01MRPI TECHNICAL REPORT ON POPULATION PROJECTIONS

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Table of Contents

I. Introduction

For purposes of the MRPI Grant, this report documents the (exogenous) projections of population for Block Groups found within the six counties that comprises the SCAG region: Imperial, Los Angeles, Orange, Riverside, San Bernardino, and Ventura. The input data and projections are on an excel file. The most recent version is saved as SCAG PROJECTIONS AUGUST 2010.xls (29,209 kb).

In the following section, rationales are provided for the data and methods employed in developing these projections. In Section III, the data are described along with their sources and refinements to them. Methods are described in Section IV, both general and specific to the MRPI project. Section V contains references while section VI is composed of three appendices. Appendix A provides a codebook for the variables assembled and projected. Appendix B describes the input data and the steps used to extract 1990 and 2000 data from the National Historical GIS site, respectively; Appendix C provides an illustration of some of the problems that would be encountered if data from the Census Bureau's American Community Survey (ACS) were used instead of Decennial Census data. It provides a comparison of city population estimates developed by the Census Bureau's American Community Survey Program and the "official" estimates (used for revenue sharing) developed by the Census Bureau's Population Estimates Program.

II. Background

The Census Bureau produces annual post-censal estimates for the US as a whole, states, counties, incorporated places, metropolitan and micropolitan areas, and minor civil divisions (aka townships, where they exist). In the Bureau's terminology, these are called 'administrative areas.'

The Bureau produces neither post-censal estimates nor projections for tracts, block groups, blocks, or zip code areas. In the Bureau's terminology, these are called 'statistical areas.'

At the national, state, and county level, the Bureau produces 'official' estimates of the total population by age, sex, race and ethnicity (Hispanic and non-Hispanic). It only produces official estimates of the total population for incorporated places, MCDS, metropolitan and micropolitan areas.

For all of the geographic areas for which post-censal population estimates are produced, the Bureau also produces estimates of total housing units.

The preceding are called 'official estimates' because one of their uses is to distribute federal resources to state and local governments.

For 2005, ACS data are available for geographic areas with a population of 65,000 or more. For geographic areas meeting the population threshold, ACS data are produced for essentially the same geographies for which 'official' post-censal estimates are produced. The ACS estimates are weighted/controlled to the 'official estimates' by age, sex, race, and ethnicity at the county level.

To obtain post census estimates and projections for statistical areas, many state and local governments as well as commercial entities, turn to commercial demographic data vendors. Among others, these vendors include ESRI, Neilsen-Claritas, and Pitney Bowes. These vendors can and will produce post-censal estimates for essentially any administrative and any statistical area defined by the Census. They routinely produce these estimates based on the preceding census's 'short form' (age, race, sex, ethnicity, housing, households, and so forth) and have, can, and will produce post-censal estimates for 'long form' data. This will change with 2010 because there no longer is a 'long form.' A major difficulty with data from commercial vendors is that their methods and input are not completely transparent and evaluations of quality of the estimates and projections they produce are not easy to come by.

The methods and data used for the official post-censal estimates for small areas produced by the Census Bureau are much more transparent than those produced by commercial vendors. In regard to quality, the official estimates of the Bureau are subject to a range of errors, but they are regarded as the gold standard. Another benefit is that it is relatively straightforward to assess the impact of these errors on the Bureau's official estimates. However, while the total population estimates found in the ACS estimates can be assessed against census numbers, as can the estimates by age, race, and sex, the and other ACS data (i.e., data equivalent to the data in the 'long form' of the decennial census) will never will be tested against any gold standard. There is no ongr any long form in the 2010 census against which to judge the quality of ACS data and the tests that were done against 2000 census data were limited. David Swanson has looked at the population estimates coming out of the ACS for incorporated places in California relative to the official estimates. The results are not encouraging, as shown in Appendix B.

III. Data

The input data and the steps used to assemble them are described in Appendices A and B.

IV. Block Group Projections Methodology

The Hamilton Perry Method is used to produce the population forecasts by age, gender, and ethnicity (Smith, Tayman, and Swanson, 2001; Swanson, Schlottmann, and Schmidt, 2010). These are extrapolative forecasts that will be consistent with birth, survival, and migration data. As described by Swanson (2008), mean square error confidence intervals can be placed around the forecasts so that the extrapolative forecasts have stochastic properties.

The cohort-component approach with individual components of change (births, deaths, migration) is the method of choice when age and sex data are desired in a forecast at the county level and higher (Smith, Tayman, and Swanson, 2001). However, at the sub-county level, it is difficult to implement the full-blown cohort-component method. To start with, while it is possible to obtain direct data on age and sex from the 2000 census, corresponding direct data on births and deaths are not routinely available, making corresponding indirect data on migration also not routinely available. Thus, as noted by Smith, Tayman, and Swanson (2001: 160), "…the Hamilton-Perry method (Hamilton and Perry, 1962) is often the best cohort-component method to use for sub-county projections." As a consequence, the recommended approach is based on using the Hamilton-Perry Method as the basis for the sub-county population projections it developed to support the requested projections in the RFP. As will be discussed, there were some obstacles to overcome in this effort, which led to simple, but important refinements to the Hamilton-Perry Method.

<u>Hamilton-Perry Method</u>

The major advantage of this method is that it has much smaller data requirements than the traditional cohort-component method. Instead of mortality, fertility, migration, and total population data, the Hamilton-Perry method simply requires data from the two most recent censuses (Smith, Tayman, and Swanson, 2001: 153-158). The Hamilton-Perry method projects population by age and sex using cohort-change ratios (CCR) computed from data in the two most recent censuses. The formula for a CCR is:

$$_{n}CCR_{x} = {_{n}P_{x+y,l}} / {_{n}P_{x,b}}$$

where

n is the width of the age group (e.g., 5 years)
${}_nP_{x+y,l}$ is the population aged x+y to x+y+n in the most recent census (l),
${}_nP_{x,b}$ is the population aged x to x+n in the second most recent census (b),
and y is the number of years between the two most recent censuses (l-b).

Using the 1990 and 2000 censuses as an example, the CCR for the population aged 20-24 in 1990 would be:

$${}_5CCR_{20} = {}_5P_{30,2000} / {}_5P_{20,1990}$$

The basic formula for a Hamilton-Perry projection is:

$${}_nP_{x+z,t} = {}_nCCR_x * {}_nP_{x,l}$$

where

${}_nP_{x+z,t}$ = Populaton aged x+z at time t

${}_nCCR_x = ({}_nP_{x+y,l} / {}_nP_{x,b})$

and, as before,

${}_nP_{x+y,l}$ is the population aged x+y to x+y+n in the most recent census (l),
${}_nP_{x,b}$ is the population aged x to x+n in the second most recent census (b),
and y is the number of years between the two most recent censuses (l-b).

Using data from the 1990 and 2000 censuses, for example, the formula for projecting the population 30-34 in the year 2010 is:

$${}_5P_{30,2010} = ({}_5P_{30,2000} / {}_5P_{20,1990}) * {}_5P_{20,2000}$$

The quantity in parentheses is the CCR for the population aged 20-24 in 1990 and 30-34 in 2000.

Given the nature of the CCRs, 10-14 is the youngest age group for which projections can be made (if there are 10 years between censuses). To project the population aged 0-4 and 5-9 one can use the Child Woman Ratio (CWR). It does not require any data beyond what is available in the decennial census. For projecting the population aged 0-4, the CWR is defined as the population aged 0-4 divided by the population aged 15-44. For projecting the population aged 5-9, the CWR is defined as the population aged 5-9 divided by the population aged 20-49. Here are the CWR equations for males and females aged 0-4 and 5-9, respectively.

Females 0-4: ${}_5FP_{0,t} = ({}_5FP_{0,l} / {}_{30}FP_{15,l}) * {}_{30}FP_{15,t}$

Males 0-4: ${}_{5}MP_{0,t} = ({}_{5}MP_{0,l} / {}_{30}FP_{15,l}) * {}_{30}FP_{15,t}$
Females 5-9: ${}_{5}FP_{5,t} = ({}_{5}FP_{5,l} / {}_{30}FP_{20,l}) * {}_{30}FP_{20,t}$
Males 5-9: ${}_{5}MP_{5,t} = ({}_{5}MP_{5,l} / {}_{30}FP_{20,l}) * {}_{30}FP_{20,t}$

where

FP is the female population,
MP is the male population,
l is the launch year,
and t is the target year

The formula for projecting the youngest age groups using the CWR approach is according to that shown below using, as an example, females 0-4 in 2010:

$${}_{5}FP_{0,2010} = ({}_{5}FP_{0,2000} / {}_{30}FP_{15,2000}) * {}_{30}FP_{15,2010}$$

Projections of the oldest age group differ slightly from projections for the age groups from 10-14 to the last closed age group (e. g., age group 80-84). For example, if the final closed age group is 80-84, with 85+ as the terminal open-ended age group, then calculations for the CCR require the summation of the three oldest age groups to get the population age 75+:

$$CCR_{75+} = P_{85+,l} / P_{75+, b}$$

Using data from the 1990 and 2000 censuses, for example, the formula for projecting the population 85+ in the year 2010 is:

$$P_{85+,2010} = (P_{85+,2000} / P_{75+,1990}) * P_{75+,2000}$$

The quantity in parentheses is the CCR for the population aged 75+ in 1990 and 85+ in 2000.

The Hamilton-Perry Method can be used to develop projections not only by age, but also by age and sex, age and race, age, sex and race, and so on (Smith, Tayman, and Swanson, 2001: 156).

One disadvantage of the Hamilton-Perry method is that it can lead to unreasonably high projections in rapidly growing places and unreasonably low projections in places experiencing population losses (Smith, Tayman, and Swanson, 2001: 159). Geographic boundary changes are an issue, even with census tracts. Since the Hamilton-Perry and other extrapolation methods are based on population changes within a given area, it is essential to develop geographic boundaries that remain constant over time. For some sub-county areas, this presents a major challenge, however. Fortunately, there are ways of overcoming these limitations of the Hamilton-Perry Method. They include:

1. Control Hamilton-Perry projections to independent projections produced by some other method;
2. Calibrate Hamilton-Perry projections to post-censal population estimates
3. Set limits on population change (i.e., establish "ceilings" and "floors"); and
4. Account for all boundary changes.

Participation Ratio Method

The participation ratio method will be utilized to project variables other than population by age and sex. The participation ratio methodology is as follows:

In this approach, current and historical data are used to construct participation ratios—that is, proportions of the population (stratified by age, sex, and perhaps other demographic characteristics) that have the socioeconomic characteristic of interest. These ratios are projected into the future using one or more of the techniques described previously. The projected ratios are then applied to population projections (stratified by age, sex, and other characteristics) for the geographic area(s) under consideration to obtain a set of socioeconomic projections. The population projection must have sufficient demographic detail to match up conceptually and empirically with the denominator originally used to construct the participation ratio of interest.

The steps used in this approach can be summarized as follows:

1. Launch year participation ratio = $Pcdt / Pdt$
2. Projected participation ratio = ($Pcdt{+}i / Pdt{+}i$)
3. Independently projected population = $\boldsymbol{Pdt{+}i}$
4. Projected population with the characteristic = $Pcdt{+}i$ =($Pcdt{+}i / Pdt{+}i$) * ($\boldsymbol{Pdt{+}i}$)

where

P = population
c = socioeconomic characteristic (e.g., number employed)
d = demographic data (e.g., age-sex)
t = launch date
$t + i$ = target date

V. References

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VI. Appendices

A. Codebook for Block Group Projections

All variables have a two-digit year at the end (00=2000, 10=2010, 15=2015). All are otherwise labeled with the same prefix unless noted.

All 2015 age/sex estimates are an average of 2010 and 2020. All variables have been county controlled.

year: Year of raw data (2000)

key: Key from CCR files used to join CCR files with raw data. Seems to be in the form of: state county tract blockgroup numeric codes

gisjoin: Identifier from NHGIS raw data G followed by state county tract blockgroup numeric codes; differs from Key because of the amount of numeric places

state: State name

statea: State numeric code

GeoID: State numeric code*100+County numeric code

county: County name

countya: County numeric code

tract: Tract name

tracta: Tract numeric code

blck_grp: Block group name

blck_grx: Block group numeric code

geocomp: geographic sub area

geocompa: geographic sub area code

chariter: race/eth (blank)

charitea: race/eth code (blank)

Population00: Block group Population(sum of all age/sex groups in 2000)

CountyBGPop10/15: County controlled block group population 2010 2015

Male00/RakeMale10: Males in 2000/2010 (sum of male age groups)

Female00/RakeFemale10: Females in 2000/2010 (sum of female age groups)

CountyPop10/15: County population 2010/2015

PopAge00to1900: Population age under 20 (sum of age groups 0-19)

CPopAge00to1910/15

PopAge20to2400: Population age 20-24

CPopAge20to2410/15

Pop25to3400: Population age 25-34 (sum 25-29 and 30-34)

CPopAge25to3410/15
Pop35to4400: Population age 35-44

CPop35to4410/15
Pop45to5400: Population age 45-54

CPop45to5410/15
Pop55to6400: Population age 55-64

CPop55to6410/15
Pop65to7400: Population age 65-74

CPop65to7410/15
Pop75over00: Population age 75 and above

CPop75over10/15

AgeHHUnder2500: Age of Householder under 25

AgeHH25to3400: Age of Householder 25-34

AgeHH35to4400: Age of Householder 35-44

AgeHH45to5400: Age of Householder 45-54

AgeHH55to6400: Age of Householder 55-64

AgeHH65to7400: Age of Householder 65-74

AgeHH75over00: Age of Householder 75 and over

EthHHwhite00: Ethnicity of Householder White, non-Hispanic

EthHHblack00: Ethnicity of Householder Black, non-Hispanic

EthHHnative00: Ethnicity of Householder Native American and Alaskan Native, non-Hispanic

EthHHapi00: Ethnicity of Householder Asian or Pacific Islander, non-Hispanic

EthHHother00: Ethnicity of Householder Other race/ethnicity, non-Hispanic

EthHHmulti00: Ethnicity of Householder Multi-racial, non-Hispanic

EthHHhisp00: Ethnicity of Householder Hispanic

EthPopwhite00: Ethnicity of Population White, non-Hispanic

EthPopblack00: Ethnicity of Population Black, non-Hispanic

EthPopnative00: Ethnicity of Population Native American and Alaskan Native, non-Hispanic

EthPopother00: Ethnicity of Population Other race/ethnicity, non-Hispanic

EthPopmulti00: Ethnicity of Population Multi-racial, non-Hispanic

EthPophisp00: Ethnicity of Population Hispanic

EthPopapi00: Ethnicity of Population Asian or Pacific Islander, non-Hispanic

OtherHH00: Household Type Other

SinglePersonHH00: Household Type Single Person, no kids

SingleParentHH00: Household Type Single Parent

MarriedKids00: Household Type Married with Kids

MarriednoKids00: Household Type Married no kids

OwnerOcc00: Owner Occupied

RenterOcc00: Renter Occupied

****Income, Education, and Occupation variables** are reported on the long form of the Census (20% sample) and are then interpolated to the 100% sample. Some of the block group populations from the 20% sample do not match BG population in the 100%. For this reason, I have created 2 variables for the 2000 estimates of income, education, and occupation.

Variables with 00est at the end are the estimates for 2000 if we use the proportions generated from the 20% sample (2000 income/20% sample population total) instead of (2000 income/100% sample population total)

IncLess15K00: Income less than $15,000

Inc15Kto2499900: Income $15,000 to $24,999

Inc15Kto2410/15

Inc25Kto3499900: Income $25,000 to $34,999

Inc25Kto3410/15
Inc35Kto4999900: Income $35,000 to $44,999

Inc35Kto4910/15
Inc50Kto7499900: Income $45,000 to $74,999

Inc50Kto7410/15
Inc75Kto9999900: Income $75,000 to $99,999

Inc75Kto9910/15
Inc100Kto14999900: Income $100,000 to $149,999

Inc100Kto14910/15
Inc150Kabove00: Income $150,000 and above

EdLessHS00: Education Less than High School

EdHS00: Education High School Diploma or equivalent

EdSomeColl00: Education Some College, including AA degree

EdBS00: Education Bachelors degree

EdGradDeg00: Education Graduate Degree

WhiteCollar00: Occupation White Collar (Management, professional, and related fields; Sales and office occupations)

BlueCollar00: Occupation Blue Collar (Farming, fishing, and forestry; construction, extraction and maintenance; production, transportation, and material moving)

Service00: Occupation Service (service occupations)

B. Overview of Steps used to develop the base period and related data

1. Use xslx files to cut out CCR only and Key

2. Get Raw 2000 data from nhgis:

Where the variables are on Nhgis.org

Age of Householder	NP021B	Core-Age
Ethnicity of Householder	NH007B	Core-Race
Living Alone by sex of householder	NP027G	Core-Sex
Sex of Pop	NP012A	Core-Sex
Ethnicity of Pop	NP008A	Core-Race
Education 25+	NP037C*	Education-Attainment
Pop sex/age	NP012B	core-sex
Pop sex/age from 20% sample	NP008B*	core-sex
income	NP052A*	income-household income
occupation	NP050A*	laborforce-occupation
renter/owner occupied	NH004B	tenure-tenure
family status	NP034B and NP034E	population-family

***** Income, Education, and Occupation are on the long form of the Census and use a 20% sample to interpolate to the population. Some of the BG population numbers differ between the 20% sample interpolation and the 100% population sample.

3. Create Sex of Pop 2000 from sum of age for males then females

4. Create Population 2000 from sum of age for both sexes (M+F)

5. Create Appropriate groupings from raw data:

- Age by sex into 5 year intervals
- Ethnicity: White Non-Hisp, Black Non-Hisp, Native American Non-Hisp, Asian/Pacific Islander Non-Hisp, Other Non-Hisp, Multi Non-Hisp, Hispanic
- Income: <15K; 15K-24,999; 25K-34,999; 35K-49,999; 50K-74,999; 75K-99,999; 100K-149,999; 150K and above
- Household Type: Single Person No Kids, Single Parent, Married with kids, Married No kids, Other
- Education: Less than HS, High School Grad, Some College (incl AA), Bachelor Deg, Graduate Deg
- Occupation: White Collar (Management, Professional, Sales, Office); Blue Collar (Transporation, Construction, Forestry, Farming, Fishing); Service (Service)
- Population from 20% sample: sum of Age/sex
- Aggregate age from 20% sample for proportion estimates: 15 and over; 25 and over

6. Projections for Age/Sex 2010

- Population 2010 = Population 2000*ccr_t [ccr total]
- Male 2010 = Male 2000 *ccr_t_m [ccr for total male] same for female
- Agegroup sex 2010= Age group sex 2000* ccr for that age group (ex. Males 10-14)

- Age groups 0-4, 5-9, and 85 and over are as follows:
    - 2010Male(Female)0-4=ccr_0-4male(female)*sum[females 15-44 in 2010]
    - 2010 Male(Female)5-9=ccr_5-9male(female)*sum[female 20-49 in 2010]
    - 2010male(female)85+=ccr_85+male(female)*sum [male(female) 75+ 2000]

7. Raking

1. **Proportion of age by sex using example for Males 10-14**
    a. (follow equations but replace Males 10-14 with appropriate age/sex category
    Proportion=Males 10-14 in 2010/sum[Males in every age group 2010]
2. **Adjust age/sex category**
    Male2010 projection= Male2000*ccr_male
    Adjusted=Male2010 projection*Proportion
3. **Raked Proportion by age/sex and sex only**
    Raked Proportion = Adjusted Male 10-14 2010/(male2010 projection+female2010 projection)
    Raked Proportion for Sex= Male 2010 projection/(male2010 projection + female 2010projection)
4. **Adjusted Raked by age/sex and sex only**
    Population 2010 = Population 2000 *ccr_total
    Adjusted Raked = Raked Proportion * Population 2010

5. Projection 2020 using Raked 2010 age/sex variables

6. Rake 2020 following previous equations (replace 2000 with 2010 and 2010 with 2020)

7. Sum age categories across sex for output:

- 0-19, 20-24, 25-34, 35-44, 45-54, 55-64, 65-74, 75 above

8. 2015 age/sex projections

- (2010 age/sex category+2020 age/sex category)/2

9. Control by county for age/sex 2010/2015

- County controlled=(2010 Age group/Sum of 2010 all Age groups in the county)*CountyPopulation2010

10. Projections for other variables using county controlled age/sex variables

- Find proportion in 2000: Variable Category 2000/ Population 2000
    - ex. Ethnicity White 2000/Population 2000
    - exceptions
        - Income: use Population 2000 from 20% sample
        - Education: use population 25 and over in 2000 from 20% sample
        - Occupation: use population 15 and over in 2000 from 20% sample
- Create 2000 estimates for Income, Education and Occupation using the proportions from the 20% sample with the 100% sample population (Proportion*Population00)
- 2010 Projection: Proportion*County Controlled Block Group Projection 2010
- 2015 Projection: Proportion*County Controlled Block Group Projection 2015

11. Round all estimates

12. replace all missing with 0 (zero)

C. Assessment of ACS population Estimates official Census Bureau Population Estimates

	ACS TOTAL POP 2007	REGULAR ESTIMATE TOTAL POP 2007	Numeric Difference	ACS MARGIN OF ERROR, TOTAL POP	DIFFERENCE WITHIN ACS MARGIN OF ERROR?
Alameda city, California	75,642	70,272	5,370	+/-6,407	YES
Alhambra city, California	88,393	86,352	2,041	+/-7,561	YES
Anaheim city, California	342,856	333,249	9,607	+/-16,199	YES
Antioch city, California	104,426	99,619	4,807	+/-7,963	YES
Apple Valley town, California	69,835	70,322	-487	+/-7,377	YES
Bakersfield city, California	324,540	315,837	8,703	+/-11,127	YES
Baldwin Park city, California	76,945	77,800	-855	+/-8,390	YES
Bellflower city, California	69,477	73,434	-3,957	+/-7,658	YES
Berkeley city, California	111,680	101,377	10,303	+/-5,974	NO
Buena Park city, California	85,992	79,281	6,711	+/-8,490	YES
Burbank city, California	96,972	103,286	-6,314	+/-7,251	YES
Carlsbad city, California	95,796	95,439	357	+/-7,106	YES
Chico city, California	83,460	83,128	332	+/-4,963	YES
Chino city, California	83,914	82,830	1,084	+/-8,228	YES
Chula Vista	227,336	217,478	9,858	+/-11,597	YES

city, California					
Citrus Heights city, California	88,576	84,469	4,107	+/-7,880	YES
Clovis city, California	92,987	90,808	2,179	+/-7,419	YES
Compton city, California	100,037	94,425	5,612	+/-9,928	YES
Concord city, California	124,300	120,844	3,456	+/-8,089	YES
Corona city, California	156,394	150,308	6,086	+/-11,341	YES
Costa Mesa city, California	114,057	108,978	5,079	+/-8,421	YES
Daly City city, California	104,752	100,882	3,870	+/-7,752	YES
Downey city, California	109,920	108,109	1,811	+/-11,536	YES
El Cajon city, California	97,964	92,533	5,431	+/-7,993	YES
Elk Grove city, California	138,072	131,212	6,860	+/-9,718	YES
El Monte city, California	113,308	122,272	-8,964	+/-9,809	YES
Escondido city, California	128,819	136,246	-7,427	+/-8,744	YES
Fairfield city, California	111,007	103,992	7,015	+/-7,979	YES
Folsom city, California	74,795	67,401	7,394	+/-5,299	NO
Fontana city, California	193,716	183,502	10,214	+/-11,369	YES
Fremont city, California	214,957	201,334	13,623	+/-10,482	NO
Fresno city, California	476,460	470,508	5,952	+/-11,446	YES

Fullerton city, California	126,955	132,066	-5,111	+/-8,303	YES
Garden Grove city, California	145,923	165,610	-19,687	+/-13,426	NO
Glendale city, California	200,859	196,979	3,880	+/-10,101	YES
Hawthorne city, California	92,321	84,422	7,899	+/-9,239	YES
Hayward city, California	129,885	140,943	-11,058	+/-8,203	NO
Hemet city, California	77,001	70,288	6,713	+/-7,235	YES
Hesperia city, California	90,312	85,515	4,797	+/-8,245	YES
Huntington Beach city, California	188,056	192,885	-4,829	+/-10,437	YES
Indio city, California	70,791	83,937	-13,146	+/-7,026	NO
Inglewood city, California	106,581	113,376	-6,795	+/-9,709	YES
Irvine city, California	205,813	201,160	4,653	+/-8,408	YES
Lake Forest city, California	78,130	75,688	2,442	+/-8,483	YES
Lakewood city, California	89,289	78,956	10,333	+/-7,840	NO
Lancaster city, California	155,902	143,616	12,286	+/-11,940	NO
Livermore city, California	79,213	79,532	-319	+/-6,366	YES
Long Beach city, California	458,302	466,520	-8,218	+/-18,630	YES
Los Angeles city, California	3,806,003	3,834,340	-28,337	+/-43,027	YES

Lynwood city, California	69,537	70,336	-799	+/-6,745	YES
Merced city, California	73,224	76,879	-3,655	+/-6,075	YES
Milpitas city, California	66,494	66,770	-276	+/-5,593	YES
Mission Viejo city, California	92,673	94,586	-1,913	+/-5,823	YES
Modesto city, California	198,456	203,955	-5,499	+/-10,352	YES
Moreno Valley city, California	190,990	188,936	2,054	+/-11,306	YES
Mountain View city, California	70,000	70,436	-436	+/-5,467	YES
Murrieta city, California	89,885	90,555	-670	+/-7,722	YES
Napa city, California	71,664	74,247	-2,583	+/-4,183	YES
Newport Beach city, California	89,125	79,554	9,571	+/-5,726	NO
Norwalk city, California	112,001	103,720	8,281	+/-10,988	YES
Oakland city, California	358,829	401,489	-42,660	+/-13,801	NO
Oceanside city, California	168,814	168,602	212	+/-9,661	YES
Ontario city, California	156,027	170,936	-14,909	+/-11,593	NO
Orange city, California	142,097	134,299	7,798	+/-11,764	YES
Oxnard city, California	167,412	184,725	-17,313	+/-8,354	NO
Palmdale city, California	132,266	140,882	-8,616	+/-10,047	YES

Pasadena city, California	136,936	143,400	-6,464	+/-9,751	YES
Pleasanton city, California	69,348	66,544	2,804	+/-5,983	YES
Pomona city, California	142,111	152,631	-10,520	+/-11,043	YES
Rancho Cucamonga city, California	157,777	170,266	-12,489	+/-12,011	NO
Redding City	87,130	89,780	-2,650	+/-5,302	YES
Redlands city, California	73,539	69,941	3,598	+/-8,059	YES
Redondo Beach city, California	70,948	67,019	3,929	+/-6,838	YES
Redwood City city, California	69,559	73,603	-4,044	+/-5,891	YES
Rialto city, California	108,969	98,713	10,256	+/-9,628	NO
Richmond city, California	97,279	101,454	-4,175	+/-9,020	YES
Riverside city, California	316,154	294,437	21,717	+/-14,637	NO
Roseville city, California	114,958	108,759	6,199	+/-6,578	YES
Sacramento city, California	451,404	460,242	-8,838	+/-15,995	YES
Salinas city, California	140,499	143,517	-3,018	+/-8,046	YES
San Bernardino city, California	203,691	199,285	4,406	+/-11,585	YES
San Buenaventura (Ventura) city, California	105,673	103,219	2,454	+/-6,800	YES

San Diego city, California	1,276,740	1,266,731	10,009	+/-22,810	YES
San Francisco city, California	764,976	764,976	0	*****	N/A
San Jose city, California	922,389	939,899	-17,510	+/-16,294	NO
San Leandro city, California	96,186	77,725	18,461	+/-9,192	NO
San Marcos city, California	75,217	78,286	-3,069	+/-7,344	YES
San Mateo city, California	91,461	91,768	-307	+/-5,967	YES
Santa Ana city, California	327,780	339,555	-11,775	+/-14,085	YES
Santa Barbara city, California	89,959	86,204	3,755	+/-6,453	YES
Santa Clara city, California	105,591	109,756	-4,165	+/-6,451	YES
Santa Clarita city, California	177,740	169,951	7,789	+/-13,076	YES
Santa Maria city, California	86,160	85,685	475	+/-6,581	YES
Santa Monica city, California	86,857	87,212	-355	+/-6,317	YES
Santa Rosa city, California	147,516	154,241	-6,725	+/-8,276	YES
Simi Valley city, California	127,053	120,464	6,589	+/-8,047	YES
South Gate city, California	104,031	97,110	6,921	+/-8,719	YES
Stockton city, California	295,070	287,245	7,825	+/-10,999	YES
Sunnyvale city, California	135,548	131,140	4,408	+/-8,627	YES

Temecula city, California	93,743	94,767	-1,024	+/-8,318	YES
Thousand Oaks city, California	128,519	123,349	5,170	+/-7,821	YES
Torrance city, California	143,628	141,420	2,208	+/-8,316	YES
Tracy city, California	82,383	79,705	2,678	+/-6,540	YES
Turlock city, California	69,330	68,133	1,197	+/-6,246	YES
Tustin city, California	63,524	70,869	-7,345	+/-6,624	YES
Union City city, California	73,212	70,075	3,137	+/-6,373	YES
Upland city, California	78,260	72,464	5,796	+/-9,002	YES
Vacaville city, California	93,795	92,084	1,711	+/-6,076	YES
Vallejo city, California	106,608	115,552	-8,944	+/-6,297	NO
Victorville city, California	97,534	107,221	-9,687	+/-9,214	NO
Visalia city, California	115,899	118,603	-2,704	+/-8,732	YES
Vista city, California	97,977	90,839	7,138	+/-10,065	YES
West Covina city, California	103,154	106,388	-3,234	+/-8,704	YES
Westminster city, California	91,994	88,678	3,316	+/-6,606	YES
Whittier city, California	82,755	82,850	-95	+/-8,684	YES
Yorba Linda city, California	57,550	65,434	-7,884	+/-4,415	NO