecast Summary

The Tulare County Association of Governments (TCAG) 2022 RTP SCS Demographic Forecast was developed using the latest information available from the CA Department of Finance (DOF), CA Department of Housing and Community Development (HCD), CA Employment Development Department (EDD), and the Caltrans Transportation Economics Branch. The demographic profile consists of 2021-2046 projections for population, households, and employment. These projections were used to develop control totals for the land use model, travel demand model, and air quality model inputs in support of the development of 2022 RTP SCS. It is important to note that the projections obtained from the various sources were developed for the Tulare County Region, subregional allocations to the cities and unincorporated area were based upon historic trends and taking into account RTP SCS goals and infrastructure investments to build prosperous communities with jobs/housing balance in order to achieve SB 375 GHG reduction targets and to further fair housing goals. Data totals may not sum up perfectly due to rounding.

Population Forecast

The population forecast was developed by the CA Department of Finance – Demographic Research Unit in March 2021 by county for the years 2010-2060. The DOF is responsible by statute for maintaining postcensal population projections which are calculated using the demographic balancing equation:

Current Population = Previous Population + (Births - Deaths) + Net Migration

This method calculates the population in the target year by starting with the population from the previous year, adding natural increase (births minus deaths) and net migration that occurred during the time period between the two years. The births, deaths, and migration anticipated during the time period are called the components of change. A cohort-component method traces people born in a given year throughout their lives. As each year passes, cohorts change due to the mortality and migration assumptions. Applying fertility assumptions to women of childbearing age forms new cohorts at age zero.

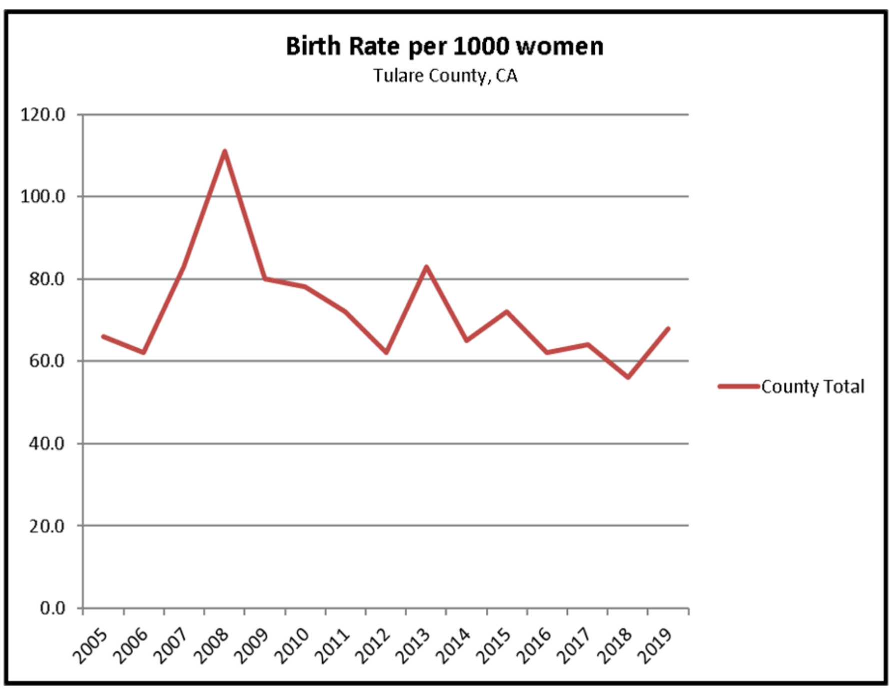
These 2020 baseline projections incorporate the latest historical population, birth, death, and migration data available as of July 1, 2020. Historical trends from 1990 through 2020 for births, deaths, and migration are examined. County populations by age, sex, and race/ethnicity are projected to 2060. The county projections are then summed to obtain data for the state.

California state-wide population trends show declining population growth rates. Births are expected to continue to decline throughout the projections period, leveling off after 2050. State-wide births begin at 459,000 in 2019-2020 and decline to 424,000 in 2059-2060. The total fertility rate for California has been below the replacement level of 2.1 births per woman since 2009 and it will drop to 1.5 children per woman in 2040. This level of fertility puts California in the company of European countries like Spain and Italy which have had a similarly low total fertility rate since the 1970s.

State-wide deaths are also expected to rise during the projection period from 276,000 in 2019 to 489,000 in 2060. The rising deaths are a result of the aging of the baby boomers who will all be over 95 years old by the end of the forecast period.

Migration is the most critical component of California's population change and the hardest to project due to inherent variability and the absence of full administrative data. Although net migration for California has been negative for 2018 (-39,476) and 2019 (-13,074), migration is forecast to return to the decade's average by 2025. This results in net migration of approximately 100,000 migrants during 2024-2025. Net migration is thus expected to return to a crude rate of net migration of about 2.5 persons per 1,000 population by 2025 and remain stable throughout the forecast period. Net migration will be large enough to counterbalance the negative natural change resulting in small, annual population growth for the state. DOF population projection methodology is included as **Appendix A**.

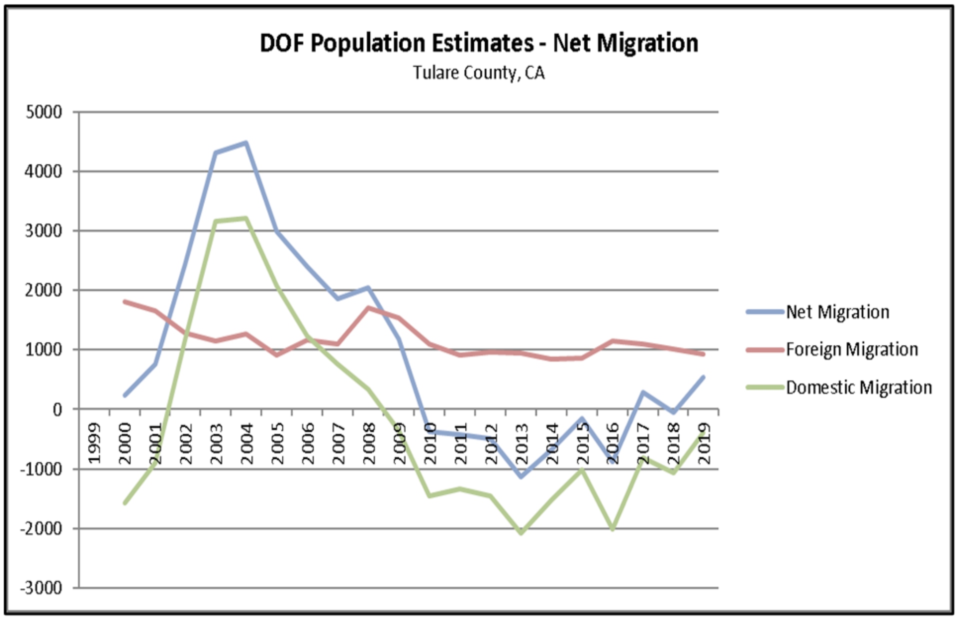
Figure 1 – Tulare County Fertility Rates 2005-2019



Source: CA Department of Finance

Tulare County has also experienced a decline in fertility rates similar to the rest of the state from a high of 115 births per one thousand women in the year 2008 to just under 60 births in 2018 as indicated in **Figure 1** above.

Figure 2 – Tulare County Net Migration 2000-2019



Source: CA Department of Finance

Likewise **Figure 2** shows that Tulare County has also experienced declining migration from a high of 4,500 new residents in 2004 to a period of net negative migration from 2010-2016 in the aftermath of the Great Recession.

A comparison of DOF population forecast used in development of the RTP SCS against prior DOF projections is include as **Figure 3**. Projections have consistently declined for the region over the last decade. The 2014 RTP SCS population projection was 721,391 persons in the year 2040 which declined to 594,348 persons for the 2018 RTP SCS. The projection further declined for 2040 for the 2022 RTP SCS at 551,563 persons which resulted in a reduction of 169,828 persons which would be able to populate a city great than that of the largest city in the region, Visalia, CA with a current year 2022 population of 142,091. That projection reduction of 169,828 also represents 35.8% of the current year 2022 population of the Tulare County region at 475,014.

Overall, the population is expected to grow by 17.8% over the 2022 RTP SCS planning period from the year 2021 to the year 2046. Suballocation of the regional population, housing, and employment forecasts to the regions cities and unincorporated areas was done based upon historic trends and was heavily influenced by the suballocation of previous RTP SCS's land use allocation, transportation, and air quality modeling in order to create and maintain a jobs housing balance for vibrant communities and to meet SB 375 GHG reduction targets and to further fair housing goals.

Figure 3 – DOF Population Projections 2013-2021, RTP SCS Comparison

DOF State and County Population Projections P-1

Total Population Projections for California and Counties: 2010 to 2060 in 5-year Increments

	Estimates	Projections									
	2010	2015	2020	2025	2030	2035	2040	2045	2050	2055	2060
California	37,366,938	39,007,121	39,782,419	40,808,001	41,860,549	42,718,403	43,353,414	43,785,947	44,049,015	44,176,739	44,228,057
Tulare	442,517	463,671	480,788	496,657	516,810	535,463	551,563	565,075	575,525	584,163	591,539

Projections Prepared by Demographic Research Unit, California Department of Finance, March 2021 - TCAG 2022 RTP/SCS

	2010	2015	2020	2025	2030	2035	2040	2045	2050	2055	2060
Tulare	442,551	463,291	488,293	514,101	541,140	568,186	594,348	617,916	639,477	659,482	679,167

Projections Prepared by Demographic Research Unit, California Department of Finance, February 2017 - TCAG 2018 RTP/SCS

	2010	2015	2020	2025	2030	2035	2040	2045	2050	2055	2060
Tulare	443,487	467,170	498,559	537,015	578,858	616,547	650,819	683,533	715,722	747,912	779,772

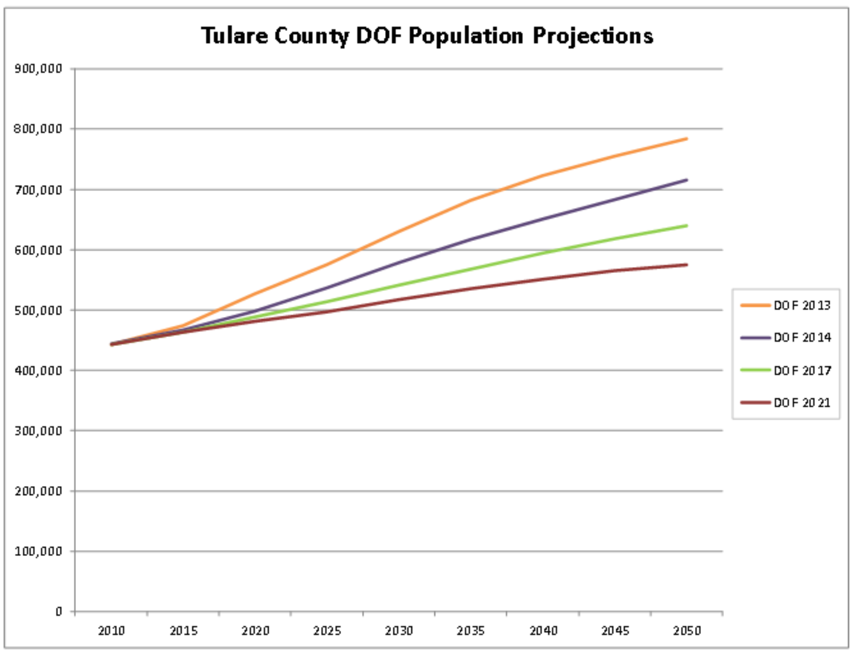
Projections Prepared by Demographic Research Unit, California Department of Finance, December 2014

	2010	2015	2020	2025	2030	2035	2040	2045	2050	2055	2060
Tulare	442,179	479,763	520,542	564,787	612,792	664,878	721,391				

TCAG 2014 RTP/SCS

	2010	2015	2020	2025	2030	2035	2040	2045	2050	2055	2060
Tulare	443,066	473,785	526,718	575,294	630,303	682,022	722,838	755,809	784,334	811,412	836,850

Projections Prepared by Demographic Research Unit, California Department of Finance, January 2013

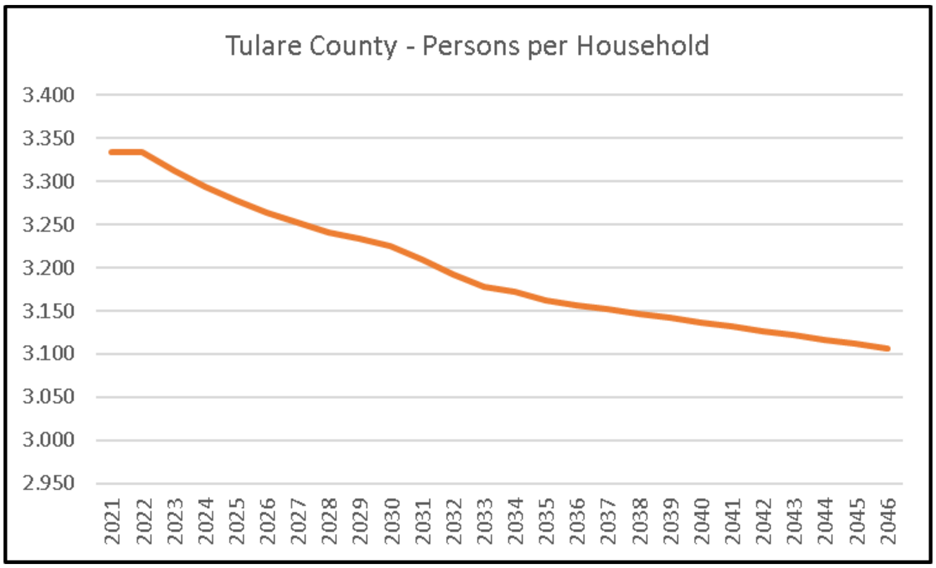


Source: TCAG. CA Department of Finance

Housing Forecast

The housing forecast was also developed by the DOF in consultation with HCD in development of the Regional Housing Needs Allocation (RHNA). Housing forecasts were provided for 2020-2033 based upon household formation rates in an earlier 2019 DOF forecast. Housing projections from 2034-2046 were projected by TCAG based upon a smoothed persons per household curve applied to the DOF 2010-2060 population projection mentioned earlier. The DOF forecasts a declining persons per household for the first time in recent Tulare County history no doubt resulting from the lower birth rates and net migration observed and used in the DOF population forecast model.

Figure 4 – Tulare County Persons per Household 2021-2046

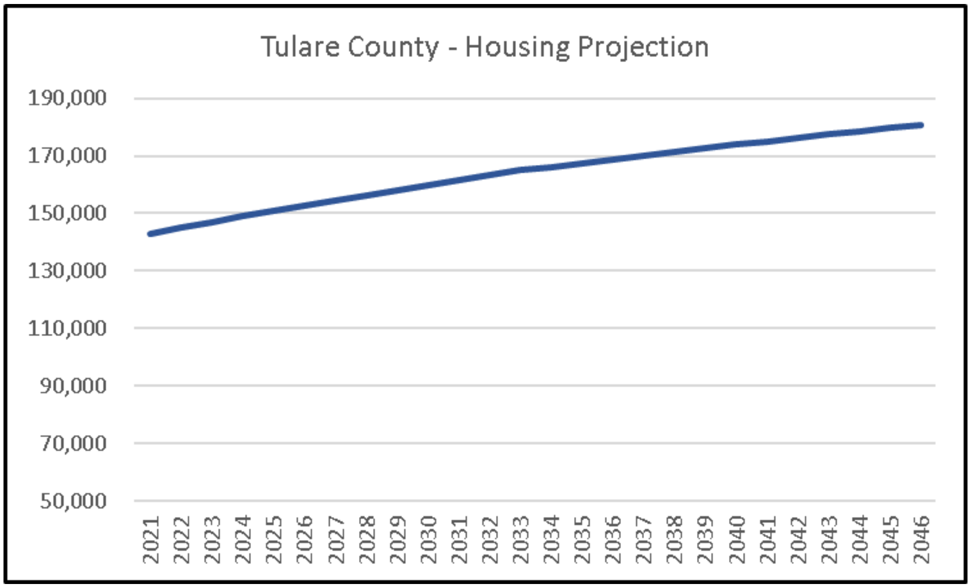


Source: TCAG. CA Department of Finance

Household size (**Figure 4**) is expected to decline from 3.34 persons in 2021 to 3.12 in the year 2046 in contrast to the previous decade where household size has remained steady at about 3.40 persons per household on average.

Households are expected to grow from 142,919 in 2021 to 180,652 in the year 2046 which results in an overall increase of about 26.4% during the 2022 RTP SCS planning period (**Figure 5**). Comparatively, the growth in population (17.8%), households (26.4%), and employment (16.9%) shows the impact of declining birth rates and increasing household formation on the region. It remains to be seen to what degree the relative housing affordability Tulare County region may be impacted.

Figure 5 – Tulare County Housing Projection 2021-2046



Source: TCAG. CA DOF/HCD

Employment Forecast

The employment forecast was developed by the Caltrans Transportation Economics Branch for the TCAG Region. Several employment forecasts for the region developed by Caltrans, REMI, and Woods & Poole were compared. The various employment forecasts were indexed to the latest EDD employment estimates for 2021 to account for differences in industry employment categories and definitions. Ultimately the Caltrans forecast was selected for the 2022 RTP SCS as the more conservative of the forecasts as the REMI forecast was considered low and the Woods & Poole forecast was considered high based upon historic trends for the region. As the various employment forecasts categorize and estimate industry employment independently, all three forecasts were indexed to the CA Employment Development Department (EDD) 2019 estimate of employment (184,400) in the region. The graphic comparison of the forecasts is included as **Figure 6**.

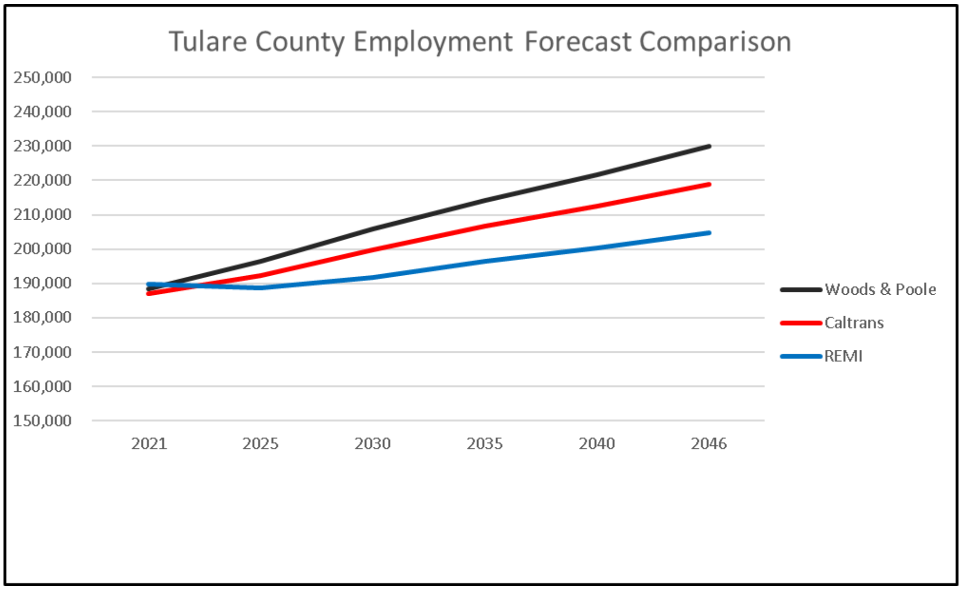
The Caltrans County-Level Economic Forecast models comprise an elaborate forecast system for projecting economic activity regionally in the state. The modeling system is the only county level forecast in California where all county economies are forecast. The modeling system has been continuously updated and improved since the year 2000.

The models are county-specific, and the specifications are built with the objective of considering unique attributes of each county economy. Each county model is comprised of 6 blocks of equations: 40 to50 stochastic behavioral relationships and 20 to 25 accounting identities. The model is characterized by simultaneous interaction and determination of local employment, income, population, wages, retail spending, and the demand for housing.

All models have the same outputs and the exogenous forecasts used in the equations for the county models are drawn from the same but always current pool of indicators that are generated by the California and U.S. forecasts updated routinely by the UCLA Anderson Forecast.

The stochastic equations are estimated using the ordinary least squares regression method and the entire system is solved using the Gauss-Seidel algorithm. The model is a “satellite model,” requiring forecasts of various California and U.S. economic variables which are treated as exogenous to the local county area. Caltrans forecast methodology is included as **Appendix B**.

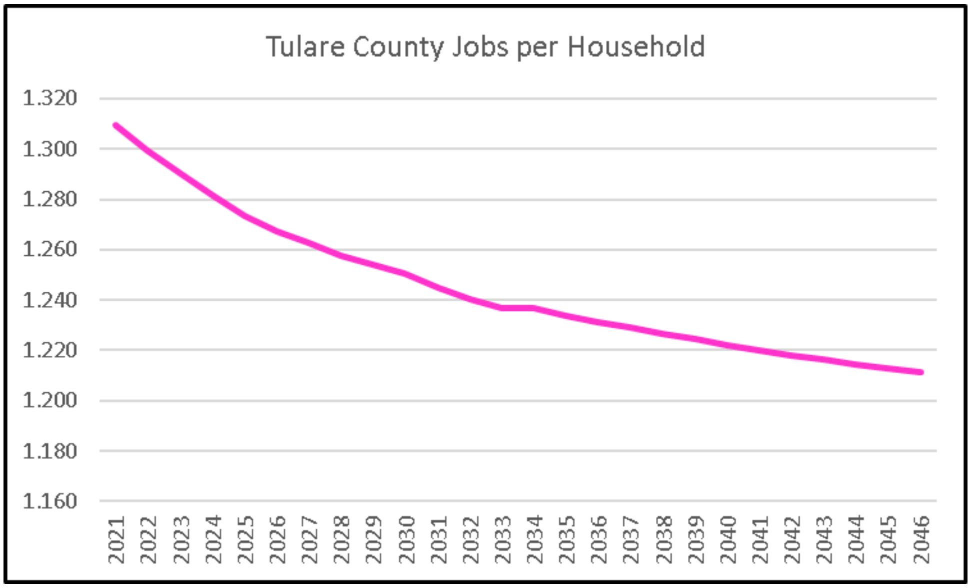
Figure 6 – Tulare County Regional Employment Forecasts 2021-2046



Source: Woods & Poole, Caltrans, REMI PI+

Regional employment is expected to grow by 16.9% over the 2022 RTP SCS planning period from the year 2021 to the year 2046. Jobs per household also declines over the projection period from 1.32 in 2021 to 1.21 in 2046. But this is indicative of the grown in household formation more so than a lack of job growth as job growth does keep relative pace with the growth in population 17.8%. Jobs per household is shown in **Figure 7** below.

Figure 7 – Tulare County Jobs per Household 2021-2046



Source: TCAG. CA DOF/HCD. Caltrans

Tulare County is routinely one of the top agricultural producing counties in the U.S. Ag jobs accounted for the highest percentage of any other sector of the economy with many other sectors heavily reliant on it. The Farm Sector had over 45,000 jobs in 2021 within the region which was about 24.2% of all of Tulare County employment followed by Government 19.0%, Wholesale & Retail 12.2%, Health & Education 10.0%, and Manufacturing 7.6% rounding out the top five.

The top five employment sectors in 2046 are projected to be Farm 22.8%, Government 20.4%, Health & Education 13.0%, Wholesale & Retail 10.6%, and Leisure at 7.6% of all employment in Tulare County. Sectors with the highest growth during the planning period are Health & Education 53.2%, Government 25.1%, Professional Services 22.4%, Leisure 21.4%, and Transportation & Utilities 16.9%. Growth in these sectors is spurred by an aging demographic and the San Joaquin Valley's emergence as a logistics hub for Southern California and the Bay Area.

Employment projections by industry are provided in **Figure 8** below. Demographic Profiles for the TCAG Region and its member agencies are included in the next section.

Figure 8 – Tulare County Employment Projections by Industry 2021 – 2046

Caltrans Employment Forecast - Tulare County

	2021	2025	2030	2035	2040	2046
Total Employment	187,137	192,262	199,678	206,681	212,582	218,846
Farm	45,205	46,186	47,387	48,157	48,814	49,891
Construction	6,645	6,645	6,645	6,646	6,538	6,536
Manufacturing	14,161	14,161	14,271	14,382	14,383	14,488
Transportation & Utilities	8,387	8,605	8,933	9,261	9,589	9,804
Wholesale & Retail Trade	22,766	22,984	22,985	23,098	23,100	23,094
Financial Activites	4,357	4,466	4,466	4,467	4,467	4,466
Professional Services	12,636	13,072	13,617	14,164	14,819	15,468
Information	980	980	1,089	1,090	1,090	1,089
Health & Education	18,627	19,934	22,005	24,405	26,477	28,540
Leisure	13,725	14,052	14,706	15,362	15,908	16,667
Government	35,619	37,036	39,543	41,728	43,257	44,554

Source: TCAG. Caltrans Transportation Economics Branch

TCAG Region Demographic Profile

TCAG Region - Demographic Profile - 2022 RTP SCS

Year	Households	Vacancy Rate	Housing Units	Total Population	Group Quarters	Household Population	Persons per Household	Employment	Jobs per Household
2021	**142,919**	**7.5%**	**154,436**	**481,649**	**5,081**	**476,568**	**3.33**	**187,137**	**1.31**
2022	145,009	7.5%	156,695	488,517	5,150	483,367	3.33	188,434	1.30
2023	146,986	7.5%	158,831	492,169	5,213	486,956	3.31	189,635	1.29
2024	148,996	7.5%	161,003	496,119	5,270	490,849	3.29	190,913	1.28
2025	**150,969**	**7.5%**	**163,135**	**500,134**	**5,323**	**494,811**	**3.28**	**192,262**	**1.27**
2026	152,816	7.5%	165,131	504,072	5,372	498,700	3.26	193,701	1.27
2027	154,597	7.5%	167,055	508,150	5,417	502,733	3.25	195,187	1.26
2028	156,367	7.5%	168,968	512,321	5,459	506,863	3.24	196,636	1.26
2029	158,040	7.5%	170,776	516,453	5,497	510,956	3.23	198,177	1.25
2030	**159,682**	**7.5%**	**172,550**	**520,428**	**5,534**	**514,894**	**3.22**	**199,678**	**1.25**
2031	161,642	7.5%	174,668	524,352	5,602	518,750	3.21	201,187	1.24
2032	163,354	7.5%	176,518	527,130	5,671	521,459	3.19	202,643	1.24
2033	164,974	7.5%	178,268	529,907	5,738	524,169	3.18	204,063	1.24
2034	166,110	7.5%	179,496	532,685	5,766	526,919	3.17	205,396	1.24
2035	**167,513**	**7.5%**	**181,012**	**535,463**	**5,794**	**529,669**	**3.16**	**206,681**	**1.23**
2036	168,879	7.5%	182,488	538,967	5,822	533,145	3.16	207,921	1.23
2037	170,141	7.5%	183,852	542,129	5,850	536,279	3.15	209,124	1.23
2038	171,456	7.5%	185,272	545,443	5,878	539,565	3.15	210,308	1.23
2039	172,722	7.5%	186,641	548,592	5,906	542,686	3.14	211,461	1.22
2040	**173,935**	**7.5%**	**187,952**	**551,563**	**5,934**	**545,629**	**3.14**	**212,582**	**1.22**
2041	175,113	7.5%	189,224	554,409	5,962	548,447	3.13	213,669	1.22
2042	176,275	7.5%	190,480	557,195	5,990	551,205	3.13	214,731	1.22
2043	177,418	7.5%	191,715	559,910	6,018	553,892	3.12	215,773	1.22
2044	178,528	7.5%	192,915	562,513	6,046	556,467	3.12	216,802	1.21
2045	179,630	7.5%	194,105	565,075	6,074	559,001	3.11	217,830	1.21
2046	**180,652**	**7.5%**	**195,210**	**567,383**	**6,102**	**561,281**	**3.11**	**218,846**	**1.21**

Source: TCAG. CA DOF/HCD. Caltrans

City of Dinuba Demographic Profile

City of Dinuba - Demographic Profile - 2022 RTP SCS

Year	Households	Vacancy Rate	Housing Units	Total Population	Group Quarters	Household Population	Persons per Household	Employment	Jobs per Household
2021	**6,834**	**2.1%**	**6,982**	**26,085**	**177**	**25,908**	**3.79**	**11,315**	**1.66**
2022	6,934	2.1%	7,084	26,456	179	26,277	3.79	11,394	1.64
2023	7,028	2.1%	7,181	26,654	181	26,473	3.77	11,467	1.63
2024	7,125	2.1%	7,279	26,868	183	26,685	3.75	11,544	1.62
2025	**7,219**	**2.1%**	**7,375**	**27,086**	**185**	**26,900**	**3.73**	**11,625**	**1.61**
2026	7,307	2.1%	7,466	27,299	187	27,112	3.71	11,712	1.60
2027	7,392	2.1%	7,553	27,520	189	27,331	3.70	11,802	1.60
2028	7,477	2.1%	7,639	27,746	190	27,556	3.69	11,890	1.59
2029	7,557	2.1%	7,721	27,969	191	27,778	3.68	11,983	1.59
2030	**7,635**	**2.1%**	**7,801**	**28,185**	**193**	**27,992**	**3.67**	**12,074**	**1.58**
2031	7,729	2.1%	7,897	28,397	195	28,202	3.65	12,165	1.57
2032	7,811	2.1%	7,981	28,548	197	28,350	3.63	12,253	1.57
2033	7,889	2.1%	8,060	28,698	200	28,498	3.61	12,339	1.56
2034	7,943	2.1%	8,115	28,849	201	28,648	3.61	12,420	1.56
2035	**8,010**	**2.1%**	**8,184**	**28,999**	**202**	**28,797**	**3.60**	**12,497**	**1.56**
2036	8,075	2.1%	8,250	29,189	203	28,986	3.59	12,572	1.56
2037	8,136	2.1%	8,312	29,360	204	29,156	3.58	12,645	1.55
2038	8,198	2.1%	8,376	29,539	205	29,335	3.58	12,717	1.55
2039	8,259	2.1%	8,438	29,710	206	29,504	3.57	12,786	1.55
2040	**8,317**	**2.1%**	**8,497**	**29,871**	**207**	**29,664**	**3.57**	**12,854**	**1.55**
2041	8,373	2.1%	8,555	30,025	208	29,817	3.56	12,920	1.54
2042	8,429	2.1%	8,612	30,176	209	29,967	3.56	12,984	1.54
2043	8,484	2.1%	8,668	30,323	209	30,113	3.55	13,047	1.54
2044	8,537	2.1%	8,722	30,464	210	30,253	3.54	13,109	1.54
2045	8,589	2.1%	8,776	30,603	211	30,391	3.54	13,171	1.53
2046	**8,638**	**2.1%**	**8,826**	**30,728**	**212**	**30,515**	**3.53**	**13,233**	**1.53**

Source: TCAG. CA DOF/HCD. Caltrans

City of Exeter Demographic Profile

City of Exeter - Demographic Profile - 2022 RTP SCS									
Year	Households	Vacancy Rate	Housing Units	Total Population	Group Quarters	Household Population	Persons per Household	Employment	Jobs per Household
2021	**3,633**	**3.0%**	**3,747**	**11,068**	**80**	**10,989**	**3.02**	**5,111**	**1.41**
2022	3,686	3.0%	3,802	11,226	81	11,145	3.02	5,146	1.40
2023	3,737	3.0%	3,854	11,310	82	11,228	3.00	5,179	1.39
2024	3,788	3.0%	3,906	11,401	83	11,318	2.99	5,214	1.38
2025	**3,838**	**3.0%**	**3,958**	**11,493**	**83**	**11,410**	**2.97**	**5,251**	**1.37**
2026	3,885	3.0%	4,007	11,584	84	11,499	2.96	5,290	1.36
2027	3,930	3.0%	4,053	11,677	85	11,592	2.95	5,331	1.36
2028	3,975	3.0%	4,100	11,773	86	11,688	2.94	5,370	1.35
2029	4,018	3.0%	4,143	11,868	86	11,782	2.93	5,412	1.35
2030	**4,059**	**3.0%**	**4,187**	**11,960**	**87**	**11,873**	**2.92**	**5,453**	**1.34**
2031	4,109	3.0%	4,238	12,050	88	11,962	2.91	5,494	1.34
2032	4,153	3.0%	4,283	12,114	89	12,025	2.90	5,534	1.33
2033	4,194	3.0%	4,325	12,177	90	12,087	2.88	5,573	1.33
2034	4,223	3.0%	4,355	12,241	90	12,151	2.88	5,609	1.33
2035	**4,259**	**3.0%**	**4,392**	**12,305**	**91**	**12,214**	**2.87**	**5,645**	**1.33**
2036	4,293	3.0%	4,428	12,386	91	12,294	2.86	5,678	1.32
2037	4,325	3.0%	4,461	12,458	92	12,367	2.86	5,711	1.32
2038	4,359	3.0%	4,495	12,534	92	12,442	2.85	5,744	1.32
2039	4,391	3.0%	4,528	12,607	93	12,514	2.85	5,775	1.32
2040	**4,422**	**3.0%**	**4,560**	**12,675**	**93**	**12,582**	**2.85**	**5,806**	**1.31**
2041	4,452	3.0%	4,591	12,740	94	12,647	2.84	5,835	1.31
2042	4,481	3.0%	4,622	12,804	94	12,711	2.84	5,864	1.31
2043	4,510	3.0%	4,652	12,867	94	12,772	2.83	5,893	1.31
2044	4,539	3.0%	4,681	12,927	95	12,832	2.83	5,921	1.30
2045	4,567	3.0%	4,710	12,986	95	12,890	2.82	5,949	1.30
2046	**4,593**	**3.0%**	**4,736**	**13,039**	**96**	**12,943**	**2.82**	**5,977**	**1.30**

Source: TCAG. CA DOF/HCD. Caltrans

City of Farmersville Demographic Profile

City of Farmersville - Demographic Profile - 2022 RTP SCS

Year	Households	Vacancy Rate	Housing Units	Total Population	Group Quarters	Household Population	Persons per Household	Employment	Jobs per Household
2021	**2,815**	**2.1%**	**2,875**	**11,439**	**-**	**11,439**	**4.06**	**5,353**	**1.90**
2022	2,857	2.1%	2,917	11,602	-	11,602	4.06	5,390	1.89
2023	2,895	2.1%	2,957	11,689	-	11,689	4.04	5,425	1.87
2024	2,935	2.1%	2,998	11,782	-	11,782	4.01	5,461	1.86
2025	**2,974**	**2.1%**	**3,037**	**11,878**	**-**	**11,878**	**3.99**	**5,500**	**1.85**
2026	3,010	2.1%	3,074	11,971	-	11,971	3.98	5,541	1.84
2027	3,045	2.1%	3,110	12,068	-	12,068	3.96	5,584	1.83
2028	3,080	2.1%	3,146	12,167	-	12,167	3.95	5,625	1.83
2029	3,113	2.1%	3,179	12,265	-	12,265	3.94	5,669	1.82
2030	**3,146**	**2.1%**	**3,213**	**12,360**	**-**	**12,360**	**3.93**	**5,712**	**1.82**
2031	3,184	2.1%	3,252	12,453	-	12,453	3.91	5,755	1.81
2032	3,218	2.1%	3,286	12,519	-	12,519	3.89	5,797	1.80
2033	3,250	2.1%	3,319	12,585	-	12,585	3.87	5,837	1.80
2034	3,272	2.1%	3,342	12,651	-	12,651	3.87	5,876	1.80
2035	**3,300**	**2.1%**	**3,370**	**12,717**	**-**	**12,717**	**3.85**	**5,912**	**1.79**
2036	3,327	2.1%	3,398	12,800	-	12,800	3.85	5,948	1.79
2037	3,352	2.1%	3,423	12,875	-	12,875	3.84	5,982	1.78
2038	3,378	2.1%	3,449	12,954	-	12,954	3.84	6,016	1.78
2039	3,402	2.1%	3,475	13,029	-	13,029	3.83	6,049	1.78
2040	**3,426**	**2.1%**	**3,499**	**13,099**	**-**	**13,099**	**3.82**	**6,081**	**1.77**
2041	3,450	2.1%	3,523	13,167	-	13,167	3.82	6,112	1.77
2042	3,472	2.1%	3,546	13,233	-	13,233	3.81	6,143	1.77
2043	3,495	2.1%	3,569	13,297	-	13,297	3.80	6,172	1.77
2044	3,517	2.1%	3,592	13,359	-	13,359	3.80	6,202	1.76
2045	3,539	2.1%	3,614	13,420	-	13,420	3.79	6,231	1.76
2046	**3,559**	**2.1%**	**3,634**	**13,475**	**-**	**13,475**	**3.79**	**6,260**	**1.76**

Source: TCAG. CA DOF/HCD. Caltrans

City of Lindsay Demographic Profile

City of Lindsay - Demographic Profile - 2022 RTP SCS

Year	Households	Vacancy Rate	Housing Units	Total Population	Group Quarters	Household Population	Persons per Household	Employment	Jobs per Household
2021	**3,394**	**6.0%**	**3,612**	**13,200**	**105**	**13,095**	**3.86**	**5,719**	**1.69**
2022	3,443	6.0%	3,665	13,388	106	13,282	3.86	5,758	1.67
2023	3,490	6.0%	3,715	13,488	108	13,381	3.83	5,795	1.66
2024	3,538	6.0%	3,765	13,596	109	13,488	3.81	5,834	1.65
2025	**3,585**	**6.0%**	**3,815**	**13,706**	**110**	**13,597**	**3.79**	**5,875**	**1.64**
2026	3,629	6.0%	3,862	13,814	111	13,704	3.78	5,919	1.63
2027	3,671	6.0%	3,907	13,926	112	13,814	3.76	5,965	1.62
2028	3,713	6.0%	3,952	14,040	113	13,928	3.75	6,009	1.62
2029	3,753	6.0%	3,994	14,154	113	14,040	3.74	6,056	1.61
2030	**3,792**	**6.0%**	**4,035**	**14,263**	**114**	**14,148**	**3.73**	**6,102**	**1.61**
2031	3,838	6.0%	4,085	14,370	116	14,255	3.71	6,148	1.60
2032	3,879	6.0%	4,128	14,446	117	14,329	3.69	6,192	1.60
2033	3,917	6.0%	4,169	14,522	118	14,404	3.68	6,236	1.59
2034	3,944	6.0%	4,198	14,598	119	14,480	3.67	6,277	1.59
2035	**3,977**	**6.0%**	**4,233**	**14,675**	**120**	**14,555**	**3.66**	**6,316**	**1.59**
2036	4,010	6.0%	4,268	14,771	120	14,651	3.65	6,354	1.58
2037	4,040	6.0%	4,300	14,857	121	14,737	3.65	6,391	1.58
2038	4,071	6.0%	4,333	14,948	121	14,827	3.64	6,427	1.58
2039	4,101	6.0%	4,365	15,034	122	14,913	3.64	6,462	1.58
2040	**4,130**	**6.0%**	**4,396**	**15,116**	**122**	**14,993**	**3.63**	**6,496**	**1.57**
2041	4,158	6.0%	4,425	15,194	123	15,071	3.62	6,529	1.57
2042	4,186	6.0%	4,455	15,270	124	15,147	3.62	6,562	1.57
2043	4,213	6.0%	4,484	15,345	124	15,220	3.61	6,594	1.57
2044	4,239	6.0%	4,512	15,416	125	15,291	3.61	6,625	1.56
2045	4,265	6.0%	4,540	15,486	125	15,361	3.60	6,657	1.56
2046	**4,289**	**6.0%**	**4,565**	**15,549**	**126**	**15,424**	**3.60**	**6,688**	**1.56**

Source: TCAG. CA DOF/HCD. Caltrans

City of Porterville Demographic Profile

City of Porterville - Demographic Profile - 2022 RTP SCS

Year	Households	Vacancy Rate	Housing Units	Total Population	Group Quarters	Household Population	Persons per Household	Employment	Jobs per Household
2021	**17,487**	**6.0%**	**18,594**	**59,863**	**881**	**58,982**	**3.37**	**27,498**	**1.57**
2022	17,742	6.0%	18,866	60,716	893	59,823	3.37	27,689	1.56
2023	17,984	6.0%	19,123	61,170	904	60,266	3.35	27,865	1.55
2024	18,230	6.0%	19,385	61,661	914	60,747	3.33	28,053	1.54
2025	**18,471**	**6.0%**	**19,641**	**62,160**	**923**	**61,237**	**3.32**	**28,251**	**1.53**
2026	18,697	6.0%	19,882	62,650	931	61,718	3.30	28,463	1.52
2027	18,915	6.0%	20,113	63,157	939	62,217	3.29	28,681	1.52
2028	19,132	6.0%	20,344	63,675	947	62,728	3.28	28,894	1.51
2029	19,337	6.0%	20,561	64,189	953	63,235	3.27	29,120	1.51
2030	**19,538**	**6.0%**	**20,775**	**64,683**	**960**	**63,723**	**3.26**	**29,341**	**1.50**
2031	19,777	6.0%	21,030	65,170	971	64,199	3.25	29,563	1.49
2032	19,987	6.0%	21,253	65,515	983	64,532	3.23	29,777	1.49
2033	20,185	6.0%	21,464	65,861	995	64,866	3.21	29,985	1.49
2034	20,324	6.0%	21,611	66,206	1,000	65,206	3.21	30,181	1.48
2035	**20,496**	**6.0%**	**21,794**	**66,551**	**1,005**	**65,547**	**3.20**	**30,370**	**1.48**
2036	20,663	6.0%	21,972	66,987	1,010	65,977	3.19	30,552	1.48
2037	20,817	6.0%	22,136	67,380	1,014	66,365	3.19	30,729	1.48
2038	20,978	6.0%	22,307	67,792	1,019	66,772	3.18	30,903	1.47
2039	21,133	6.0%	22,472	68,183	1,024	67,159	3.18	31,072	1.47
2040	**21,281**	**6.0%**	**22,629**	**68,552**	**1,029**	**67,523**	**3.17**	**31,237**	**1.47**
2041	21,426	6.0%	22,783	68,906	1,034	67,872	3.17	31,397	1.47
2042	21,568	6.0%	22,934	69,252	1,039	68,214	3.16	31,553	1.46
2043	21,708	6.0%	23,083	69,590	1,044	68,546	3.16	31,706	1.46
2044	21,843	6.0%	23,227	69,913	1,048	68,865	3.15	31,857	1.46
2045	21,978	6.0%	23,370	70,232	1,053	69,178	3.15	32,008	1.46
2046	**22,103**	**6.0%**	**23,503**	**70,518**	**1,058**	**69,460**	**3.14**	**32,158**	**1.45**

Source: TCAG. CA DOF/HCD. Caltrans

City of Tulare Demographic Profile

City of Tulare - Demographic Profile - 2022 RTP SCS

Year	Households	Vacancy Rate	Housing Units	Total Population	Group Quarters	Household Population	Persons per Household	Employment	Jobs per Household
2021	**20,433**	**6.0%**	**21,730**	**68,070**	**304**	**67,767**	**3.32**	**32,001**	**1.57**
2022	20,732	6.0%	22,048	69,041	308	68,733	3.32	32,223	1.55
2023	21,014	6.0%	22,349	69,557	311	69,246	3.30	32,428	1.54
2024	21,302	6.0%	22,654	70,115	315	69,800	3.28	32,647	1.53
2025	**21,584**	**6.0%**	**22,954**	**70,683**	**318**	**70,365**	**3.26**	**32,877**	**1.52**
2026	21,848	6.0%	23,235	71,239	321	70,918	3.25	33,124	1.52
2027	22,102	6.0%	23,506	71,816	324	71,492	3.23	33,378	1.51
2028	22,356	6.0%	23,775	72,405	326	72,079	3.22	33,625	1.50
2029	22,595	6.0%	24,030	72,989	328	72,661	3.22	33,889	1.50
2030	**22,829**	**6.0%**	**24,279**	**73,551**	**331**	**73,220**	**3.21**	**34,146**	**1.50**
2031	23,110	6.0%	24,577	74,105	335	73,771	3.19	34,404	1.49
2032	23,354	6.0%	24,838	74,498	339	74,159	3.18	34,653	1.48
2033	23,586	6.0%	25,084	74,891	343	74,548	3.16	34,895	1.48
2034	23,749	6.0%	25,257	75,283	344	74,939	3.16	35,123	1.48
2035	**23,949**	**6.0%**	**25,470**	**75,676**	**346**	**75,330**	**3.15**	**35,343**	**1.48**
2036	24,144	6.0%	25,678	76,171	348	75,823	3.14	35,555	1.47
2037	24,325	6.0%	25,870	76,618	349	76,268	3.14	35,761	1.47
2038	24,513	6.0%	26,069	77,086	351	76,735	3.13	35,963	1.47
2039	24,694	6.0%	26,262	77,531	353	77,178	3.13	36,160	1.46
2040	**24,867**	**6.0%**	**26,446**	**77,951**	**354**	**77,597**	**3.12**	**36,352**	**1.46**
2041	25,036	6.0%	26,625	78,353	356	77,997	3.12	36,538	1.46
2042	25,202	6.0%	26,802	78,747	358	78,389	3.11	36,720	1.46
2043	25,365	6.0%	26,976	79,131	359	78,771	3.11	36,898	1.45
2044	25,524	6.0%	27,145	79,499	361	79,137	3.10	37,074	1.45
2045	25,681	6.0%	27,312	79,861	363	79,498	3.10	37,250	1.45
2046	**25,828**	**6.0%**	**27,468**	**80,187**	**365**	**79,822**	**3.09**	**37,423**	**1.45**

Source: TCAG. CA DOF/HCD. Caltrans

City of Visalia Demographic Profile

City of Visalia - Demographic Profile - 2022 RTP SCS

Year	Households	Vacancy Rate	Housing Units	Total Population	Group Quarters	Household Population	Persons per Household	Employment	Jobs per Household
2021	**46,434**	**5.9%**	**49,326**	**139,132**	**1,486**	**137,646**	**2.96**	**71,181**	**1.53**
2022	47,113	5.9%	50,047	141,116	1,506	139,610	2.96	71,675	1.52
2023	47,756	5.9%	50,729	142,171	1,525	140,646	2.95	72,131	1.51
2024	48,409	5.9%	51,423	143,312	1,541	141,771	2.93	72,617	1.50
2025	**49,050**	**5.9%**	**52,104**	**144,472**	**1,557**	**142,915**	**2.91**	**73,131**	**1.49**
2026	49,650	5.9%	52,742	145,609	1,571	144,038	2.90	73,678	1.48
2027	50,228	5.9%	53,356	146,787	1,584	145,203	2.89	74,243	1.48
2028	50,804	5.9%	53,967	147,992	1,596	146,396	2.88	74,794	1.47
2029	51,347	5.9%	54,545	149,186	1,608	147,578	2.87	75,380	1.47
2030	**51,881**	**5.9%**	**55,111**	**150,334**	**1,618**	**148,716**	**2.87**	**75,951**	**1.46**
2031	52,517	5.9%	55,788	151,467	1,638	149,829	2.85	76,525	1.46
2032	53,074	5.9%	56,379	152,270	1,658	150,611	2.84	77,079	1.45
2033	53,600	5.9%	56,938	153,072	1,678	151,394	2.82	77,619	1.45
2034	53,969	5.9%	57,330	153,875	1,686	152,188	2.82	78,126	1.45
2035	**54,425**	**5.9%**	**57,814**	**154,677**	**1,694**	**152,983**	**2.81**	**78,615**	**1.44**
2036	54,869	5.9%	58,285	155,689	1,703	153,987	2.81	79,087	1.44
2037	55,279	5.9%	58,721	156,603	1,711	154,892	2.80	79,544	1.44
2038	55,706	5.9%	59,175	157,560	1,719	155,841	2.80	79,994	1.44
2039	56,117	5.9%	59,612	158,470	1,727	156,742	2.79	80,433	1.43
2040	**56,511**	**5.9%**	**60,031**	**159,328**	**1,735**	**157,592**	**2.79**	**80,859**	**1.43**
2041	56,894	5.9%	60,437	160,150	1,744	158,406	2.78	81,273	1.43
2042	57,272	5.9%	60,838	160,955	1,752	159,203	2.78	81,677	1.43
2043	57,643	5.9%	61,232	161,739	1,760	159,979	2.78	82,073	1.42
2044	58,004	5.9%	61,616	162,491	1,768	160,723	2.77	82,465	1.42
2045	58,362	5.9%	61,996	163,231	1,776	161,455	2.77	82,856	1.42
2046	**58,694**	**5.9%**	**62,349**	**163,898**	**1,784**	**162,113**	**2.76**	**83,242**	**1.42**

Source: TCAG. CA DOF/HCD. Caltrans

City of Woodlake Demographic Profile

City of Woodlake - Demographic Profile - 2022 RTP SCS

Year	Households	Vacancy Rate	Housing Units	Total Population	Group Quarters	Household Population	Persons per Household	Employment	Jobs per Household
2021	**2,117**	**6.6%**	**2,267**	**7,800**	**-**	**7,800**	**3.68**	**3,650**	**1.72**
2022	2,148	6.6%	2,300	7,911	-	7,911	3.68	3,676	1.71
2023	2,177	6.6%	2,332	7,970	-	7,970	3.66	3,699	1.70
2024	2,207	6.6%	2,364	8,034	-	8,034	3.64	3,724	1.69
2025	**2,236**	**6.6%**	**2,395**	**8,099**	**-**	**8,099**	**3.62**	**3,750**	**1.68**
2026	2,264	6.6%	2,424	8,163	-	8,163	3.61	3,778	1.67
2027	2,290	6.6%	2,453	8,229	-	8,229	3.59	3,807	1.66
2028	2,316	6.6%	2,481	8,297	-	8,297	3.58	3,836	1.66
2029	2,341	6.6%	2,507	8,364	-	8,364	3.57	3,866	1.65
2030	**2,365**	**6.6%**	**2,533**	**8,428**	**-**	**8,428**	**3.56**	**3,895**	**1.65**
2031	2,394	6.6%	2,564	8,492	-	8,492	3.55	3,924	1.64
2032	2,420	6.6%	2,592	8,537	-	8,537	3.53	3,953	1.63
2033	2,444	6.6%	2,617	8,582	-	8,582	3.51	3,981	1.63
2034	2,461	6.6%	2,635	8,627	-	8,627	3.51	4,007	1.63
2035	**2,481**	**6.6%**	**2,657**	**8,672**	**-**	**8,672**	**3.49**	**4,032**	**1.62**
2036	2,502	6.6%	2,679	8,728	-	8,728	3.49	4,056	1.62
2037	2,520	6.6%	2,699	8,780	-	8,780	3.48	4,079	1.62
2038	2,540	6.6%	2,720	8,833	-	8,833	3.48	4,102	1.62
2039	2,559	6.6%	2,740	8,884	-	8,884	3.47	4,125	1.61
2040	**2,576**	**6.6%**	**2,759**	**8,932**	**-**	**8,932**	**3.47**	**4,147**	**1.61**
2041	2,594	6.6%	2,778	8,978	-	8,978	3.46	4,168	1.61
2042	2,611	6.6%	2,796	9,024	-	9,024	3.46	4,189	1.60
2043	2,628	6.6%	2,815	9,067	-	9,067	3.45	4,209	1.60
2044	2,645	6.6%	2,832	9,110	-	9,110	3.44	4,229	1.60
2045	2,661	6.6%	2,850	9,151	-	9,151	3.44	4,249	1.60
2046	**2,676**	**6.6%**	**2,866**	**9,188**	**-**	**9,188**	**3.43**	**4,269**	**1.60**

Source: TCAG. CA DOF/HCD. Caltrans

County of Tulare Unincorporated Area Demographic Profile

County of Tulare Unincorporated Area - Demographic Profile - 2022 RTP SCS

Year	Households	Vacancy Rate	Housing Units	Total Population	Group Quarters	Household Population	Persons per Household	Employment	Jobs per Household
2021	**39,770**	**12.2%**	**45,299**	**144,992**	**2,049**	**142,943**	**3.59**	**25,308**	**0.64**
2022	40,351	12.2%	45,962	147,060	2,077	144,983	3.59	25,484	0.63
2023	40,901	12.2%	46,589	148,159	2,103	146,057	3.57	25,646	0.63
2024	41,461	12.2%	47,226	149,348	2,125	147,223	3.55	25,819	0.62
2025	**42,010**	**12.2%**	**47,851**	**150,557**	**2,147**	**148,410**	**3.53**	**26,001**	**0.62**
2026	42,524	12.2%	48,436	151,742	2,167	149,576	3.52	26,196	0.62
2027	43,019	12.2%	49,001	152,970	2,185	150,785	3.51	26,397	0.61
2028	43,512	12.2%	49,562	154,226	2,202	152,024	3.49	26,593	0.61
2029	43,977	12.2%	50,092	155,469	2,217	153,252	3.48	26,801	0.61
2030	**44,434**	**12.2%**	**50,613**	**156,666**	**2,232**	**154,434**	**3.48**	**27,004**	**0.61**
2031	44,980	12.2%	51,234	157,847	2,259	155,588	3.46	27,208	0.60
2032	45,456	12.2%	51,777	158,684	2,287	156,396	3.44	27,405	0.60
2033	45,907	12.2%	52,290	159,520	2,314	157,205	3.42	27,597	0.60
2034	46,223	12.2%	52,650	160,356	2,326	158,030	3.42	27,777	0.60
2035	**46,613**	**12.2%**	**53,095**	**161,192**	**2,337**	**158,855**	**3.41**	**27,951**	**0.60**
2036	46,993	12.2%	53,528	162,247	2,348	159,899	3.40	28,119	0.60
2037	47,345	12.2%	53,928	163,199	2,359	160,839	3.40	28,282	0.60
2038	47,710	12.2%	54,344	164,196	2,371	161,826	3.39	28,442	0.60
2039	48,063	12.2%	54,746	165,144	2,382	162,762	3.39	28,598	0.60
2040	**48,401**	**12.2%**	**55,130**	**166,039**	**2,393**	**163,645**	**3.38**	**28,749**	**0.59**
2041	48,728	12.2%	55,504	166,896	2,405	164,491	3.38	28,896	0.59
2042	49,051	12.2%	55,872	167,734	2,416	165,318	3.37	29,040	0.59
2043	49,370	12.2%	56,234	168,551	2,427	166,124	3.36	29,181	0.59
2044	49,679	12.2%	56,586	169,335	2,438	166,897	3.36	29,320	0.59
2045	49,985	12.2%	56,935	170,106	2,450	167,657	3.35	29,459	0.59
2046	**50,270**	**12.2%**	**57,259**	**170,801**	**2,461**	**168,340**	**3.35**	**29,596**	**0.59**

Source: TCAG. CA DOF/HCD. Caltrans

Appendix A – DOF Population Forecast Methodology

Population Projections Methodology (2019 Baseline)

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September 2020

Introduction

The California Department of Finance (DOF), Demographic Research Unit is responsible by statute for maintaining postcensal population projections which are calculated using the demographic balancing equation:

$$\textit{Current Population} = \textit{Previous Population} + (\textit{Births - Deaths}) + \textit{Net Migration}$$

This method calculates the population in the target year by starting with the population from the previous year, adding natural increase (births minus deaths) and net migration that occurred between the two years. The births, deaths, and migration anticipated during this time are called the components of change. A cohort-component method traces people born in a given year throughout their lives. As each year passes, cohorts change due to the mortality and migration assumptions. Applying fertility assumptions to women of childbearing age forms new cohorts at age zero. Events are simulated for the population in households in the following order: births, deaths, in-migration, out-migration. Then all individuals, except new births and special populations, are aged forward one year to simulate the process of aging. The special populations, such as group quarters (GQ) population, are adjusted to agree with DOF's estimated change in each county-level GQ population and that population is added to the household population to complete the starting total population for the next year's projection.

The 2019 baseline projections incorporate the latest historical population, birth, death, and migration data available as of December 2019 for information through July 1, 2019. Historical trends from 1990 through 2019 for births, deaths, and migration are examined. County populations by age, sex, and race/ethnicity are projected to 2060. The county projections are summed to obtain state totals. Please note, these projections were published before the Coronavirus Disease 2019 (COVID-19) pandemic and do not reflect any possible effects on future economic and demographic trends.

Summary of results

The total population for California will slowly grow from 40.1 million people in 2020 to 45.3 million residents in 2060, a change of 13 percent over 40 years. California's annual growth rate is expected to decline, but remain positive, throughout the projection period.

Births are expected to continue declining, leveling off after 2050. The increases in births to older women will not be enough to offset the downward trends in younger women. The total number of deaths grows during the projections period driven by the aging of the youngest baby boomers to 95 years old by 2060. Although net migration was negative in 2018 and 2019, it is projected to return to a positive figure and grow to approximately 100,000 migrants during 2024-2025. Starting in 2025, the gross migration ratios by age are held constant throughout the projection period causing net migration to grow from almost 100,000 people in 2025 to 108,000 migrants in 2060.

Due to these trends, the natural increase of population (births minus deaths) is forecast to become negative in 2043. From that point onward, net population growth will be solely due to migration. The continued aging of the baby boom and the lack of replacement births will cause the median age to rise from 37.4 years in 2020 to 44.3 years in 2060.

Assumptions and Limitations

Projection models heavily rely on trends and relationships observed in the past. Users are cautioned that projections may not accurately project the future population of the state or the counties when future events do not follow past trends. These projections should be used with an awareness of events that have taken place since their publication.

The following general assumptions guided decisions while developing these projections. Specific assumptions for each component of change are discussed later.

- These projections were published before the COVID-19 pandemic and do not reflect any possible effects on future economic and demographic trends.
- These projections assume economic stability throughout the forecast period.
- Changes in immigration, education, housing, or transportation policy could have significant effects and are not considered here.
- People have the right to migrate where they choose within the United States.
- The international immigration rules are stable, as are the global economic conditions that drive migration.
- Resource constraints such as water, housing, and transportation capacity grow at a sufficient pace to accommodate projected population growth.
- There are no unforeseen changes in productivity and technology (particularly reproductive technology and healthcare).
- No major natural catastrophes or wars will befall the state or the nation.

Data and Methods

1. Base Population

The basis of the DOF 2019 population projection series is the April 1, 2010, decennial census population count of 37,253,956 by age, sex, and race/ethnicity for California. The race/ethnicity groups presented in this report are the Non-Hispanic Races: White; Black; American Indian or Alaska Native; Asian; Native Hawaiian or Pacific Islander; Multiracial; and Total Hispanic ethnicity of any race.

2. Fertility

Trends: Births are expected to continue to decline throughout the projections period, leveling off after 2050. Births begin at 459,000 in 2019-2020 and decline to 424,000 in 2059-2060. The total fertility rate for California has been below the replacement level of 2.1 births per woman since 2009 and it will drop to 1.5 children per woman in 2040. This level of fertility puts California in the company of European countries like Spain and Italy which have had a similarly low total fertility rate (TFR) since the 1970s.

Data Source: Records of births, including selected characteristics of children and parents, for 1990 to 2019 are obtained under an agreement with the California Department of Public Health. Data were evaluated for quality. Missing values in birth records were filled-in using hotdeck imputation where the missing value was pulled from a randomly selected similar record

Methods: Using historical birth data since 1990, fertility trends are calculated for females by age and race/ethnicity cohort in each county. In projecting future births, there are two key considerations for each year of the projections period: (1) the age and race/ethnic structure of the female population and (2) the fertility rate that will be applied to each cohort a given year. The number of births after July 1, 2019, is determined by applying the projected fertility rate to the projected population for females by age and race/ethnicity. Fertility rates are calculated by the number of births during the year divided by the midyear population of women in each age cohort. The fertility model uses the race/ethnicity of mothers to assign the race/ethnicity to their children. Children are assigned a slightly higher probability of male sex (105 males per 100 females). Births generate a new population cohort at age zero which is added to the projections dataset.

Specific Assumptions and Decisions: It is assumed there will be a continuation of declining fertility for cohorts under 30, stable fertility for those 30-34 years of age, and continued modest increases in fertility for women 35-44 years old. The fertility increases in the oldest cohorts are not enough to offset the downward trends in the younger cohorts.

During the projections review process, decisions were made to override the median projected rate in favor of higher or lower rates to achieve a county-level target for the total fertility rate. We found that some counties had very recent changes in fertility, so used a decaying linear or exponential weight as a function of *N* years back from the most current year to give more or less weight to the latest data. Modestly higher TFR for ages above 30 were allowed for these counties: Marin, Plumas, San Francisco, and Santa Clara. We also used exponential weights for prime childbearing ages under 30 in Butte, Marin, Mono, Modoc, Siskiyou, and Trinity Counties to reflect the continuation of recent rapid declines in fertility.

3. Mortality

Trends: Deaths are expected to rise during the projections period from 276,000 in 2019 to 489,000 in 2060. The rising deaths are a result of the aging of the baby boomers who will all be over 95 years old by the end of the forecast period.

Data Source: Records of deaths, including selected characteristics of the deceased, are obtained under an agreement with the California Department of Public Health. Data were evaluated for quality. Missing values in death records were filled-in using hot deck imputation where the missing value was pulled from a randomly selected similar record. Age values were verified against birthdate. If age is missing or very high, the age based on the birthdate was used.

Methods: Using historical mortality since 1990, mortality trends are calculated for each sex, age, and race/ethnicity cohort in each county. In projecting deaths, there are two key considerations for each year of the projections period: (1) the sex, age, and race/ethnic structure of the population, and (2) the mortality rate that will be applied to each cohort in any given year. Mortality rates are calculated when the number of deaths in a given cohort during the year is divided by the midyear population in that cohort.

Specific Assumptions and Decisions: While gains in life expectancy are expected during the projection period, improvements in mortality have slowed somewhat in recent years and this is reflected in the projections series.

During the projections review process, decisions are made that may override the median projected rate in favor of a higher or lower rate to achieve a county-level target for life expectancy at birth.

To reflect the slowdown of improvements in life expectancy, higher than median mortality rates for older ages were used in all counties except Glenn, Nevada, San Joaquin, San Luis Obispo, Santa Barbara, Siskiyou, and Tuolumne. On the other hand, lower mortality rates for younger ages were applied in most counties, except for Fresno and Merced (only newborns), and Solano and Tuolumne. This was done to reflect recent mortality improvements in younger ages.

4. Migration

Trends: Migration is the most critical component of California's population change and the hardest to project due to inherent variability and the absence of full administrative data. Although net migration for California has been negative for 2018 (-39,476) and 2019 (-13,074), migration is forecast to return to the decade's average by 2025. This results in net migration of approximately 100,000 migrants during 2024-2025. Net migration is thus expected to return to a crude rate of net migration of about 2.5 persons per 1,000 population by 2025 and remain stable throughout the forecast period. Net migration will be large enough to counterbalance the negative natural increase resulting in small, annual population growth for the state.

Data Sources: Historical migration trends are based on the DOF estimated county net domestic and net foreign migration from the July 1 components of change in the Reports E-2 and E-6 State and County Population estimates series published in December 2019. Each net flow is then disaggregated into four different flows - domestic in and out and foreign in and out - using administrative data. Administrative records include driver's license address changes, IRS tax return data, Medicare and Medi-Cal enrollment, federal immigration reports, elementary school enrollments, and group quarters population. All data used to develop these flows are in summary tables and do not reveal the identity of any individual. Gross migrants from California to outside of the United States are calculated as the residual between estimated foreign in-migration and net foreign migration.

Methods: The DOF estimates method does not generate the age, sex, or race/ethnicity detail of net migrants. These are generated by first setting a base age distribution using the American Community Survey (ACS) Tables B07001 and B07401 for each year and then adding or subtracting records for the characteristics of individuals who move within, into, or out of California during the postcensal estimates from 2010 to 2019 for each flow.

To assign sex and race/ethnicity characteristics for gross in-flows for both domestic in-migration to California from another U.S. state and foreign immigration, observations are randomly selected from the ACS Public Use Microdata Sample (PUMS) data for each year from each migration flow/age cohort and are added to the projections dataset. For example, if there are 500 expected in-migrants in the 35-39 age group to a given county from other US states, the model would pull the equivalent of 500 randomly selected persons from the records of ACS respondents who were between age 35 and 39, inclusively, and reported moving into the county from another state. A record for each selected individual's sex, race/ethnicity, and detailed age would be added to the projections dataset.

For county-to-county migration within California, the same procedure is used to add the individual to the projections dataset for the receiving county while a similar record is removed from the donating county.

For gross out-flows, observations are dropped from the projections dataset. The traits of domestic out-migrants are determined similarly to domestic in-migrants using the ACS PUMS. Migrants are randomly identified from the population of migrants from California to another US state by age, sex, and race/ethnicity.

In the case of foreign out-migration, the age structure is determined using the ACS PUMS rather than the ACS summary tables. Emigrants are generated using estimated gross emigration rates by sex, place of birth, and length of time in the US. The latest data for the 2016 age profile comes from the 2014-2018 ACS (5-year file). The age profiles (the number of foreign out-migrants by age divided by the county population in that age group) are carried forward to the last postcensal year from the latest available ACS data. Out-migrants are selected from the ACS based only on age.

Once the projections dataset for the postcensal (2010-2019) years has been populated for migration, the domestic in- and out- and foreign in-migration rates are calculated for each age, sex, and race/ethnicity cohort in each county. Foreign out-migrants are identified based on age-specific gross migration rates. These rates are then used during the projection period to determine the annual number of migrants in each of the four flows that yield the expected total net-migration for each projection year.

Specific Assumptions and Decisions: Between the last postcensal year 2019 and 2024, the total number of migrants per age group per county are converged towards the average number of such migrants for the period 2010-2018. Starting in 2025, the gross migration flows by age are fixed to the age-specific ratios from the 2024-2025 period and held constant throughout the projection period causing net migration to vary between 100,000 and 110,000 during the projection period.

Several county-level adjustments were made for special cases or to reflect reviewer feedback. The following counties were modified:

In Butte County, an adjustment was made to handle the migration consequences of the Camp Fire in late 2018, which displaced a large number of residents from Butte County into neighboring counties. Rather than converge from 2019 levels, we set the model to continue from 2018 and incorporated some catch-up growth during 2020-2025 to implement our expectation of higher than average housing unit growth and in-migration during the recovery.

In Glenn and Contra Costa Counties, net migration was trended to 2025 without 2019. For Calaveras, Contra Costa, Inyo, San Diego, San Francisco, San Luis Obispo, and Solano Counties, it was felt that both domestic in- and out-migration was too high and was adjusted downward by 2.5 percent. Similarly, only domestic out-migration was decreased for Kern and Los Angeles Counties (2.5 percent), and Kings, Merced, and Mono Counties (7.5 percent). On the other hand, we increased domestic in-migration by 5 percent for Inyo, Kings, Lassen, Merced, San Benito, and Yuba Counties.

5. Special Populations

Special treatment is required for the population living in group quarters (GQ), including prisons, dormitories, military barracks, residential hospitals or nursing homes, monasteries, and other group accommodations. There were 819,816 persons enumerated in GQ in the 2010 Census. These populations are not subject to the same mortality, fertility, or migration hazards as those living in households. For each year during 2010-2019, the size of the GQ population is controlled to the DOF-estimated total GQ population, and the 2010 Census SF2 file is used to establish the age, race/ethnicity, and sex distribution. After 2019, the total GQ population is held constant.

University students living in households rather than dorms exhibit similar population dynamics to the dorm population rather than the household population. These populations maintain a stable age structure, as outgoing students are generally replaced by incoming students. They are treated like special population records for the population projection; e.g., to simulate the dynamic of replenishment through graduation and new enrollment, they are not aged forward.

External Review

The preliminary projections are offered for review to the four large regional planning agencies in California. Their feedback is evaluated by DOF and adjustments are made for specific counties before final production with the latest available data. The preliminary projections were produced before the release of the July 2019 estimates which had a significant downward revision in the migration profile.

An internal review was conducted within the Department of Finance to ensure consistency with economic and other forecast assumptions.

Published Data

Summarized data are published as P-1 series (statewide) and P-2 series (county) projections. The complete public use dataset (P-3) contains counts of the population for each California county for July 1 of every year from 2010 through 2060, by individual year of age (0-100+), sex, and seven race/ethnicity groups. See the DOF website at dof.ca.gov/Forecasting/Demographics/Projections/

Authority

The population projections were prepared under the mandate of the California Government Code (Cal. Gov't Code § 13073, 13073.5). It is state policy that all state plans make use of the "*. . . population projections and demographic data that is provided by the State's Demographic Research Unit*" (Cal. State Admin. Manual § 1100).

Acknowledgments

Research design, data collection, analysis and interpretation, technical report and dataset by Ethan Sharygin and Andrés Gallardo. Reviewers: Walter Schwarm and Eddie Hunsinger.

Suggested citation

Population Projections: State of California, Department of Finance. Demographic Research Unit. *State And County Population Projections 2010-2060* [computer file]. Sacramento, California. January 2020.

Methodology report: State of California, Department of Finance. Demographic Research Unit. *Population Projections Methodology (2019 Baseline).* Sacramento, California. September 2020.

Appendix B – Caltrans Transportation Economics Branch

Forecast Methodology

California County-Level Economic Forecast Methodology Update

California County-Level Economic Forecast Methodology Update

October 2020

This publication was prepared for:

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Methodology Update

This report updates the modeling approach and the data used to forecast the county level economic indicators for the annual California Department of Transportation County economic forecast.

The county models comprise an elaborate forecast system for projecting economic activity regionally in the state.

The modeling system is the only county level forecast in California where all county economies are forecast.

The modeling system has been continuously updated and improved since the year 2000 which represented the beginning year of this annually updated project.

The Econometric Model: A Brief Description

The county models are independent: each model consisting of a series of equations is autonomous from other county economies. While each county model is independent, it is nevertheless symmetrical with all other county models. The symmetry is important because all models produce forecasts for economic indicators common to all counties, using the same base years, the same inflation rate, the same units of measurement.

All models have the same outputs and the exogenous forecasts used in the equations for the county models are drawn from the same but always current pool of indicators that are generated by the California and U.S. forecasts updated routinely by the UCLA Anderson Forecast.

This is extremely important because all county forecasts can be summed to derive a statewide total. They can also be compared to one another (in an apples to apples comparison) to determine relative performance, such as per capita income, number of persons per household (average household size), retail spending per person, average annual salary per worker, workers per household, employment to population ratio, or people per vehicle.

The models are county-specific, and the specifications are built with the objective of considering unique attributes of each county economy.

Each county model is comprised of 6 blocks of equations: 40 to 50 stochastic behavioral relationships and 20 to 25 accounting identities.[1] The model is characterized by simultaneous interaction and determination of local employment, income, population, wages, retail spending, and the demand for housing.

[1] There are 58 counties and a minimum of 40 stochastic equations per county that need to be re-estimated and re-calibrated every year. That's 40*58= 2,320 equations that must be evaluated for plausibility, consistency, and stability. Some counties are now up to 64 stochastic equations.

The stochastic equations are estimated using the ordinary least squares regression method and the entire system is solved using the Gauss-Seidel algorithm.

The model is a "satellite model," requiring forecasts of various California and U.S. economic variables which are treated as exogenous to the local county area.

The county-level models are each moderately detailed. As we noted above, their equation systems are estimated as a model, independent of other counties. However, some interactions between counties have been accommodated where we have detected interdependence. For example, the visitor industry in Napa and Sonoma Counties, or transportation and warehousing in Riverside and San Bernardino Counties.

All of the stochastic equations in a county model are evaluated each time revised historical data or new data are introduced into the models. This is also true when a re-specification of an equation, or of the block structure occurs.

Outputs

The initial economic and demographic indicators that are forecast for each county are shown in the table below. Forecast values are prepared over a 30 year time period beginning with the year in which actual data are not yet available.

Forecasts are derived for each county independently.

Table 1

The principal economic indicators which are forecast by the California County econometric models

---

- Non-farm employment by principal two digit NAICS sector
- Farm employment
- Total wage and salary employment
- Unemployment rate
- Personal Income
- Per capita personal income
- Number of housing units permitted and total housing stock
- Taxable retail and total taxable sales
- Population (and births, deaths, net migration)
- Number of households
- Number of vehicle registrations
- Existing home sales
- Median housing values
- Total agricultural value of products
- The regional inflation rate
- The value of industrial production
- K-12 school enrollment

Methodology Update

MODEL STRUCTURE

General Characteristics

The county models are a macroeconomic structure consisting of interdependent equations. Each endogenous variable (determined by the model) is a function of other endogenous variables, exogenous variables (determined outside the model), and an error term. Implicitly, each equation may be represented as:

$$Yit = f(Yjt, Xkt, ut)$$

where

Yit = endogenous variable i in period t
Yjt = endogenous variable j in period t
Xkt = exogenous variable k in period t
ut = error term in period t

The determination of Yit by a variable determined elsewhere in the model, is the essence of a simultaneous equation model. The endogenous variables interact within the model as they do in the real world.

The structure of the model is simultaneous, arranged in blocks of equations. Each block is comprised of a system of equations that define the block, or sector. All sectors are linked, meaning feedback exists between blocks. The equations within each block are either stochastic (that is, measured with error) or deterministic (i.e., are determined by an identity or formula having no measurable error).

The equations have been arranged in 6 blocks to aid in organizing the model.

Sector 1:	Housing and New Building
Sector 2:	Demographics
Sector 3:	Income
Sector 4:	Consumer Spending
Sector 5:	Employment
Sector 6:	all other equations including the Farm sector

For each sector, a particular set of endogenous variables are specified to meet the principal objectives of the county forecasting model, which are to generate forecasts for the indicators listed in Table 1. A number of other endogenous variables are needed as intermediate stages in the determination of the key variables that are typically be reported in the long term forecast tables.

Estimation Period

The database associated with each County was assembled from as far back in time that data have been recorded to the most current year for which actual information is available. Annual observations are used in the estimation and forecast.

Due to the varying availability of economic and demographic data at the sub-national level, each block in the system has its own number of observations associated with it. Consequently, the estimators calculated for the forecasting equations were derived from varying numbers of observations.

For the Employment block, all counties include NAICS data that began in 1990. For the larger counties, NAICs categorized employment data were backcast using the previous classification system for which the data was reported in, the Standard Industrial Classification system or SIC codes. The backcasted information begins in 1983 and ends in 1989. The additional 7 observations provide for more robust estimates and stability of the forecasts in the larger county models.

Income data for all Counties commences in 1969, and is available for all 58 Counties in California.

For the Housing Sector Block, the number of households and housing stock begin in 1980 for most counties. For some of the smaller counties, the data begin with the 1984 calendar year. The building permit data all begin in 1969 for all counties in California. Median home selling prices typically begin in 1990 for all counties. For some of the larger counties including those comprising Southern California and the Bay area, data as reported by the California Association of Realtors has been recorded since 1980.

The Consumer spending block which consists of retail sales and retail store permits begins for all Counties in 1969.

In the Demographic block, the observations begin in 1970 or 1980. Population in all cases begins in 1970. Net migration, births, deaths, and population by age also begin in 1970.

For the Farm sector, farming output or sales by county is available beginning in 1972 for most counties.

Equations withing the various blocks are estimated with as long a time series as possible, though that will vary depending on the county, the block, and the exogenous right-hand side indicators that form the equations. The length of time is limited by the indicator with the fewest historical data points.

Methodology Update

In general however, nearly all equations of the forecasting model for all counties rely on data starting in at least 1990. Consequently, through the 2019 forecast, estimated equations were generated from at least 30 years of historical data and often the time period is 40 years.

Other Indicators

The consumer price index (CPI) for the north and the southern regions of California, and the California composite CPI is available from 1920 to present. The statewide home mortgage rate begins in 1970.

Methodological Sequence for Developing the County Level Forecasts

1. Update County Level databases: 58 Counites x 66 variables or indicators per county. Ditto for the state. The update includes adding a new calendar year of actual data and revising the past history

2. Update County Level models with new and revised data. All county level equations are re-estimated to update and optimize the estimated coefficients

3. Solve each of the county forecasting models and produce a preliminary forecast

4. Evaluate the estimated equations and evaluate the forecast;
   a. perform validation criteria to evaluate the forecasts
   b. re-calibrate equations if necessary
   c. re-specify equations if necessary and produce a final forecast

5. Incorporate special considerations for the county forecasts, such as a recovery from natural disasters, the development of a new and significant industry, or new growth policies that have been established in the County. Adjust the forecast if necessary.

6. Produce the narrative explaining the forecast and update all forecast charts and tables

7. Using publication software, produce the forecast for each county as an independent chapter that will comprise the full document of forecasts for all California Counties, and the state.

Accommodating Special Circumstances

Every year, the rural counties are researched for significant changes in new development which will alter the forecast for new housing or non-residential building and therefore ultimate job creation. Special data pertaining to specific counties is gathered (or updated) to explain economic circumstances unique to that county. For example, because prisons can be the dominant driver of a small county's economy, prison inmate populations and employment are routinely updated for Lassen County, where three large prisons are located in Susanville. Forecasts of prison populations are obtained from the Department of Corrections.

In Yolo County, UC Davis dominates state employment. Consequently, enrollment for the campus is used to explain the variation in Yolo County state and local employment. Enrollment forecasts for the short term are typically provided by the UC system.

The methodology of accommodating special handing of particular sectors of a county's economy is updated over time from experience gained understanding the many nuances of the smaller county economies.

This is especially true for the 30 smallest counties in California.

Forecast Validation Criteria

County Validation

As part of the evaluation of the county point estimate forecasts over time, a number of ratios are constructed to validate the forecast. Ratios of the county forecast for indicator i to the same indicator for the state are calculated:

$X_{i,c} / X_{i,California}$

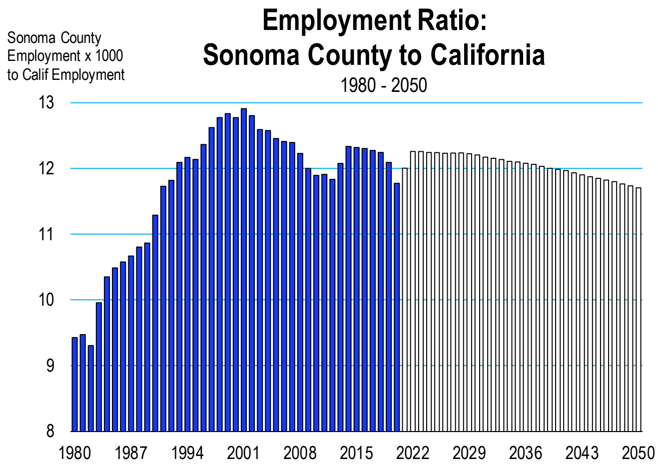
where $X_{i,c}$ is indicator i for county c, and $X_{i,California}$ is the same indicator for all of California.

The California indicator forecasts are produced independently by the UCLA Anderson Forecast.

This ratio is taken over the entire long term forecast period to evaluate the extent of the county forecast.

The forecast trajectory or path of $X_{i,c} / X_{i,California}$

Methodology Update



should be relatively constant or trending according to its historical movement. Then the county's forecast for indicator i is typically deemed reasonable. If the forecast deviates from the historical path, there may be issues with the forecast, or such a deviation may be explained by circumstances known to characterize Xi for county c over time.

Either way, the calculation of county forecast ratios with the state provide us with information necessary to either validate the forecast, dismiss it, or accept it when either known or expected circumstances warrant it.

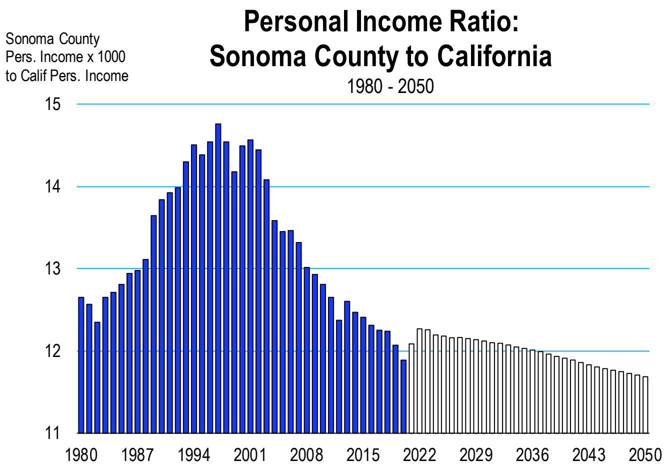
For example, the ratio of employment for Sonoma County and California demonstrates that employment relative to California was more impacted in the county during the pandemic than in California, due largely because tourism is more concentrated in Sonoma relative to the state. The forecast shows employment relative to California returning to the same path it was on for much of the previous 20 year history.

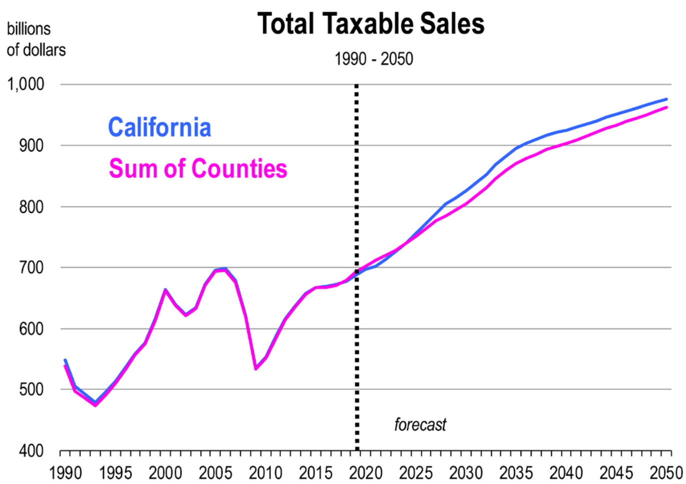
Another example is the ratio of county personal income to California personal income. History indicates that personal income in Sonoma County has been declining as a share of total statewide personal income since 2001. Following the pandemic recession, Sonoma personal income recovers sharply but the declining share of the state is reinstated over the forecast. The forecast then demonstrates that Sonoma personal income is forecast to grow at a rate that is consistent with its history.

Aggregate Validation

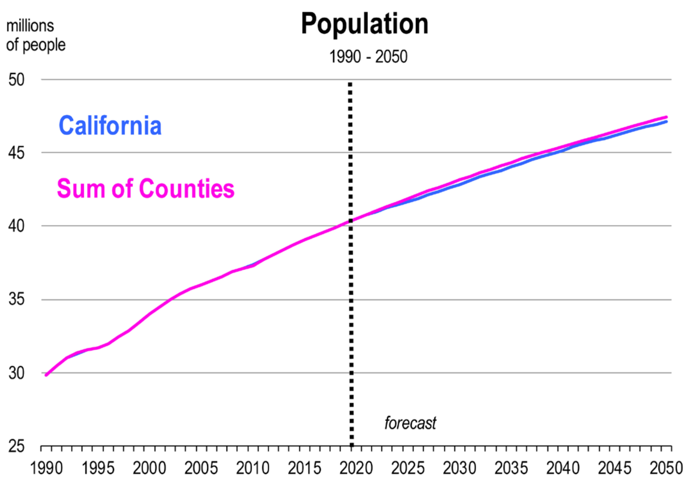
Aggregate validation occurs when the sum (or average) of indicator i is then compared with indicator i for the state. The aggregate indicator should generally move in tandem with the state indicator through the forecast period. Typically the acceptable error range for most indicators is 5 percent. However for volatile series such as net in-migrating population which itself is measured with error, higher forecast errors are considered acceptable.

For example, the sum of taxable sales for all counties, over the 1990 to 2050 period, is compared to the statewide forecast prepared by the UCLA Anderson Forecast. The county sum deviates from the statewide total by less than 4 percent over time. For total employment the deviation is less than 3 percent over the entire forecast period.





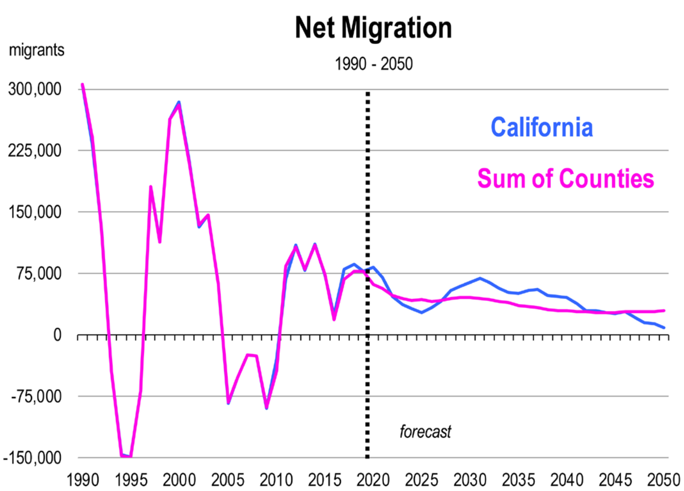
Methodology Update



For population, the deviation between the county sum and the statewide total is less than 1 percent.

For net migration, the county sum generally follows the statewide forecast path, but the average annual deviation is 13 percent.

Particular county models for indicator i will be re-specified and re-forecast if the aggregate validation criteria produces a large error for a series that is generally smooth.



ENDOGENOUS FACTORS
(ECONOMIC INDICATORS THAT ARE FORECAST)

These variables are left hand side variables that are modeled using a behavioral relationship specification comprised of both exogenous factors and other endogenous variables.

There are more endogenous economic indicators forecast as part of the modeling system than we present in the county forecast presentations. This is because many more endogenous variables need to be forecast because they are used as exogenous factors used to determine the core economic indicators.

Sectors of the Model

The model is arranged into 6 sectoral blocks of equations. However the blocks are not recursive, that is, they are not estimated independently and determined (or solved for) sequentially. The models are characterized by simultaneous interaction and determination of local employment, income, population, wages, and housing demand.

Housing and New Building

Stochastic equations

Number of households (HH)
single family units (SFU)
Multiple family units (MFU)
Residential building value permitted, constant dollars
Non-residential building value permitted, constant dollars
Average building value for new residential units, constant dollars
Median home selling price, constant dollars
Number of existing home re-sales

Identities

Housing stock: HS = HS(t-1) + UNITS(t-1)

Single and multifamily housing permits: SFU + MFU = UNITS

Ratio of single family units to total residential units permitted: SFU / UNITS

Total building value permitted, the sum of residential and non-residential value

The ratio of the county median price to the national median selling price:

Methodology Update

Demographics

Stochastic equations

Births (calendar year series)
Deaths (July series)
Deaths (calendar year series)
Net in-migrating population (July-June series)
Number of registered vehicles
Unemployment rate
Employed labor force
Civilian labor force
Number of registered passenger cars

Identities

Population on July 1: (POPJUL) = POPJUL(t-1) + births(t) – deaths(t) + net in-migration(t)

Population growth: (POPJUL(t)-POPJUL(t-1))/ POPJUL(t-1)

Change in population: POPJUL(t) – POPJUL(t-1)

Persons per vehicle: POPJUL / number of vehicles

Average household size: POPJUL / HH

Income

Stochastic equations

Transfer payment income, constant dollars
Property (or asset) income, constant dollars
proprietor income, constant dollars
Residence adjustment income, constant dollars
Average earnings per worker, constant dollars (RYEPW)

Identities

Total wage and salary earnings, constant dollars = total employment*RYEPW

Total personal income, constant dollars = Total wage and salary earnings, constant dollars + transfer, property, proprietor, and residence income, constant dollars

Per capita personal income, constant dollars: Personal Income / Population

Wage ratio = County average salary / California average salary

Consumer Spending (retail sales)

Stochastic equations

Retail sales (taxable retail sales), constant dollars
Number of retail outlets or stores
Total taxable sales, constant dollars

Identities

Retail sales per store = retail sales / retail outlets

Ratio of retail sales to personal income = retail sales / personal income

Employment (non-farm sector)

Stochastic equations

employment in mining
employment in construction
employment in manufacturing
employment in durable manufacturing
employment in transportation, communications, and utilities
employment in retail trade
employment in wholesale trade
employment in information
employment in financial activities
employment in professional and business services
employment in education and healthcare services
employment in leisure, accommodation, and recreation services
employment in other services
employment in state and local government (ESLG)
employment in federal government (EFG)
Number of proprietors (self-employed workers)

Identities

Employment in government = ESLG+EFG

Total wage & salary employment (ETWS) = sum of all non-farm employment sectors plus the farm sector

Change in total employment: ETWS(t) – ETWS(t-1)

Employment to population ratio: ETWS / Population

Growth rate of employment: (ETWS(t)-ETWS(t-1))/ ETWS(t-1)

Methodology Update

Farm Sector and Misc. Equations

Stochastic equations

Wage and salary employment in farming
Total agricultural crop value, constant dollars
Southern and Northern California inflation rate (I)
K-12 school enrollment

Identities

Consumer Price Index, Southern (Northern) California (CPI) = CPI (t-1)*(1+[I(t)/100])

EXOGENOUS VARIABLES

There are approximately 100 to 120 exogenous variables that we had selected in the initial development of the model. Most of these factors have remained relevant for use in the models over time. However, as the economy changes, new exogenous factors may be added to models to explain the variation in county level economic indicators.

Not all of these exogenous variables are used. However, these variables have been found to be important in the original specification tests based on goodness of fit criteria together with their theoretical propriety. The exogenous variables are updated annually and made available for updating the equations in the model and/or enhancing the specifications as needed.

Currently, all blocks in the model are driven by exogenous factors, as well as endogenous factors that are determined in other blocks of the general model.

The exogenous variables include the following:

(1) California economic and demographic variables

(2) National economic variables

(3) Local county demographic variables: These factors are age specific population counts from the Department of Finance. The model uses 10 of these to drive various equations in the Employment and Demographic blocks of the model.

(4) Housing variables: the California median home price, California re-sales, mortgage rates, and notices of default and foreclosures in California

(5) Special circumstance exogenous factors as needed. This would include forecasts by the Department of Corrections of prison populations, forecasts of UC enrollment for particular campuses, or forecasts of State Budget revenues and/or expenditures by the Legislative Analyst's Office

Most of the exogenous variables used to drive the county level forecasts come from the UCLA Anderson forecast for the Nation and the State. These forecasts are updated four times per year. We use the most recent update, typically the June forecast of each year to drive the county level forecasts which are routinely completed in September or October of the same year. This part of the modeling infrastructure that we have developed over the years is entirely in place. Therefore, new exogenous forecasts from UCLA can be incorporated into our County models within a day or two of their release.

The local county demographic variables include age specific populations that are estimated by the Department of Finance, Demographic Research Unit every 2 years. They produce forecasts for these age specific population indicators through the year 2060.

Housing sale and price indicators are developed in an independent housing model for California and the Nation. See below.

HOUSING MODEL

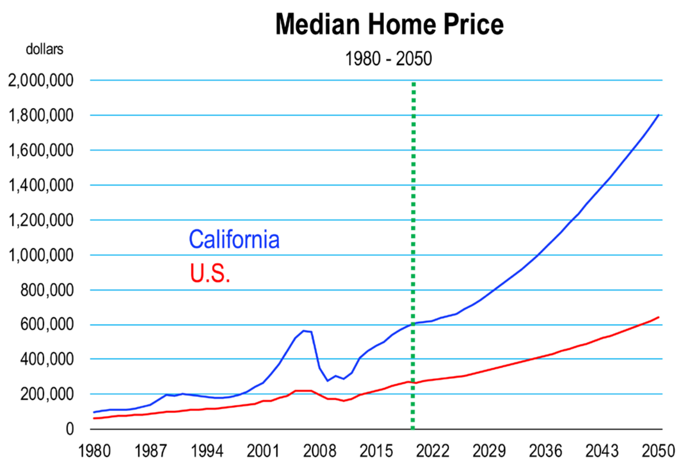
The purpose of the housing model is to forecast home prices and existing home sales for California, because these forecasts are not part of the UCLA Anderson Forecast for the State and Nation.

The housing model uses exogenous inputs from the UCLA California and National forecasts.

Mortgage rates and economic variables such as employment, income, and building are used to predict the future direction of the housing market in terms of sales and housing values. The model does not attempt to forecast future housing cycles, but rather provides reasonable trend forecasts for what can be expected given the future demand for housing, plausible income estimates, and availability or constraints on supply represented by new home production.

The national median home value for new housing and for existing housing are interrelated. An exogenous forecast for one will provide us with an attendant forecast for the other.

Methodology Update



Furthermore, the movement in national home values is correlated with movements in statewide housing prices. The U.S. median home selling value for existing homes has a strong correlation with median home selling values in California.

Home sales in California are correlated with the rate of home sales in most counties (because after all, home sales in the counties are the component parts of statewide home sales). And the variation in California homes sales can be explained by statewide forces such as job creation or demographic trends.

However, the variation in county home sales in further influenced by local job creation, population growth, and homeowner distress that might be specific to a particular county, such as a natural disaster or the departure (or arrival) of a large and significant employer.

The forecast for California home values is driven by national home price movements, mortgage rates, and economic factors indicative of the business cycle. When the California home price forecast is used to drive the county level home price, all of the factors that produced the California forecast are embodied in the county level home price forecast. And much of the variation is explained by statewide housing price movements.

But other local influences such as housing production, job creation, or population growth may also account for specific within-county variation in home prices, as they do with home sales.

Because of the critical importance that homeowner distress had on the housing market during the Great Recession, notices of default and foreclosures were added to the housing model. They have been much less important over the last 10 years as selling values have steadily risen in California and home foreclosures have largely been irrelevant over this time period. Instead, the demand for housing has been relatively strong in tandem with job and income creation. Hence, home prices have been nearly runaway over the last decade in California.

Note of the direction of the housing market in 2020

The actual direction of the housing market during calendar 2020 indicates relatively strong demand resulting in an accelerated pace of housing price growth. Because the forecast for new housing supply remains constrained in many areas of California for the foreseeable future, the modest pace of demand growth will push general housing values higher in California, and in most if not all of the regional housing markets in the state.

DATABASE, DATA SOURCES

The database is an extensive collection of County-level economic and demographic variables from a myriad of sources in California. The database spans the period: 1947 to 2019 (though for most indicators, the data series begins in the 1980s).

Indicators in all County Models (Primary Data Source)

Taxable Retail Sales (Department of Tax and Fee Administration)
Retail Store Outlets (Department of Tax and Fee Administration)
Total Taxable Sales (Department of Tax and Fee Administration)
Personal Income (Bureau of Economic Analysis)
Components of Personal Income (Bureau of Economic Analysis
Total Employment (Employment Development Department)
Employment by Sector (Employment Development Department)
Unemployment Rate (Employment Development Department)
Vehicle Registrations (Department of Motor Vehicles)
Births, Deaths (Centers for Disease Control and Prevention)
Population, Net Migration (Department of Finance)
Population by Age Group (Department of Finance)
Residential building permits (CIRB)
Non-residential bldg. Permits (CIRB)
Median Home Selling Price (Corelogic)
Home Sales (Corelogic)
Agricultural Production (County Agricultural Commissioners)
Households (Department of Finance)

Methodology Update

Indicators in all County Models (Primary Data Source) *continued*

Housing Stock (Department of Finance)
Industrial Production (Bureau of Economic Analysis)
Registered Vehicles (Department of Motor Vehicles)
Los Angeles Area Consumer Price Index (Bureau of Labor Statistics)
Bay Area Consumer Price Index (Bureau of Labor Statistics)
California Consumer Price Index (Bureau of Labor Statistics)
Public School Enrollment (Department of Education)

All county-level dollar variables are deflated using the local consumer price deflator or the statewide price deflator. The base year is the most recent calendar year just completed.

Indicators in Select County Profiles (Primary Data Source) and Relevant Counties

Oil Prices (Department of Energy)
- Kern

Airline Passengers (SFO, LAX, San Diego Intl. Airport)
- San Mateo
- San Diego
- Los Angeles

Wine Grape Production (US Department of Agriculture)
- Napa
- Sonoma

California General Fund Balance (Legislative Analyst's Office
- Sacramento

University Enrollment (UC and CSU Systems)
- Yolo
- Butte

Prison Staffing and Population (Department of Corrections)
- Del Norte
- Lassen
- Amador

Cannabis Permits (Dept. of Food and Agriculture)
- Humboldt
- Trinity
- Mendocino

2019 Data

Every county model begins with collection of the most readily available data. All data updates include revisions to the historical data by the issuing agency. For all counties, identical sources and vintages of data are used, organized as follows:

- Agriculture
- Building (Units permitted, residential and commercial values)
- Vehicle registrations
- Housing
- Population
- Income
- Taxable sales and permits
- Employment by industry

Agriculture

Agriculture includes the total value of all crop production in the county, excluding timber. The crop reports for every county have been released through 2018 by each county's agricultural commissioner. To estimate 2019 values, trends from the previous 10 years of data were used.

Building

All building data comes from the Construction Industry Research Board. The data includes the number of new single and multi-family unit building permits issued, and their corresponding values, the values of all new non-residential permits (broken down into commercial, industrial, and other), and the value of all renovation activity on residential and non-residential structures. All building data is updated through the calendar 2019 year.

Vehicle Registrations

Vehicle registration data comes from the California Department of Motor Vehicles. The county data includes the number of automobiles, trucks, trailers, and motorcycles. The county total represents the sum of these categories. The most current annual vehicle registration data is available through 2019.

Housing

The housing section is divided into two parts. First, home sales and median selling price data come from Corelogic. Second, housing stock data, including total units, single-family units, multi-family units, and the number of households are acquired from the California Department of Finance, Demographic Research Unit.

Methodology Update

Population

Births and deaths are obtained from the Centers for Disease Control and Prevention (available through 2018 and estimated for 2019). Net migration is acquired from the California Department of Finance (available through 2019). Population by age group is acquired from the California Department of Finance (available through 2019, with forecasts through 2050).

Income

Components of personal income are acquired from the Bureau of Economic Analysis. The latest information is through 2018; consequently, the 2019 components of income must be estimated. These data are estimated using regression models that have been built for each county in California, where county income is regressed against State income (and other indicators if appropriate).

Taxable Retail Sales and Total Taxable Sales

The California Department of Tax and Fee Administration is the source for taxable retail sales and total taxable sales by county. Data is available for the 2019 calendar year.

Employment By Industry

The Labor Market Information Division of the Employment Development Department provides estimates of employment by county.

The Current Employment Statistics (CES) Program issues monthly estimates of employment by 2 and 3 digit NAICS. We use 2 digit NAICS employment in each county-level forecast model. Currently, the data is updated through calendar 2019 for use in the current year (2020) model assignment. However, because preliminary CES data is published monthly, we are able to evaluate how the first year employment forecast is tracking the actual information for the partial (current) year in which the forecast is being produced. We are able to make adjustments to the county models so that the first year forecast moves in alignment with the cumulative CES data for the current year.

In some county profiles, tables are included that show industry employment at 3 digit, 4 digit, 5 digit, or 6 digit NAICS sectors. The source for these data is the Quarterly Census of Employment and Wages. The most recent year for these data is the 2019 calendar year.