

Research Brief

POPULATION GROWTH IN SILICON VALLEY

May 2015



This publication is one in a series of research briefs published by the Silicon Valley Institute for Regional Studies. These briefs present data of timely significance for decision-makers in Silicon Valley and the broader Bay Area.

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CONTENTS

Executive Summary & Key Findings	2
Why is this important?	4
What does three million mean?.....	4
Overall Population Growth & Historical Context	5
Components of Change	10
Migration.....	10
Natural Change.....	11
Past and Future Population Characteristics: 2005-2025	17
Population Composition by Age and Gender.....	17
Median Age.....	26
Appendix	28
Endnotes	30

EXECUTIVE SUMMARY & KEY FINDINGS

This report examines Silicon Valley's^a population dynamics, including overall population growth, growth by city and county, birth and death rates, and the changing population composition in terms of age and gender. It also examines recent California Department of Finance (DOF) population and K-12 enrollment projections through 2023.

Additionally, this report examines population trends as they relate to the recent economic recession. Silicon Valley's population dynamics are closely tied to the economy overall, including employment, income, cost of living and other factors; in particular, in and out migration, as well as birth and death rates, vary with changes in economic growth and development, which affect both behavioral and environmental change and influence population dynamics.

Silicon Valley's population is approximately three million, and a large portion of its residents live within just six of its 39 cities. The population is growing rapidly – several cities are growing up to four times faster than the state as a whole. The growth rate shot up between 2011 and 2012, and in 2013 was higher than any other year since 1998. Silicon Valley's rapid population growth is occurring despite declining birth rates since 2008, and is driven by foreign immigration as well as natural growth.

The recession had an effect on the components of population change, including net migration, birth rates and death rates, with declining birth rates and increasing death rates as the region recovered post-recession.

Silicon Valley's population is aging, and this trend is projected to continue. Additionally, the share of children and women of childbearing age has declined and is projected to decline over the next decade, with a corresponding decrease in the region's expected K-12 enrollment.

Key findings include:

- Silicon Valley's population is estimated at approximately three million.
- A population of three million represents a large portion of the state and nation relative to Silicon Valley's share of land area, and amounts to significant additional resource requirements.
- Silicon Valley's population is growing rapidly, and growth rates have accelerated since 2011 primarily due to an increase in foreign immigration. Growth rates also accelerated that year in San Francisco and California as a whole.
- The population growth rate in Silicon Valley peaked in 2013, and was higher that year than it had been since 1998. The growth rate declined slightly between 2013 and 2015.
- Between January 2014 and January 2015, Santa Clara and San Mateo Counties grew faster than the state. Santa Clara County ranked as the 7th fastest growing California County that year, after having ranked 1st the year prior.
- Several Silicon Valley cities grew more than three times faster than the state between 2014 and 2015, while others actually declined in population.
- More than half of the region's population lives in just six of its 39 cities.
- In 2008, the birth rate in Silicon Valley began to decline; between 2008 and 2014, the birth rate in Santa Clara and San Mateo Counties combined fell by over 20%. This decline was more pronounced in Silicon Valley than in San Francisco or California overall.

a. For the purposes of this report, the Silicon Valley region is defined as all of San Mateo County, Santa Clara County, Scotts Valley in Santa Cruz County, and the cities of Fremont, Newark and Union City in southern Alameda County, consistent with the definition used in Joint Venture Silicon Valley's annual publication, the *Silicon Valley Index*. Due to data limitations, some Silicon Valley data only include San Mateo and Santa Clara Counties, as noted in the charts/tables and text.

- Silicon Valley women tend to have babies later in life than women in the United States, California, and the Rest of the Bay Area combined (excluding San Francisco).
- The average number of children per Silicon Valley woman remained the same between those who gave birth pre-birth rate decline (2008) and those who gave birth in 2013.
- Silicon Valley has a relatively low death rate compared to San Francisco and California.
- Death rates declined between 2006 and 2007 and through the recession, then started to increase at the beginning of the recovery period (2010). The increase in death rates between 2010 and 2014 was, in large part, due to the increase in heart disease- and cerebrovascular disease-related deaths.
- Silicon Valley and San Francisco (in particular) have high population shares between the ages of 25 and 44 — the core working-age group — compared to California and the United States overall.
- Silicon Valley and California population growth between 2005 and 2015 was dominated by the age group 60-69, accounting for more than half of the total growth. San Francisco also had a large increase in the 60-69 population share, but also had significant growth in the number of residents ages 20-29.
- Silicon Valley's population is aging. The number of residents over age 65 grew by 11.7% between 2010 and 2013, and is projected to grow 45.4% between 2015 and 2025.
- The ratio of Silicon Valley females to males over age 65 is projected to decrease between 2015 and 2025.
- Over the next decade, the Silicon Valley population of children under age ten and those between the ages of 30 and 39 is expected to decline by 5-8%, while the population ages 70-79 is expected to increase by 62%.
- The number of Silicon Valley women of childbearing age has not grown (and is not expected to grow) as quickly as other population groups between 2005 and 2025.
- Accompanying the decline in the population share of children, Silicon Valley's K-12 enrollment rates are expected to decline by 3.2% between 2015 and 2023.

As both a complement to this report and a resource for the region, the Silicon Valley Institute for Regional Studies has posted a Silicon Valley Population Clock on the Silicon Valley Indicators website (www.siliconvalleyindicators.org). It is joined by the data for this and other Silicon Valley reports, as well as a multitude of resources for economic and community health data and analysis. The Silicon Valley Population Clock will be updated on a regular basis according to the California Department of Finance data releases for population estimates and growth rates.

WHY IS THIS IMPORTANT?

A deep understanding of Silicon Valley as a region — as it relates to any topic of importance — is impossible without an in-depth examination of the population and how it is changing over time. The region's residents represent the electorate, taxpayers, house-purchasers and renters, the workforce and more, and define our communities.

As the number of Silicon Valley residents exceeds three million, questions about the policy and resource implications of growth will take center stage. Employment levels have increased in recent years as the population grew;¹ however, this level of population growth also has implications for the region's infrastructure, including our housing, transportation, and schools.

This report aggregates available population data, and provides analysis relevant to these issues.

What does three million mean?

- Three million is equivalent to nearly one percent of the entire United States population² and 7.7% of the California population³, despite being only 0.05% and 1.2%⁴ of the respective land areas.
- If Silicon Valley were a city, a population of three million would rank 3rd in the nation behind Los Angeles and New York City.⁵
- If Silicon Valley were a state, a population of three million would rank it 31st, before Mississippi and after Iowa.⁶
- Three million was the population of the entire State of California in the 1910s⁷ and is twice the population of Silicon Valley in the 1960s.⁸
- Three million is nearly twice the population of Manhattan and more than three times the population of Delaware.⁹
- Three million would amount to an estimated regional gross domestic product (GDP) of \$248.7 billion (\$31.3 billion higher than in 2014).¹⁰
- Three million people require more than one million households.¹¹
- Three million people use more than 400 million gallons of water¹² and produce 13.2 million pounds of waste per day¹³ (148.2 billion gallons and 4.8 billion pounds per year, respectively). That is equivalent to the amount of water in 615 Olympic-sized swimming pools¹⁴ and the weight of 1,100 elephants¹⁵ each day.
- Of three million residents, over 1 million will commute to work each day in their own cars.¹⁶ In total, three million residents will drive approximately 26.9 billion miles per year¹⁷ — equivalent to more than 1 million trips around the circumference of the Earth¹⁸ or 758 million total hours of driving at 35 miles per hour.

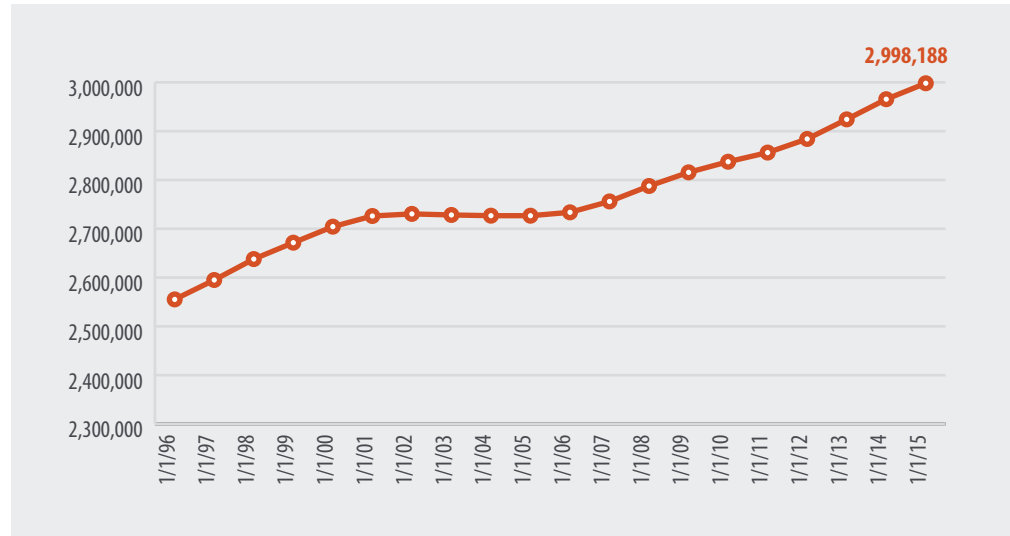
The effect of population growth on housing in Silicon Valley is of particular importance due to the region's geographic constraints and their effect on housing affordability. Population growth and housing are also closely tied to the region's transportation issues.

In conjunction with a lag in residential building to accommodate growth,¹⁹ housing prices in Silicon Valley have continued to rise (in some cities up 20-30% year-over-year²⁰), rental rates have increased (+8.8% between 2013 and 2014²¹), and nearly 40% of Silicon Valley residents are burdened (spending more than 35% of their gross income) by housing costs. These issues will intensify with population growth.

OVERALL POPULATION GROWTH & HISTORICAL CONTEXT

Silicon Valley's population reached 2,998,188 in January 2015, and was estimated to reach three million by early May based on 2013-2014 growth rates.²² However, recently released January 2015 population estimates and 2014-2015 growth rates from the California Department of Finance indicate that Silicon Valley's population likely reached three million in late January 2015.²³

Figure 1: Total Population of Silicon Valley, 1996-2015

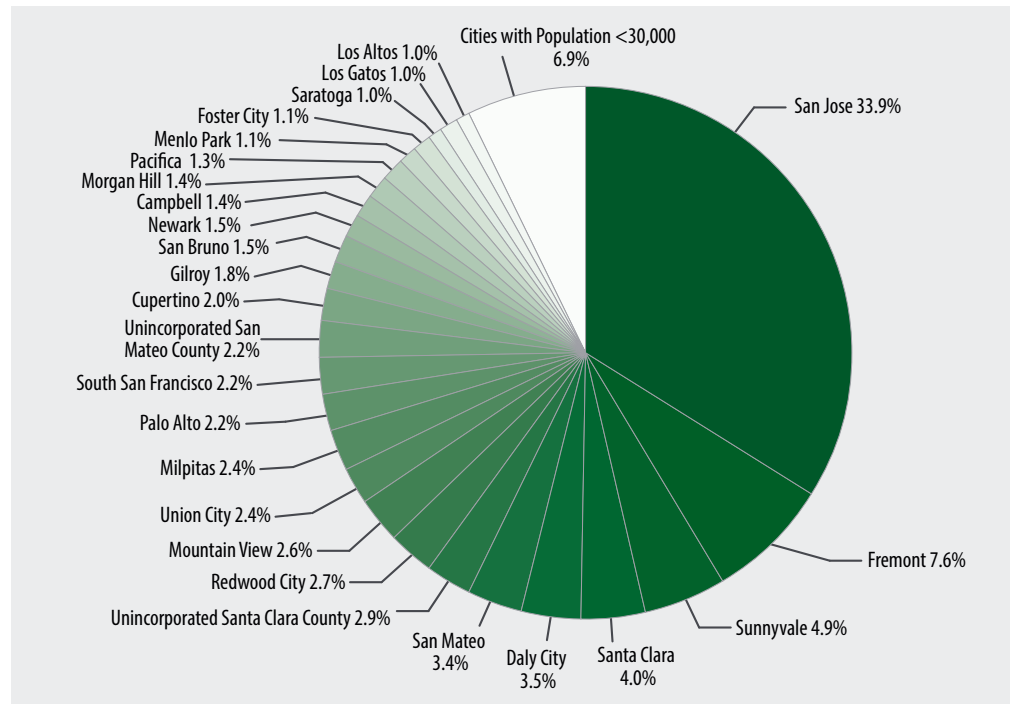


Data Source: California Department of Finance

Analysis: Silicon Valley Institute for Regional Studies

More than half of Silicon Valley’s population lives in just six of its 39 cities. In January 2015, the City of San Jose accounted for 33.9% of Silicon Valley’s population. The next five cities with high population shares accounted for another 23.4% of the region’s residents – Fremont (7.6%), Sunnyvale (4.9%), Santa Clara (4.0%), Daly City (3.5%) and San Mateo (3.4%). Other cities and the unincorporated areas of San Mateo and Santa Clara Counties accounted for one to three percent of the population each, and 15 cities with populations under 30,000 accounted for the remaining 6.9%.

Figure 2: Silicon Valley Population Share, by City and Unincorporated Area Over 30,000, January 2015



Data Source: California Department of Finance

Analysis: Silicon Valley Institute for Regional Studies

Between January 2014 and January 2015, there were 16 counties that grew faster than the State of California (+0.93%). San Francisco ranked 3rd (+1.28%), Santa Clara – which was the fastest growing county in the state the year before – ranked 7th (+1.16%), and San Mateo County ranked 12th (+1%). For comparison, the United States population as a whole grew 0.73% over that same period of time.²⁴

Table 1: Population Growth Rates of the Fastest Growing California Counties, and California Overall, 2014-2015

Rank	County	2014-2015
1	San Joaquin	1.53%
2	Imperial	1.34%
3	San Francisco	1.28%
4	Alameda	1.27%
5	Contra Costa	1.25%
6	Riverside	1.24%
7	Santa Clara	1.16%
8	San Diego	1.10%
9	Orange	1.07%
10	Solano	1.03%
11	Sacramento	1.01%
12	San Mateo	1.00%
13	Madera	0.99%
14	San Bernardino	0.97%
15	Napa	0.93%
16	Fresno	0.93%
	California	0.93%

Data Source: California Department of Finance

Analysis: Silicon Valley Institute for Regional Studies

Some Silicon Valley cities grew at a rate two to four times faster than the state between 2014 and 2015, including Milpitas (+3.87%), Half Moon Bay (+2.76%), San Bruno (+2.69%), and Brisbane (+2.41%). Others grew at only a fraction of the state's growth rate, such as Santa Clara (+0.03%), Los Altos Hills (+0.13%), Atherton and Los Gatos (+0.20%). Campbell, which had grown at an incredibly high rate of over 4% the year prior, actually declined in population by 0.03% between 2014 and 2015.

Table 2: Population Growth Rates of Silicon Valley Cities and Counties, and San Francisco, 2014-2015

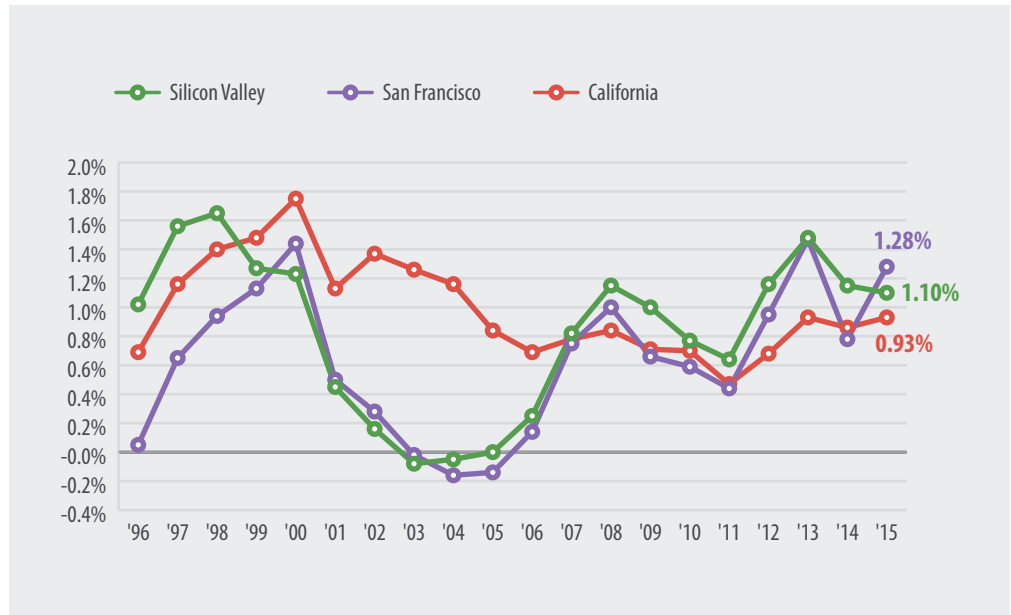
2014-2015 Population Growth Rate	
Counties	
San Francisco City/County	1.28%
Alameda County	1.27%
Santa Clara County	1.16%
San Mateo County	1.00%
Santa Cruz County	0.86%
Fastest Growing Cities	
Milpitas	3.87%
Half Moon Bay	2.76%
San Bruno	2.69%
Brisbane	2.41%
Mountain View	1.74%
Morgan Hill	1.70%
San Jose	1.42%
Gilroy	1.41%
Hillsborough	1.37%
Redwood City	1.26%
Slowest Growing Cities	
Cupertino	-0.04%
Campbell	-0.03%
Saratoga	0.00%
Santa Clara	0.03%
Los Altos Hills	0.13%
Unincorporated Santa Clara County	0.16%
Atherton	0.20%
Los Gatos	0.20%
Monte Sereno	0.35%
Palo Alto	0.37%

Data Source: California Department of Finance

Analysis: Silicon Valley Institute for Regional Studies

Not only is the population growing, but the growth has accelerated (i.e., the rate has increased) since 2011 – more than doubling between 2011 and 2013 from a rate of 0.64% to 1.48%, followed by a slight deceleration between 2013 and 2015. The growth rate between 2014 and 2015 was 1.1%, compared to 1.3% in San Francisco and 0.9% in the state overall. Silicon Valley and San Francisco’s population growth slowed after the dot-com bust, and the population even declined slightly between 2002 and 2005.

Figure 3: Population Growth Rates for Silicon Valley, San Francisco, and California, 1996-2015

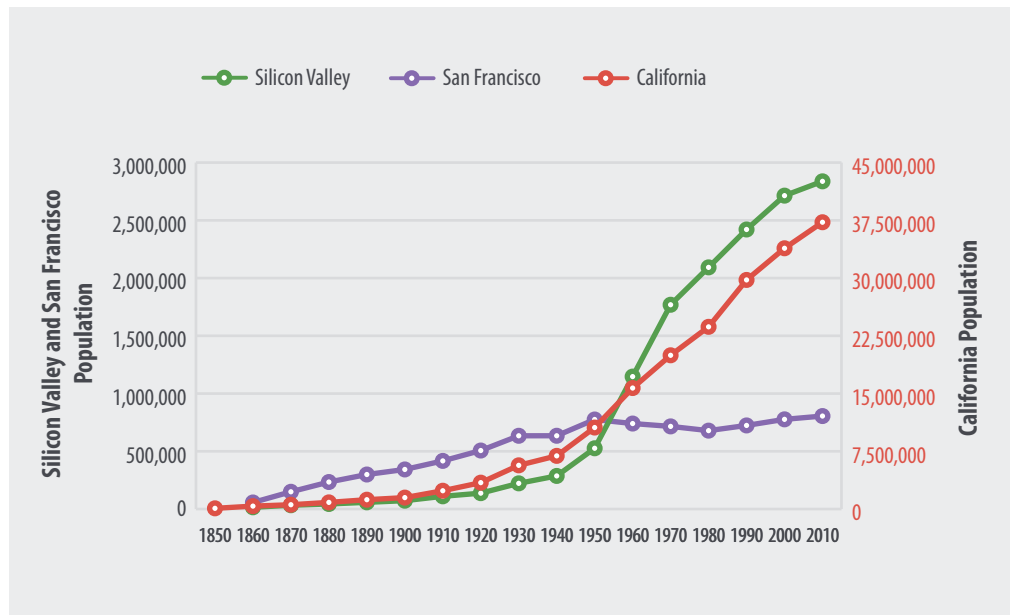


Data Source: California Department of Finance
 Analysis: Silicon Valley Institute for Regional Studies

Silicon Valley’s population growth rate between January 2014 and January 2015 (+1.1%) was similar to that of 2007-2008 (+1.15%). The growth rate declined during the recession and into the start of the recovery period. However, Silicon Valley’s population growth accelerated between 2011 and 2013, and the 2012 to 2013 rate (+1.5%) was higher than any other year since 1998.

In a historical context, however, this rate was actually much lower than the years prior to 1970 at which time Silicon Valley’s population growth – which had grown exponentially since the 1850s – began to slow down. Similarly, San Francisco’s population growth slowed beginning in the 1930s. Growth on the state level, however, has yet to reach such an inflection point.

Figure 4: Historical Total Population Estimates for Santa Clara & San Mateo Counties, San Francisco, and California, 1850-2010



Data Source: California Department of Finance
 Analysis: Silicon Valley Institute for Regional Studies

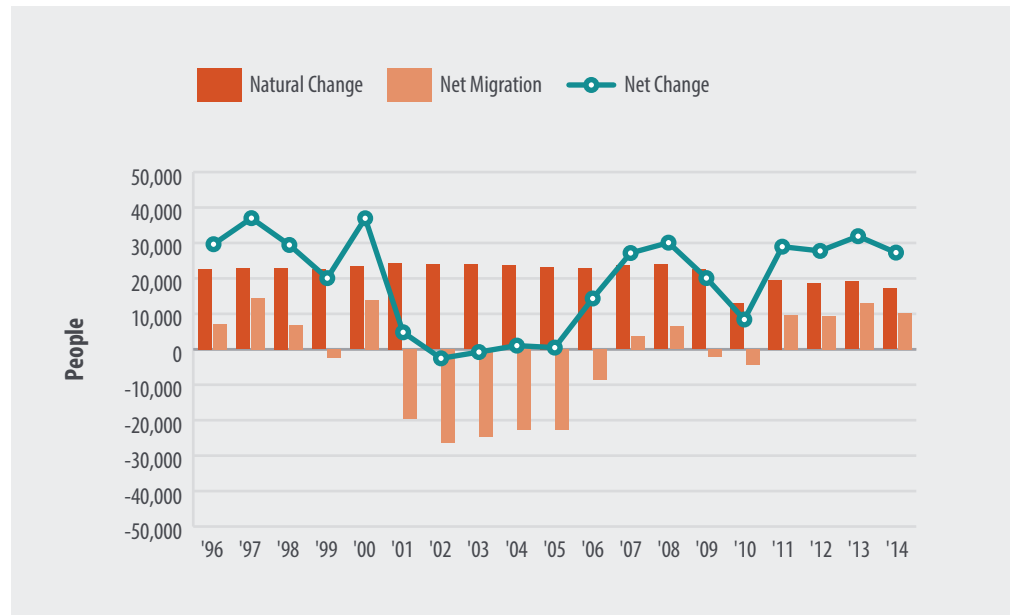
COMPONENTS OF CHANGE

Migration

One primary cause of the 2011 acceleration in Silicon Valley population growth was the change in net migration patterns that occurred that year as the region emerged from the recession. In 2010, the Silicon Valley region²⁵ had a net loss of 17,500 residents moving to other parts of the state and country. While this loss was not fully replenished by the net increase of nearly 13,000 foreign immigrants that year, natural population growth (births minus deaths) added 13,000 new residents and so the overall population continued to grow. After 2010, net migration jumped up to roughly 10,000 people per year (primarily due to an increase in foreign immigration) and remained relatively consistent over the 4-year period of 2011-2014.

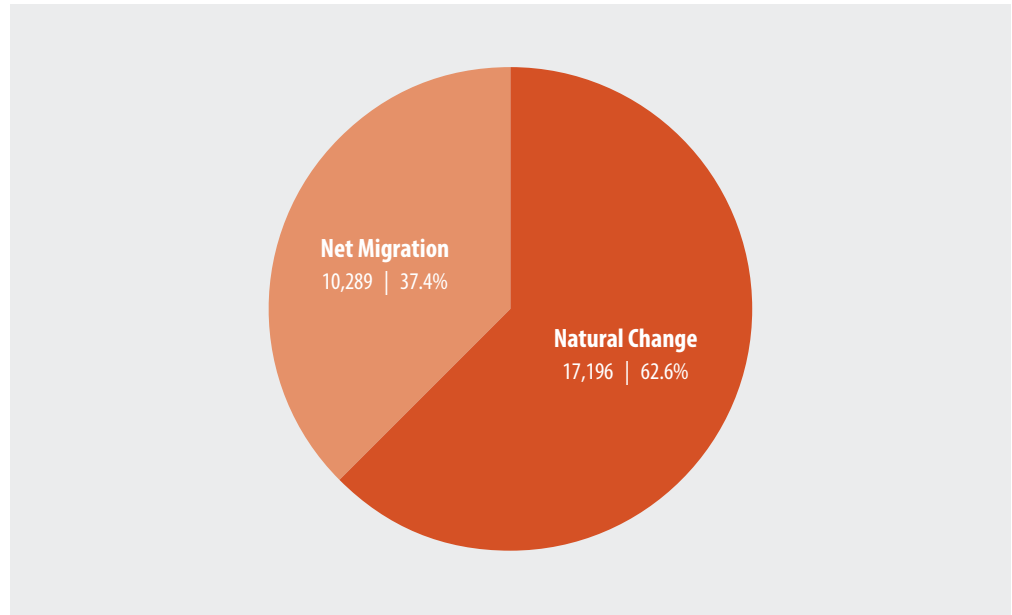
In 2014, there were 17,693 foreign immigrants who moved to Silicon Valley. And, the region had a net outflow of 7,404 residents who moved to other parts of California or the United States. In addition to this net migration of +10,289 people, natural change added a net +17,196 residents that year (31,607 births and 14,411 deaths) accounting for nearly 63% of the total population growth between July 2013 and July 2014. This percentage is low relative to just before the recession (natural growth accounted for 86.4% of the population increase in 2007).

Figure 5: Components of Population Change in Santa Clara & San Mateo Counties, 1996-2014



Source: 2015 Silicon Valley Index (Data: California Department of Finance)

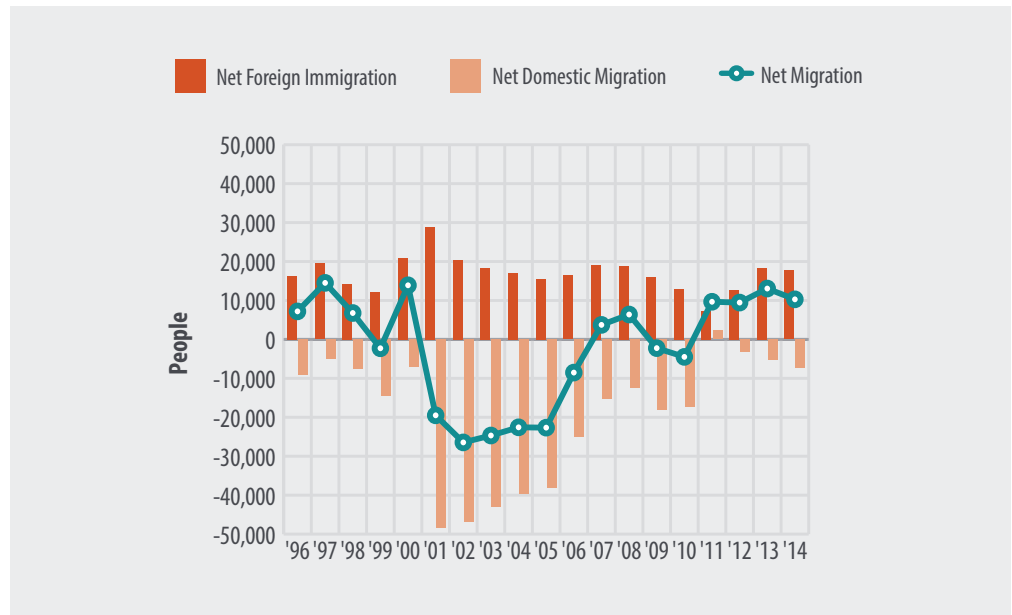
Figure 6: Contributions to Population Change by Component in Santa Clara & San Mateo Counties, 2014



Data Source: California Department of Finance

Analysis: Silicon Valley Institute for Regional Studies

Figure 7: Net Migration Flows in Santa Clara & San Mateo Counties, 1996-2014



Source: 2015 Silicon Valley Index (Data: California Department of Finance)

Natural Change

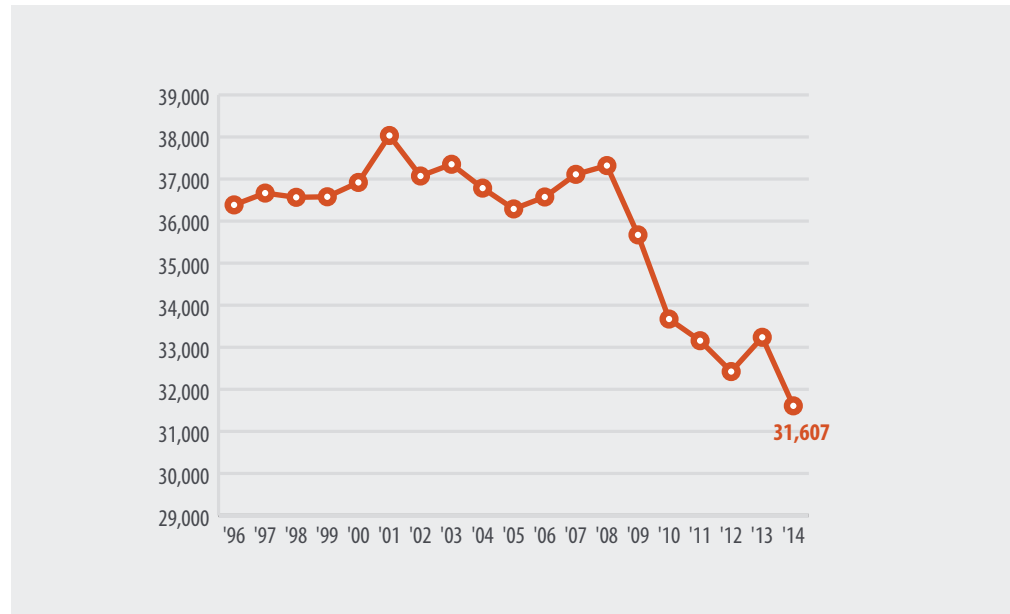
The two components of natural population change are births and deaths, which are examined in this research brief based on total numbers and rates per 1,000 people.

Between 1996 and 2008, Silicon Valley had an average of approximately 37,000 births per year; however, despite rapid population growth, at the beginning of the recession (in 2008) the number of births

per year began to drop, falling to 31,607 in 2014 (down 15.3% over that six-year period of time). This compares to a 4.2% decline in San Francisco births and a 12.2% decline in California births.

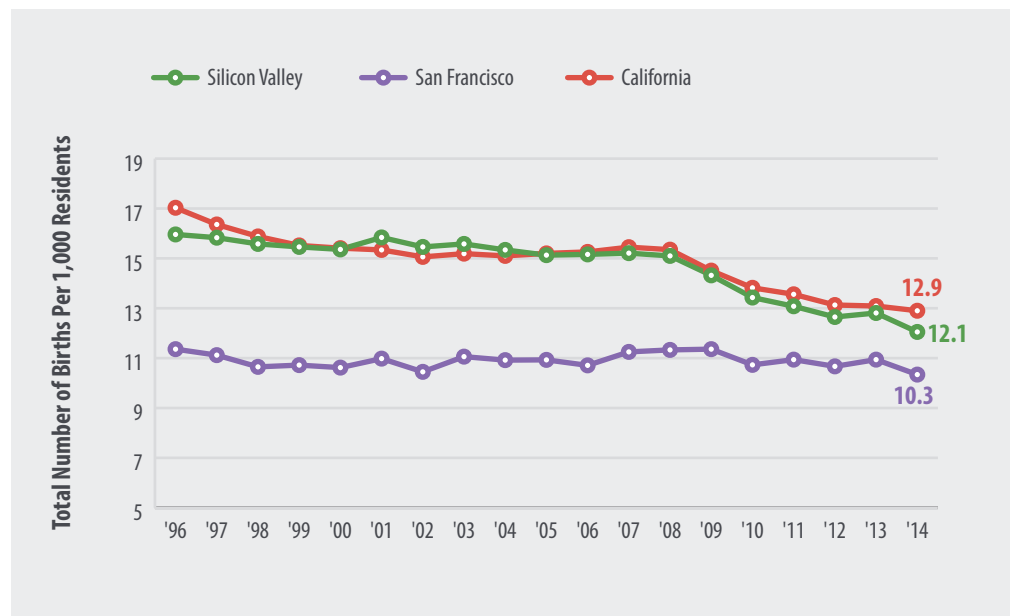
The overall birth rate (number of births per 1,000 people) also declined between 2008 and 2014, falling from 15.1 per 1,000 people in 2008 to 12.1 per 1,000 in 2014 (-20.2%, compared to -8.7% in San Francisco and -16% in California). The Silicon Valley fertility rate²⁶ – which accounts for changes in the number of women of childbearing age – also declined in Silicon Valley between 2008 and 2013 (down 17.6%, from 76.2 per 1,000 in 2008 to 62.7 per 1,000 in 2013).²⁷

Figure 8: Total Number of Births per Year in Santa Clara & San Mateo Counties, 1996-2014



Source: 2015 Silicon Valley Index (Data: California Department of Finance)

Figure 9: Annual Birth Rate per 1,000 Residents in Santa Clara & San Mateo Counties, San Francisco, and California, 1996-2014



Data Source: California Department of Finance

Analysis: Silicon Valley Institute for Regional Studies

Silicon Valley women tend to have babies later in life than those in the state and nation as a whole. In 2013, the median age of mothers who gave birth Silicon Valley was 32 (30 for those who gave birth to their first baby), compared to 34 in San Francisco, 32 in the rest of the Bay Area, 30 in California and 29 in the United States as a whole.

Slightly different from the median age, the most common age of mothers who gave birth to their first child in Silicon Valley was 31. This is close to the most common age in San Francisco (32), but much higher than the most common age in California and the United States (20 years old) based on total number of first births for women ages 10-54 in 2013.

In 2008, the median age at which mothers gave birth in Silicon Valley, San Francisco, the Rest of the Bay Area, California and the United States as a whole was lower than in 2013 (by two years in Silicon Valley for first and subsequent babies), indicating that women in 2013 tended to wait until they were older to have children.

Table 3: Median Age of Mothers at the Time of Giving Birth in Santa Clara and San Mateo Counties, San Francisco, the Rest of the Bay Area, California, and the United States, 2008 and 2013

	2008		2013	
	First Birth	All Births	First Birth	All Births
Silicon Valley	28	30	30	32
San Francisco	31	32	32	34
Rest of the Bay Area	27 (range of 23-31 among the counties)	29 (range of 27-33 among the counties)	28 (range of 25-32 among the counties)	32 (range of 29-34 among the counties)
California	25	28	26	30
United States	24	27	25	29

Data Source: United States Department of Health and Human Services, Centers for Disease Control and Prevention, National Vital Statistics System

Analysis: Silicon Valley Institute for Regional Studies

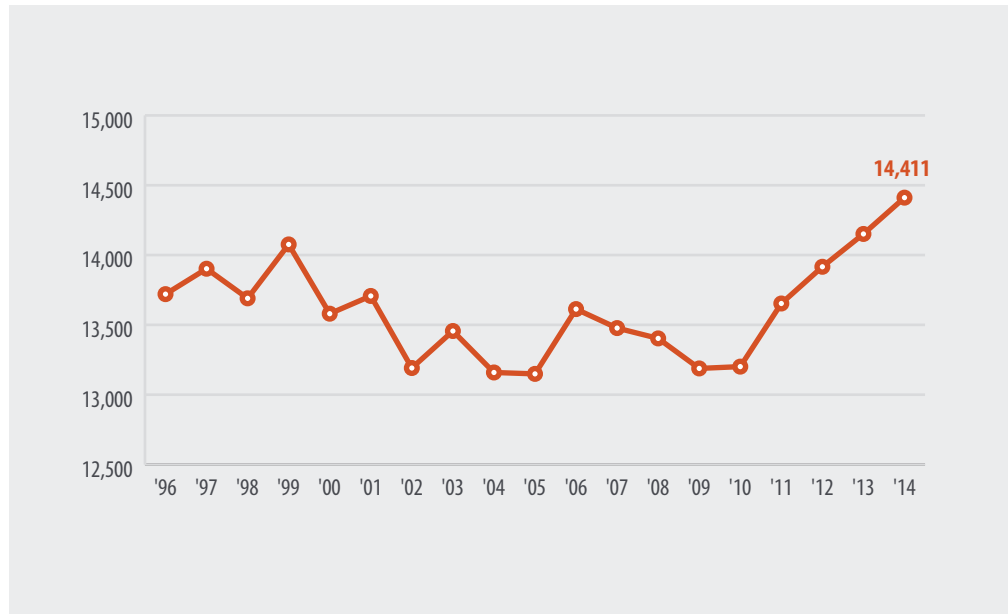
Seventy-one percent of all mothers who gave birth in Santa Clara and San Mateo Counties in 2013 were having their first or second babies, with an average of 2.14 babies per mother who gave birth that year. There were only slight differences in the average number of children per woman and the share of mothers who gave birth to their first, second or subsequent child in 2013 compared with 2008, indicating that women in 2013 women were still having about the same number of babies as women were five years prior.

Table 4: Share of Mothers Giving Birth to Babies, by Birth Order, in Santa Clara and San Mateo Counties, 2013

Share of Mothers		
Birth Order	2008	2013
1 st	38.4%	37.8%
2 nd	33.0%	32.9%
3 rd	16.5%	16.6%
4 th	7.1%	7.3%
5 th	2.9%	3.0%
6 th	1.1%	1.3%
7 th	0.4%	0.6%
8 th or higher	0.4%	0.5%
Average Number of Children per Woman Who Gave Birth	2.10	2.14

In contrast to birth rate trends, the start of the recession was not an inflection point for Silicon Valley’s death rate. The death rate declined each year between 2006 and 2008, then only slightly more between 2008 and 2009. There was relatively little change in the death rate between 2009 and 2010. Beginning in 2010, the number of deaths per year began to increase – rising from 13,201 deaths in 2010 to 14,411 in 2014 (an increase of 9.2%), with a corresponding increase in the death rate (5.27 per 1,000 people in 2010 to 5.49 per 1,000 in 2014).

Figure 10: Total Number of Deaths per Year in Santa Clara & San Mateo Counties, 1996-2014



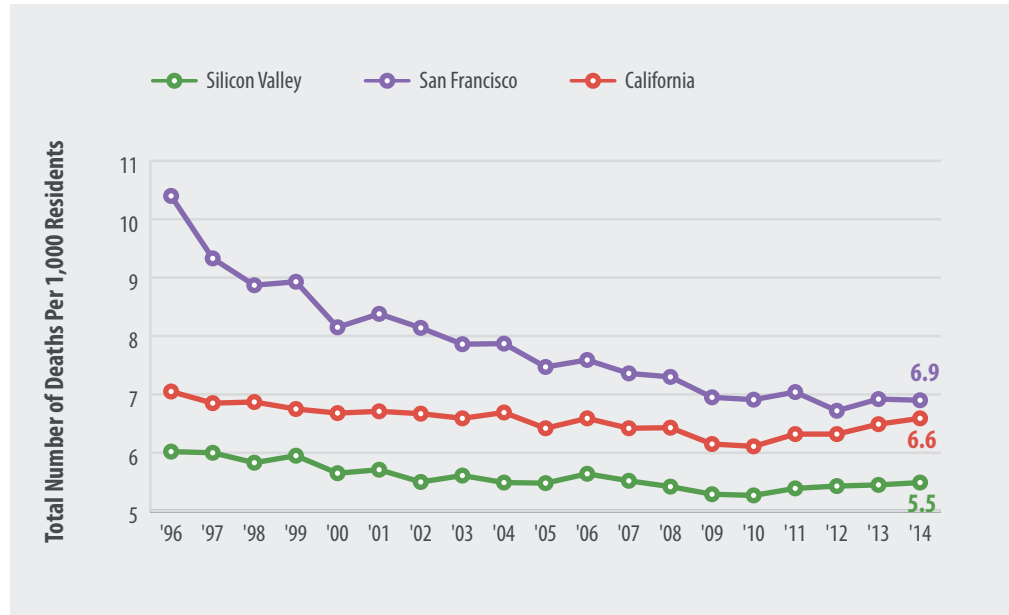
Data Source: California Department of Finance

Analysis: Silicon Valley Institute for Regional Studies

The death rate in California as a whole also increased between 2010 and 2014 (from 6.11 to 6.59 per 1,000 people), while the rate in San Francisco remained relatively steady at 6.9 per 1,000 people.

Between 1996 and 2014, the death rate in Silicon Valley was consistently much lower than in California as a whole and in San Francisco.

Figure 11: Annual Death Rate per 1,000 Residents Santa Clara & San Mateo Counties, San Francisco, and California, 1996-2014



Data Source: Data Source: California Department of Finance

Among the top 15 leading causes of death, heart disease and malignant neoplasms (cancer) top the list in Silicon Valley, with annual death rates of over 100 per 100,000 people. In 2013, these 15 leading causes were responsible for over 80% of all deaths within the region.

In 2010, when Silicon Valley’s death rate was at a low point, heart disease-related deaths occurred at a rate of 127 per 100,000 people, compared to 148 per 100,000 in 2013 (up 17% in three years). The increase in death rates between 2010 and 2013 (+950 annually) was not only due to the incidence of heart disease-related deaths, but also to cerebrovascular diseases (affecting blood flow to the brain, e.g., deaths due to strokes) which increased from 31.2 per 100,000 people to 45 per 100,000 (up 44.2%). During the same period of time, however, Alzheimer’s deaths in Silicon Valley actually decreased from a rate of 36.0 to 17.7 per 100,000 (down 50.8% between 2010 and 2013).

Of the 950 more Silicon Valley deaths in 2013 than in 2010, 64% of them were due to increased incidence of heart disease- and cerebrovascular disease-related deaths.

Table 5: 15 Leading Causes of Death in Santa Clara & San Mateo Counties, 2010 and 2013

	2010			2013		
	Cause of Death	Number of Deaths	Rate per 100,000	Cause of Death	Number of Deaths	Rate per 100,000
1	Malignant neoplasms	3,559	142.4	Diseases of heart	3,495	148.3
2	Diseases of heart	3,167	126.7	Malignant neoplasms	3,321	140.9
3	Alzheimer's disease	900	36.0	Cerebrovascular diseases	1,061	45.0
4	Cerebrovascular diseases	779	31.2	Chronic lower respiratory diseases	699	29.7
5	Chronic lower respiratory diseases	638	25.5	Influenza and pneumonia	542	23.0
6	Accidents (unintentional injuries)	570	22.8	Accidents (unintentional injuries)	491	20.8
7	Diabetes mellitus	457	18.3	Alzheimer's disease	418	17.7
8	Influenza and pneumonia	416	16.6	Diabetes mellitus	367	15.6
9	Essential hypertension and hypertensive renal disease	276	11.0	Intentional self-harm (suicide)	207	8.8
10	Chronic liver disease and cirrhosis	228	9.1	Chronic liver disease and cirrhosis	197	8.4
11	Intentional self-harm (suicide)	218	8.7	Essential hypertension and hypertensive renal disease	131	5.6
12	Parkinson's disease	184	7.4	Pneumonitis due to solids and liquids	121	5.1
13	In situ neoplasms, benign neoplasms and neoplasms of uncertain or unknown behavior	95	3.8	Parkinson's disease	121	5.1
14	Enterocolitis due to Clostridium difficile	71	2.8	In situ neoplasms, benign neoplasms and neoplasms of uncertain or unknown behavior	99	4.2
15	Viral hepatitis	54	2.2	Nephritis, nephrotic syndrome and nephrosis	97	4.1

Data Source: Centers for Disease Control and Prevention, National Center for Health Statistics

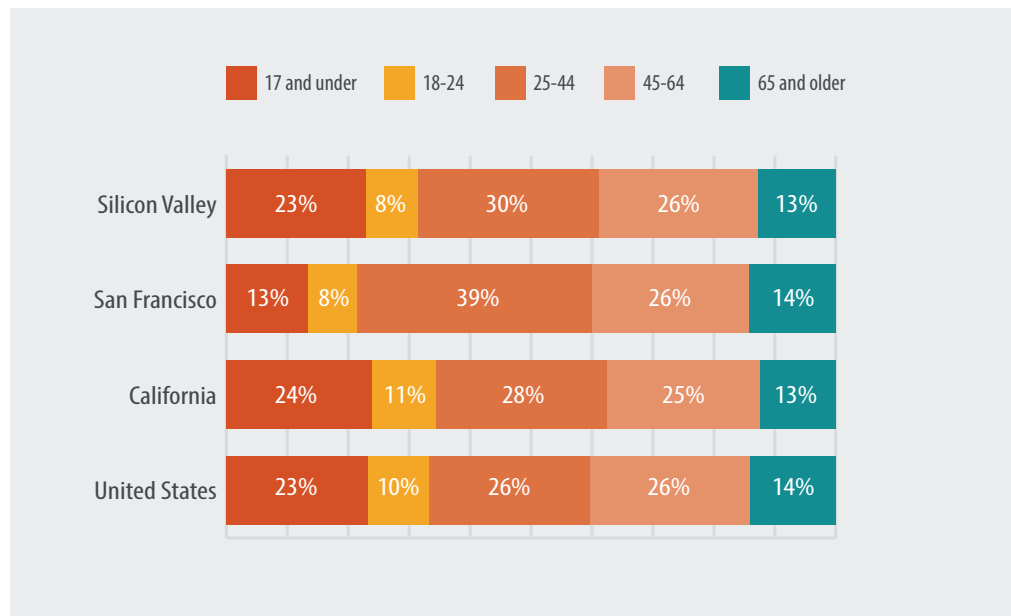
Analysis: Silicon Valley Institute for Regional Studies

PAST AND FUTURE POPULATION CHARACTERISTICS: 2005-2025

Population Composition by Age and Gender

In 2013, 38% of Silicon Valley's^b population was between the ages of 18 and 44, compared to 39% in California as a whole and 36% in the United States. In contrast, San Francisco's population share in that age category was much larger at 47%. Silicon Valley's 2013 core working-age (25-44) population share was 30% -- lower than in San Francisco (39%), but higher than the state (28%) and nation (26%).

Figure 12: Age Distribution in Santa Clara and San Mateo Counties, San Francisco, California and the United States, 2013



Source: 2015 Silicon Valley Index (Data: United States Census Bureau, Population Division)

Table 6: Population Change in Santa Clara & San Mateo Counties, by Age Category, 2010-2013

17 and under	+1.3%
18-24	+3.5%
25-44	+2.8%
45-64	+4.9%
65 and older	+11.7%
Total	+4.1%

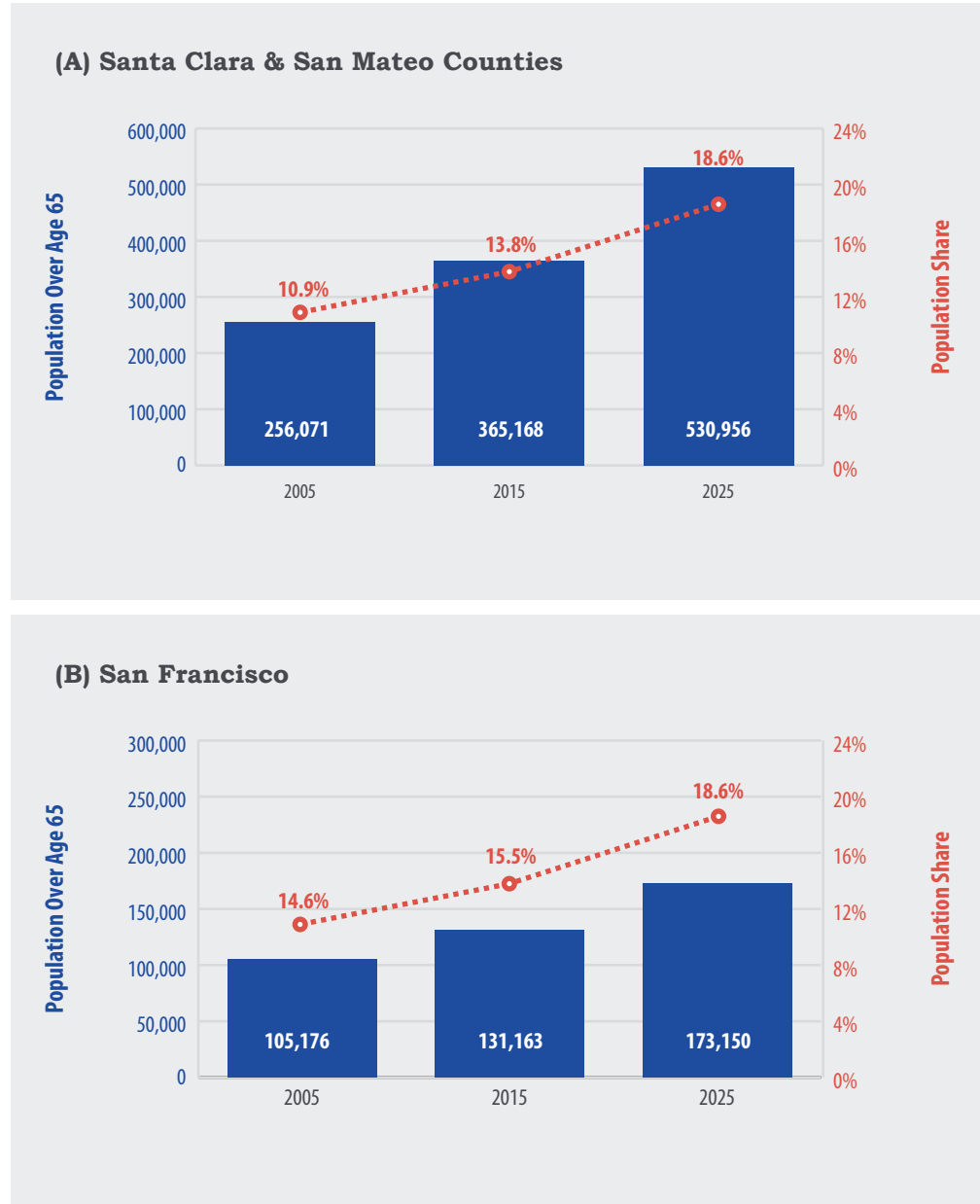
Source: 2015 Silicon Valley Index (Data: United States Census Bureau, Population Division)

In 2013, 12.6% of Silicon Valley's population was age 65 or older – up from 11.8% in 2010. Between 2010 and 2013, the population age 65 and older increased by 11.7%, whereas other age groups (17 and under, 18-24, 25-44, and 45-64) increased by less than 5% (+1.3%, +3.5%, +2.8%, and +4.9%, respectively). In comparison, the population age 65 and older grew by 7.8% in San Francisco, 12.0% in California, and 10.4% in the United States as a whole over that same period of time.

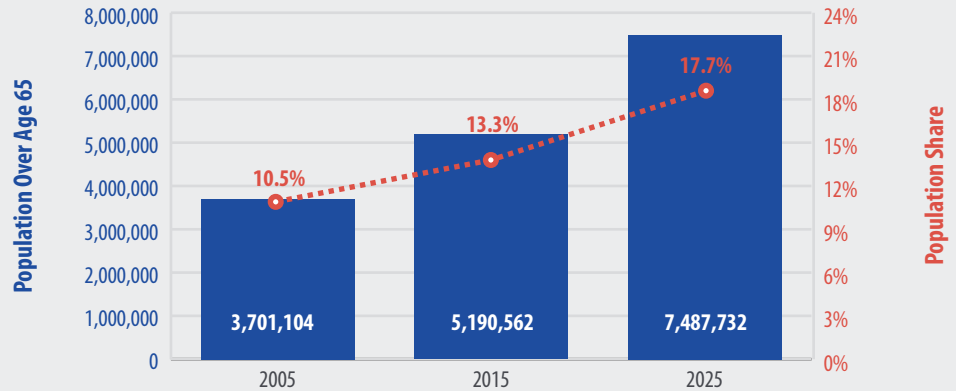
b. Including Santa Clara & San Mateo Counties only

Based on California Department of Finance projections, Silicon Valley’s population over age 65 will continue to grow rapidly, while the population share of children will decline. Between 2015 and 2025, the population of adults over age 65 in San Mateo and Santa Clara Counties is projected to increase by 45.4% (from 365,000 to nearly 531,000) reaching 18.6% of the total population. This compares to increases of 32.0% in San Francisco and 44.3% in California overall (reaching 18.6% and 17.7% of the populations, respectively).

Figure 13: Total Population and Population Share of Adults Over Age 65 in San Mateo and Santa Clara Counties, San Francisco, and California, Estimates and Projections, 2005-2025



(C) California



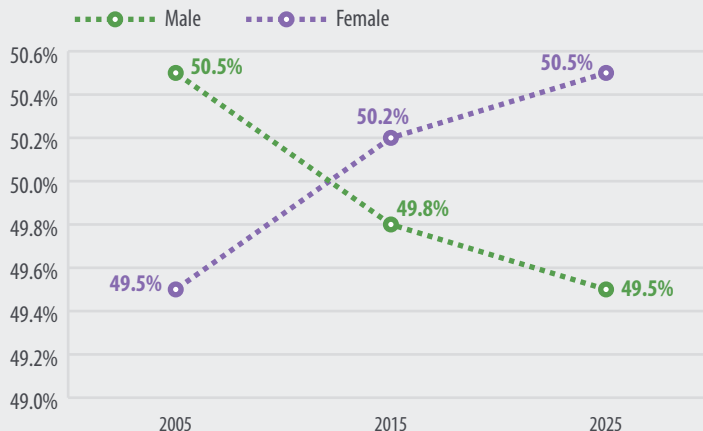
Data Sources: United States Census Bureau, 2003 and 2013 American Community Surveys; California Department of Finance
Analysis: Silicon Valley Institute for Regional Studies

By gender, the number of Silicon Valley men over age 65 is projected to grow by 49.5%, and the number of females by 42.1%. In 2015, 56% of residents over age 65 are women and 44% are men (a female to male ratio of 1.27). Projections for 2025 indicate a slightly smaller share of women (54%) and a slightly larger share of men (46%), amounting to a future ratio of 1.17 women for every one man over age 65 in Silicon Valley.

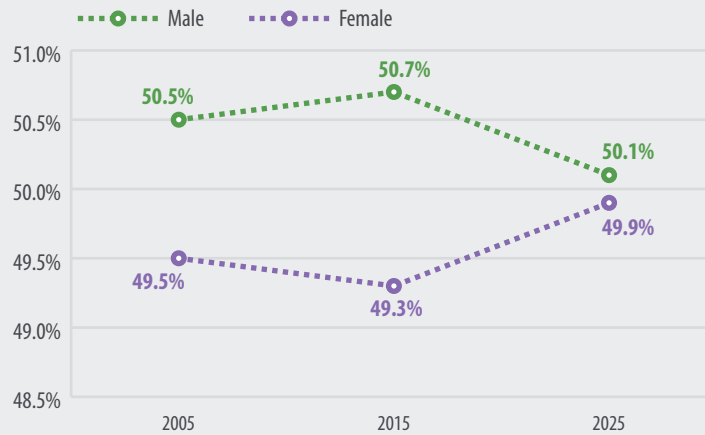
This trend is contrary to that of the Silicon Valley population overall, for which the population share of females is projected to grow, albeit slightly (from 50.22% in 2015 to 50.50% in 2025), and the share of males is projected to decline slightly (from 49.78% to 49.50%). In California overall, the share of males and females are projected to remain constant between 2015 and 2025 at 49.7% and 50.3%, respectively. In San Francisco, however, the share of males is expected to decrease over that time period from 50.67% to 50.11%, and the share of females to increase from 49.33% to 49.89%.

Figure 14: Population Share by Gender in San Mateo and Santa Clara Counties, San Francisco, and California, Estimates and Projections, 2005-2025

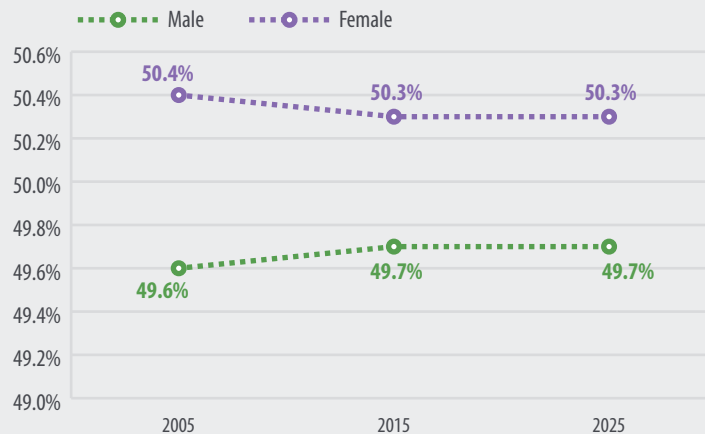
(A) Santa Clara & San Mateo Counties



(B) San Francisco



(C) California



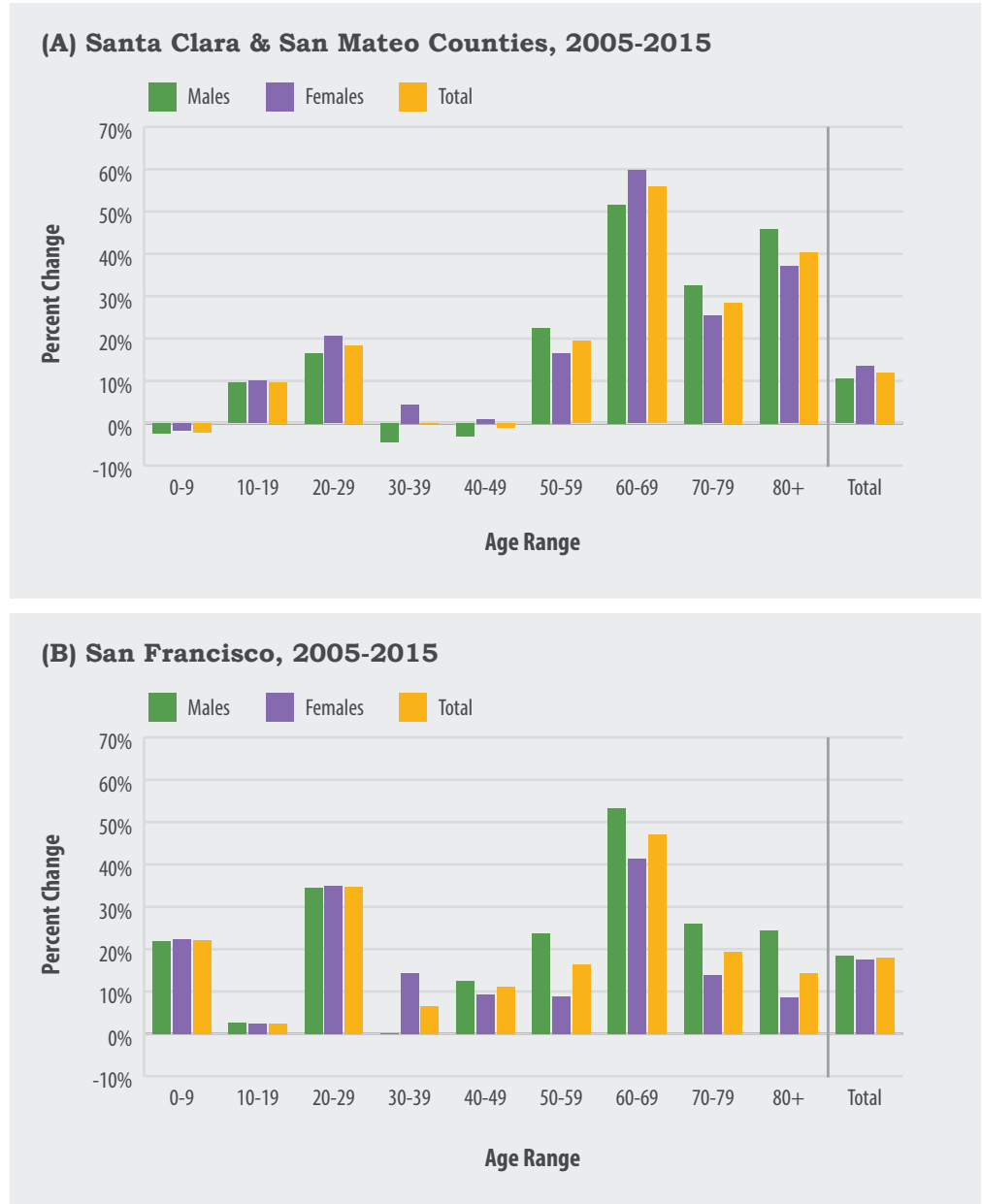
Data Sources: United States Census Bureau, 2003 and 2013 American Community Surveys; California Department of Finance

Analysis: Silicon Valley Institute for Regional Studies

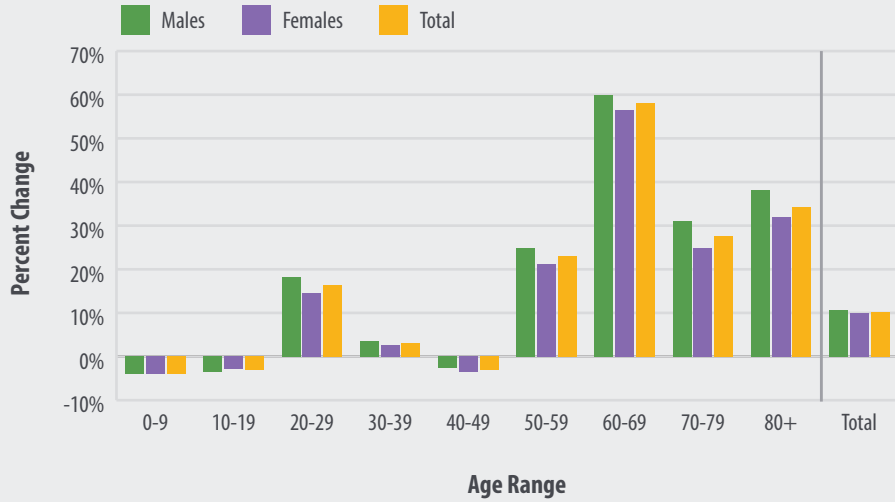
Between 2005 and 2015, the population in Santa Clara and San Mateo Counties grew by 12.0% (including a 10.5% increase in the number of males, and 13.6% increase in females). By percent growth, the age categories that grew most drastically were 20-29 (+18.4%), 50-59 (+19.4%), 60-69 (+55.8%), 70-79 (+28.5%) and 80+ (+40.4%). While the population age 80+ grew significantly by percent change, it only accounted for a small part of the total population growth (adding +27,587 people to that age category out of the total 284,014). Based on number of people, the highest growth age categories between 2005 and 2015 were 20-29 (+49,598), 50-59 (+60,580), and 60-69 (+97,125). Growth in the latter two age categories are consistent with the aging 'Baby Boomers' – the oldest of whom were 59 in 2005 and 69 in 2015.

Silicon Valley and California population growth between 2005 and 2015 were dominated by the age range of 50-69, accounting for more than half of the total growth. In contrast to Silicon Valley and California's population growth trends by age category, San Francisco's growth in the age category 20-29 (+32,493, up 34.7% over 2005) was actually higher than that of the 60-69 category (+30,069, up 47.1% over 2005).

Figure 15: Percent Change in Population by Age Category and Gender in Santa Clara and San Mateo Counties, San Francisco, and California, 2005-2015



(C) California, 2005-2015

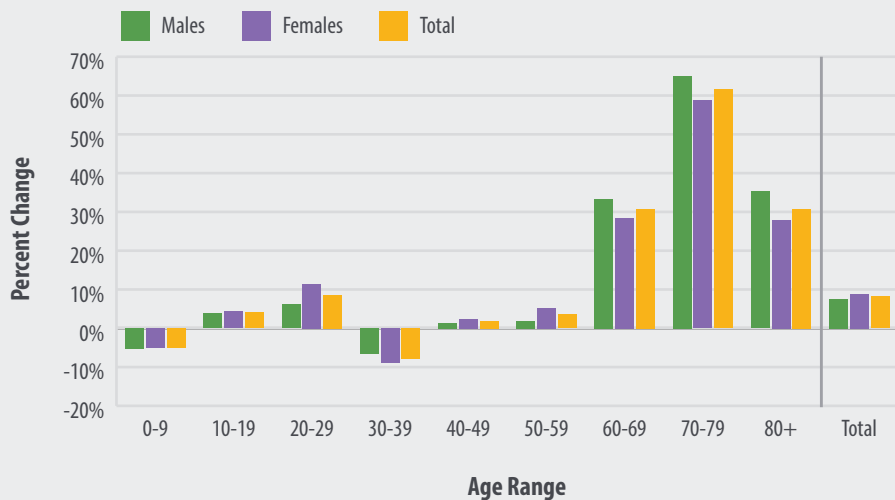


Data Sources: United States Census Bureau, 2005 American Community Survey; California Department of Finance
Analysis: Silicon Valley Institute for Regional Studies

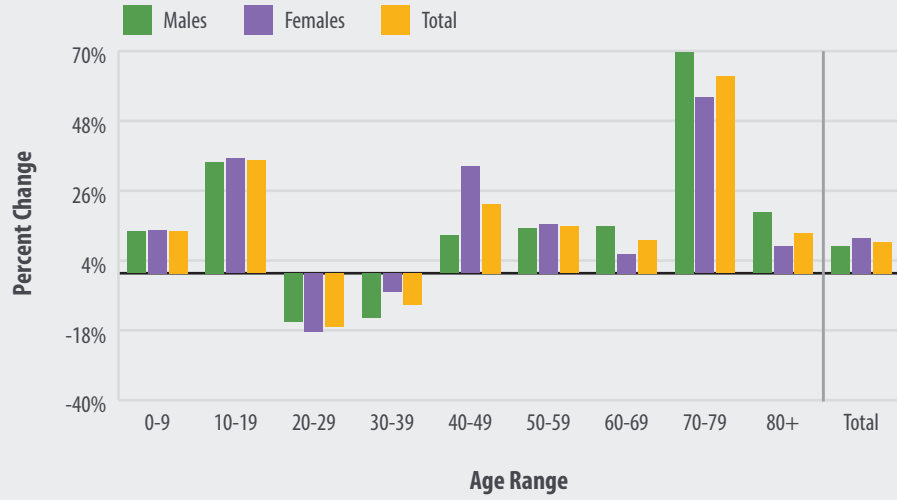
Based on California Department of Finance population projections, Santa Clara and San Mateo Counties can expect an estimated total population growth of 8.2% (+217,539 people) between 2015 and 2025 (54% accounted for by females, and 46% by males). The age category with the most projected growth is 70-79, with an estimated increase of 62% in Silicon Valley, San Francisco, and California as a whole. The population age 65+ in Santa Clara and San Mateo Counties is expected to increase by 45.4%, compared to 44.3% in California and only 32% in San Francisco. Losses in the number of residents ages 0-9 and 30-39 can be expected (-5.1% and -7.8%, respectively, over that time period). In contrast to Silicon Valley, San Francisco’s population and California’s population as a whole under age ten are expected to increase (by 13.3% and 4.0%, respectively, over the next decade).

Figure 16: Projected Percent Change in Population by Age Category and Gender in Santa Clara and San Mateo Counties, San Francisco, and California, 2015-2025

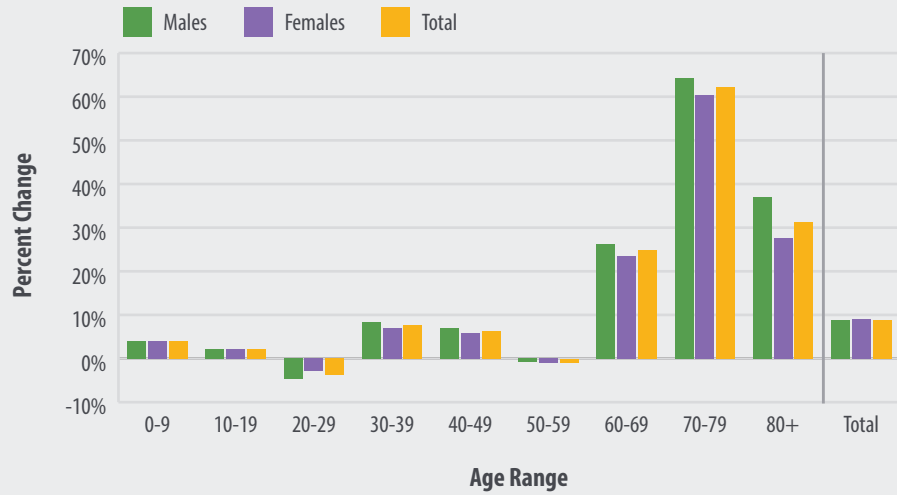
(A) Santa Clara & San Mateo Counties, 2015-2025



(B) San Francisco, 2015-2025



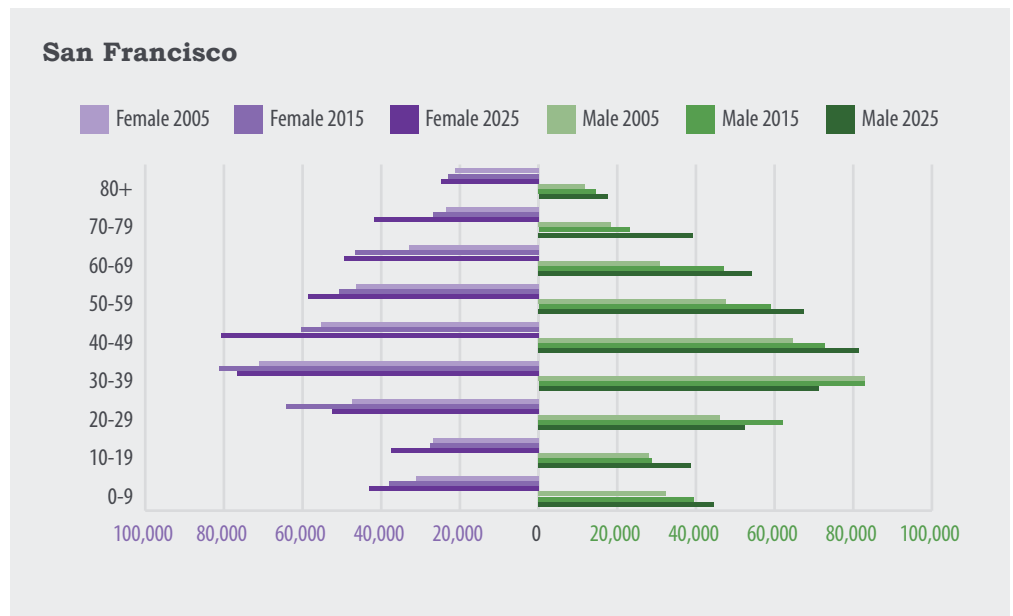
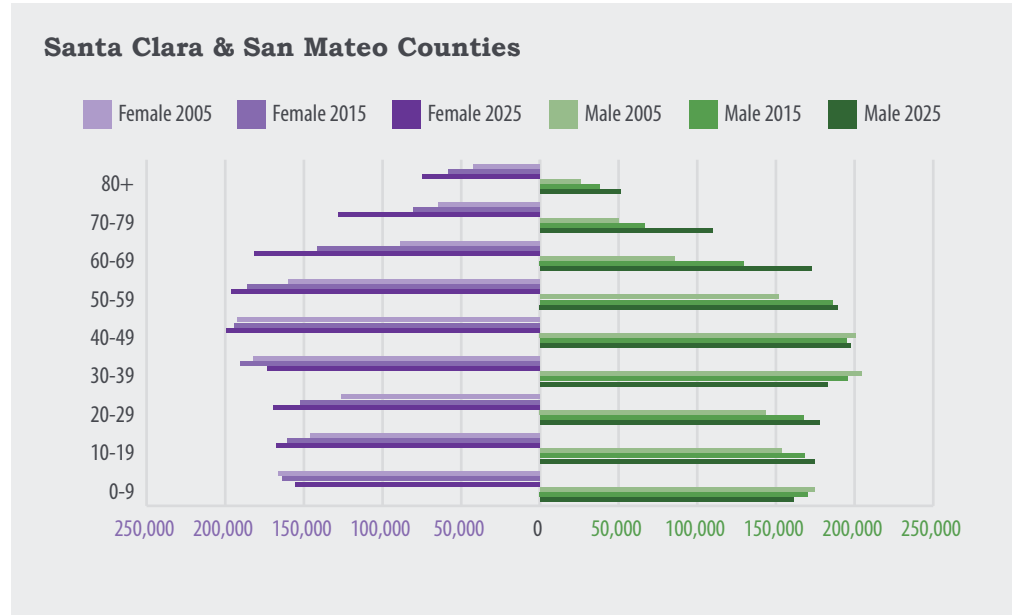
(C) California, 2015-2025



Data Sources: California Department of Finance

Analysis: Silicon Valley Institute for Regional Studies

Figure 17: Total Population Estimates and Projections in Santa Clara & San Mateo Counties, San Francisco, and California, by Age Group, 2005-2025



California

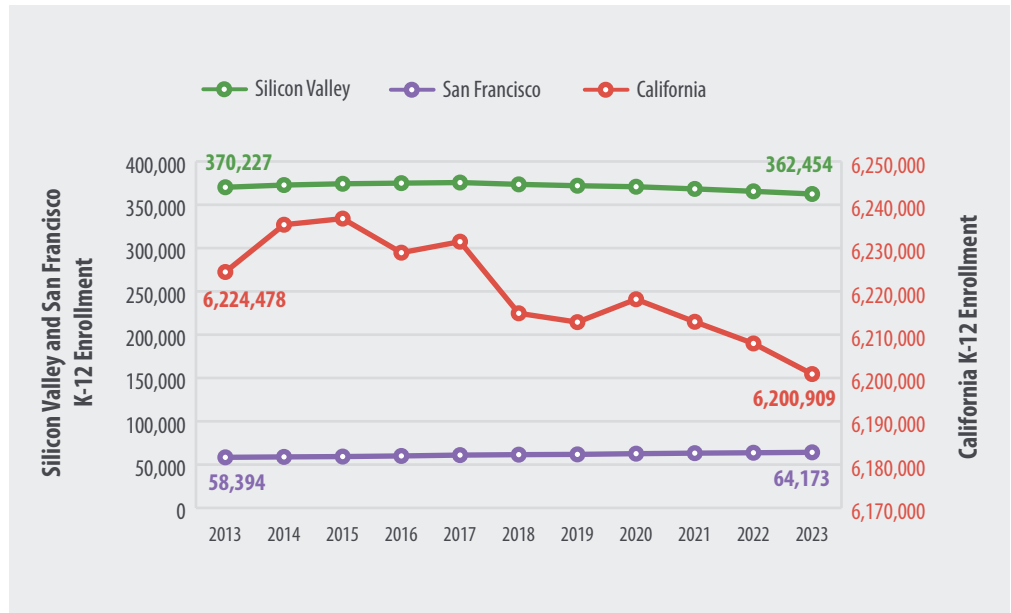
Female 2005 Female 2015 Female 2025 Male 2005 Male 2015 Male 2025



Data Sources: United States Census Bureau, 2005 American Community Survey 1-Year Estimates; California Department of Finance
Analysis: Silicon Valley Institute for Regional Studies

Along with Silicon Valley’s declining population share of children under age 10, the total number of Santa Clara and San Mateo County youth under age 18 is projected to fall by 2.1% between 2015 and 2025 (2.3% fewer males in that age category and 1.9% fewer females). Accordingly, K-12 enrollment in the region is expected to decline. According to California Department of Finance projections through 2023, K-12 enrollment in Santa Clara and San Mateo Counties will decline by 3.2% between 2015 and 2023 (compared to -1.9% in the Bay Area as a whole, -0.6% in California overall, and an increase of 8.3% in San Francisco). Projections for this eight-year period include an increase in Silicon Valley’s K-12 enrollment rates through 2017, followed by a six year decline.

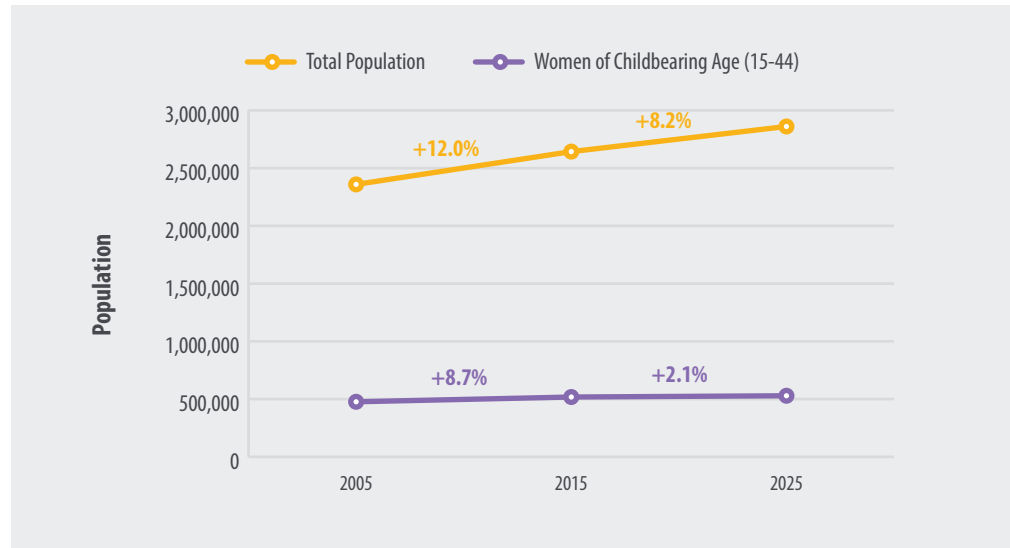
Figure 18: 2013 Estimated and 2014-2023 Projected K-12 Enrollment in Santa Clara & San Mateo Counties, San Francisco, and California



Data Source: California Department of Finance
Analysis: Silicon Valley Institute for Regional Studies

The changing population of women of childbearing age is one factor in determining the number of Silicon Valley children. Between 2005 and 2015, the population share of women of childbearing age (15-44) in Santa Clara and San Mateo Counties grew more slowly than the general population at a rate of 8.7% over that five year period (compared to +12.0% for the population as a whole). This trend is expected to continue over the next decade, with a projected 2.1% growth rate in the number of women of childbearing age compared to an 8.2% growth rate overall. In total over the 20-year period between 2005 and 2025, the population is expected to increase by 20.3% whereas the population of women of childbearing age is only expected to increase by 10.8%.

Figure 19: Total Population and Population of Women of Childbearing Age (15-44) in Santa Clara & San Mateo Counties, with Percent Growth, 2005-2025



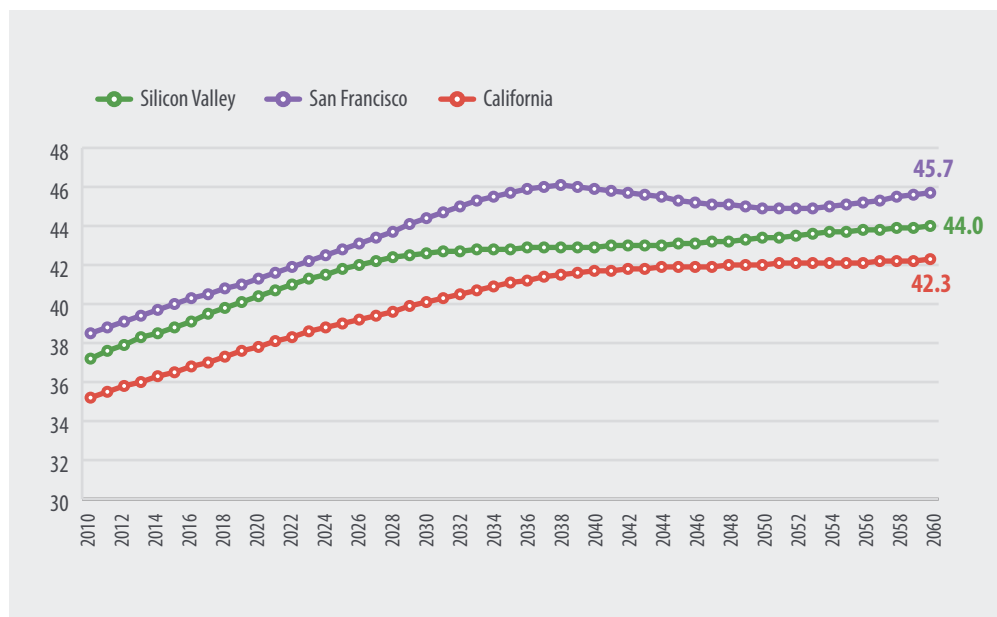
Data Sources: United States Census Bureau, 2005 American Community Survey 1-Year Estimates; California Department of Finance
Analysis: Silicon Valley Institute for Regional Studies

Median Age

The median age of Silicon Valley's population in 2010 was 37.2 years, and is estimated as 38.8 in 2015 (39.9 for females, and 37.8 for males). This compares to 40 year in San Francisco and 36.5 years in California.

Based on the California Department of Finance projections, Silicon Valley's median age is expected to increase rapidly until around 2028, when the rate of increase will begin to slow down. By 2060, the median age in Silicon Valley is projected to be 44 years old. This compares to 45.7 years in San Francisco, and 42.3 years in California overall.

Figure 20: Median Age in Santa Clara & San Mateo Counties, San Francisco, and California, 2010-2060

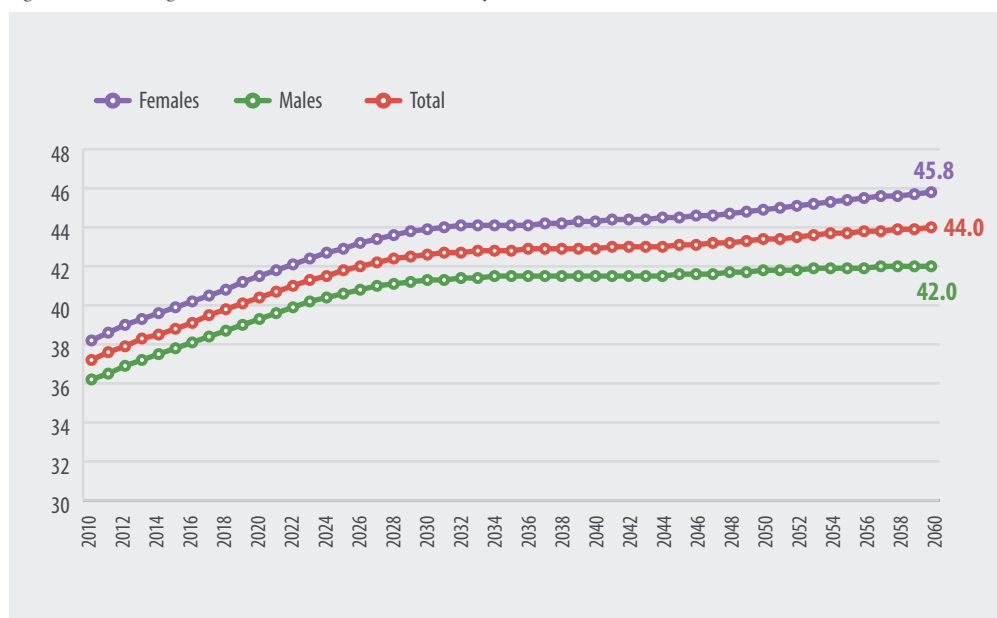


Data Source: California Department of Finance
Analysis: Silicon Valley Institute for Regional Studies

The median age for females in Silicon Valley (39.9 years) is higher than for males (37.8 years), with a 2.1 year difference in 2015 with a projected increase to a difference of 3.8 years by 2060. In contrast, the median ages of males and females in San Francisco are very similar (estimated at 40.2 and 39.8 years, respectively, in 2015), but begin to diverge around 2036. By 2060, the median age of San Francisco’s female residents is estimated to be 3.1 years older than the median age of its male residents.

Silicon Valley’s 2.1 year difference between the median age of females and males in 2015 is similar to that of California overall, with the median age of females 2.3 years higher than that of males.

Figure 21: Median Age in Santa Clara & San Mateo Counties, by Gender, 2010-2060



Data Source: California Department of Finance
Analysis: Silicon Valley Institute for Regional Studies

APPENDIX

Additional Notes for Figures/Tables:

Figures 1-3 Data are from the California Department of Finance E-4 Population Estimates for Cities, Counties and State, 2001-2015 with 2000 & 2010 Census Counts. Estimates for 2015 are provisional. Silicon Valley data include the city-defined region.

Figure 4 Data is from the California Department of Finance 1850-2010 Historical U.S. Census Populations of Counties and Incorporated Cities/Towns in California. Silicon Valley data includes the city-defined region. Census 2000 counts include changes from the Count Question Resolution program, so data may not match data published in Census 2000 reports. The state total for 1890 includes the population of Indian reservations (5,268) specially enumerated in 1890, not distributed by counties. Silicon Valley and San Francisco population estimates for 1850 are not available.

Figures 5 and 6 Data are from the California Department of Finance E-2: California County Population Estimates and Components of Change July 1, 1990-2000, E-2: California County Population Estimates and Components of Change by Year - July 1, 2000-2010, E-6: Population Estimates and Components of Change by County - July 1, 2010-2013 and July 1, 2010-2012, and are for San Mateo and Santa Clara Counties. The July 1, 2010-2013 population estimates include revised July 2011 and July 2012 estimates. Estimates for 2014 are provisional. Data for the years 2000-2010 are based on revised estimates released in December 2011. Net migration includes all legal and unauthorized foreign immigrants, residents who left the state to live abroad, and the balance of people moving to and from Santa Clara and San Mateo Counties from within the United States.

Figure 7 Data are from the California Department of Finance E-2: California County Population Estimates and Components of Change July 1, 1990-2000, E-2: California County Population Estimates and Components of Change by Year - July 1, 2000-2010, E-6: Population Estimates and Components of Change by County - July 1, 2010-2013 and July 1, 2010-2012, and are for San Mateo and Santa Clara Counties. The July 1, 2010-2013 population estimates include revised July 2011 and July 2012 estimates. Estimates for 2014 are provisional. Data for the years 2000-2010 are based on revised estimates released in December 2011. Net migration includes all legal and unauthorized foreign immigrants, residents who left the state to live abroad, and the balance of people moving to and from Santa Clara and San Mateo Counties from within the United States.

Figures 8 and 9 Data are from the California Department of Finance E-2: California County Population Estimates and Components of Change July 1, 1990-2000, E-2: California County Population Estimates and Components of Change by Year - July 1, 2000-2010, E-6: Population Estimates and Components of Change by County - July 1, 2010-2013 and July 1, 2010-2012, and are for San Mateo and Santa Clara Counties. The July 1, 2010-2013 population estimates include revised July 2011 and July 2012 estimates. Estimates for 2014 are provisional. Data for the years 2000-2010 are based on revised estimates released in December 2011. Birth Rates are calculated as the total number of births per 1,000 people.

Figures 10 and 11 Data are from the California Department of Finance E-2: California County Population Estimates and Components of Change July 1, 1990-2000, E-2: California County Population Estimates and Components of Change by Year - July 1, 2000-2010, E-6: Population Estimates and Components of Change by County - July 1, 2010-2013 and July 1, 2010-2012, and are for San Mateo and Santa Clara Counties. The July 1, 2010-2013 population estimates include revised July 2011 and July 2012 estimates. Estimates for 2014 are provisional. Data for the years 2000-2010 are based on revised estimates released in December 2011. Death Rates are calculated as the total number of deaths per 1,000 people.

Figure 12 Silicon Valley data includes Santa Clara and San Mateo Counties. Data are from the United States Census Bureau, Population Division, Annual Estimates of the Resident Population for Selected

Age Groups by Sex for the United States, States, Counties, and Puerto Rico Commonwealth and Municipios: April 1, 2010 to July 1, 2013.

Figures 13 and 14 Data for Silicon Valley includes Santa Clara and San Mateo Counties. Population estimates for 2005 are from the United States Census Bureau, American Community Survey 1-Year Estimates. Projections for 2015 and 2025 are from the California Department of Finance, Demographic Research Unit P3: State and County Female Population Projections by Race/Ethnicity and Detailed Age, 2010 through 2060 (as of July 1), released December 2014.

Figure 15 Population estimates for 2005 are from the United States Census Bureau, American Community Survey 1-Year Estimates. Projections for 2015 are from the California Department of Finance, Demographic Research Unit P3: State and County Female Population Projections by Race/Ethnicity and Detailed Age, 2010 through 2060 (as of July 1), released December 2014. Silicon Valley data include San Mateo and Santa Clara Counties.

Figure 16 Projections for 2015 and 2025 are from the California Department of Finance, Demographic Research Unit P3: State and County Female Population Projections by Race/Ethnicity and Detailed Age, 2010 through 2060 (as of July 1), released December 2014. Silicon Valley data include San Mateo and Santa Clara Counties.

Figure 17 Data for Silicon Valley includes Santa Clara and San Mateo Counties. Population estimates for 2005 are from the United States Census Bureau, American Community Survey 1-Year Estimates. Projections for 2015 and 2025 are from the California Department of Finance, Demographic Research Unit P3: State and County Female Population Projections by Race/Ethnicity and Detailed Age, 2010 through 2060 (as of July 1), released December 2014.

Figure 18 Data is from the California Department of Finance, California Public K–12 Graded Enrollment and High School Graduate Projections by County — 2014 Series (released December 2014), and includes estimates for 2013 and projections for 2014–2023. Silicon Valley data includes San Mateo and Santa Clara Counties. Bay Area data includes the entire 9-County Bay Area. Years listed are the start of the school year (e.g., 2013 indicates the 2013–2014 school year). Data excludes California Education Authority and special schools, and ungraded enrollment.

Figure 19 Data for Silicon Valley includes Santa Clara and San Mateo Counties. Population estimates for 2005 are from the United States Census Bureau, American Community Survey 1-Year Estimates. Projections for 2015 and 2025 are from the California Department of Finance, Demographic Research Unit P3: State and County Female Population Projections by Race/Ethnicity and Detailed Age, 2010 through 2060 (as of July 1), released December 2014.

Figures 20 and 21 Data for Silicon Valley includes Santa Clara and San Mateo Counties. Median Age data and projections are from the California Department of Finance P-3: State and County Population Projections - Median Age by Race/Ethnicity and Gender, 2010–2060.

Tables 1 and 2 Data are from the California Department of Finance E-1: City/County Population Estimates with Annual Percent Change. Estimates for 2015 are provisional.

Tables 3 and 4 Data is from the U.S. Department of Health and Human Services, Centers for Disease Control and Prevention, National Vital Statistics System. Silicon Valley data includes Santa Clara & San Mateo Counties. Rest of the Bay Area includes the entire 9-county Bay Area excluding San Francisco, San Mateo and Santa Clara Counties. The median age calculation excludes births by mothers ages 50–54 and mothers ages 10–12. The California data for mothers ages 17 and 18 was unavailable for 2013. 2013 data were unavailable for Santa Clara County mothers ages 13, 14, and 48, San Mateo County mothers ages 13, 14, 15, 47, 48 and 49, and San Francisco mothers ages 47, 48 and 49. 2008 data were unavailable for San Mateo County, San Francisco, Contra Costa County, Marin County, and Solano County

mothers age 13, and Napa County mothers age 14. Some data were also missing for several Rest of Bay Area counties in the low (13-18) and high (43+) age ranges in 2013, and in the range of 46-49 in 2008.

Table 5 Data are from the Centers for Disease Control and Prevention, National Center for Health Statistics. Underlying Cause of Death 1999-2013 on CDC WONDER Online Database, released 2015. Data are from the Multiple Cause of Death Files, 1999-2013, as compiled from data provided by the 57 vital statistics jurisdictions through the Vital Statistics Cooperative Program. Accessed on April 15, 2015.

Table 6 Silicon Valley data includes Santa Clara and San Mateo Counties. Data are from the United States Census Bureau, Population Division, Annual Estimates of the Resident Population for Selected Age Groups by Sex for the United States, States, Counties, and Puerto Rico Commonwealth and Municipios: April 1, 2010 to July 1, 2013.

ENDNOTES

1. Joint Venture Silicon Valley, 2015 *Silicon Valley Index* (www.siliconvalleyindicators.org)
2. Based on the July 1, 2014 estimate of the United States population from the United States Census Bureau Population Estimates Program (PEP) of 318,857,056
3. Based on estimates from the California Department of Finance E-1: City/County Population Estimates with Annual Percent Change for January 1, 2014
4. Joint Venture Silicon Valley, 2015 *Silicon Valley Index* (www.siliconvalleyindicators.org)
5. Using population estimates from the United States Census Bureau, Annual Estimates of the Resident Population for Incorporated Places of 50,000 or More, Ranked by July 1, 2013 Population: April 1, 2010 to July 1, 2013 - United States -- Places of 50,000+ Population, which includes population estimates for New York City (8,405,837) and Los Angeles (3,884,307)
6. According to the July 1, 2014 population estimates for Mississippi (2,994,079) and Iowa (3,107,126) from the United States Census Bureau Population Estimates Program (PEP)
7. Based on the United States Census Bureau California population estimates for 1910 (2,377,549) and 1920 (3,426,861), via the University of Virginia Historical Census Browser
8. Based on the population estimate for all Silicon Valley cities in 1960 (1,146,994) and 1970 (1,769,041) from the California Department of Finance 1850-2010 Historical U.S. Census Populations of Counties and Incorporated Cities/Towns in California, revised March 25, 2013
9. Based on the July 1, 2013 estimate of Manhattan's population (1,626,159) and the July 1, 2014 estimate of Delaware's population (935,614) from the United States Census Bureau Population Estimates Program (PEP)
10. Based on the 2014 regional GDP per capita in Santa Clara and San Mateo Counties of \$82,895 using data from Moody's Economy.com, assuming a direct linear correlation
11. At the 2013 average household size of 2.91 for Santa Clara and San Mateo Counties from the United States Census Bureau, American Community Survey 1-Year Estimates, using a weighted average based on number of households, a population of 3 million would amount to 1,027,211 households

12. Based on the FY 2013-14 average gross water consumption per capita for Silicon Valley of 135.345 gallons per person per day, from the 2015 *Silicon Valley Index* (www.siliconvalleyindicators.org)
13. Based on the CalRecycle statewide disposal estimate for 2013 of 4.4 pounds per resident per day
14. According to the United States Environmental Protection Agency (EPA) Water Trivia Facts (http://water.epa.gov/learn/kids/drinkingwater/water_trivia_facts.cfm)
15. Based on the weight of an average African elephant of 12,000 pounds from the World Wildlife Foundation
16. Approximated based on the share of 2013 San Mateo and Santa Clara County residents (34.5%) who commuted to work in their own cars from the United States Census Bureau American Community Survey, 5-Year Estimates
17. Based on the Vehicle Miles Traveled (VMT) per capita for 2013 (24.6 miles per person per day) reported in the 2015 *Silicon Valley Index*
18. Using the Earth circumference of 24,873.6 miles (NASA Solar System Exploration)
19. Silicon Valley jurisdictions as a whole, and the Bay Area overall, did not meet the state-mandated Regional Housing Need Allocation (RHNA) between 2007 and 2014 for affordable housing units or the total number of housing units.
20. Based on average monthly median sale prices by Silicon Valley city from Zillow Real Estate Research for 2014 compared to 2013
21. Joint Venture Silicon Valley, 2015 *Silicon Valley Index* (www.siliconvalleyindicators.org) using data from Real Facts
22. Based on California Department of Finance July 2014 population estimates and July 2013 to July 2014 growth rates for San Mateo and Santa Clara Counties, January 2014 population estimates and January 2013 to January 2014 growth rates for Fremont, Union City, Newark and Scotts Valley, using July 2013 to July 2014 net migration for San Mateo and Santa Clara Counties
23. Based on the January 2015 population estimate from the California Department of Finance and the 2014–2015 growth rate
24. Based on January 2015 and January 2014 population estimates (320,090,632 and 317,756,435, respectively) for the United States as a whole, from the United States Census Bureau, Monthly Population Estimates for the United States: April 1, 2010 to December 1, 2015
25. Components of population change data is only available on the county-level, and so births, deaths, and migration data presented in this research brief for Silicon Valley include Santa Clara and San Mateo Counties only.
26. A measure of the incidence of births among women of childbearing age, fertility rates are calculated as the total number of births divided by the number of women ages 15 to 44
27. Data used to calculate 2008 and 2013 fertility rates were from the California Department of Finance (births) and United States Census Bureau, American Community Survey 1-Year Estimates (women ages 15-44)

This research brief was prepared by Rachel Massaro, Vice President and Senior Research Associate at the Silicon Valley Institute for Regional Studies. Jill Jennings created the report's layout and design; Duffy Jennings served as copy editor.

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