Silicon Valley Index

2022

People
Economy
Society
Place
Governance

JOINT VENTURE
SILICON VALLEY

INSTITUTE for
REGIONAL STUDIES

ABOUT THE 2022 SILICON VALLEY INDEX

Dear Friends:

As the pandemic stretches on, Silicon Valley files a report card showcasing our fabled dynamism while at the same time exposing a whopping set of fallibilities.

The dynamism is by now the stuff of legend, and the virus only amplified it. That's because our tech companies provide the platforms, communications tools, networks, devices, and the architecture that are essential to 21st century life in a pandemic. Delivering all of that to a hungry marketplace drove employment growth and fueled the sector to an eye-popping $14 trillion market cap.

Meanwhile venture capital hit new milestones, start-up activity was happily frenzied, and there were more IPOs (32) than any other year this century. Private companies valued above $1 billion became so commonplace that it's fair to say the term used to describe them ("unicorns") is no longer apt.

It's fairly staggering, and it's a thing to celebrate. Any other region surely would.

And yet people living in Silicon Valley feel tenuous, if not despairing. A host of factors are in play but the most damning are the region's health and wealth disparities, which are persistently stratified by race and ethnicity. The pandemic has amplified this too, laying bare the injustices of our society.

In this report you will learn that our Hispanic residents — who are more likely to have jobs that can't be done remotely and may not offer sick leave — are two and a half times more likely as White non-Hispanic residents to be hospitalized with COVID-19. They are three times as likely to die from it. You will also see that pandemic-related job losses fell disproportionately by race and ethnicity, and that the poverty rates for African Americans are double that of Asian or White residents.

Education has long been held up as the best hope for equalizing our Valley. Astonishingly, this year's Index shows Hispanic or Latino workers make an average wage that is 64 percent less than similarly-educated White residents; for our Black or African American workers, it is 50 percent less.

Is tech a pathway to equity? Certainly not yet. White (non-Hispanic or Latino) workers make up 30 percent of the total civilian workforce, but in tech they account for 60 percent of the leadership roles and more than 40 percent of the technical roles. Hispanic or Latino workers account for 24 percent of the total workforce, but they represent only eight percent of employees at Silicon Valley's 20 largest tech companies.

It's sobering to realize we live in a society where the top 25 percent of earners hold 92 percent of the wealth. If Silicon Valley were a country, the experts would rate it dangerously unstable.

As we emerge from the pandemic we have a jarring set of contradictions to be grappling with. Having the data in hand will be crucial to the choices ahead. We're pleased to provide it.

Russell Hancock

President & Chief Executive Officer
Joint Venture Silicon Valley
Institute for Regional Studies

WHAT IS THE INDEX?

The Silicon Valley Index has been telling the Silicon Valley story since 1995. Released early every year, the Index is a comprehensive report based on indicators that measure the strength of our economy and the health of our community — highlighting challenges and providing an analytical foundation for leadership and decision-making.

WHAT IS AN INDICATOR?

An Indicator is a quantitative measure of relevance to Silicon Valley's economy and community health that can be examined either over a period of time, or at a given point in time.

Good Indicators are bellwethers that reflect the fundamentals of long-term regional health, and represent the interests of the community. They are measurable, attainable, and outcome-oriented.

Appendix A provides detail on data sources and methodologies for each indicator.

THE SILICON VALLEY INDEX ONLINE

Data and charts from the Silicon Valley Index are available on a dynamic and interactive website that allows users to further explore the Silicon Valley story.

For all this and more, please visit the Silicon Valley Indicators website at www.siliconvalleyindicators.org.

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PROFILE OF SILICON VALLEY

Area:
1,854 SQUARE MILES

Population:
3.07 MILLION

Jobs:
1,630,346

Average Annual Earnings:
$169,894

Net Foreign Immigration:
+2,997

Net Domestic Migration:
−37,445

SILICON VALLEY IS DEFINED AS THE FOLLOWING CITIES:

SANTA CLARA COUNTY (ALL)
Campbell, Cupertino, Gilroy, Los Altos, Los Altos Hills, Los Gatos, Milpitas, Monte Sereno, Morgan Hill, Mountain View, Palo Alto, San Jose, Santa Clara, Saratoga, Sunnyvale
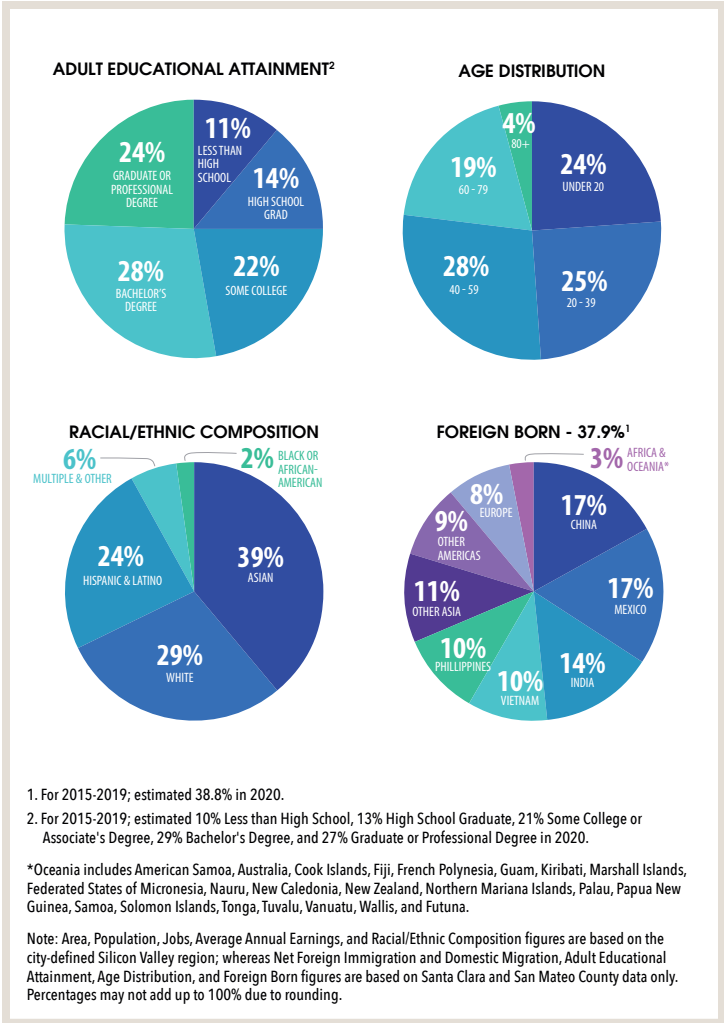
SAN MATEO COUNTY (ALL)
Atherton, Belmont, Brisbane, Burlingame, Colma, Daly City, East Palo Alto, Foster City, Half Moon Bay, Hillsborough, Menlo Park, Millbrae, Pacifica, Portola Valley, Redwood City, San Bruno, San Carlos, San Mateo, South San Francisco, Woodside

ALAMEDA COUNTY
Fremont, Newark, Union City

SANTA CRUZ COUNTY
Scotts Valley

ADULT EDUCATIONAL ATTAINMENT[2]

- 11% LESS THAN HIGH SCHOOL
- 14% HIGH SCHOOL GRAD
- 22% SOME COLLEGE
- 28% BACHELOR'S DEGREE
- 24% GRADUATE OR PROFESSIONAL DEGREE

AGE DISTRIBUTION

- 24% UNDER 20
- 25% 20 - 39
- 28% 40 - 59
- 19% 60 - 79
- 4% 80+

RACIAL/ETHNIC COMPOSITION

- 2% BLACK OR AFRICAN-AMERICAN
- 39% ASIAN
- 29% WHITE
- 24% HISPANIC & LATINO
- 6% MULTIPLE & OTHER

FOREIGN BORN - 37.9%[1]

- 3% AFRICA & OCEANIA*
- 17% CHINA
- 17% MEXICO
- 14% INDIA
- 10% VIETNAM
- 10% PHILLIPINES
- 11% OTHER ASIA
- 9% OTHER AMERICAS
- 8% EUROPE

1. For 2015-2019; estimated 38.8% in 2020.
2. For 2015-2019; estimated 10% Less than High School, 13% High School Graduate, 21% Some College or Associate's Degree, 29% Bachelor's Degree, and 27% Graduate or Professional Degree in 2020.

*Oceania includes American Samoa, Australia, Cook Islands, Fiji, French Polynesia, Guam, Kiribati, Marshall Islands, Federated States of Micronesia, Nauru, New Caledonia, New Zealand, Northern Mariana Islands, Palau, Papua New Guinea, Samoa, Solomon Islands, Tonga, Tuvalu, Vanuatu, Wallis, and Futuna.

Note: Area, Population, Jobs, Average Annual Earnings, and Racial/Ethnic Composition figures are based on the city-defined Silicon Valley region; whereas Net Foreign Immigration and Domestic Migration, Adult Educational Attainment, Age Distribution, and Foreign Born figures are based on Santa Clara and San Mateo County data only. Percentages may not add up to 100% due to rounding.

FEATURES

Equity Lens icon - Indicates a breakdown by race and/or ethnicity.

Web icon - Indicates more data is available online.

Reference Year icon - Prior year(s) used due to pandemic data issues.

Red Shading - Highlights pandemic-period data and narrative.

Mini Chart - Presents data in a simplified format.

WHERE IS SILICON VALLEY?

The geographical boundaries of Silicon Valley vary. Earlier, the region's core was identified as Santa Clara County plus adjacent parts of San Mateo, Alameda and Santa Cruz counties. However, since 2009, the Silicon Valley Index has included all of San Mateo County in order to reflect the geographic expansion of the region's driving industries and employment. Because San Francisco has emerged in recent years as a vibrant contributor to the tech economy, we have included some San Francisco data in various charts throughout the Index.

The Region's Share of California's Economic Drivers

	SILICON VALLEY	SAN FRANCISCO
JOBS	9.6%	4.0%
GDP*	12.8%	5.7%
ANGEL INVESTMENT	16.7%	26.1%
M&A ACTIVITY	17.8%	18.9%
IPOs	32.7%	17.3%
VENTURE CAPITAL	33.5%	38.6%
PATENT REGISTRATIONS	43.8%	8.3%

LAND AREA	1.19%	0.03%
POPULATION	7.8%	2.2%

2022 Index Highlights

Employment is back to pre-pandemic levels, though more concentrated in tech.

Silicon Valley gained back most of the jobs lost early on in the pandemic by mid-2021, and the rest in the second half of the year. The recovery is uneven, however, due to rapid growth in the tech sector; for the first time in decades the proportion of lower-skill and lower-wage jobs nudged downward. Most of the tech jobs are concentrated in a handful of companies, with 13 percent at Google and Apple alone.

Silicon Valley's innovation engine is red hot.

Despite pandemic-related restrictions, the region's technology companies broke records, with the aggregate market cap of Silicon Valley and San Francisco's public companies reaching $14 trillion (doubling the market low of February 2020). Venture capital reached an all-time high at $95 billion in 2021, fueled by a record 257 mega-deals. These deals brought the region's count of unicorn and decacorn companies to 230, more than any point in history. There were more IPOs (32) than any year in this century, and companies took advantage of other means to go public including direct listings and special-purpose acquisition company (SPAC) mergers, with the latter driving more M&A activity than in a decade.

Commercial development continues at a break-neck pace.

The major tech companies such as Meta, Google, NetApp, and Apple have continued to build new space and execute leases for growth and expansion in the region, and Silicon Valley has seen an unprecedented amount of new commercial development gaining planning approvals (21.5 million square feet of new space across 135 sites). Much of the growth is planned for San Jose (62 percent), with large developments in the pipeline in Santa Clara and Sunnyvale as well.

Yet the region's population is declining.

Silicon Valley is back to the size it was in 2015. This is partially due to declining birth and increasing mortality rates, and low levels of foreign immigration including refugee arrivals; it is also because the number of residents moving to other parts of California and the U.S. accelerated during the pandemic (increasing nearly sevenfold in 2020, then doubling again in 2021). One third of the departures were for neighboring counties and the outer reaches of the Bay Area, and another 23 percent left for other Northern California destinations. Given the growth in regional employment levels and persistence of remote work, it is likely that many of these *out-migrants* maintain ties to their Silicon Valley employers.

Incomes are growing despite inflation, but intensifying extreme levels of inequality. Families are struggling, especially single mothers.

Median household income had a modest two percent gain after adjusting for inflation in 2020. Other income indicators (per capita earnings, average earnings) show strong percentage growth through 2021 but averages don't convey how small the absolute dollar increases were for Silicon Valley's lower wage earners. Income inequality in the region has grown twice as quickly as the state and nation, and the inequality is stratified by race (even at comparable levels of educational attainment). The wealth divide is even more stark, with the wealthiest 25 percent of households holding 92 percent of the wealth. While growth in regional wealth is bringing prosperity in some ways (such as the number of new Angel investors and increasing net assets of local foundations), an estimated quarter of all households have less than $5,000 saved (or are in debt). The lowest rates of self-sufficiency among Silicon Valley households are for those with children (41%), single mothers (73%), Latina single mothers (87%), and those not fluent in English (90%).

Home sale prices continue to soar, while average rents edge downward; homelessness mounts.

The median sale price of a home in Silicon Valley reached a record $1.3 million in 2021; 69 percent of homes sold were above $1 million (up from 59 percent in 2019). The region is not adding appreciably to its housing stock, permitting a mere 5,800 new units, though growth in new accessory dwelling units saw an 87 percent increase in just one year.

Average rents declined eight percent in 2020 and another 10 percent in 2021. However, the share of renters severely "burdened" by housing costs (paying more than 50 percent of their income on rent) varies widely by industry — 27 percent of service workers are severely burdened, compared to 4 percent of tech workers. The share who are burdened is also much higher for retirement-age renters.

Despite intense mobilization by public agencies, nonprofits, and philanthropists, Santa Clara County tops the list of nearly 400 U.S. regions for the total number of unsheltered homeless, as well as the unsheltered share of unaccompanied youth.

School kids are getting back on track.

High school dropout rates rose precipitously when the pandemic set in, but 2020-2021 data shows improvement as schools returned to in-person learning. High school graduation rates increased by four points, and the dropout rate fell from 11.2 to 6.8 percent. The share of graduates meeting the UC/CSU requirements has risen steadily for the past decade, even through the pandemic.

There is less traffic on the roads, but transit is hurting.

Nearly half of all households had at least one member working from home at the end of 2020, a drastic shift which had an equally dramatic impact on roadway congestion (51 percent less delay). However, 2021 per capita transit ridership is 65 percent less than pre-pandemic levels, causing VTA, Caltrain, BART, and others to report debilitating revenue losses. A fourth-quarter shift in commercial real estate demand last year, however, indicated a reversal of pandemic-related office space vacancies near transit, which may be a positive sign for ridership in the near-term.

Viewed through an equity lens, Silicon Valley has miles to go.

Unemployment insurance claims filed during the pandemic show job losses disproportionately affecting Black or African American and Hispanic or Latino residents. Disparities in educational attainment persist across the Valley's racial and ethnic groups, as well as income at similar levels of education. More than six out of ten Hispanic or Latino households lived below the Self-Sufficiency Standard in 2021, and the poverty rate for Black or African American residents (12 percent) was more than double that of Asian or White (not Hispanic) residents. Rates of anxiety and depression when the pandemic set in were particularly high (49 percent) for local adults who are Black, Hispanic or Latino.

White workers account for 60 percent of the leadership roles in the tech sector and 40 percent of the technical roles at Silicon Valley's 20 largest tech companies; Asian workers represent 46 percent of technical roles and 32 percent. By contrast, Hispanic workers represent only eight percent of the workforce at these same companies (but are nearly 24 percent of the Valley's total workforce).

Snapshot of Key COVID-19 Indicators & Impacts

The COVID-19 pandemic has affected every segment of Silicon Valley's economic and community health. From the health impacts themselves, to its effect on employment, IPOs, childcare, hunger, housing, and so much more, the pandemic and associated policy actions (aimed at limiting virus transmission) have rippled through every part of our day-to-day lives and, in many cases, will have long-term implications.

While nearly all of the indicators in the Index have been influenced by the pandemic, in one way or another, this section provides a snapshot of some of the key indicators showing direct health impacts as well as those influencing the health of the region as a whole.

Throughout the report, the pandemic period is noted using red shading on charts and tables. For datasets that do not include information after March 2020, we have included additional data or reference information in the narrative relating it to the pandemic (where possible).

Visit the Silicon Valley COVID-19 Data Dashboard for up-to-date metrics: https://siliconvalleyindicators.org/live-updates/covid-data
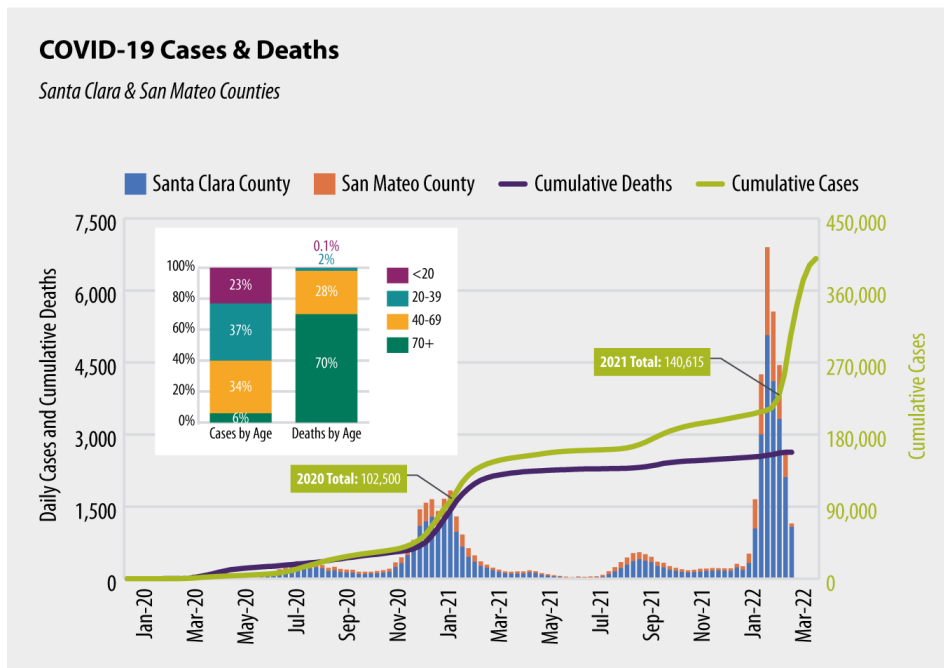
COVID-19 Cases & Deaths
Santa Clara & San Mateo Counties

Data Sources: County of Santa Clara; San Mateo County Health; California Department of Public Health | Analysis: Silicon Valley Institute for Regional Studies

Cumulative COVID-19 cases in Santa Clara and San Mateo Counties reached nearly 399,900 in early February, 2021; COVID-19 deaths totaled 2,639 as of February 8 reporting.

Survival rates for Silicon Valley residents, ages 70+ who contracted COVID-19 improved in 2021, reaching 90% (from 73% in 2020).

The COVID-19 death rate was disproportionately high for Silicon Valley's Hispanic or Latino and Black or African American residents in 2020, even after adjusting for differences in age distribution.

COVID-19 Deaths by Race & Ethnicity
Age-Adjusted Rate per 100,000

Santa Clara & San Mateo Counties | 2020

Asian or Pacific Islander	29
Black or African American	49
White, Non-Hispanic	24
Hispanic or Latino	69

Share of COVID-19 Cases & Deaths, by Race & Ethnicity
with overall population share | Santa Clara & San Mateo Counties, 2020

	Cases	Deaths	Population
Asian	17%	23%	36%
White	16%	32%	31%
Latino/Hispanic	36%	29%	25%
Black	1.8%	3.1%	2.1%
Pacific Islander	1.0%	1.0%	0.5%

Data Sources: County of Santa Clara; California Department of Public Health; CDC Wonder
Analysis: Silicon Valley Institute for Regional Studies

COVID-19 Hospitalizations & Deaths

Santa Clara & San Mateo Counties

Legend: ■ Santa Clara County ■ San Mateo County — Cumulative Deaths

Deaths by Location, 2020
- Other: 1%
- Home: 9%
- Nursing Home/ Long-Term Care: 24%
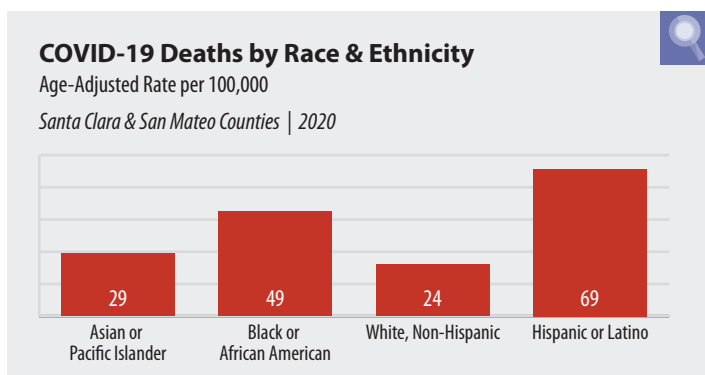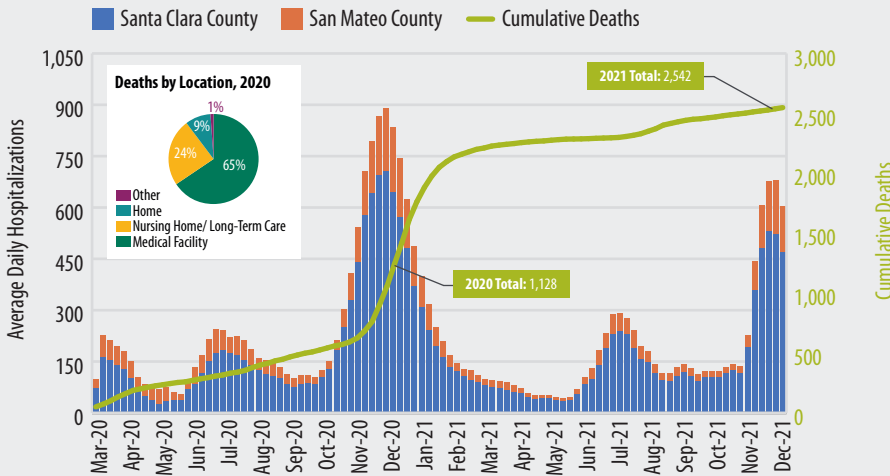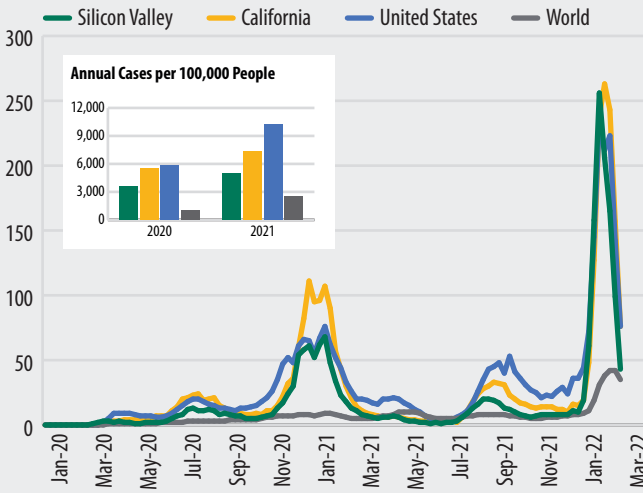- Medical Facility: 65%

2021 Total: 2,542
2020 Total: 1,128

Data Sources: County of Santa Clara; California Department of Public Health; CDC Wonder | Analysis: Silicon Valley Institute for Regional Studies

COVID-19 Cases per 100,000
7-Day Moving Average

Santa Clara & San Mateo Counties, California, United States, and Worldwide

Legend: — Silicon Valley — California — United States — World
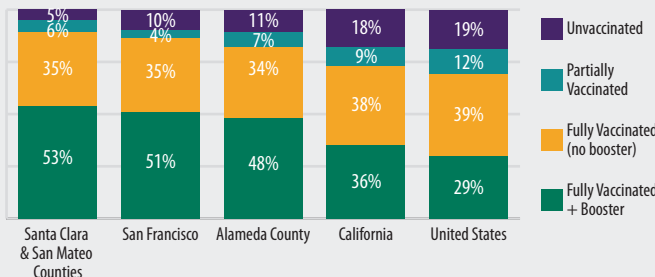
Annual Cases per 100,000 People

Data Sources: County of Santa Clara; San Mateo County Health; California Department of Public Health; *The New York Times*; World Health Organization; California Department of Finance; United States Census Bureau; United Nations Population Division | Analysis: Silicon Valley Institute for Regional Studies

Silicon Valley's vaccination rate is high compared to elsewhere, with 88% of the population, over age five, fully vaccinated; however, several areas of the region have particularly low vaccination rates, including San Martin (84% of residents ages 12+) and several areas in the northern/coastal portion of San Mateo County (e.g. Broadmoor with 76% of those ages 5+).

## COVID-19 Vaccination Status

Ages 5+
(as of February 8, 2022)

Santa Clara & San Mateo Counties, San Francisco, Alameda County, California, and the United States

	Santa Clara & San Mateo Counties	San Francisco	Alameda County	California	United States
Unvaccinated	5%	10%	11%	18%	19%
Partially Vaccinated	6%	4%	7%	9%	12%
Fully Vaccinated (no booster)	35%	35%	34%	38%	39%
Fully Vaccinated + Booster	53%	51%	48%	36%	29%

County of Santa Clara; San Mateo County Health; City & County of San Francisco; County of Alameda; California Department of Public Health; United States Department of Health & Human Services, Centers for Disease Control and Prevention

JOBS

Unemployment Rate
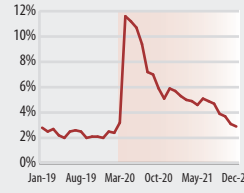
Silicon Valley's unemployment rate spiked to an unprecedented 12% in April 2020; by the end of 2021, the rate was back down to nearly pre-pandemic levels (at 2.9%).
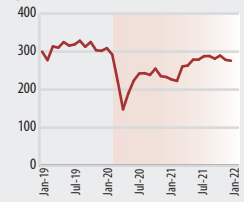
HUNGER

CalFresh Enrollees
(thousands)

The need for food assistance among Silicon Valley residents rose precipitously at the onset of the pandemic, and remained elevated through 2020 and 2021.
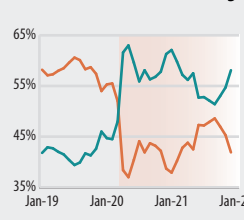
MOBILITY

Monthly Freeway Miles per Person

In April, 2020, pandemic-related transportation declines throughout the region led to fewer freeway miles driven than at any other time on record. Even in the second half of 2021, monthly freeway driving remained around 10% lower than pre-pandemic (2019) levels.

CONSUMER SPENDING

In-Store vs. Online Purchasing

Consumer spending patterns shifted at the start of the pandemic, with Silicon Valley residents starting to purchase more online than in stores. While there was some reversal of that trend in mid-2021, it abruptly returned with the COVID-19 case surge in the fall.

STOCK MARKET

Aggregate Regional Market Cap ($trillions)
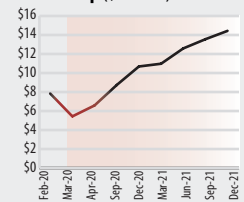
The aggregate market cap of Silicon Valley and San Francisco public companies—which dipped to less than $6 trillion in February 2020—reached more than $14 trillion in December 2021. Four out of nearly 400 companies accounted for 48 percent of that total (Apple, Alphabet, Tesla, and Meta).

Note: Unemployment Rate, Monthly Freeway Miles Driven, and CalFresh Enrollment include Santa Clara and San Mateo Counties; Aggregate Regional Market Cap includes all Silicon Valley and San Francisco Public Companies; In-Store vs. Online Spending includes the city-defined Silicon Valley region, and excludes Store Card purchases; it includes spending categories Apparel & Accessories, Autos, Department Stores, Electronic, Events & Attractions, Finance, Fitness, General Merchandise, Grocers, Health & Beauty, Hobbies & Toys, Home, Home Entertainment, Occasion & Gifts, Pets, Restaurants, Specialty, Specialty Food & Beverage, Sporting Goods, Travel & Transportation. Monthly Vehicle Miles Traveled are from Caltrans PeMS (Freeway Performance Measurement System) that collects, filters, processes, aggregates and examines traffic data from the Caltrans network of roadway traffic sensors. Data include California State Freeways only (not all state highways); 2021 data through 12/26 (accessed 12/27/21). California Department of Finance E-4 Estimates for January of each year were used to calculate per capita values. | Data Sources: Crunchbase; IEX Cloud; Google Finance; Earnest Research; Caltrans PeMS; United States Bureau of Labor Statistics; California Employment Development Department; California Department of Finance; California Department of Social Services | Analysis: Silicon Valley Institute for Regional Studies

PEOPLE
Talent Flows and Diversity

The region's population declined for the first time in more than a dozen years, and is back to a total number circa 2015. This trend is due to a combination of declining birth and increasing mortality rates, low levels of foreign immigration, and the movement of residents outward to other parts of the Bay Area, state, and country at rates not seen since the years following the dot.com bust. Birth rates are lower than for any other time over the last half-century, while thousands have died from COVID alone; foreign immigration is lower than any year on record, back to 1991 (including fewer refugee

arrivals largely due to the Trump administration's suspension of the U.S. refugee program and subsequent lowering of admission ceilings).

Forty-nine percent of Santa Clara & San Mateo County residents say they are likely to leave the Bay Area, and another eight percent want to leave but cannot. Net domestic outmigration accelerated during the pandemic, increasing nearly sevenfold in 2020 then doubling again in 2021; around one-third moved elsewhere in the Bay Area and another twenty-three percent left for other parts of Northern California. At this rate of outmigration,

the region is turning over around five percent of its population annually (or around one out of every 20 households each year).

The region has an incredibly high share of foreign-born residents compared to elsewhere, at nearly four out of every ten. It remains diverse with respect to various racial and ethnic groups overall, but at the neighborhood level there is a high degree of residential segregation with nearly half (46 percent) of all Silicon Valley census tracts in 2020 considered highly segregated — a share that has decreased by seven percentage points since 1980. The large

During a typical year, around 15,000 Santa Clara and San Mateo County residents die (with an annual average of 14,555 over the decade between mid-2010 and mid-2020). The 2,015 COVID-19-related deaths reported from July 2020 through June 2021 alone would represent a 14% increase over a typical year. While the COVID-death rate slowed in the second half of 2021, there were still 255 deaths within the region (which would amount to around 4% more than the average death rate pre-COVID).

Silicon Valley's popula
declined in 2021 for
first time in mor
dozen years.

The combined population of Santa Clara and San Mateo Counties fell by 1% (down by 27,245 year-over year) between mid-2020 and mid-2021 due to increased net outmigration, deaths, and fewer births year-over-year. The 2021 mid-year population estimate of 2.67 million is equivalent to the region's population circa 2015.

POPULATION CHANGE
Components of Population Change

Santa Clara & San Mateo Counties
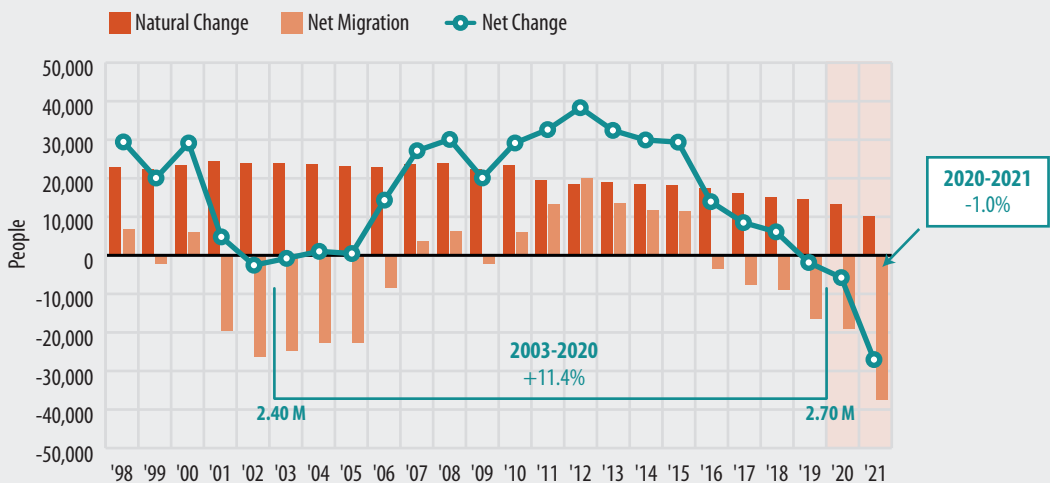
Data Source: California Department of Finance | Analysis: Silicon Valley Institute for Regional Studies

Natural population growth (births minus deaths) in Silicon Valley is lower than any other year on record.[3]

While Silicon Valley's mid-2020 to mid-2021 population decline is due to a mix of factors – including increased domestic outmigration (by +13,025) and a decline in new foreign immigrants (-5,417 year-over-year) — "natural growth" (births minus deaths) contributed as a result of fewer births (-1,344) and more deaths (+1,639), with the latter having been impacted to a large extent by the 2,014 COVID-related deaths over that period.

Following 17 years of sustained growth (averaging +0.7% annually), Silicon Valley's population (including Santa Clara & San Mateo Counties) declined by 1% in 2021.[A] Similarly, the state of California's population fell by 0.4%.

A. The city-defined Silicon Valley region — which includes Fremont, Newark, and Union City in southern Alameda County and Scotts Valley in Santa Cruz County — fell by 0.5% between mid-2020 and mid-2021 following 15 years of sustained year-over-year growth.

share of limited English-speaking households (19 percent), compared to the state and nation, indicates a high level of linguistic isolation (acting as a barrier to thriving, leading to economic and social isolation as well as further segregation).

Educational attainment levels of Silicon Valley adults continue a decades-long upward trend, reaching 52 percent with a bachelor's degree or higher (compared to 32 percent throughout the country). However, clear disparities in educational attainment by race and ethnicity persist in the region,

as well as uneven shares of students obtaining science and engineering degrees. Most of the region's highly-educated tech talent is from elsewhere in the world, primarily India and China, with disproportionately low shares of women, Black or African American, and Hispanic or Latino workers at the region's largest tech companies.

Why is this important?

Silicon Valley's most important asset is its people, who drive the economy and shape the region's quality of life. Population

growth is reported as a function of migration (immigration and emigration) and natural population change (the difference between the number of births and deaths). Delving into the diversity and makeup of the region's people — and its newcomers — helps everyone to better understand the region's assets and challenges.

The number of science and engineering degrees awarded regionally helps to gauge how well Silicon Valley is preparing talent. A highly-educated local workforce is a valuable resource for generating innovative

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Refugee[A] arrivals in Santa Clara and San Mateo Counties have declined significantly over the past decade, from approximately 581 in 2009 to a mere 32 in 2019, with declines since 2017 due in large part to the suspension of the U.S. refugee program and subsequent lowering of admission ceilings by the Trump Administration.[4] While declines have also occurred throughout the state — with approximately one-sixth the number of incoming refugees to California in 2019 compared to 2009 —California admitted more refugees than any other state in FY 2020, with the largest numbers coming from Afghanistan and Ukraine.[5]

A. According to the U.S. Department of Health and Human Services, a refugee is someone outside of their home country who is unable or unwilling to return because of persecution or a well-founded fear of persecution for reasons of race, religion, nationality, membership of a particular social group, or political opinion.

Refugee Arrivals
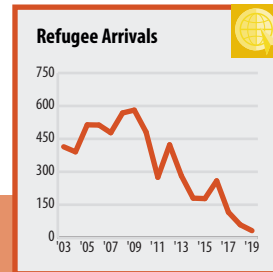
Data Source: Refugee Processing Center, California Immigrant Data Portal | Analysis: National Equity Atlas; Silicon Valley Institute for Regional Studies

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MIGRATION FLOWS
Foreign and Domestic Migration
Santa Clara & San Mateo Counties
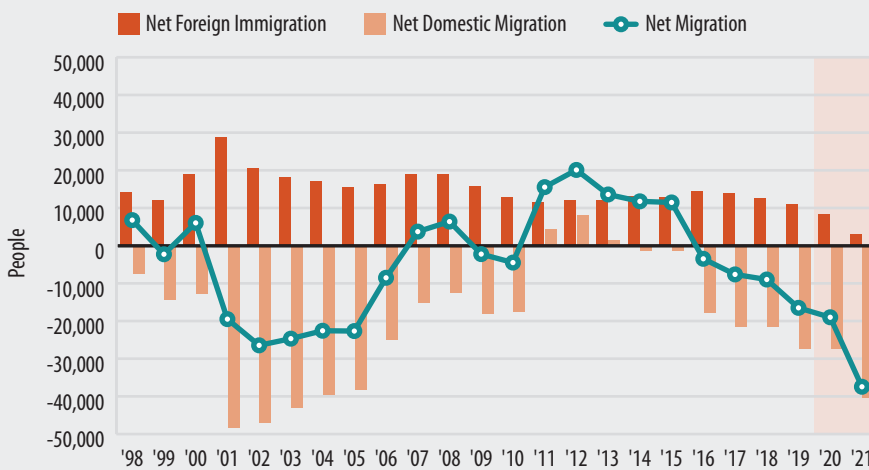
Silicon Valley's annual domestic outmigration[A] between mid-2020 and mid-2021 (-40,400) was greater than any other year since 2003 — rivaling the loss of 48,300 of 2001.

A. Migration from Santa Clara or San Mateo Counties to other parts of the state and nation.

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

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Silicon Valley has only experienced a net in-migration from other parts of the state and country during three of the past 31 years (2011-2013). Last year, outmigration exceeded in-migration by nearly 37,500 people — more than any other year since those following the dot.com bust (2001-2005).

Net foreign immigration into Santa Clara and San Mateo Counties between July 2020 and July 2021 (at just under 3,000) was lower than any other year on record, back to 1991.

% Likely to Move Out
Bay Area

Republican	77%
Independent	74%
Black or African American	67%
In-Person Worker*	65%
Age 18-34	64%
Renter	63%
Overall	55%
Owner	48%
Democrat	44%
Age 65+	41%

*Work responsibilities cannot be done from home
Data Source: 2021 Silicon Valley Poll (www.jointventure.org/svpoll)

The likelihood of Bay Area residents to move out of the region – as self-reported through the 2021 Silicon Valley Poll — varies widely from 41% of respondents ages 65+ to 77% of Republican respondents (with an overall average of 56% responding that they are likely to move out). In Santa Clara & San Mateo Counties, 49% say they are likely to move out of the Bay Area, and another 8% want to move out but for one reason or another they cannot. Bay Area residents most likely to move out of the region include those who are Republicans or Independents (77% and 75%, respectively), Black or African American residents (67%), In-Person Workers (including those whose work responsibilities cannot be done from home, 65%), young adults (ages 18-34, 64%), and renters (63%); in contrast, homeowners, Democrats, and older residents ages 65+ are less likely to move (48%, 44%, and 41%, respectively).

For the past eight years, more people have left Silicon Valley than have moved in. Between July 2011 and July 2021, the region gained a net 89,260 foreign immigrants but lost a net 159,070 residents to other parts of California and the United States; the total net loss of Silicon Valley residents over that time period was -69,810.

PEOPLE
Talent Flows and Diversity

Santa Clara County ranked third among California's 58 counties for the largest net domestic outmigration between July 2020 and July 2021, with a net loss of approximately 30,200 residents.

Domestic Migration for California Counties with the Largest In/Out Flow

July 2020 - July 2021

Net In →

← Net Out

Riverside	
Placer	
San Joaquin	
El Dorado	
Shasta	
Santa Barbara	
Ventura	
Butte	
San Mateo	
Alameda	
San Francisco	
San Diego	
Santa Clara	
Orange	
Los Angeles	

-100,000   -80,000   -60,000   -40,000   -20,000   0   20,000

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

Eight out of ten people who move out of Silicon Valley to other parts of the state or nation each year settle in one of 18 major regions (six of which are in California).

More than a quarter of Silicon Valley's domestic outmigrants are staying in the Bay Area.

Of California's 58 counties, 31 experienced a net outflow of domestic migrants between 2015 and 2020; 83% of California's out-of-county moves over that perio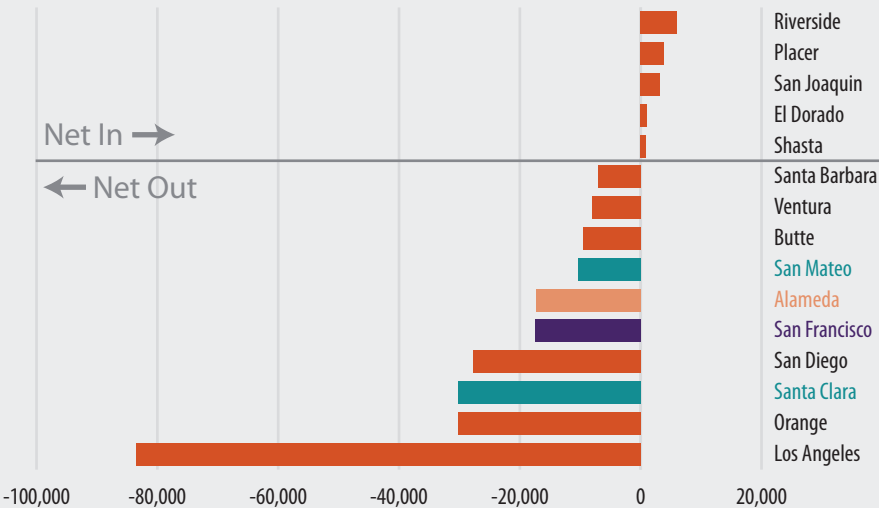d relocated out of the state entirely. In contrast, the majority (65%) of Silicon Valley's domestic outmigrants stay in California — 28% remaining in the Bay Area, 6% moving to the nearby Monterey Bay Area, 7% to the Sacramento area, 8% to San Joaquin Valley, and 14% to southern California.

The number of people moving out of the Bay Area to other parts of the country increased nearly sevenfold in 2020,[A] then doubled again in 2021.

A. Change over the prior year, based on net domestic outmigration estimates using self-reported worker moves.

Domestic Outmigration Destinations
2015-2019 Annual Average

Santa Clara & San Mateo Counties
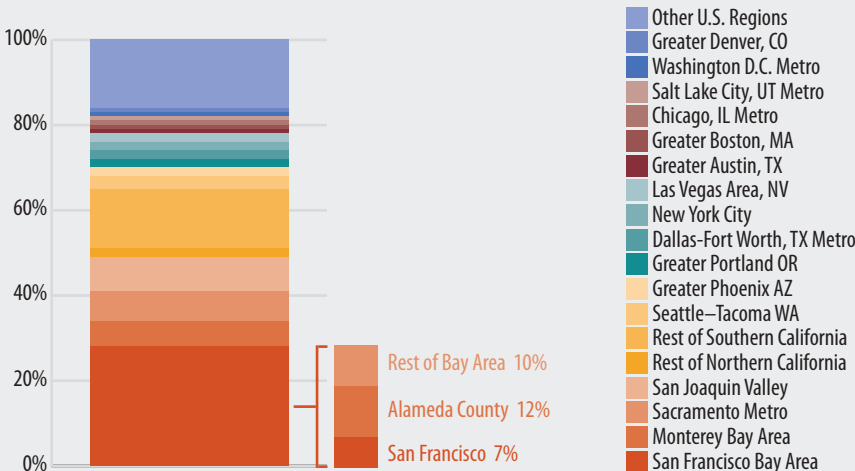
Other U.S. Regions	
Greater Denver, CO	
Washington D.C. Metro	
Salt Lake City, UT Metro	
Chicago, IL Metro	
Greater Boston, MA	
Greater Austin, TX	
Las Vegas Area, NV	
New York City	
Dallas-Fort Worth, TX Metro	
Greater Portland OR	
Greater Phoenix AZ	
Seattle–Tacoma WA	
Rest of Southern California	
Rest of Northern California	
San Joaquin Valley	
Sacramento Metro	
Monterey Bay Area	
San Francisco Bay Area	

Rest of Bay Area 10%
Alameda County 12%
San Francisco 7%

Data Source: United States Census Bureau | Analysis: Silicon Valley Institute for Regional Studies

Domestic In/Out Migration
Bay Area

IN
NET
OUT

30,000 / 15,000 / 0 / -15,000 / -30,000 / -45,000

2019   2020   2021
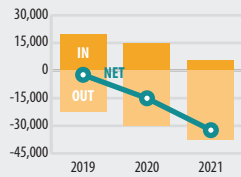
Data Source: LinkedIn; U.S. Census Bureau American Community Survey; California Department of Finance | Analysis: Silicon Valley Institute for Regional Studies

Top out-of-state destinations for Silicon Valley's outmigrants include the Seattle-Tacoma area (3%), Greater Phoenix (2%), in and around Portland Oregon (2%), the Dallas-Fort Worth metro (2%), New York City (2%), and Las Vegas (2%).

ideas, products, and services. The region has benefited significantly from the entrepreneurial spirit of people drawn to Silicon Valley from around the country and the world. Historically, immigrants have contributed considerably to innovation and job creation in the region, state, and nation,[1,2] as well as through their taxes and spending.[A] Increasing

the region's diversity also enriches the fabric of the community. Maintaining and increasing these flows, combined with efforts to integrate immigrants into communities, will likely improve the region's potential for global competitiveness.

Diversity and the coming together of people with different backgrounds, cultures, genders, races, and ethnicities is critical to the success of businesses and the region

as a whole. These backgrounds shape the perspective from which tasks are undertaken. By creating inclusive communities and workplaces, everyone is better able to build, succeed, and grow together. Numerous efforts aim to create and maintain equality within the talent pool (and in educating a future workforce), and tracking this progress allows all to reflect and continue to strive for a better, more inclusive region.

A. California immigrants contributed $391 billion to the U.S. economy through their local, state, and federal taxes in 2018, in addition to contributions through their spending (California Immigrant Data Portal, Data Summaries, accessed 2/7/22).

POPULATION BY AGE
Age Distribution

Santa Clara and San Mateo Counties, San Francisco, California, and the United States 2021

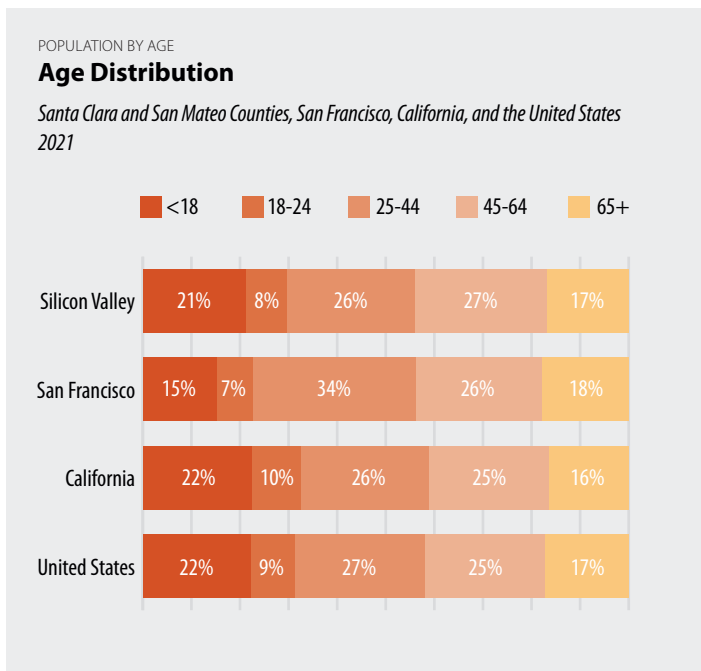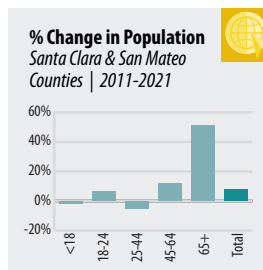Data Sources: California Department of Finance; United States Census Bureau
Analysis: Silicon Valley Institute for Regional Studies

% Change in Population
Santa Clara & San Mateo Counties | 2011-2021

Silicon Valley's population continues to age, with a growing number of residents ages 65 and over (up by more than 50% since 2011) and a shrinking number of children under the age of 18 (down 2% over the same period).

The core working age group (25-44) makes up a significantly larger share of San Francisco's population (34%) than Santa Clara & San Mateo Counties' (26%), the state's (26%), or the nation's (27%).

Between 2011 and 2021, the number of infants and preschool-aged children declined by nearly 26,000 (-15%) in Silicon Valley. Over the same 10-year period, the number of children ages five to eight declined by 4,700 (-3%) among the two counties.

Between 2011 and 2021, Santa Clara and San Mateo Counties gained an additional 202,200 residents; among the age groups that increased in number, 83% of the growth was accounted for by those ages 49 to 101.

Between 2015 and 2019, Santa Clara and San Mateo Counties combined lost an average of 136,340 residents to other parts of the state and country annually — amounting to a turnover of approximately 5% of the region's population each year.
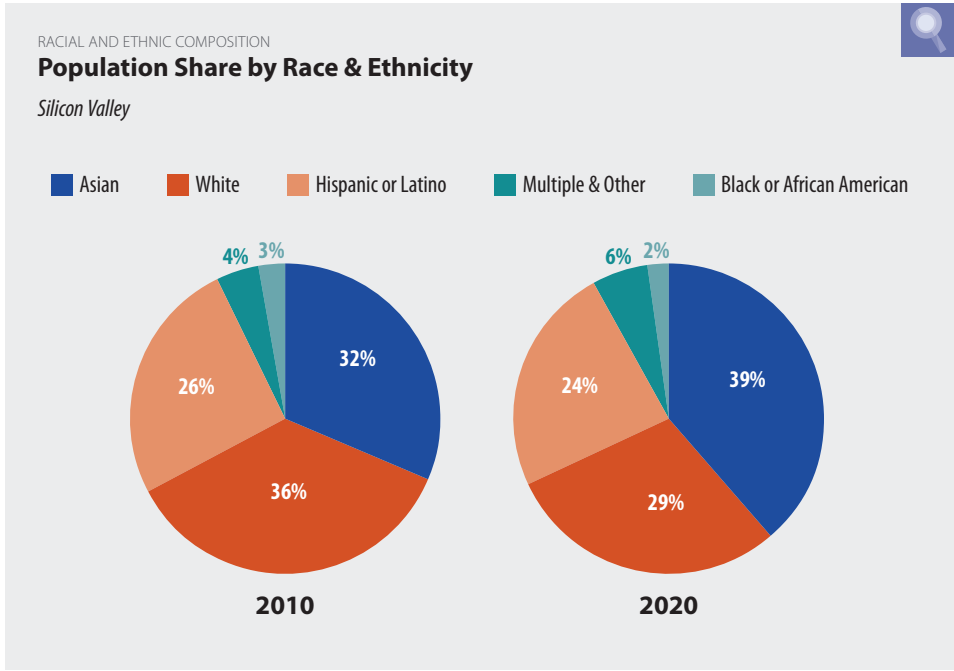
28% of Silicon Valley's domestic outmigrants stay within the Bay Area (12% to Alameda County, 7% to San Francisco, and 10% to other parts of the region); likewise, a large share (23%) move to the nearby Monterey Bay area, the Sacramento metro, San Joaquin Valley, or other parts of Northern California.
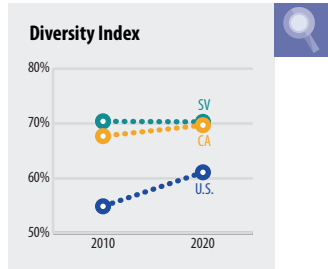
PEOPLE
Talent Flows and Diversity

White residents historically represented the largest share of Silicon Valley's population. However, since 2017, Asians have represented the largest share. Although the Bay Area is fairly diverse at the regional level, nearly 50% of neighborhoods in Silicon Valley are highly segregated.

In 1980, a majority of Silicon Valley census tracts (53%) were highly segregated. By 2020, that percentage has dropped to 46%, suggesting modest gains for desegregation in Silicon Valley at the neighborhood level.

RACIAL AND ETHNIC COMPOSITION
Population Share by Race & Ethnicity

Silicon Valley

Asian ◼ | White ◼ | Hispanic or Latino ◼ | Multiple & Other ◼ | Black or African American ◼

2010
- 4%
- 3%
- 32%
- 36%
- 26%

2020
- 6%
- 2%
- 39%
- 29%
- 24%

Data Source: United States Census Bureau, 2010 and 2020 Census State Redistricting Data | Analysis: Silicon Valley Institute for Regional Studies

Diversity Index

Note: The Diversity Index (DI) indicates the probability that two people chosen at random will be from different racial and/or ethnic groups; a DI of zero indicates no diversity, whereas a DI of 1 indicates complete diversity (everyone is of a different race and/or ethnicity). The probabilities have been converted into percentages to make them easier to interpret.

Divergence Index: Share of Census Tracts by Degree of Racial Residential Segregation
Santa Clara and San Mateo Counties
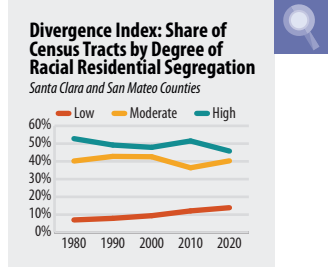
Low ◼ | Moderate ◼ | High ◼

Note: Low, Moderate, and High categories are based on U.S. percentiles with high representing the top third of census tracts in terms of segregation. | Data Source: Othering & Belonging Institute, University of California, Berkeley

Silicon Valley is a relatively diverse region (with a Diversity Index of 70% in 2020) when compared to the U.S. (60%) and is on par with California. The Diversity Index measures the probability that two people chosen at random will be from different racial or ethnic groups. Silicon Valley's Diversity Index has remained consistent at 70% over the past decade while California and the U.S. have become more diverse.

Asian residents have the largest population share among Silicon Valley racial and ethnic groups, representing 39% of the overall population in 2020 (compared to 32% a decade prior).

Silicon Valley's population share of Black or African American residents (2.2% in 2020) has remained at just over two percent for the past decade.

The 2021 birth rate (10.2 births per 1,000 people) in Santa Clara and San Mateo Counties combined was lower than any other year over the last half-century. The birth rate has declined steadily since 1991 when it last peaked at nearly 18 births per 1,000 people.
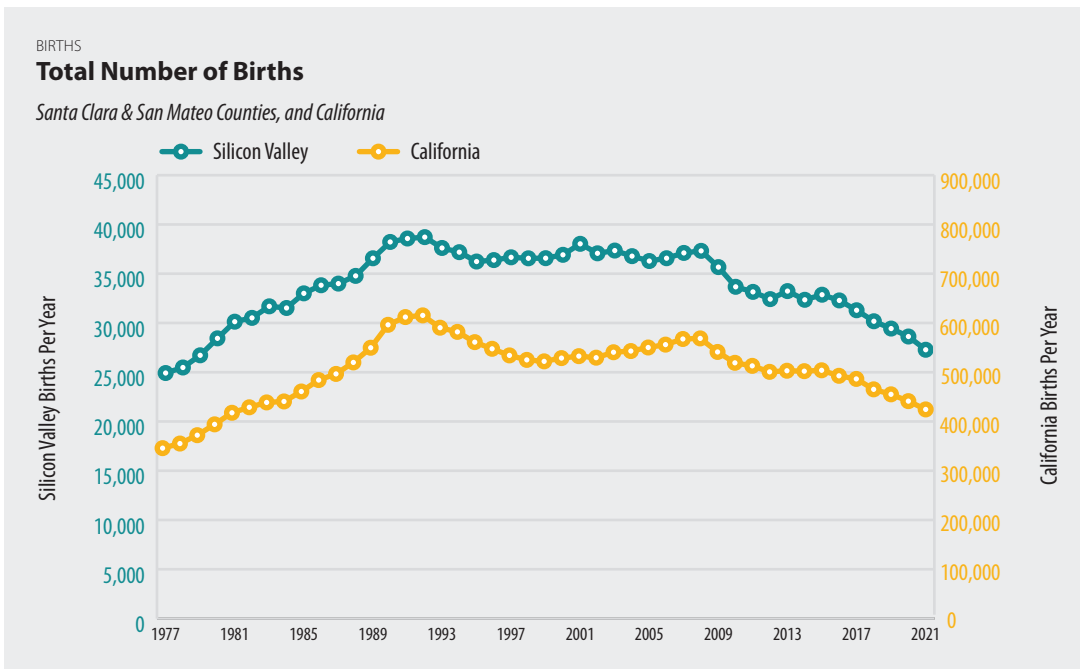
BIRTHS
Total Number of Births

Santa Clara & San Mateo Counties, and California

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

The total number of births per year in Santa Clara and San Mateo Counties continued to fall between 2020 and 2021 (down 5% year-over-year), and has declined significantly since the most recent high in 2001 (down 28%).

Between mid-2020 and mid-2021, 27,300 babies were born in the region, representing the lowest annual total since 1979.

During the pandemic, economic hardships and other factors may have contributed to the declining birth rate in Silicon Valley and elsewhere. While birth rates typically vary seasonally, national data show clear declines from the same month pre-pandemic (e.g., -11% in January 2021 compared to January 2019), with a slight rebound in March 2021. Globally, as many as 21 of 30 countries included in one study indicated similar findings.[6] While U.S. birth rates were found to have declined for all women ages 15-44 in 2020 (-4% year-over-year), the greatest decline was among teenagers ages 15-19 (-8%).[7]
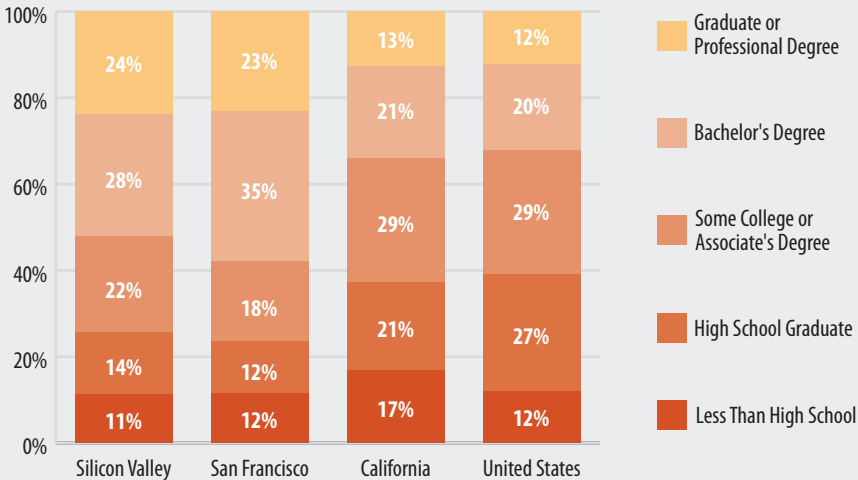
PEOPLE
Talent Flows and Diversity

Educational attainment disparities persist across racial and ethnic groups in Silicon Valley. Hispanic or Latino residents have significantly lower educational attainment than other racial and ethnic groups.
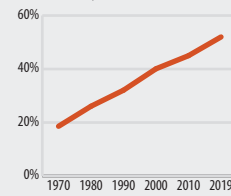
EDUCATIONAL ATTAINMENT
Percentage of Adults, by Educational Attainment

Santa Clara & San Mateo Counties, San Francisco, California, and the United States | 2019

Legend:
- Graduate or Professional Degree
- Bachelor's Degree
- Some College or Associate's Degree
- High School Graduate
- Less Than High School

	Silicon Valley	San Francisco	California	United States
Graduate or Professional Degree	24%	23%	13%	12%
Bachelor's Degree	28%	35%	21%	20%
Some College or Associate's Degree	22%	18%	29%	29%
High School Graduate	14%	12%	21%	27%
Less Than High School	11%	12%	17%	12%

Data Source: United States Census Bureau, Decennial Census and American Community Survey | Analysis: Silicon Valley Institute for Regional Studies

The share of Silicon Valley residents with a bachelor's degree or higher (52%) increased by more than seven percentage points since 2010 and 33 percentage points since 1970.

24% of Silicon Valley adults have a graduate or professional degree.

% Bachelor's or Higher
Silicon Valley

Silicon Valley residents have higher levels of educational attainment, overall, than the state or nation, with increasing levels across all racial and ethnic groups over the past decade.

Silicon Valley and San Francisco have much higher levels of educational attainment than California or the United States as a whole, with 52% and 58% of adults, respectively, having a bachelor's degree or higher.

While educational attainment levels for Silicon Valley's Hispanic or Latino residents remain low relative to other racial and ethnic groups, they have increased over time; the share with a bachelor's degree or higher rose from 14% to 19% over the past decade.

Less than 40% of Silicon Valley Black or African American residents have a bachelor's degree or higher compared to more than 60% of both White and Asian residents.

EDUCATIONAL ATTAINMENT
Percentage of Adults with a Bachelor's Degree or Higher by Race & Ethnicity

Santa Clara & San Mateo Counties, and California

Legend:
- Silicon Valley 2019
- Silicon Valley 2015
- Silicon Valley 2010
- California 2019
- California 2015
- California 2010
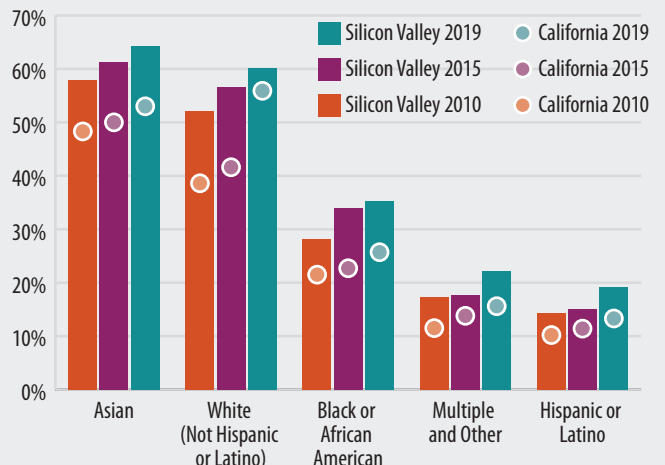
Note: Multiple and Other includes Alaska Native and American Indian, Native Hawaiian and Other Pacific Islander, Some Other Race and Two or More Races. | Data Source: United States Census Bureau, Decennial Census and American Community Survey | Analysis: Silicon Valley Institute for Regional Studies

While the total number of science and engineering degrees conferred in and around Silicon Valley continues to increase, the share conferred to women has remained relatively stagnant for nearly two decades.

The overwhelming majority of science and engineering degrees conferred in 2020 went to students identifying as White or Asian.

SCIENCE & ENGINEERING DEGREES
Total Science and Engineering Degrees Conferred
Universities in and near Silicon Valley
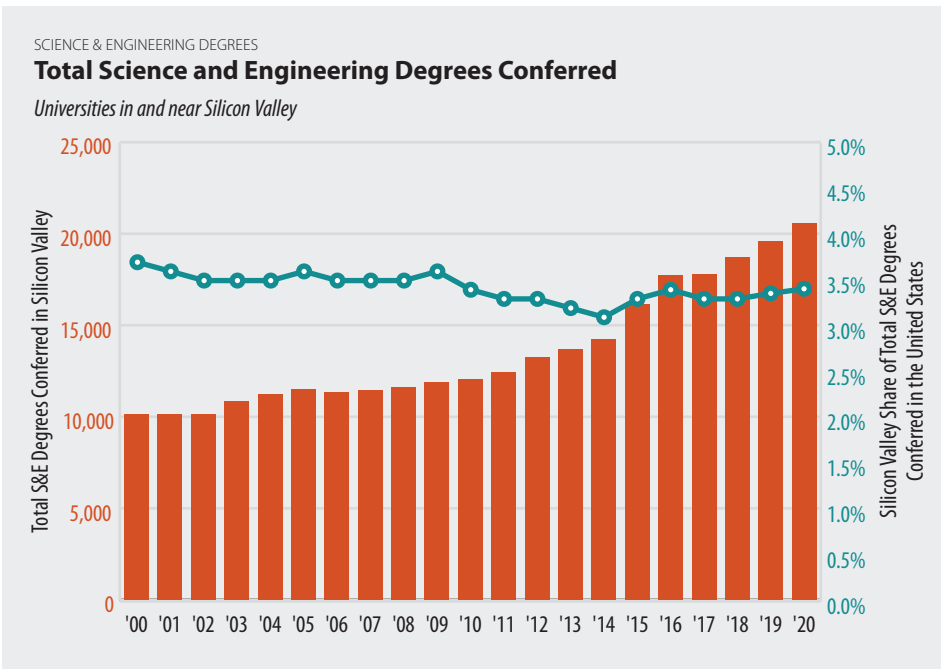
Data Source: National Center for Educational Statistics, IPEDS | Analysis: Silicon Valley Institute for Regional Studies

% Conferred to Women

30%	37%	37%	40%
1990	2000	2010	2020
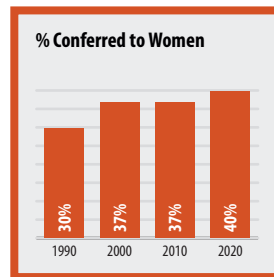
Share of Science and Engineering Degrees Conferred, by Race and Ethnicity
Silicon Valley, 2020

Asian	39%
White	32%
Hispanic or Latino	16%
Two or More Races	6.0%
Black or African American	2.1%
Other	0.3%

In 2020, there were 20,555 science and engineering degrees conferred among Silicon Valley's top academic institutions — nearly 1,000 more than during the previous year.

Over 70% of science and engineering degrees were conferred to students identifying as White or Asian compared to 16% Hispanic or Latino and only 2% to Black or African American students.

The share of Silicon Valley science and engineering degrees conferred to women has remained in the 37-40% range since the year 2000, and has increased by three percentage points over the past decade.

PEOPLE
Talent Flows and Diversity

Silicon Valley's foreign-born population share is higher than for any other year on record, going back to the mid-1800s.

% Foreign Born

(Bar chart showing years 1870, 1970, 1980, 1990, 2000, 2010, 2019, 2020*)

% Foreign Born, 2019

Residents	Workers	Tech Workers	Women in Tech
39%	48%	64%	70%

Seventy percent of Silicon Valley's female tech workers are foreign-born. They are disproportionately married with children, and primarily come from Asian countries.
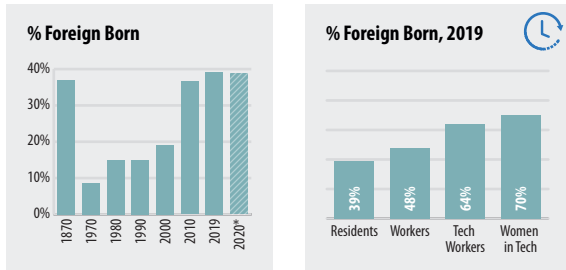
Nearly half (48%) of all Silicon Valley's employed residents and 64% of tech workers were born outside of the country.

FOREIGN BORN
Percentage of the Total Population Who Are Foreign Born

Santa Clara & San Mateo Counties, San Francisco, California, and the United States | 2020*

	Historical 1870: 36.9%	Minimum 1970: 8.7%	Maximum 2019: 39.1%

Silicon Valley	San Francisco	California	United States
39%	32%	26%	13%
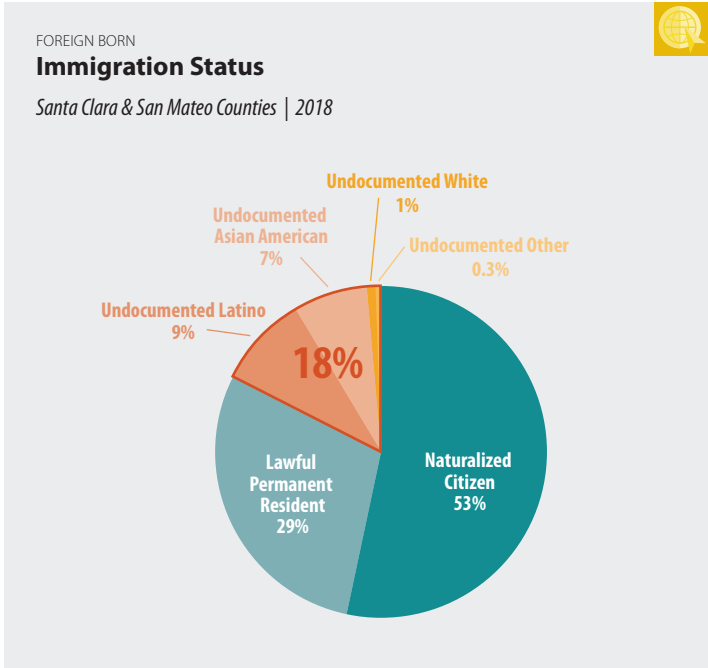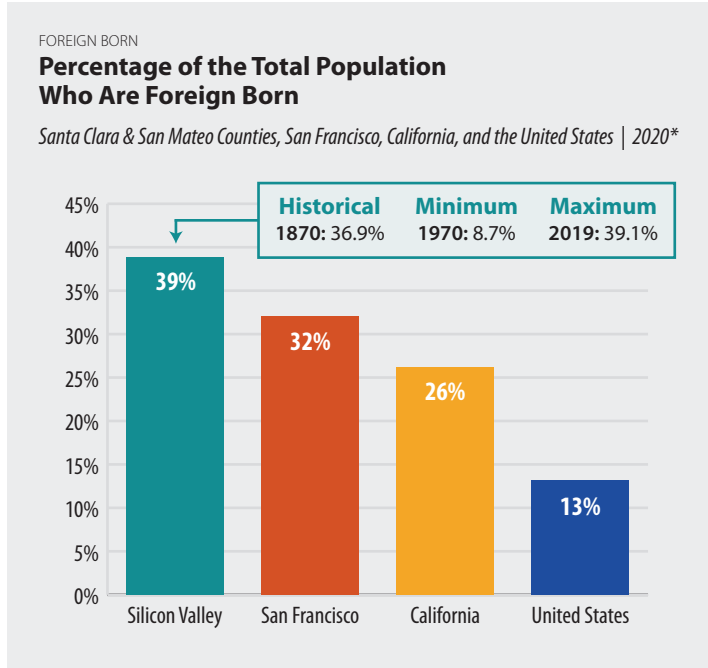
Note: *2020 estimate from 1-year American Community Survey microdata with experimental weights | Note: Tech includes Computer & Mathematical, Architectural & Engineering occupations. Workers include those over age 16 who are employed and at-work. | Data Source: United States Census Bureau, American Community Survey | Analysis: Silicon Valley Institute for Regional Studies

FOREIGN BORN
Immigration Status

Santa Clara & San Mateo Counties | 2018

Pie chart:
- Undocumented White 1%
- Undocumented Asian American 7%
- Undocumented Latino 9%
- Undocumented Other 0.3%
- 18%
- Naturalized Citizen 53%
- Lawful Permanent Resident 29%

Data Source: California Immigrant Data Portal (Data: IPUMS USA) | Analysis: University of Southern California's Equity Research Institute (ERI); Silicon Valley Institute for Regional Studies

39% of Silicon Valley's population is foreign-born — a much higher share than the state (26%) or nation as a whole (13%).

An estimated 18% of Santa Clara and San Mateo Counties' foreign-born residents are undocumented, the majority of whom are Latinos (nearly 99,000) and Asian Americans (76,000); 29% are lawful permanent residents (17% Asian American, 7% Latino, and 5% White).

Over the past decade, Silicon Valley's population has shifted from mostly speaking English exclusively at home to a majority speaking another language.

Asian and Pacific Island languages are spoken in over 61% of limited English-speaking households compared to 27% speaking Spanish.

FOREIGN LANGUAGE
Population Share Speaking A Language Other Than English at Home

Santa Clara & San Mateo Counties, San Francisco, California, and the United States | 2019

Legend:
- Arabic
- French
- German
- Other & unspecified languages
- Korean
- Slavic languages
- Tagalog
- Other Asian and Pacific Island languages
- Vietnamese
- Other Indo-European languages
- Chinese
- Spanish

Note: Includes the population five years of age and older. | Data Source: United States Census Bureau, American Community Survey | Analysis: Silicon Valley Institute for Regional Studies

Silicon Valley has a widespread distribution of languages spoken at home, with a smaller share of foreign-language speakers speaking Spanish (35%) than in California (65%) or the United States (62%), and a larger share speaking languages such as Chinese, Vietnamese, and Tagalog.

Population Share That Speaks a Language at Home Other Than Exclusively English

	2010	2019
Silicon Valley	49%	51%
San Francisco	45%	43%
California	43%	44%
United States	20%	22%

Silicon Valley has a significantly larger share of limited English-speaking households (19%) compared to California (9%) and the United States (4%), though that number has decreased over the past decade.

FOREIGN LANGUAGE
Share of Households That Are Limited English-Speaking

Santa Clara & San Mateo Counties, California, and the United States

Data Source: United States Census Bureau, American Community Survey | Analysis: Silicon Valley Institute for Regional Studies
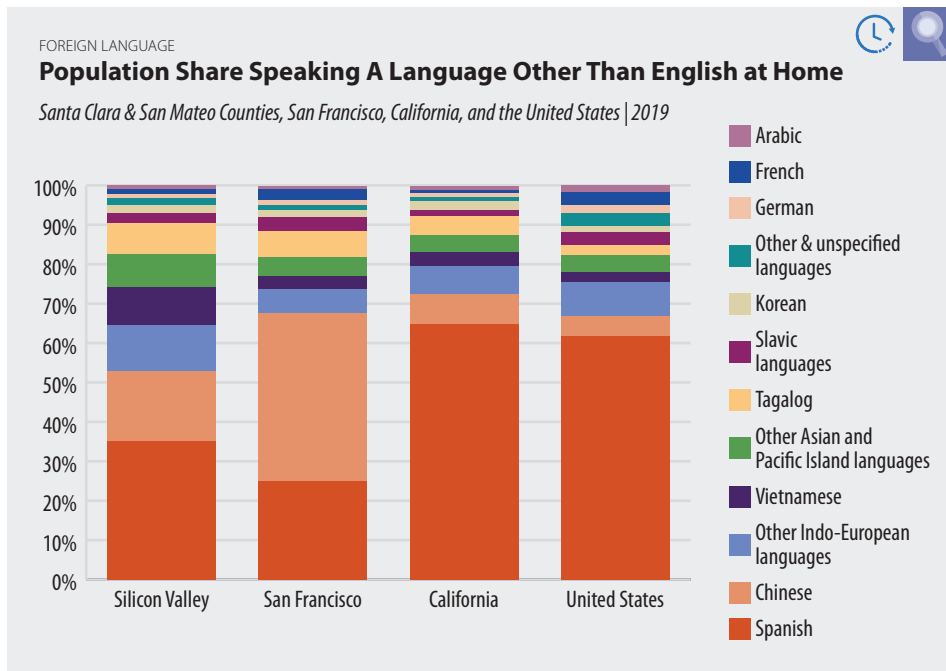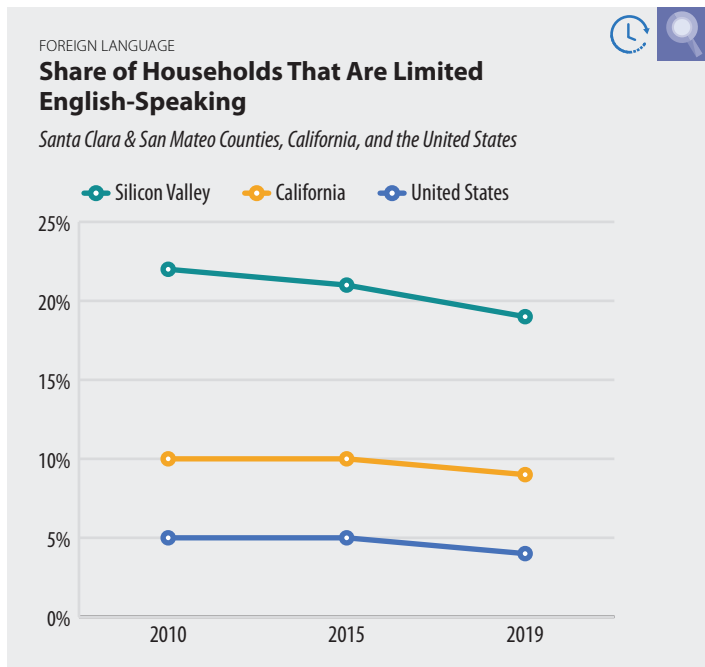
FOREIGN LANGUAGE
Languages Spoken in Limited English-Speaking Households

Santa Clara & San Mateo Counties, and California | 2019

Legend:
- Other Languages
- Other Indo-European Languages
- Spanish
- Asian and Pacific Island Languages

Data Source: United States Census Bureau, American Community Survey | Analysis: Silicon Valley Institute for Regional Studies

PEOPLE
Talent Flows and Diversity

A larger share of Silicon Valley's highly-educated tech workers were from India and China combined (39%) than from within the United States (31%) in 2015-2019.

69% of Silicon Valley's tech talent is foreign-born, with the largest shares coming from India (25%) and China (14%).

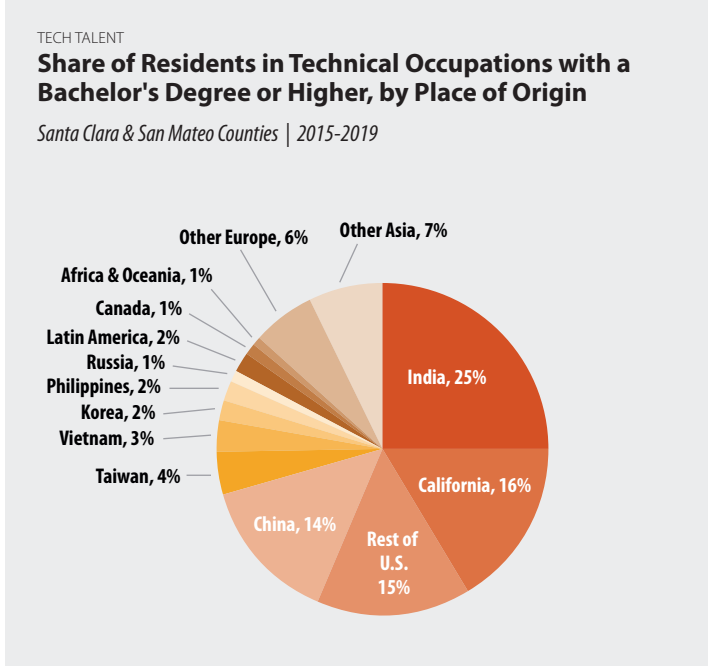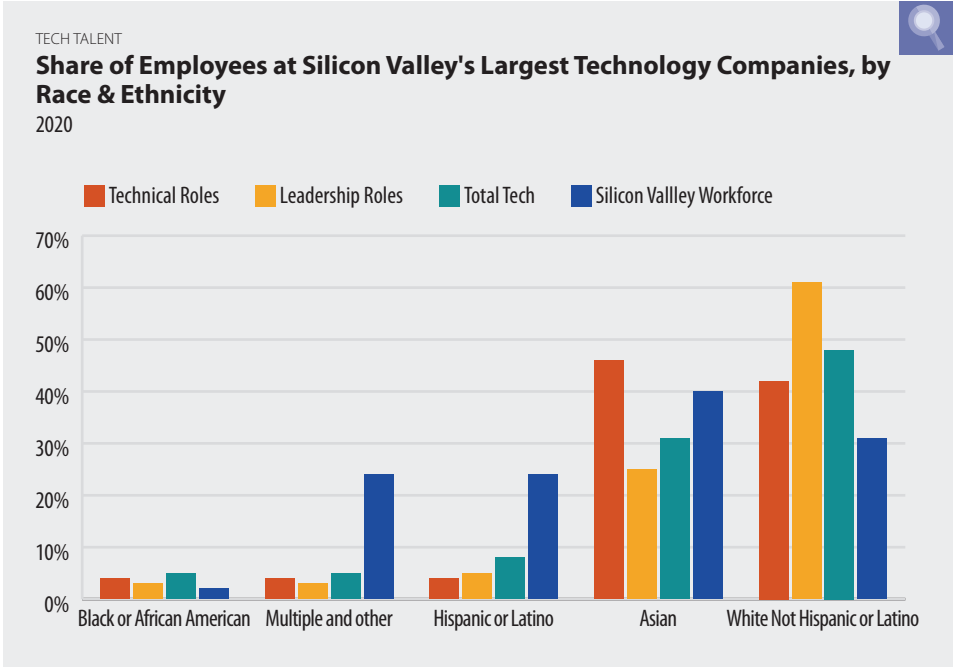### Share of Residents in Technical Occupations with a Bachelor's Degree or Higher, by Place of Origin

Santa Clara & San Mateo Counties | 2015-2019

Other Europe, 6%
Other Asia, 7%
Africa & Oceania, 1%
Canada, 1%
Latin America, 2%
Russia, 1%
Philippines, 2%
Korea, 2%
Vietnam, 3%
Taiwan, 4%
India, 25%
California, 16%
China, 14%
Rest of U.S. 15%

Data Source: United States Census Bureau, American Community Survey
Analysis: Silicon Valley Institute for Regional Studies

White, not Hispanic or Latino workers make up 30% of the civilian workforce but account for more than 60% of leadership roles in the tech industry and more than 40% of technical roles. Asian workers represent 46% of technical roles and nearly one third of all employees at the region's 20 largest technology companies. By contrast, Hispanic or Latino workers only represent 8% of employees at these same companies but represent nearly 24% of the Silicon Valley workforce.

Share of Employees at Silicon Valley's Largest Technology Companies, by Race & Ethnicity
2020

Legend: Technical Roles | Leadership Roles | Total Tech | Silicon Vallley Workforce

Categories: Black or African American | Multiple and other | Hispanic or Latino | Asian | White Not Hispanic or Latino

Note: Analysis includes the 20 largest technology companies. | Data Sources: Individual company diversity reports; *Silicon Valley Business Journal*; United States Census Bureau | Analysis: Silicon Valley Institute for Regional Studies

TECH TALENT

Share of Female Employees at Silicon Valley's Largest Technology Companies

2020

■ Women ■ Men

Note: Analysis includes the 20 largest technology companies. | Data Sources: Individual company diversity reports; *Silicon Valley Business Journal*; United States Census Bureau | Analysis: Silicon Valley Institute for Regional Studies
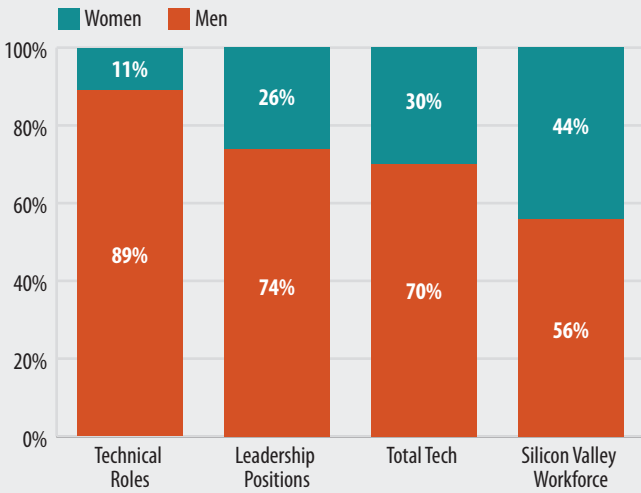
While women make up 44% of Silicon Valley's regional civilian workforce, they only account for 30% of employees at the region's 20 largest tech companies (26% in leadership positions, and 11% in technical roles).

ECONOMY
Employment

Bolstering of the tech economy amid job losses in other industries has swiftly shifted the regional employment picture. While Silicon Valley had nearly gained back the number of jobs lost during the early months of the pandemic by mid-2021 (and estimates for the second half of the year suggest the region exceeded pre-pandemic totals), there is now a smaller share in Tier 3 (low-skill/low-wage). Whereas Innovation & Information Products and Services — the tech industry — typically accounted for a quarter of the region's employment, gains over the past two years have led to an increased share (to 29 percent). In contrast, other industries remained below pre-pandemic employment levels,

such as in Arts, Entertainment & Recreation (-28 percent), Personal Services (-27 percent), Accommodation & Food Services (-25 percent), Transportation (-18 percent), Warehousing and Storage (-24 percent), Nonprofits (-16 percent), and Retail (-9 percent). Furthermore, most of the tech jobs in Silicon Valley are concentrated in just a handful of companies, with 13 percent at Google and Apple alone (and nearly one-third at the largest 15).

Silicon Valley continues to lead the U.S. in tech jobs by growth rate as well as by share of local employment, but other emerging U.S. tech talent centers are attracting Silicon Valley's largest companies (especially Atlanta and Austin); those companies have grown by

16 percent locally since pre-pandemic, but grew more quickly elsewhere (+43 percent in other parts of the U.S. and +123 percent worldwide, with the latter driven primarily by the massive growth in Amazon's workforce).

While the region's unemployment rate was back to 2.9 percent at the end of the year, fluctuations over the course of the past two years have been uneven — not only by industry — but with respect to workers of different racial and ethnic groups. In mid- to late-2021, particularly, the number of unemployment insurance claims filed by Black workers were disproportionately high.

Silicon Valley employment grew by nearly 79,000 jobs between mid-2020 and mid-2021, followed by an estimated 88,000 in the second half of 2021.[A]
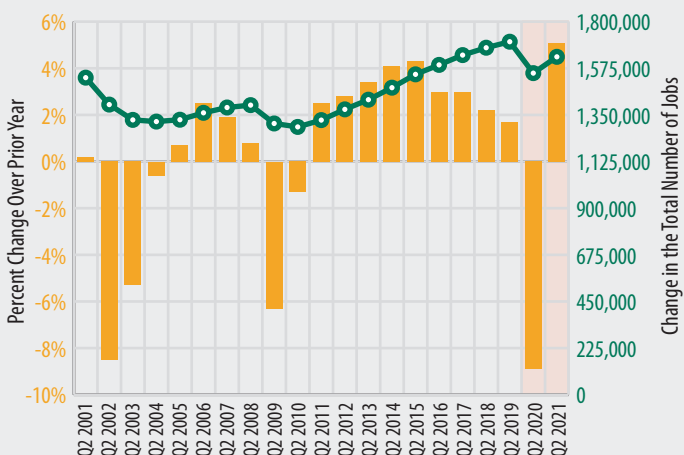
A. Second half 2021 growth rates, as reported by the California Employment Development Department (EDD) for June through December.

Total employment levels in Silicon Valley recovered to some degree in 2021 (+5.1% from Q2 2020 through Q2 2021, or +78,670 jobs) following the 8.9% pandemic-related decline between Q2 2019 and Q2 2020 — a period representing the greatest year-over-year drop in regional employment since the dot.com bust in 2001 (-8.5%).

JOB GROWTH
Total Number of Jobs and Percent Change Over Prior Year
Silicon Valley

Second Half 2021* Growth Rates	
Santa Clara County	+5.3%
San Mateo County	+5.6%
Combined	+5.4%
Alameda County	+4.3%

*based on EDD reported June through December growth rates by county. | Note: Percent change from 2012 to 2021 is based on unsuppressed numbers. Percent change for prior years is based on QCEW data totals with suppressed industries. | Data Sources: U.S. Bureau of Labor Statistics Quarterly Census of Employment and Wages; JobsEQ | Analysis: BW Research

In mid-2021, the total number of jobs in Silicon Valley was still 4% below pre-pandemic levels, but represented 18% more throughout the region than prior to the Great Recession (2007). In comparison, employment levels in California overall were only 7.2% higher than 2007 and 4% below pre-pandemic employment levels in mid-2021.

Why is this important?

Employment gains and losses are a core means of tracking economic health and remain central to national, state, and regional conversations. Over the course of the past few decades, Silicon Valley (like many other communities) has experienced shifts in the composition of industries that underpin the local economy. The types of jobs and the composition of the region's workforce affect the availability of opportunities and uncover potential skills gaps. Examining employment by wage and skill level allows for a higher level of granularity to help us understand the changing composition of jobs within the region.

While employment by industry provides a broader picture of the region's economy as a whole, the unemployment rates of the population residing in the Valley reveals the status of the immediate Silicon Valley-based workforce. Changes in the region's industry patterns show how well our economy is maintaining its position in the global economy.

> San Francisco experienced a more pronounced employment decline between mid-2019 and mid-2020 (-12.8%) than Silicon Valley (-8.9%), as well as a slower recovery the following year. San Francisco remained 10% below pre-pandemic employment levels (compared to Silicon Valley at -4%) by mid-2021, and an estimated 5% below at the end of the calendar year.

JOB GROWTH
Relative Job Growth

Silicon Valley, Santa Clara & San Mateo Counties, San Francisco, Alameda County, California, and the United States
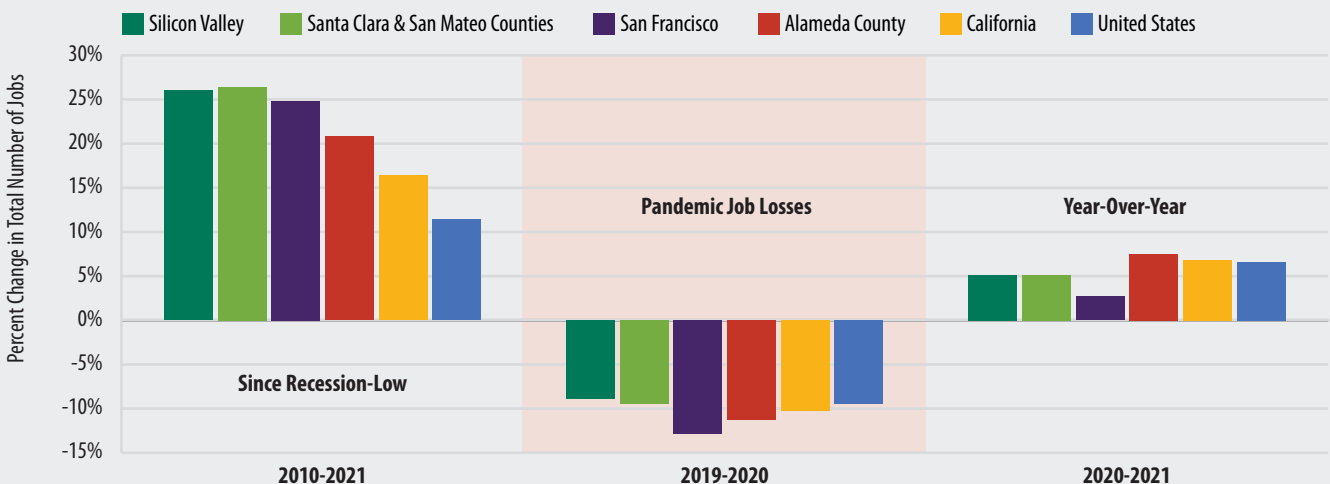
Note: Relative growth is from June to June. | Data Sources: U.S. Bureau of Labor Statistics Quarterly Census of Employment and Wages; JobsEQ | Analysis: BW Research

ECONOMY
Employment

Of the 583,300 tech (Innovation & Information Products and Services) jobs within Silicon Valley and San Francisco, as many as 219,000 of them (38%) are employed at one of the region's 25 largest tech companies (and 32% at the largest 15); Google and Apple employ the highest shares (approximately 7% and 6%, respectively), followed by Meta (formerly Facebook) (3%), Cisco (2%), and Amazon (2%).

Silicon Valley's tech industry has had two straight years of positive growth amid pandemic-related job losses in other industries. Community Infrastructure & Services — including industries such as education, construction, retail, and personal services — lost 15% of its employment between mid-2019 and mid-2020, then gained back 8% the following year.

MAJOR AREAS OF ECONOMIC ACTIVITY
### Total Employment, by Major Areas of Economic Activity
with estimated shares of Innovation & Information Products and Services Jobs at the Region's Largest Tech Companies

Silicon Valley and San Francisco | 2021
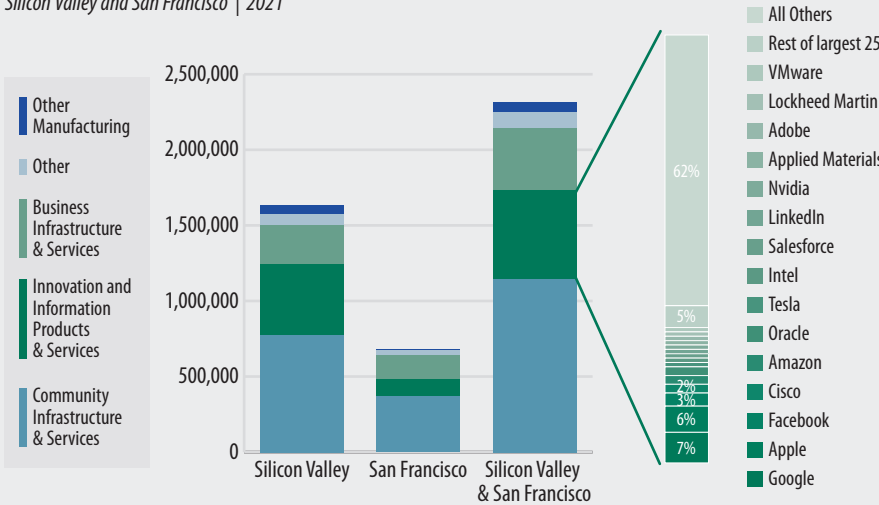
Mid-Year Employment Levels
Silicon Valley

Note: Definitions of the major areas of economic activity are included in Appendix A. | Data Sources: BW Research; U.S. Bureau of Labor Statistics Quarterly Census of Employment and Wages; JobsEQ; *Silicon Valley Business Journal*; LinkedIn | Analysis: BW Research; Silicon Valley Institute for Regional Studies
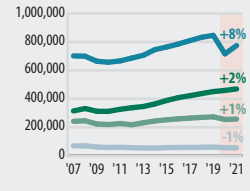
The concentration of pandemic-related job losses in Community Infrastructure & Services – which had only halfway recovered by mid-2021 — led to an increased share of Silicon Valley's workforce in tech jobs; that share (which grew slowly from 24% in 2009 to 26% a decade later) rose precipitously to 29% in 2021. Correspondingly, the share of jobs in Community Infrastructure & Services fell from 50% in 2019 to 48% in 2021.

An estimated 32% of Silicon Valley and San Francisco tech jobs in mid-2021 were at the 15 largest tech companies alone, with another 6% at the next largest ten; 62% were at all other tech companies, combined.

Silicon Valley job growth has been positive for the tech industry throughout the pandemic, with a gain of 2% each year since mid-2019 (adding nearly 18,500 jobs over that period).
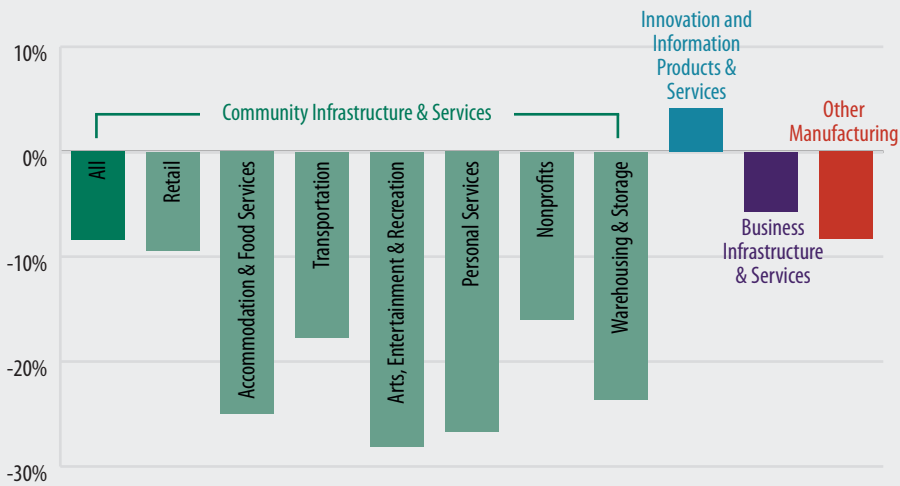
Silicon Valley jobs in Innovation and Information Products & Services — such as Computer Hardware, Software, Internet & Information Services, and Biotechnology — remained 51% higher in mid-2021 (up by nearly 158,000 jobs) than the Great Recession-low (in 2010); in contrast, overall regional employment levels were only 26% higher than in 2010.

Many of the jobs in Silicon Valley's hard-hit Community Infrastructure & Services sector recovered to some degree from early pandemic losses (-15% from mid-2019 through mid-2020), but not entirely – remaining 8% below pre-pandemic levels in June 2021.

MAJOR AREAS OF ECONOMIC ACTIVITY

Employment Levels Relative to Pre-Pandemic, by Major Area of Economic Activity

Silicon Valley, Q2 2019 to Q2 2021

Note: Definitions of the major areas of economic activity are included in Appendix A. | Data Source: BW Research; U.S. Bureau of Labor Statistics Quarterly Census of Employment and Wages; JobsEQ | Analysis: BW Research; Silicon Valley Institute for Regional Studies

In mid-2021, Accommodation & Food Services jobs were still 25% below pre-pandemic (mid-2019) levels, Nonprofits were down 16%, Personal Services (-27%), and Retail (-9%); in contrast, Healthcare & Social Services jobs were up 4% over pre-pandemic levels.

Silicon Valley and San Francisco jobs in Innovation and Information Products & Services—such as Computer Hardware, Software, Internet & Information Services, and Biotechnology — were both 4% above pre-pandemic levels by June 2021 overall, despite sluggish recovery in other segments of the economy.

While Silicon Valley's pandemic-related job losses in Community Infrastructure & Services led to a -15% year-over-year employment decline overall between mid-2019 and mid-2020, industry groups within that sector experienced varying levels of employment impacts. For example, Banking & Financial Services jobs actually grew by 7% over that period, and expanded further the following year — reaching 12% above pre-pandemic levels by mid-2021.

ECONOMY
Employment

Nearly half of all Silicon Valley Community Infrastructure & Services jobs are in Tier 3 (low-skill/low-wage), indicating that those most affected by pandemic-related job losses were earning low wages to begin with.

Between mid-2012 and mid-2020, the shares of Silicon Valley jobs in each tier have remained almost unchanged; however, uneven pandemic-related losses and recovery led to a shift in employment by tier into 2021, with a noticeably higher share (albeit a small numeric change of one percentage point) of Tier 1 jobs, and a lower share of Tier 3 jobs (down by 1.4 percentage points year-over-year).

MAJOR AREAS OF ECONOMIC ACTIVITY
Employment in Major Areas of Economic Activity, by Tier

Silicon Valley | 2021

Note: Definitions of the major areas of economic activity, and of Tier 1 (high-skill/high-wage), Tier 2 (mid-skill/mid-wage), and Tier 3 (low-skill/low-wage) jobs are included in Appendix A. | Data Sources: BW Research; U.S. Bureau of Labor Statistics, Quarterly Census of Employment and Wages; California Employment Development Department; JobsEQ | Analysis: BW Research

43% of all Silicon Valley jobs are Tier 2 (mid-skill/mid-wage); 27% are Tier 1 (high-skill/high-wage), and 31% are Tier 3 (low-skill/low-wage).

43% of Community Infrastructure & Services jobs are Tier 3; in contrast, Innovation and Information Products & Services (tech industry) jobs are primarily (49%) Tier 1.

Silicon Valley's composition of jobs by wage and skill level — which had remained relatively unchanged since 2012 — has been affected by the pandemic, shifting toward a slightly higher share of Tier 1 (high-skill/high-wage) jobs accompanied by a smaller share of Tier 3 (low-skill/low-wage) jobs.

While Business Infrastructure & Services jobs are 27% Tier 1 (high-skill/high-wage), there is also a relatively large share (40%) of them that are Tier 2 (mid-skill/mid-wage).

Silicon Valley's unemployment rate — which peaked in April 2020 at an unprecedented 12%, higher than the 11% Great Recession-peak in July and August 2009 and any other year on record (30+ years including the dot.com bust) — returned to pre-pandemic (mid-March 2020) rates by the end of 2021.

The December 2021 unemployment rate was 2.9% in Silicon Valley (Santa Clara and San Mateo Counties, combined), 3.4% in the 9-county Bay Area, 3.0% in San Francisco, 5.0% in California overall, and 3.7% nationwide.

UNEMPLOYMENT
Monthly Unemployment Rate

Santa Clara & San Mateo Counties, San Francisco, California, and the United States
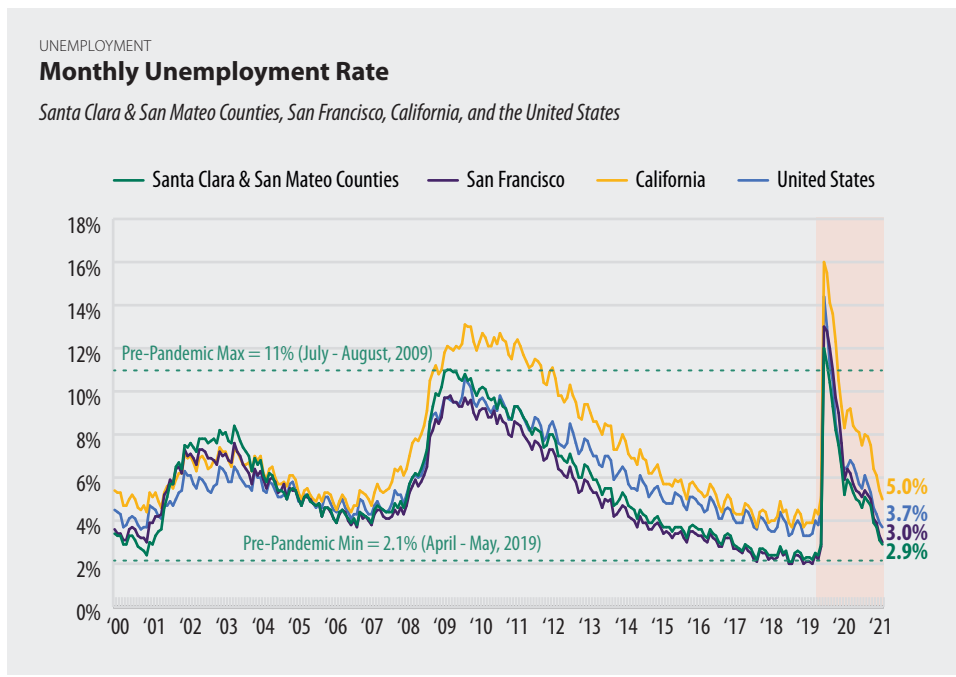
Note: County-level and California data for November and December 2021 are preliminary; Rates are not seasonally adjusted. | Data Source: U.S. Bureau of Labor Statistics, Current Population Survey (CPS) and Local Area Unemployment Statistics (LAUS); California Employment Development Department (EDD) | Analysis: Silicon Valley Institute for Regional Studies

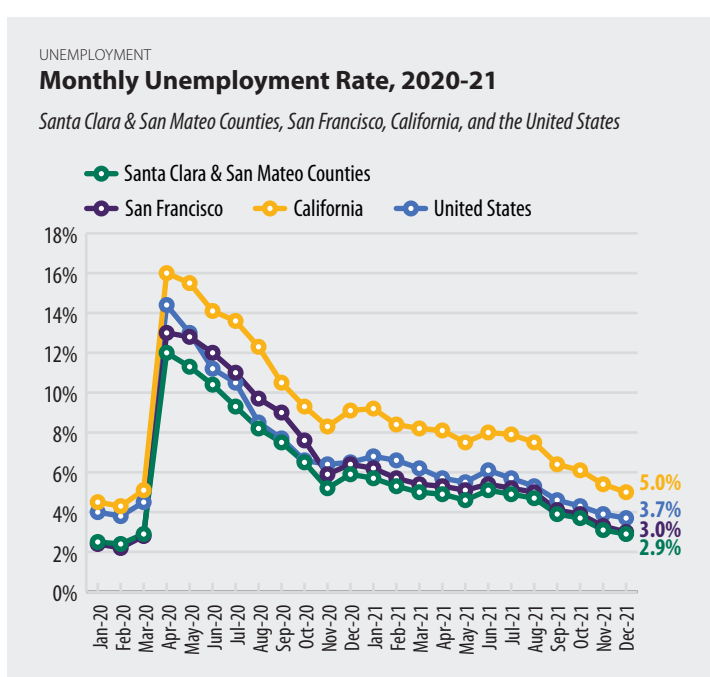Greater Silicon Valley[A] employment levels between November and December 2021 grew most notably in Trade, Transportation, and Utilities (+4,500 jobs, or +1.7%), Leisure and Hospitality (+3,300, or +1.8%), Professional and Business Services (+3,000 jobs, or +0.5%), and Information (+2,100 jobs, or +0.9%). Manufacturing added 1,200 jobs, reaching 1.3% above March 2020 levels.

A. Including the San Jose-Sunnyvale-Santa Clara MSA (Santa Clara and San Benito Counties) and San Francisco-Redwood City-South San Francisco MD (San Francisco and San Mateo Counties).

Prior to the pandemic, Silicon Valley's unemployment rate was at a 20-year low — reaching 2.1% in the spring of 2019, lower than any other month since December 1999. Within one month of the crisis, the region's unemployment rate skyrocketed to an historic high of 12% in mid-April.

UNEMPLOYMENT
Monthly Unemployment Rate, 2020-21

Santa Clara & San Mateo Counties, San Francisco, California, and the United States

Employment within several industries remained severely depressed at the end of 2021 within the greater Silicon Valley region; among them were Leisure & Hospitality (-21% since March 2020, or -50,600 jobs), Personal & Laundry Services (-31%, or -4,600 jobs), Accommodation (-39%, or -13,600 jobs), Clothing & Clothing Accessory Stores (-11%, or -2,000 jobs), and Full-Service Restaurants (-17%, or -24,000 jobs).

As of mid-December, approximately 42,600 people in Silicon Valley's labor force remained unemployed (12,500 in San Mateo County, and 30,100 in Santa Clara County), a decrease of nearly 3,900 since mid-November, and a drop of approximately 38,300 since the beginning of 2021. The total number of unemployed workers was lower than the 42,900 pre-pandemic (in March 2020).
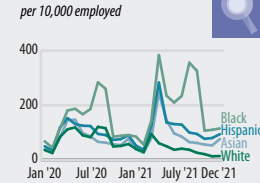
Silicon Valley's unemployment rate decreased by nearly 0.3 percentage points between November and December 2021, following a 0.5 percentage point decrease over the prior one-month period.

ECONOMY
Employment

Initial unemployment insurance (UI) claims filed during the pandemic in 2020 and 2021 show the lingering impacts of the pandemic on job losses, disproportionately affecting Black or African American residents and Hispanic or Latino residents compared to white residents. Black or African American residents filed UI claims at five times the rate of white residents in 2021, and Hispanic or Latino residents filed at nearly three times the rate as white residents.

Weekly Initial Unemployment Insurance Claims
per 10,000 employed

UNEMPLOYMENT
Average Unemployment Rate by Race & Ethnicity

Santa Clara & San Mateo Counties

*2020 data is experimental. | Note: Data from the 2020 United States Census Bureau American Community Survey 1-Year Estimates is considered experimental due to pandemic-related data collection issues. | Data Source: United States Census Bureau, American Community Survey | Analysis: Silicon Valley Institute for Regional Studies
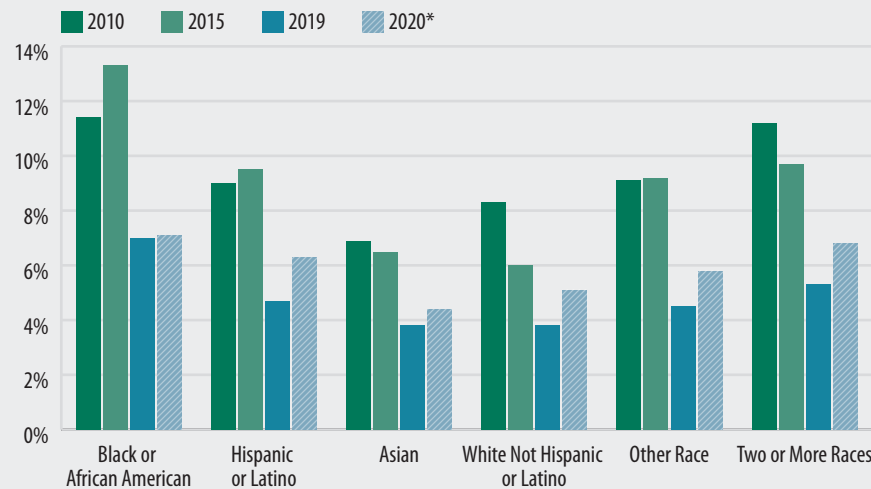
Unemployment rates across all racial and ethnic groups in Silicon Valley were below pre-recession (2007) levels by 2016. Between 2016 and 2019, the unemployment rate declined further for all groups except Black or African American residents, for whom the rate increased from 5.3% in 2016 to 5.7% in 2019. In 2020, estimated data shows the widespread impact of the pandemic on unemployment rates; unemployment rates increased across all racial and ethnic groups and most dramatically for Hispanic or Latino residents (from 3.7% in 2019 to 6.3% in 2020) and for the first time since 2013, the unemployment rate increased for White not Hispanic or Latino residents (2.6% in 2019 to 5.1% in 2020). The unemployment rate remained the highest for Black or African American residents at 7.1% (up from 5.7% in 2019).

Silicon Valley's largest tech companies have continued to grow their local workforce since pre-pandemic (+16% since January 2020); however, their workforces are growing more rapidly in other parts of the state and country (+43%) and world (+123%) — the latter primarily due to massive growth in Amazon's workforce.

The Bay Area ranks #1 among top U.S. tech talent centers by both total number of people in tech occupations (more than 373,000 in 2020) as well as the percentage of local jobs (10.9%); Seattle is a close second by share of jobs (9.4%), but the total number of tech jobs there remains much lower (-51%) than in the Bay Area despite rapid growth over the past five years (+35%).

TECH TALENT CENTERS
Top U.S. Tech Talent Centers
by percent growth, share of local jobs, and total number of tech jobs

Data Source: CBRE Research, Scoring Tech Talent 2021 | Analysis: CBRE Research; Silicon Valley Institute for Regional Studies

Emerging U.S. tech talent regions since 2015 — by percent growth — include Salt Lake City (+34%), Denver (+31%), and Portland (+28%). While the five-year Bay Ar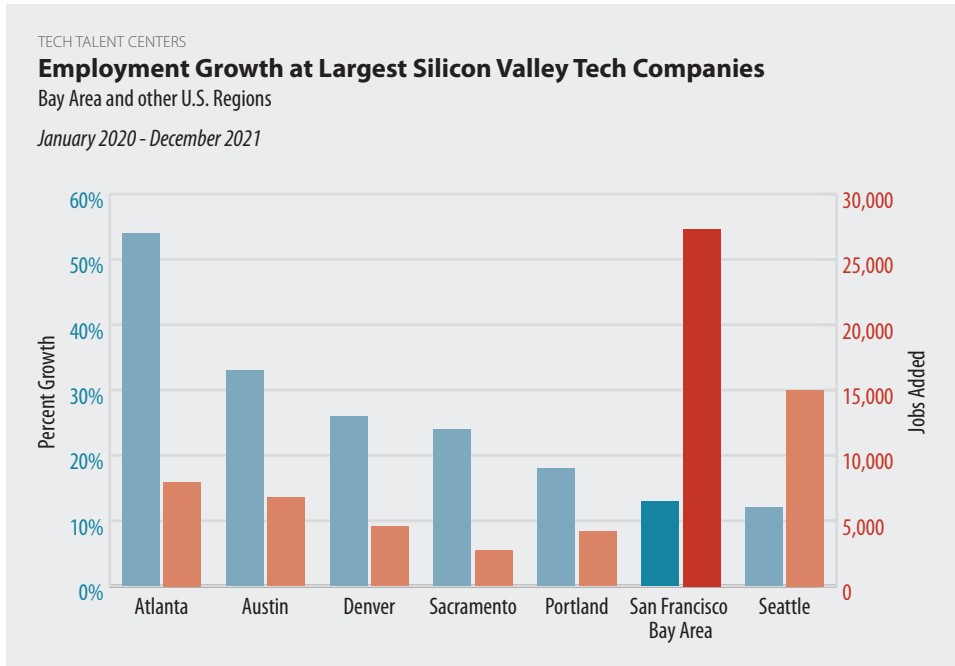ea growth rate was lower, at 16%, the region added as many new tech jobs between 2015 and 2020 (+52,600) as Salt Lake City, Denver, and Portland combined (+53,000).

The Bay Area remains a top U.S. tech talent center in terms of total number of tech jobs[A] as well as the share of local jobs that are in tech. However, five-year tech job growth rates have been much higher in several other regions, such as Seattle, Denver, Salt Lake City, and Portland — areas that not only have lower average wages for tech workers (by as much as $55,000 annually) but also have more rapid growth in Millenial[B] populations (as high as +20% since 2014 in Denver).

A. Includes software developers and programmers; computer support, database and systems; technology and engineering related; and computer an
B. Ages 23-38

TECH TALENT CENTERS
Employment Growth at Largest Silicon Valley Tech Companies
Bay Area and other U.S. Regions

January 2020 - December 2021

Data Source: LinkedIn; *Silicon Valley Business Journal* | Analysis: Silicon Valley Institute for Regional Studies

Bay Area Share of Top Tech Employers' Workforce
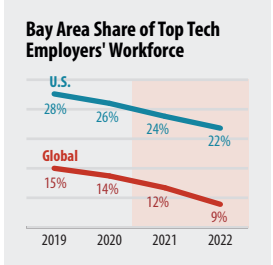
By percentage change, large Silicon Valley tech companies have grown the most since pre-pandemic in the Atlanta Metro (+54% over a two-year period); however, the numbers are small in comparison (+8,000 compared to +27,300 in the Bay Area) and the growth of Silicon Valley's largest tech companies there is largely attributed to Amazon. Austin's employment growth among the largest Silicon Valley tech companies is largely attributed to Apple (approximately +1,500) and Amazon (+2,400).

Bay Area employment at Silicon Valley's largest 20 tech employers has grown by +16% since pre-pandemic (January 2020 through December 2021), adding approximately 26,200 jobs. However, the region's share of those companies' aggregate U.S. and global workforces has declined (from 26% to 22%, and from 14% to 9%, respectively) over that same period.

While Austin, Atlanta, Denver, and Portland were all identified as top tech talent centers (by share of local jobs and 5-year growth rates), job growth at the largest Silicon Valley tech companies since pre-pandemic in those regions was much smaller in magnitude than local/Bay Area growth.

ECONOMY
Income

Much of the latest income data available by race and ethnicity, sex, and educational attainment level is outdated, with the most recent reliable numbers (from 2019) showing vast disparities persisting within the region even at comparable levels of educational attainment. These disparities translate into both a growing income divide as well as extreme levels of wealth inequality.

Limited income data for 2020 indicate continued, steady gains for the year overall. Per capita personal income gains were due to a combination of increasing personal income and a declining total population. Likewise, estimates suggest that median household income exhibited a modest three percent income gain in 2020 after adjusting for inflation. While indicators such as per capita personal income and

average annual earnings continue to exhibit upward trends, the region's equiproportional income growth (equality in percent growth) has masked the effects of inequitable absolute growth (equality in actual dollar amount increases). This divergence has contributed to a growing divide between those able to purchase homes and build wealth, and those who continue to lose traction.

Silicon Valley residents have an estimated collective wealth of $735 billion in total investable assets and another $432 billion in residential real estate — together (nearly $1.17 trillion) the region's personal wealth is more than the GDP of The Netherlands. Yet, Silicon Valley's income inequality has grown twice as quickly as that of the state or nation over the past decade, and the wealth divide is even

more stark. An estimated 169,000 (approximately 18 percent of all) households have no savings whatsoever, or are in debt; another 55,000 (approximately six percent) are living paycheck-to-paycheck, at risk of food and housing insecurity. Meanwhile, the wealthiest 25 percent of households (each with more than half a million dollars in investable assets) hold an estimated 92 percent of the wealth.
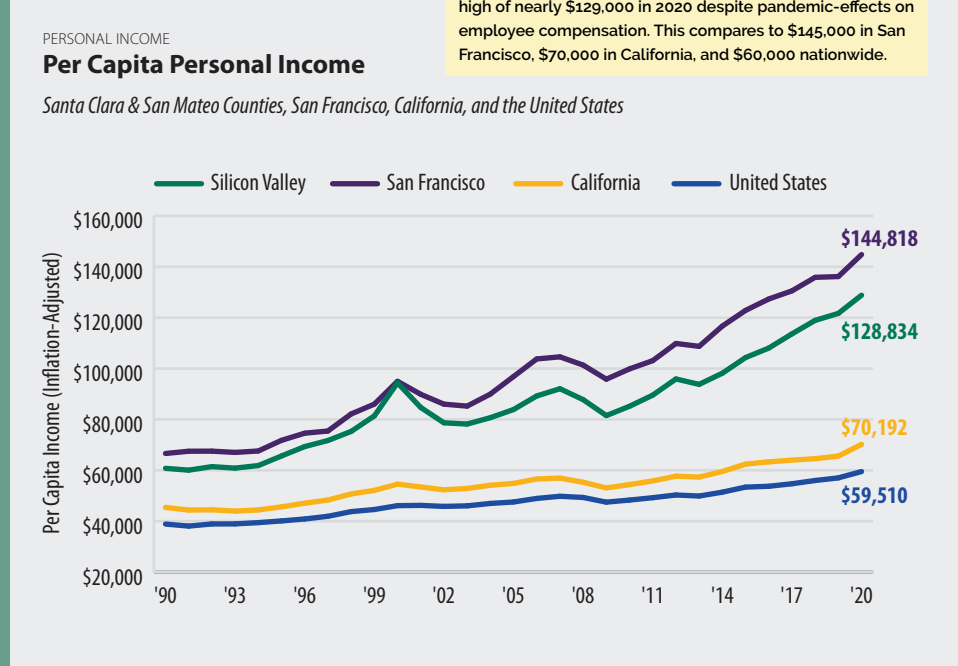
Nineteen of 39 Silicon Valley cities have enacted minimum wage ordinances ranging from $15.00 to $16.30 per hour in mid-2021. Yet, the real cost of living is rising more quickly than the overall inflation rate (particularly for housing and childcare), and the wages required for self-sufficiency (to meet one's own basic needs without assistance) for all family types — including those with dual-incomes and no-children

Per capita income gains have consistently outpaced inflation (nearly every year) since the start of the Great Recession economic recovery period; however, Black or African American residents have experienced much smaller gains than other racial/ethnic groups.

Silicon Valley's inflation-adjusted per capita personal income rose slightly in 2020 due to a combination of total personal income gains and a declining population (thus a smaller denominator in the per capita income calculation).

Between 2019 and 2020, un-adjusted total personal income in Santa Clara and San Mateo Counties combined increased by nearly 7%. Over the same period, the Bay Area Consumer Price Index change (inflation rate) was +1.7% and the total population declined slightly (less than 1%), resulting in a 6% year-over-year rise in Silicon Valley's inflation-adjusted per capita personal income.

Inflation-adjusted per capita income has been increasing steadily in Silicon Valley since 2009, reaching an all-time high of nearly $129,000 in 2020 despite pandemic-effects on employee compensation. This compares to $145,000 in San Francisco, $70,000 in California, and $60,000 nationwide.

PERSONAL INCOME
Per Capita Personal Income

Santa Clara & San Mateo Counties, San Francisco, California, and the United States

Legend: Silicon Valley — San Francisco — California — United States

Y-axis: Per Capita Income (Inflation-Adjusted), $20,000 to $160,000

Labeled values: $144,818, $128,834, $70,192, $59,510

X-axis: '90, '93, '96, '99, '02, '05, '08, '11, '14, '17, '20

Note: Personal income is defined as the sum of wage and salary disbursements (including stock options), supplements to wages and salaries, proprietors' income, dividends, interest, rental income, and personal current transfer receipts, less contributions for government social insurance. | Data Source: United States Department of Commerce, Bureau of Economic Analysis | Analysis: Silicon Valley Institute for Regional Studies

Per capita personal income increased in 2020 despite pandemic-related unemployment, largely due to the impact of the federal Coronavirus Aid, Relief, and Economic Security (CARES) Act relief funding.[9] Additionally, total personal income — particularly in places like Silicon Valley that have a large degree of income inequality — is affected by the highest income earners (who were less likely to have experienced pandemic-related job losses) affect total personal income, and the influence of the total population including children on the per capita calculation.

— exceeds even the highest minimum wage in the region.

Food insecurity rates rose dramatically during the pandemic and remained elevated for a prolonged period, while food prices continued to increase (by as much as 16 percent for "food at home" since pre-pandemic); both of these factors contributed to the rise in Silicon Valley's growing need for food assistance. In FY 2019-20, for the first time ever, the number of meals distributed by the region's nonprofit food bank (Second Harvest of Silicon Valley) exceeded those provided by CalFresh — California's SNAP (formerly Food Stamps); this trend continued into 2020-21 as well.

Why is this important?

Income growth is as important a measure of Silicon Valley's economic vitality as job growth. Considering multiple income measures together provides a clearer picture of regional prosperity and its distribution. Per capita income rises when a region generates wealth faster than its population increases. The median household income represents the middle of the income distribution, and does not skew the way an average would with a small number of extremely high earners. Examining income by educational attainment, sex, race, ethnicity, and occupational groups reveals the complexity of our income gap. Looking at the shares of households by investable assets indicates the amount of money

available for consumer and discretionary spending, higher education, retirement, philanthropy, and overall financial security; it also helps to examine the extent to which income inequality leads to wealth inequality. A lack of equality has been shown to negatively impact the way community members maintain social bonds, put pressure on the achievements of economic success without the means to achieve it in legal ways, and conjure feelings of unjust deprivation.[8] The share of households living below the federal poverty limit and/or Self-Sufficiency Standard are key indicators of the challenges facing many Silicon Valley residents, and directly relate to their risks of food insecurity, housing insecurity, and overall need for assistance.

PERSONAL INCOME
Per Capita Income by Race & Ethnicity
Santa Clara & San Mateo Counties | 2019
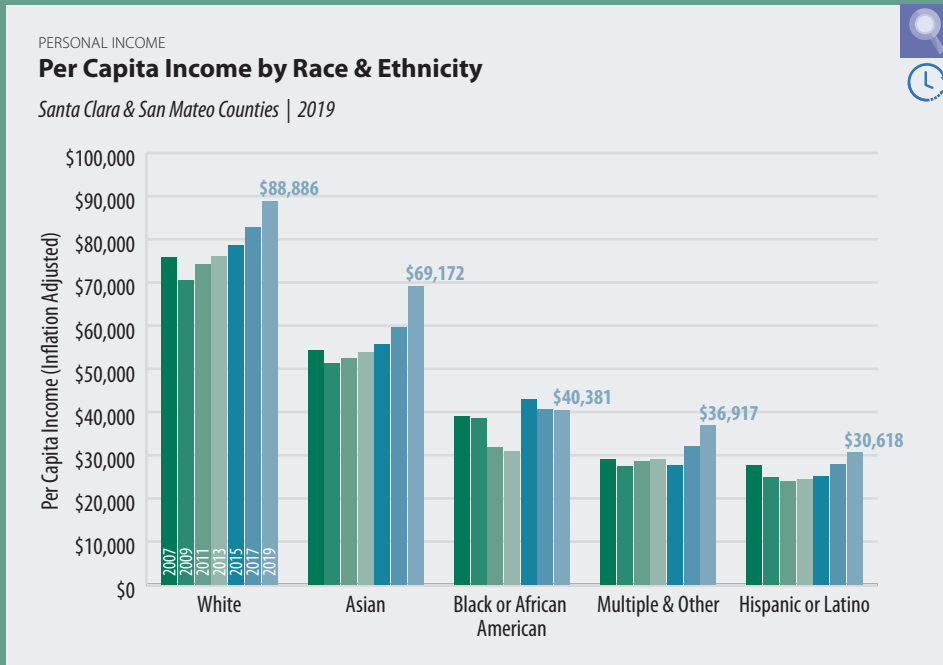
Note: Multiple & Other includes Native Hawaiian & Other Pacific Islander Alone, American Indian & Alaska Native Alone, Some Other Race Alone and Two or More Races; Personal income is defined as the sum of wage or salary income, net self-employment income, interest, dividends, or net rental welfare payments, retirement, survivor or disability pensions; and all other income; White is not Hispanic or Latino.
Data Source: United States Census Bureau, American Community Survey | Analysis: Silicon Valley Institute for Regional Studies

The highest earning among racial/ethnic groups in 2019 were White residents at nearly $89,000 (based on Census data, which include income from cash or cash equivalents only).[10] This number is significantly lower than per capita income estimates from the Bureau of Economic Analysis ($121,000) due to exclusion of non-monetary compensation, bonuses, and additional employer benefits from the dataset, and because the dataset is limited to individuals only.[11]

Percent Change in Inflation-Adjusted Per Capita Income, by Race & Ethnicity
Santa Clara & San Mateo Counties, 2009-2019

Asian	+35%
Multiple & Other	+34%
White	+26%
Hispanic or Latino	+23%
Black or African American	+5%
ALL	+25%

Over the decade between 2009 and 2019, inflation-adjusted personal per capita income in Silicon Valley rose significantly for most racial/ethnic groups (23-35%); however, per capita income for Black or African American residents barely outpaced inflation, with only a 5% increase over those ten years. This lack of income growth is related to the types of jobs available to those without a college education; in 2019, only 38% of Black or African American and 21% of Hispanic or Latino residents had undergraduate degrees, compared to 64% of White and 62% of Asian residents.

ECONOMY
Income

Average wages vary significantly across racial/ethnic groups in Silicon Valley with the largest disparity between Hispanic or Latino and White residents (in 2019 average wages for Hispanic or Latino residents were 144% lower than for White residents, and nearly 110% lower for Black or African Americans when compared to White residents).

WAGES BY RACE & ETHNICITY
Averge Wage for Full-Time Workers by Race & Ethnicity

Santa Clara & San Mateo Counties

Legend: 2015 2016 2017 2018 2019

Average Wages, Bachelor's Degree+
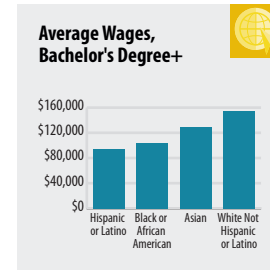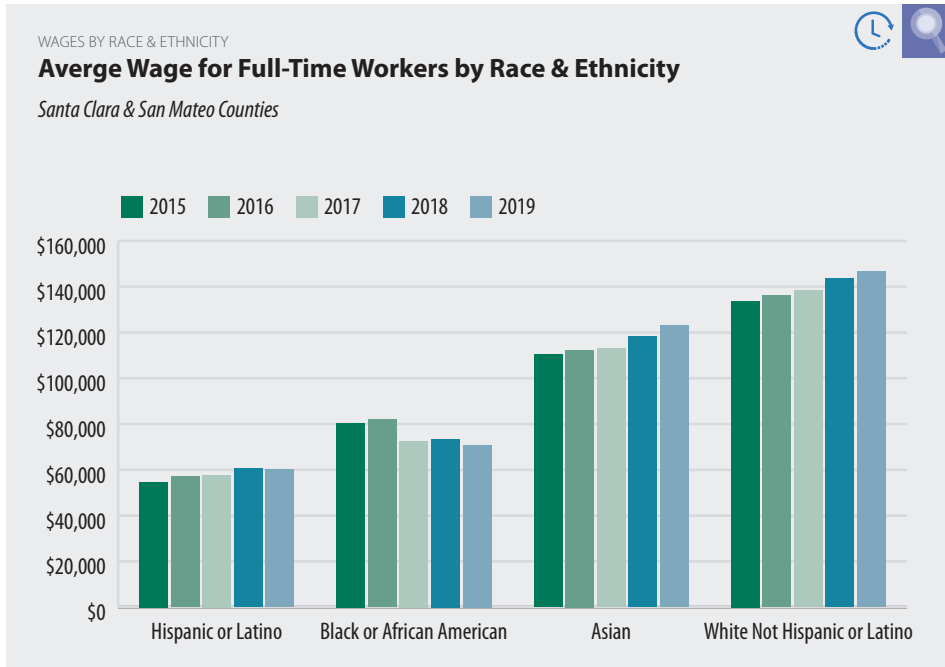
Inflation-adjusted average wages increased across all racial/ethnic communities in Silicon Valley from 2015 to 2019 except for Black or African American residents who saw a decline of nearly 14% over the five-year period; nearly 4% from 2018 to 2019.

Note: Includes all full-time workers over age 15 with earnings. | Data Source: United States Census Bureau, American Community Survey PUMS | Analysis: Silicon Valley Institute for Regional Studies

Although educational attainment plays a role in average wage disparity among racial/ethnic groups, among residents with a bachelor's degree or higher, Hispanic or Latino residents make an average wage that is 64% less than similarly educated White residents; Black or African Americans make an average wage nearly 50% less than White residents.

Individual Median Income, by Educational Attainment
Santa Clara & San Mateo Counties | 2019

	Silicon Valley	San Francisco	California	United States
High School Graduate	$39,500	$34,900	$33,500	$32,000
Bachelor's Degree or Higher	$108,300	$103,900	$75,300	$63,700
Gap	$68,800	$69,000	$41,800	$31,700
Ratio	2.7	3.0	2.2	2.0

Note: High School Graduate includes equivalency. | Data Source: United States Census Bureau, American Community Survey | Analysis: Silicon Valley Institute for Regional Studies

The income gap between residents of varying educational attainment levels is much wider in Silicon Valley and San Francisco than in California or the United States as a whole, with a $69,000 gap between the median income of those with a bachelor's degree or higher and those with only a high school diploma.

Between 2018 and 2019, Silicon Valley individual median income rose by 4% for residents with less than a high school diploma (up $1,270 annually, after adjusting for inflation —equivalent to an hourly-pay increase of approximately 61 cents for full-time workers). This annual growth was likely a result of recent minimum wage increases at both the state and local levels.[12] While it has outpaced inflation, narrowly, it has not increased as quickly as rising costs of basic needs within the region.

Silicon Valley workers with a graduate or professional degree earned nearly $69,000 more than those with only a high school diploma (2.7 times more) in 2019; this compares to a ratio of 2.2 in California and 2.0 in the United States overall that year.

In contrast to per capita income (which is often used to compare relative economic prosperity in different locales), median individual income is useful to better understand disparities among segments of the population without skewing the numbers due to other population variables or outliers (as with an average). In 2019, the median individual income was nearly $108,300 for Silicon Valley residents with a bachelor's degree or higher, and $31,700 for those without a high school diploma.

Average annual earnings — including wages and supplements — are much higher in Silicon Valley and San Francisco ($169,900 and $173,000, respectively, in 2021) than the Bay Area overall ($138,500), California ($89,200), or the United States ($71,700).

PERSONAL INCOME
Average Annual Earnings

Silicon Valley, San Francisco, Bay Area, California, and the United States | 2021

Note: Includes wages, salaries, profits, benefits, and other compensation.
Data Source: California Employment Development Department; JobsEQ | Analysis: BW Research
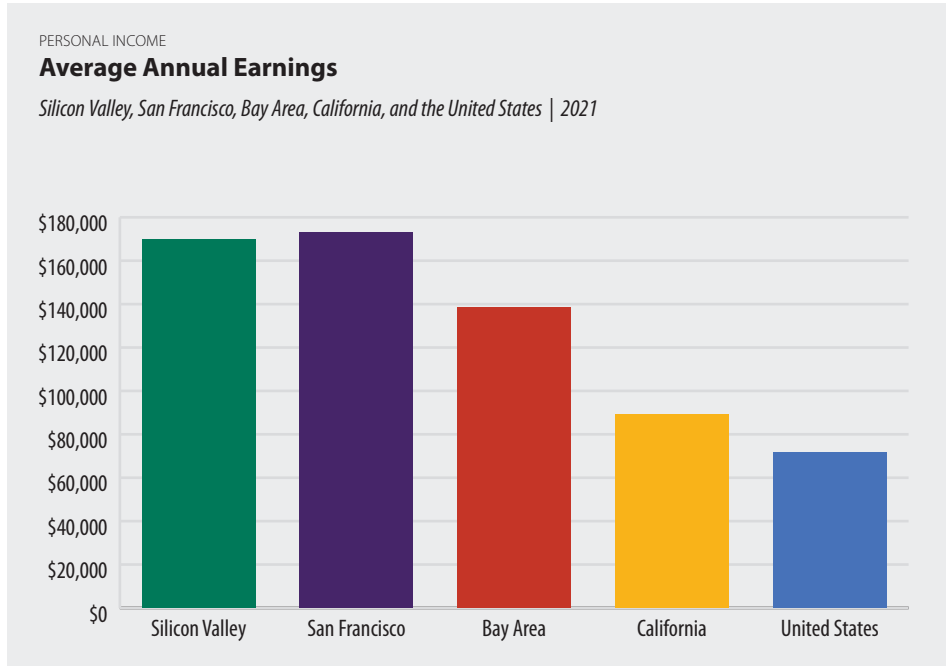
Average annual earnings in Silicon Valley and San Francisco are higher than elsewhere for a variety of reasons, including larger shares of high-wage tech jobs which often include company stock. The relatively high impact of investment income on average earnings within the region is reflected in the share of individuals claiming them on their tax returns (15% in Santa Clara & San Mateo Counties, combined, and 13% in San Francisco) compared to 11% of individual returns in the Bay Area, 5% in California, and 3% nationwide.[A]

A. Based on 2019 Individual Income Tax Returns (U.S. Internal Revenue Service).

Median Wages, by Occupational Category
Greater Silicon Valley* 2021

Management, Business, Science and Arts Occupations	$122,370
Natural Resources, Construction and Maintenance Occupations	$67,156
Sales and Office Occupations	$50,800
Production, Transportation and Material Moving Occupations	$42,289
Service Occupations	$38,980

*Greater Silicon Valley includes the San Jose-Sunnyvale-Santa Clara Metropolitan Statistical Area (Santa Clara and San Benito Counties) plus the San Francisco-San Mateo-Redwood City MSA (Marin, San Francisco, and San Mateo Counties) through 2015, and the San Francisco-Redwood City-South San Francisco Metropolitan Division (San Francisco and San Mateo Counties) for 2016-2020. | Data Sources: U.S. Bureau of Labor Statistics, Quarterly Census of Employment and Wages; JobsEQ | Analysis: BW Research

In 2021, Service workers earned a median wage of $38,980 per year in the greater Silicon Valley region—a (pre-tax) total only marginally higher than the $32,886 annual fair market rent for a one-bedroom apartment.[13]

Median wages vary significantly by occupational category for Silicon Valley workers. In 2021, those in Management, Business, Science and Arts Occupations earned 3.1 times more than those in Service Occupations.
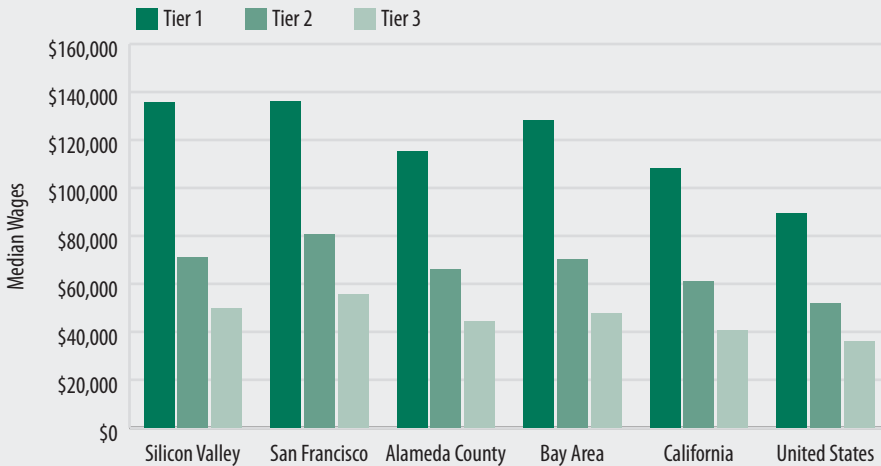
Median Wages by Tier

Silicon Valley, San Francisco, Alameda County, Bay Area, California, and the United States | 2021

Note: Definitions of Tier 1 (high-skill/high-wage), Tier 2 (mid-skill/mid-wage), and Tier 3 (low-skill/low-wage) jobs are included in Appendix A. | Data Sources: BW Research; U.S. Bureau of Labor Statistics, Quarterly Census of Employment and Wages; California Employment Development Department; JobsEQ | Analysis: BW Research

The median wage for Silicon Valley Tier 1 (high-wage/high-skill) workers was $135,600 in 2021—three times more than Tier 3 workers (a gap of $85,700); this compares to gap of $53,300 between Tier 1 and Tier 3 workers in the country as a whole.

The gender-income gap in Silicon Valley is wider at higher levels of educational attainment. For full-time workers with a bachelor's degree or higher, the gender-income gap was $51,500 in 2019 ($2,900 more than the previous year and $8,100 more than in 2017); in comparison, the gap was $7,000 for workers without a high school diploma (a gap that has shrunk over time, by -$3,200 since 2017).

Average Wages for Full-Time Workers, by Sex

Santa Clara & San Mateo Counties | 2019

Note: Includes all full-time workers over age 15 with earnings. Some College includes Less than 1 year of college; Some college, 1 or more years, no degree; Associate degree; Professional certification. | Data Source: United States Census Bureau, American Community Survey PUMS
Analysis: Silicon Valley Institute for Regional Studies
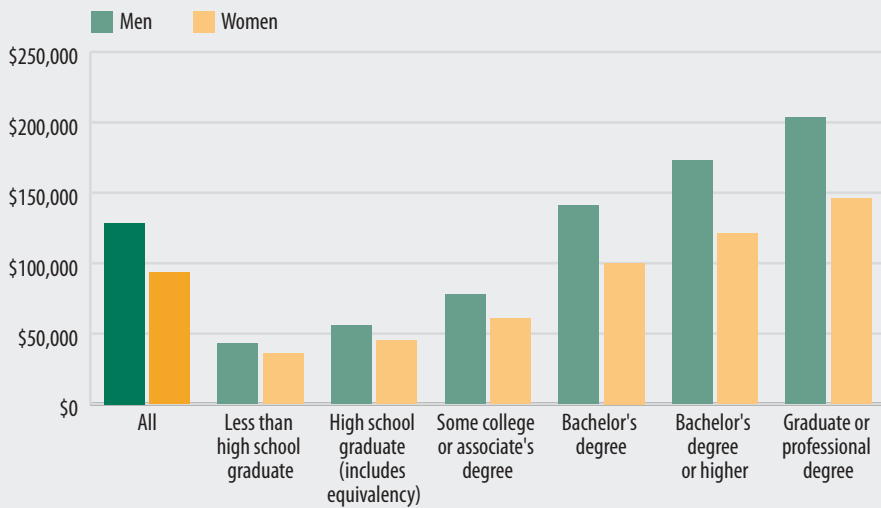
Silicon Valley Female:Male Wage Ratio
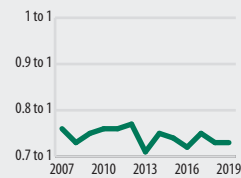
Average wages for Silicon Valley full-time working mothers were 66% of full-time working fathers in 2019.[A] Parenthood was the determinant of the largest gender-pay disparity among those analyzed, which included occupational category, sector, race and ethnicity, educational attainment level, and nativity.

A. Includes adults ages 16 to 62, living with a related child.

Despite pandemic-related job losses, Silicon Valley median household income continued an upward trend into 2020, with an estimated 2% year-over-year increase (after inflation-adjustment and based on the limited data available); this rise was due to a +3% increase in Santa Clara County, and despite a -4% decline in San Mateo County between 2019 and 2020, after inflation-adjustment.

HOUSEHOLD INCOME
Median Household Income

Santa Clara & San Mateo Counties, San Francisco, California, and the United States

Legend: Silicon Valley · San Francisco · California · United States

Y-axis: Median Household Income (Inflation Adjusted) — $0 to $160,000

% Change 2011 - 2020

Silicon Valley	+28%
San Francisco	+41%
California	+18%
United States	+16%

End labels: $138,100 · $126,500 · $83,100 · $67,300

X-axis: '00 '01 '02 '03 '04 '05 '06 '07 '08 '09 '10 '11 '12 '13 '14 '15 '16 '17 '18 '19 '20*

*2020 estimate from 1-year American Community Survey microdata with experimental weights | Note: Household income includes wage or salary income; net self-employment income; interest, dividends, or net rental or royalty income from estates and trusts; Social Security or railroad retirement income; Supplemental Security income; public assistance or welfare payments; retirement, survivor, or disability pensions; and all other income; excluding stock options.
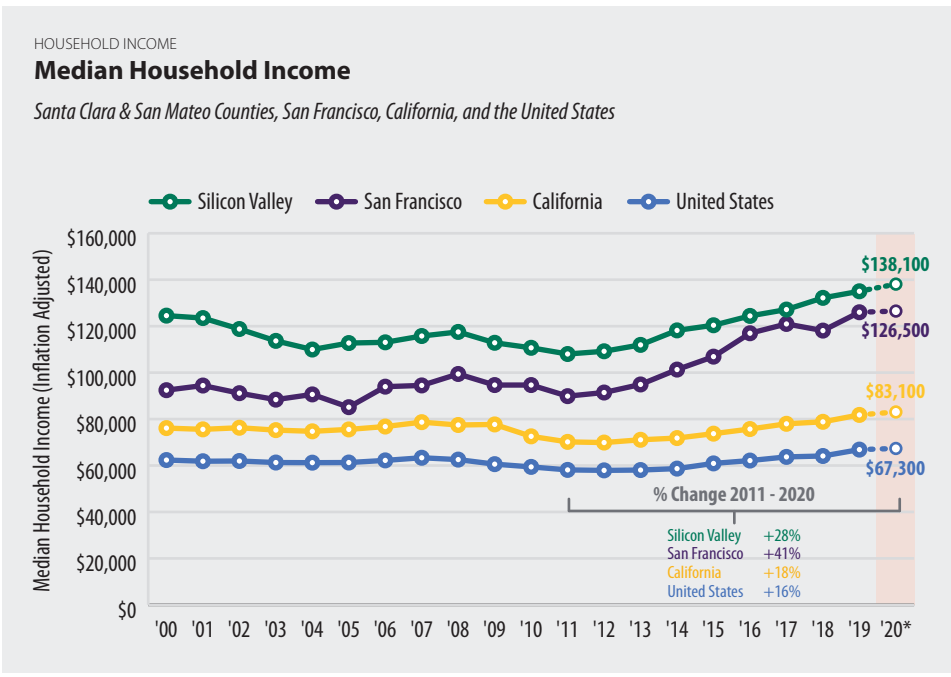Data Source: United States Census Bureau, American Community Survey | Analysis: Silicon Valley Institute for Regional Studies

Median household income in Silicon Valley remained around 1.7 times higher than in California overall, and more than twice the national figure in 2020.

Median household income has increased by 41% in San Francisco and 28% in Silicon Valley since 2011, the first year of positive household income growth following Great Recession losses (compared to 18% statewide, and 16% in the U.S. overall).

In 2020, the median household income in Santa Clara and San Mateo counties combined was estimated at an all-time high of $138,100. This compares to $126,500 in San Francisco, $83,060 in California overall, and $67,300 nationally.

Men in Silicon Valley with a bachelor's degree or higher earned an average of $172,600 annually in 2019 — 43% more than women with the same level of educational attainment. Although early-pandemic job losses disproportionately affected women, national data suggest that the gender-pay gap was not significantly different in 2020 than in previous years.[14]

The 2019 gender-income gap was wider in Silicon Valley — where women were paid an average of $0.73 for every dollar a man earned — than in San Francisco ($0.79 on the dollar), California ($0.79), or the United States as a whole ($0.75).

ECONOMY
Income

HOUSEHOLD INCOME
Absolute Gini Coefficients of Income Inequality

Santa Clara & San Mateo Counties, Bay Area, California, and the United States

Legend: ● Santa Clara & San Mateo Counties ● Bay Area ● California ● United States

*2020 estimate from 1-year American Community Survey microdata with experimental weights. | Note: The Absolute Gini is the product of the Relative Gini and the inflation-adjusted mean household income, and has been scaled to equal the Relative Gini in 1990. | Data Source: United States Census Bureau, American Community Survey | Analysis: Jon Haveman; Silicon Valley Institute for Regional Studies
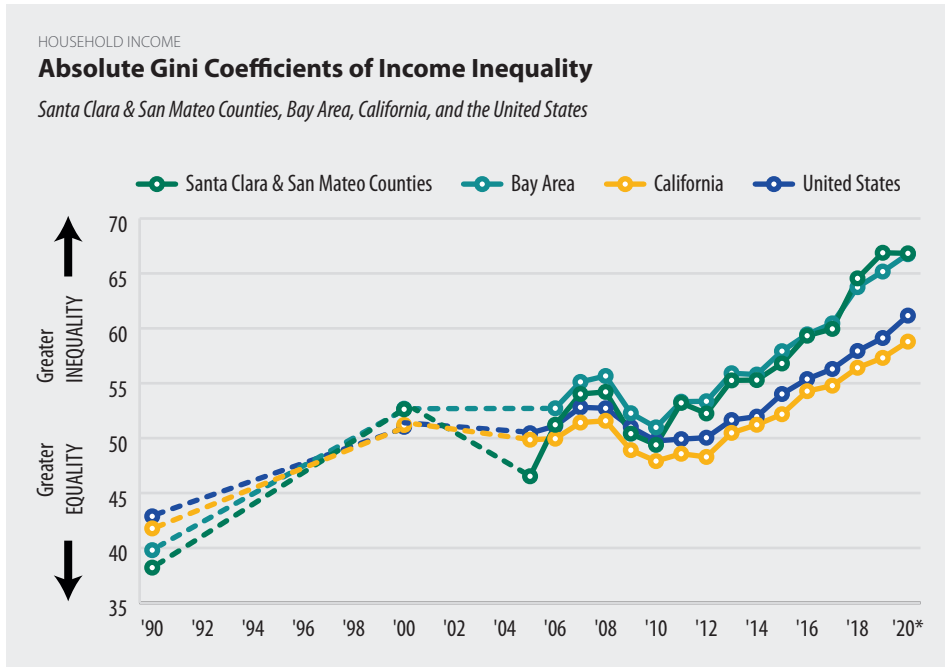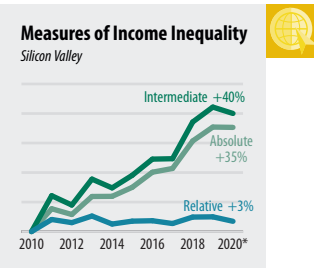
Measures of Income Inequality
Silicon Valley

Intermediate +40%
Absolute +35%
Relative +3%
2010 2012 2014 2016 2018 2020*

By several measures of income inequality — Relative, Absolute, and Intermediate (the product of the two) — Silicon Valley has grown more unequal over the past several decades; although most of the increase occurred in the 1990s, it has accelerated again since the beginning of the post-recession economic recovery in 2010.

The growing income divide in Silicon Valley has accelerated since the beginning of the Great Recession recovery period, increasing almost twice as quickly as the state or nation as a whole between 2010 and 2019.

Various coefficients are used to determine the extent of inequality within a given income distribution. In *relative* terms — where equality remains the same with equiproportional income growth — Silicon Valley is no more unequal than the nation overall and has risen by 22% since 1990 (compared to 12% nationally). In contrast, the *absolute* measure of income inequality — where equality remains the same with equal monetary increments of income gain — indicates that the extent of income inequality in Silicon Valley is nearly double (+90%) that of the U.S. overall, and has increased by 75% since 1990 (compared to only 43% nationally). Increases in the latter measure have been tied, by some, to a rise in housing prices due largely to increased demand by high-income households.[16]

Utilizing measures that account for changes in the actual (monetary) income gap between the highest- and lowest-earning households, Silicon Valley income inequality reached an all-time high in 2019. However, a dampening of this rise was observed in 2020 — based on the limited data available — despite increasing inequality in the Bay Area as a whole, statewide, and throughout the country. This leveling off may be more related to data limitations than an actual shift in equality, since the U.S. Census income data only include cash income[17] and many of the higher-income earners in Silicon Valley receive significant amounts of non-monetary compensation, bonuses, and additional employer benefits (particularly during years with large stock market gains, such as during 2020).

Silicon Valley's share of millionaire households has doubled over the past five years, from 8% in 2015 to 15% in 2022 (compared to 12% in San Francisco, 10% in California, and 8% in the U.S. overall).

Household Wealth Inequality

Top 1%	
Rest of Top 10%	
Middle 40%	
Bottom 50%	

Of Silicon Valley's 141,000 millionaire households (those with more than $1 million in investable assets), an estimated 6,900 have more than $10 million — representing less than 1% of the region's households, but holding nearly 25% of the collective wealth.

More than half (55%) of all Silicon Valley households in 2022 have less than $100,000 in investable assets – up from an estimated 53% in 2018 and 2020.

WEALTH
Share of Households, by Investable Assets

Santa Clara & San Mateo Counties

■ <$100,000   ■ $100,000 - $499,000   ■ $500,000 - $999,000   ■ ≥$1 million

Pie chart (top): ≥$10 million 5%; $5 - $9.99 million 18%; $3 - $4.99 million 16%; $1 - $2.99 million 62%

Pie chart (bottom): $50,000 - $99,999 15%; $25,000 - $49,999 13%; $5,000 - $24,999 21%; <$5,000 18%; Zero or negative 33%
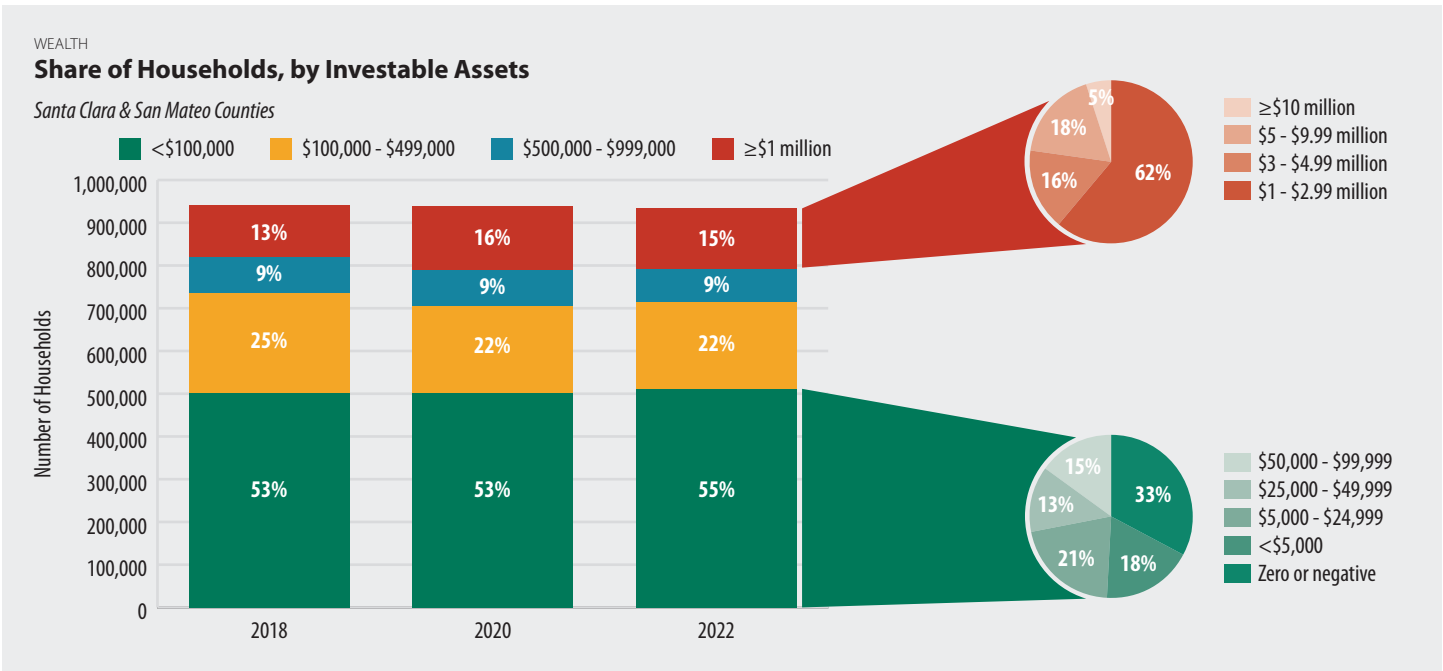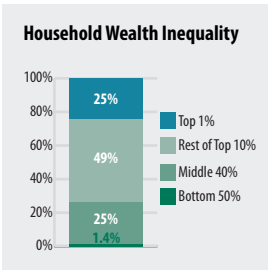
Note: Investable assets are all liquid assets such as checking accounts, CDs, and retirement accounts. Percentages are rounded and may not add up to 100%.
Data Sources: Claritas; Phoenix Global Wealth Monitor | Analysis: -Silicon Valley Institute for Regional Studies

An estimated 18% of Silicon Valley households have zero (or negative) net assets, amounting to nearly 169,000 households without any savings to cover potential job losses or unexpected expenses; an additional 10% have less than $5,000 in liquid assets.

One out of every seven California millionaire households is in either San Francisco, Santa Clara, or San Mateo Counties.

The top 1% of Silicon Valley households hold an estimated 25% of the collective wealth; the top 10% hold approximately 74%.

In the mid-1980s, the Middle 40% of the U.S. distribution held as much as 35% of the wealth, but that share has since declined (especially since the late 1990s) to 28% in 2021. The Western European distribution of wealth, however, looks slightly different — with the Middle 40% holding more of the wealth (38%) and the top 1% holding less (24%, compared to 35% in the U.S.)[18]

While the share of wealth held by Silicon Valley's top 10% of households is similar to that of California or the United States overall — in the 70-80% range — the average wealth of each of those households is higher in Silicon Valley (at an estimated $5.8 million in liquid assets, compared to $4.2 million in California and $3.5 million nationwide).

Aggregate household wealth in Silicon Valley is estimated at $735 billion in 2022 (not including the more than $430 billion in residential real estate[A]). If that amount were evenly distributed among the region's households, it would amount to $787,000 in net assets each.

A. Includes single family homes only. Santa Clara County Assessor 2021-2022 Annual Report, and San Mateo County Assessor 2018-2019 Annual Report.

ECONOMY
Income

Children in Silicon Valley have slightly higher poverty rates than adults, with nearly 8% of those under age 18 in 2015-2019 living below the poverty threshold (compared to 7% of adults).

Poverty Status by Race & Ethnicity
2015-2019
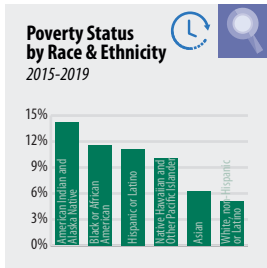
Prior to the pandemic, Silicon Valley's household poverty rate was the lowest on record since the 1990s (6% in 2019). Based on the limited data available for 2020, it appears that the poverty rate overall declined in Silicon Valley to 4.7%; similar declines were observed in San Francisco, throughout California, and nationwide. However, the 2020 Census data — due to a combination of low response rates and significant non-response bias — produced less precise estimates than typical (particularly at smaller geographic levels, like counties).

POVERTY STATUS
Percentage of the Population Living in Poverty
Santa Clara & San Mateo Counties, San Francisco, California, and the United States
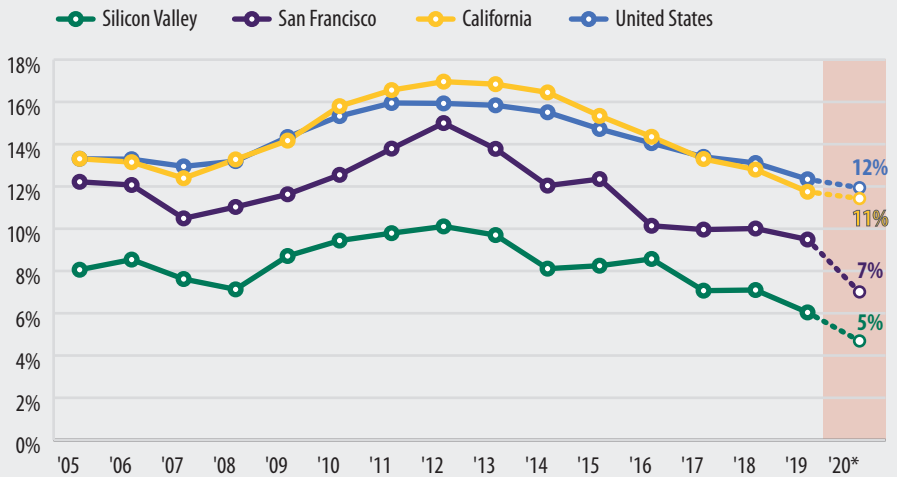
*2020 estimate from 1-year American Community Survey microdata with experimental weights | Data Source: United States Census Bureau, American Community Survey | Analysis: Silicon Valley Institute for Regional Studies

Silicon Valley poverty rates vary significantly by race and ethnicity; the poverty rate for Black or African American residents (12%) was more than double that of Asian or White (not Hispanic or Latino) residents in 2015-2019; the poverty rate for Silicon Valley residents who are American Indian or Alaska Natives was even higher, at 14% (or one out of every seven people). In 2020, the national poverty rate declined at the start of the pandemic (due primarily to the distribution of stimulus payments) then increased later in the year — rising back to disproportionately high rates for children, Hispanic, and Black individuals, and even during months in which the country has experienced employment gains.[19]

Silicon Valley's poverty rate remains low (approximately 5%) compared to San Francisco (7%), California (11%), and the United States as a whole (12%); however, these poverty estimates are based on the Federal Poverty Threshold (e.g., $26,200 for a family of four in 2020[20]), and therefore do not take into consideration the region's high cost of living.

The share of households living below Self-Sufficiency is higher in Silicon Valley (33%) than in San Francisco (30%) and the Bay Area overall (32%); statewide, a much higher share (38%) of households live below Self-Sufficiency Standards. For comparison, 36% of households in New York City and 24% in Portland, Oregon are below Self-Sufficiency.
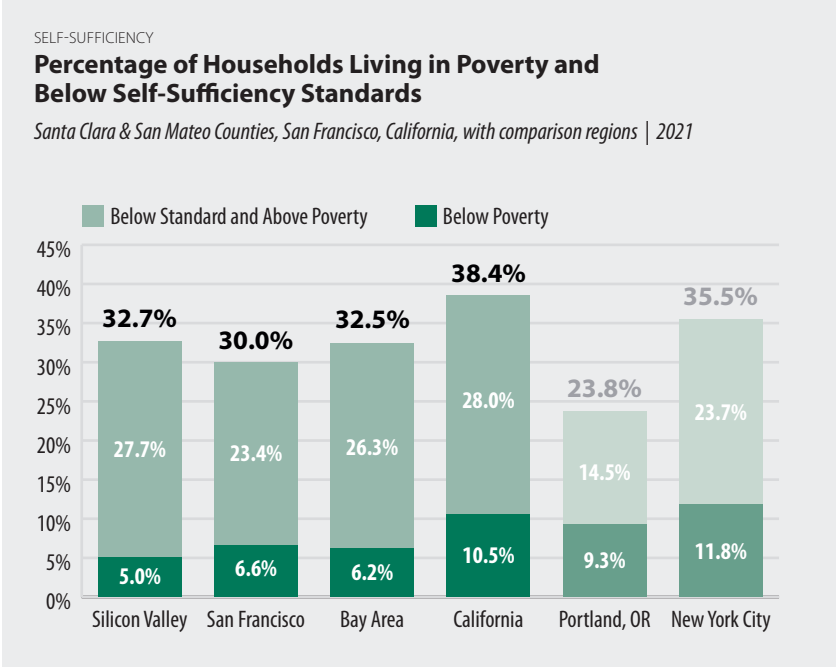
SELF-SUFFICIENCY

Percentage of Households Living in Poverty and Below Self-Sufficiency Standards

Santa Clara & San Mateo Counties, San Francisco, California, with comparison regions | 2021

Legend: ■ Below Standard and Above Poverty ■ Below Poverty

Region	Below Standard and Above Poverty	Below Poverty	Total
Silicon Valley	27.7%	5.0%	32.7%
San Francisco	23.4%	6.6%	30.0%
Bay Area	26.3%	6.2%	32.5%
California	28.0%	10.5%	38.4%
Portland, OR	14.5%	9.3%	23.8%
New York City	23.7%	11.8%	35.5%

Note: The Self-Sufficiency Standard defines the amount of income necessary to meet basic needs without public subsidies or private/informal assistance. | Data Source: Center for Women's Welfare, University of Washington | Analysis: Silicon Valley Institute for Regional Studies

Preliminary estimates suggest that the share of Silicon Valley's households living below the Self-Sufficiency Standard may have declined in 2020 (to 26.5%). While this estimate is based on experimental data, the decline is consistent with the impact of the first two rounds of federal stimulus payments on poverty nationwide (lifting as many as 12 million people — primarily 18- to 64-year olds — out of poverty).[21]

Despite a relatively low household poverty rate of 5%, nearly 33% of all Silicon Valley households do not earn enough money to meet their most basic needs without public or private/informal assistance.
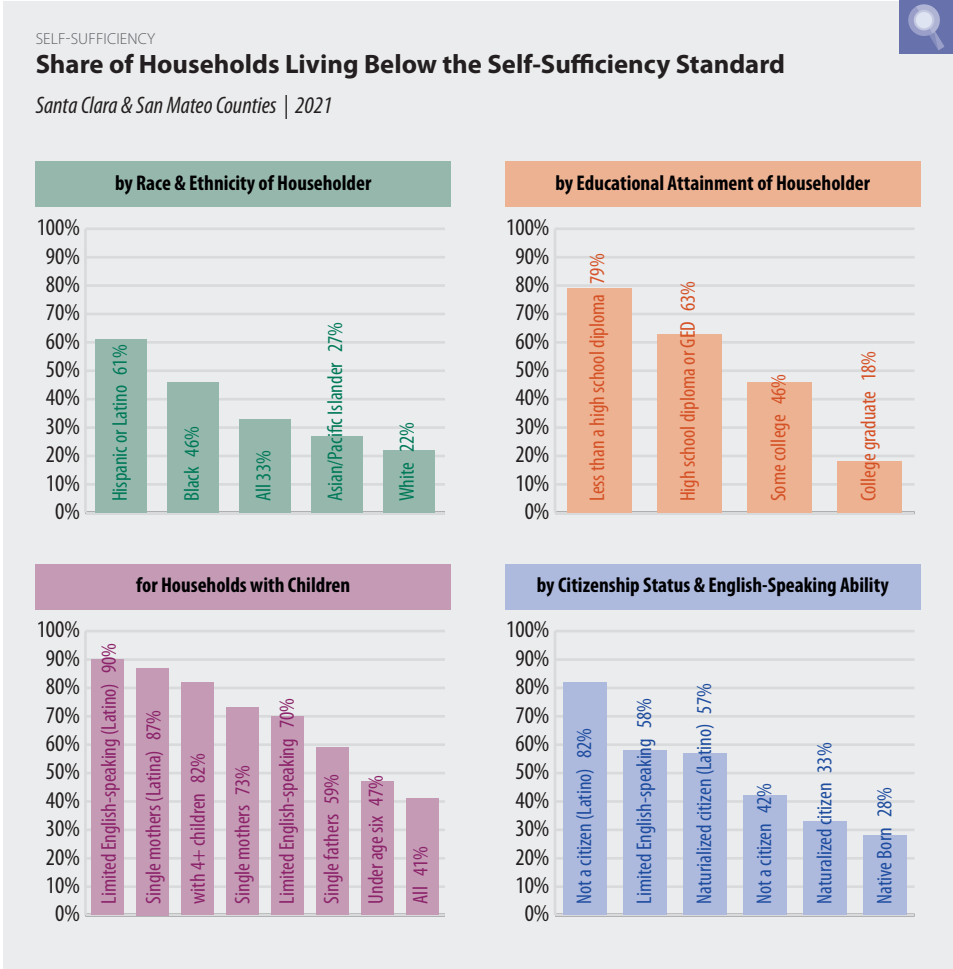
ECONOMY
Income

Households with children are more likely to struggle to make ends meet in Silicon Valley, with 41% living below Self-Sufficiency compared to 33% overall; likewise, 43% of households with children in the Bay Area have wages below the Self-Sufficiency Standard, compared to 32% of households overall.

Self-sufficiency varies significantly by race and ethnicity, educational attainment level, family-type, citizenship status, and many other factors. Among the Silicon Valley household types that were most likely to live below Self-Sufficiency in 2021 were Latino non-citizens (an estimated 82% below the Standard) and single parents with three or more children (89%)

More than six out of ten Silicon Valley households with a Hispanic or Latino householder lived below the Self-Sufficiency Standard in 2021, amounting to more than 85,000 households (around 327,000 people).

Self-sufficiency is highly tied to educational attainment; eight out of ten Silicon Valley households where the householder did not graduate from high school have incomes below the Self-Sufficiency Standard. This share rises to nearly 84% for women (87% for single mothers) without a high school diploma.

SELF-SUFFICIENCY
Share of Households Living Below the Self-Sufficiency Standard
Santa Clara & San Mateo Counties | 2021

by Race & Ethnicity of Householder

- Hispanic or Latino 61%
- Black 46%
- All 33%
- Asian/Pacific Islander 27%
- White 22%

by Educational Attainment of Householder

- Less than a high school diploma 79%
- High school diploma or GED 63%
- Some college 46%
- College graduate 18%

for Households with Children

- Limited English-speaking (Latino) 90%
- Single mothers (Latina) 87%
- with 4+ children 82%
- Single mothers 73%
- Limited English-speaking 70%
- Single fathers 59%
- Under age six 47%
- All 41%

by Citizenship Status & English-Speaking Ability

- Not a citizen (Latino) 82%
- Limited English-speaking 58%
- Naturalized citizen (Latino) 57%
- Not a citizen 42%
- Naturalized citizen 33%
- Native Born 28%

Note: The Self-Sufficiency Standard defines the amount of income necessary to meet basic needs without public subsidies or private/informal assistance. Asian/Pacific Islander, Black, White, and Other are non-Hispanic or Latino. | Data Source: Center for Women's Welfare, University of Washington | Analysis: Silicon Valley Institute for Regional Studies

In Santa Clara and San Mateo counties, nearly half (46%) of the region's children live in households that do not make enough money for their own most basic necessities. The largest component of those costs–aside from taxes–is the cost of childcare. While the Standard accounts for some miscellaneous expenses such as diapers, personal hygiene products, and telephone service, it does not include any funds for family vacations, school supplies, extracurricular activities, or other items to enhance quality of life and enrichment for children.

Among family households with children in Silicon Valley, those led by limited-English speaking householders struggle the most (with an estimated nine out of ten living below Self-Sufficiency); 87% of Latina single mothers were below the Standard, as well as 82% of families with four or more children. Only 27% of all single mothers of all races and ethnicities were Self-Sufficient in 2021 — a group that experiences one of the most pronounced gender-wage disparities in the region, with full-time working single mothers earning only 66% of what single, full-time working fathers made that year.[A]
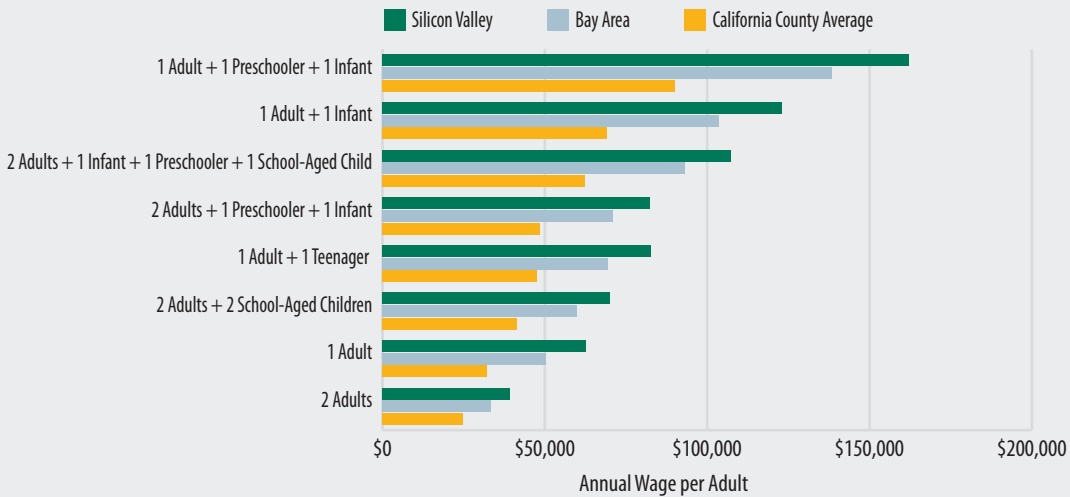
A. Includes adults ages 16 to 62, living with a related child.

In 2021, the estimated wages needed in order to meet a family's most basic needs without assistance in Silicon Valley ranged from $18.54/hour for a two-adult household with no children to $33.13/hour per adult in a family of four (with two adults and two school-aged children), and higher. A single adult with an infant and preschooler would need to make $76.75 per hour ($160,000 annually) in order to be self-sufficient.

SELF-SUFFICIENCY
Annual Self Sufficiency Wages Needed For Various Family Types

Santa Clara & San Mateo Counties, Bay Area, and California | 2021

Note: The Self-Sufficiency Standard defines the amount of income necessary to meet the most basic needs without public or private/informal assistance. | Data Source: Center for Women's Welfare, University of Washington | Analysis: Silicon Valley Institute for Regional Studies

Self-Sufficiency wages increase significantly when there are fewer adults (earners) per household, or younger children that require costlier childcare (15% more for an infant compared to a preschooler) in Silicon Valley.

It was impossible for anyone earning minimum wage to be above the Self-Sufficiency Standard in Silicon Valley at the 2021 statewide minimum wage ($14 per hour in California, and $15-$16.30 per hour in 19 of Silicon Valley's 39 cities); even a dual-income family with no children would require a Self-Sufficiency wage of $18.54 per hour to meet their most basic needs without assistance.[A]

A. The 2021 California minimum wage of $14.00 per hour was for employers of 26+ employees (State of California Department of Industrial Relations). Nineteen out of 39 Silicon Valley cities had enacted their own minimum wage through ordinances, ranging from $15.00 to $16.30 per hour in June 2021.

Self-Sufficiency wages in Silicon Valley are significantly higher than the California county average, and much higher than in places like Chicago, Austin, and Las Vegas (where a two-adult household with an infant and a preschooler requires a wage of $20.79, $19.67, and $17.26 per hour, respectively,[A] compared to $39.05 in Silicon Valley).

A. Self-Sufficiency Standards for Texas, Illinois, Nevada (2021).

Based on Self-Sufficiency Wages, a family in Santa Clara County with two adults, an infant, and a preschooler would need to have made $164,900 in 2021 in order to have met their own basic needs without assistance; in comparison, the federal poverty limit for a family of four that year was $26,500 (less than one-sixth of the Self-Sufficiency Standard).[22] Likewise, Self-Sufficiency wages for a single adult were $62,700 annually, while the federal poverty limit for an individual was less than a quarter of that ($12,880) in 2021.

ECONOMY
Income

Prior to the pandemic (between 2014 and early 2019), the total amount of food assistance provided to Santa Clara and San Mateo County residents had been declining consistently year after year. However, this decline is not necessarily indicative of a decline in need, but rather decreasing amount of food assistance from public programs such as the Supplemental Nutrition Assistance Program (CalFresh in California, formerly Food Stamps) and Women, Infants, and Children (WIC) (which were down 31% and 35%, respectively, between 2013 and 2018).

In FY 2019-20, for the first time ever, the number of meals distributed by the region's non-profit food bank (Second Harvest of Silicon Valley) exceeded those provided by CalFresh – California's SNAP (formerly Food Stamps); this trend continued into 2020-21 as well.

**Meals Distributed Per Month by Second Harvest of Silicon Valley**
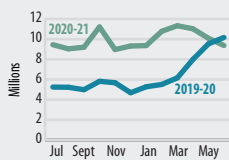
Second Harvest of Silicon Valley's food distribution — which ramped up significantly during the pandemic from around 5.5 million meals in February 2020 to peaks of 10.2 million in June, and 11.2 million in October of that year — remained elevated into 2021; in the first half of the year alone, more meals were distributed (approximately 62 million) than during the entire 2019 calendar year.

HUNGER
Number of Meals Provided by Food Assistance Programs
and share from public and private sources
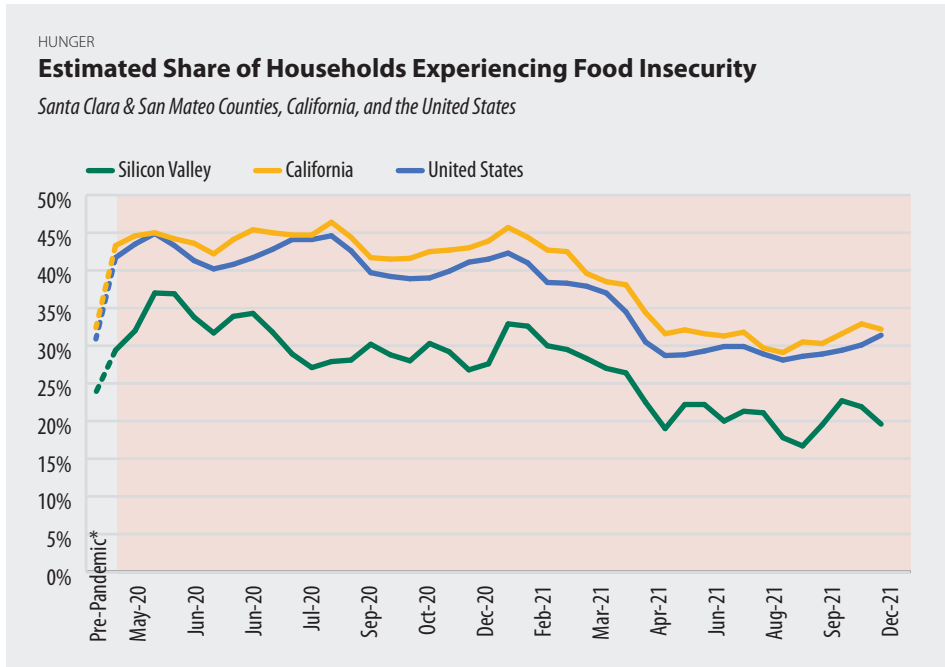
Santa Clara & San Mateo Counties
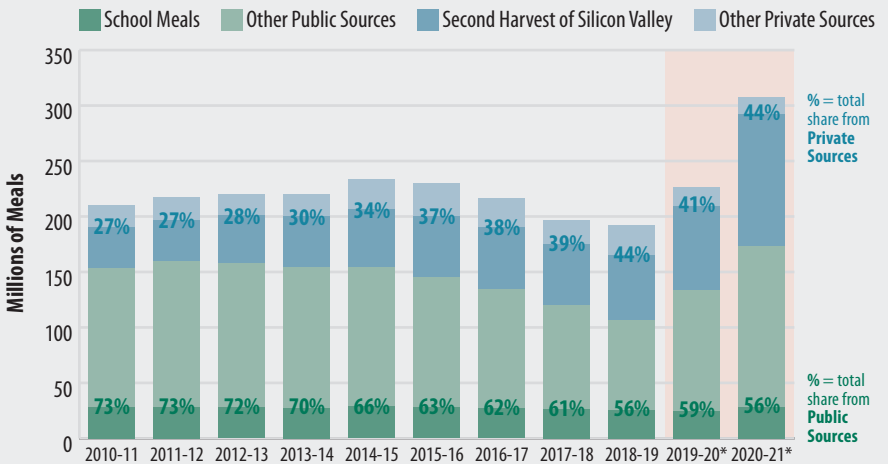
*includes estimates for Senior Nutrition and WIC. | Data Sources: California Department of Social Services; California Department of Education; Second Harvest of Silicon Valley | Analysis: Center for Food Innovation & Entrepreneurship, Santa Clara University; unBox; Silicon Valley Institute for Regional Studies

The system of food assistance provided in the United States overall, statewide, and in Silicon Valley includes a mix of government programs (e.g., SNAP/CalFresh, School Meals, Senior Nutrition) and additional sources such as food banks, as well as a large number of food providers, funding providers, and food distribution partners. The region has experienced a consistently declining share of food assistance from public (government-provided) sources (from 73% in FY 2011-12 to 56% in FY 2020-21) and a corresponding increase in food provided by private sources. The latter may be due to a variety of factors, such as an increasing need by those who do not qualify for public nutrition programs (with stringent income eligibility limits), or a greater need by a smaller number of individuals (who can only receive a limited amount from other programs). In FY 2019-20, the new federal Pandemic EBT program plus a significant ramp-up in the United States Department of Agriculture's (USDA's) Summer Meals program combined led to a slight increase in the share of food assistance in Silicon Valley from public sources (59%) despite the considerable increase in meals from private sources, too.

Based on the number of meals provided by assistance programs in FY 2019-20, an estimated 776,000 Silicon Valley residents were served during that year; this estimate suggests that as many as 29% of Silicon Valley residents were in need of food assistance. In FY 2020-21, that number jumped to an estimated 1.08 million residents (40%), although that might be a slight overestimate given the likely increase in the average number of meals needed per person per week during the pandemic.[A]

A. Estimate based on the Feeding America findings (2018) of an average 5.6 meals per person per week, although that number likely increased during the pandemic; if so, the estimated number of people and share of the population utilizing food assistance would be lower.

Household food insecurity rates rose dramatically during the pandemic, from an estimated 24% (or one in four households) in early March 2020 to 37% (more than one in three households) by mid-May.

HUNGER
Estimated Share of Households Experiencing Food Insecurity
Santa Clara & San Mateo Counties, California, and the United States

Data Sources: U.S. Census Bureau, Household Pulse Survey; University of Washington, School of Social Work; U.S. Bureau of Labor Statistics
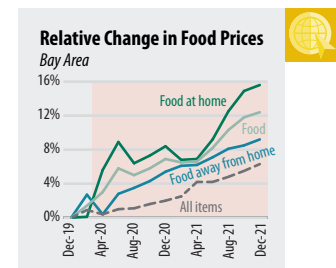Analysis: Silicon Valley Institute for Regional Studies

Food insecurity rates among Santa Clara and San Mateo County households rose by more than 55% in the first two months of the pandemic, reaching an estimated 37% of all households. Families with children experienced food insecurity to a greater extent than the overall population, reaching one in three nationwide by late-April/early-May.[23]

The number of school meals distributed to Silicon Valley students declined significantly with the mid-March 2020 shelter-in-place orders and transition to distance-learning (from 3.6 million meals in February to 1.3 million in April). Subsequently, the total number of meals from the USDA's School Lunch Program distributed during the 2019-20 academic year declined by 10 million year-over-year; however, that decrease was met with a significant increase (+9.6 million) in the number of Summer Meals, which were distributed during the traditional academic year to feed students learning remotely. Similarly, while meals distributed through the WIC program declined (by approximately 1.1 million in 2019-20), those provided by the new Pandemic Electronic Benefits Transfer (P-EBT) (25.6 million) — which provided families who would have typically received Free- and Reduced-Price School Meals with an EBT card and supplemental funding to purchase food at most grocery stores, farmer's markets, or online to replace missed school meals — more than made up for them.

Percent Change in Food Prices	
Bay Area (Dec 2019 - Dec 2021)	
All items	+6%
Food	+12%
Food at home	+16%
Cereals and bakery products	+16%
Meats, poultry, fish, and eggs	+29%
Fruits and vegetables	+15%
Dairy and related products	+8%
Food away from home	+9%

Relative to pre-pandemic (December 2019) prices, the cost of "food at home" for Bay Area residents rose by 16% over a two-year period, with the greatest increase in Meats, Poultry, Fish, and Eggs (+29%). Inflation in prices for food at home far outpaced increases in the regional consumer price index, which rose by 6% during the same period.

Relative Change in Food Prices
Bay Area

Data Source: Bureau of Labor Statistics
Analysis: Silicon Valley Institute for Regional Studies

At a time when food insecurity rates had risen dramatically and remained elevated for a prolonged period, food prices continued to increase; both of these factors contributed to the rise in Silicon Valley's growing need for food assistance. Furthermore, food insecurity rates had decoupled from unemployment rates during this period,[A] indicating the significance of a number of other contributing factors.

A. Compared to model years 2001-2019, as observed by the Stanford Data Lab (and reported in the California Weekly Pulse).

ECONOMY
Innovation & Entrepreneurship

Amid economic restrictions and employment fluctuations throughout the pandemic, Silicon Valley's innovation economy continued to grow and thrive in 2021. The market cap of Silicon Valley and San Francisco's public companies, in aggregate, reached more than $14 trillion in December — more than double what it was at the market-low in February 2020.

Venture Capital to Silicon Valley and San Francisco companies hit an all-time high at $95 billion in 2021, including a record 257 megadeals, with many of the largest deals going to companies that either went public later that year or are expected to go public in 2022. Many of these deals created new unicorn and decacorn companies, the total number of which rose precipitously last year (to 230). The region saw an uptick in newly-funded start-ups in 2021 as well, with more than 2,000 Angel investors actively funding the region's seed-stage companies in deals totaling nearly $1.2 billion (with $134 million in Angel-only deals).

There were more M&A deals in 2021 than any other year over the past decade (more than 1,800 deals involving at least one Silicon Valley or San Francisco company), with Special Purpose Acquisition Company (SPAC) mergers providing an alternate route for some companies to go public. There were also more traditional IPOs in 2021 (32 of Silicon Valley companies) than during any other year since 2000 (with 85); additionally, three local companies went public through direct listings instead of traditional IPOs. Of the record 26 billion-dollar IPOs in 2021, four were Silicon Valley companies and two were headquartered in San Francisco. However, IPOs slowed in Q4 and — despite the $182 billion (five percent of the region's aggregate) market cap gain from new IPOs — the region ended 2021 with a surprisingly low overall IPO return rate (zero percent in Silicon Valley, compared to +117 percent the prior year).

Why is this important?

Innovation, a driving force behind Silicon Valley's economy, is a vital source of regional competitive advantage. It transforms novel ideas into products, processes, and services that create and expand business opportunities. Entrepreneurship is an important element of Silicon Valley's innovation system.

Silicon Valley patent registrations were up in 2020 (by nearly 2% year-over-year, reaching an annual record), as was worldwide patent activity (+1.6%[A]), while decreasing in San Francisco, California, and the United States as a whole (by -2%); however, in 2021 Silicon Valley patent activity fell dramatically (-14%) with less significant declines experienced elsewhere.

A. World Intellectual Property Organization (WIPO), IP Statistics Data Center.

PATENT REGISTRATIONS
Total Number of Patent Registrations, by Technology Area
Silicon Valley
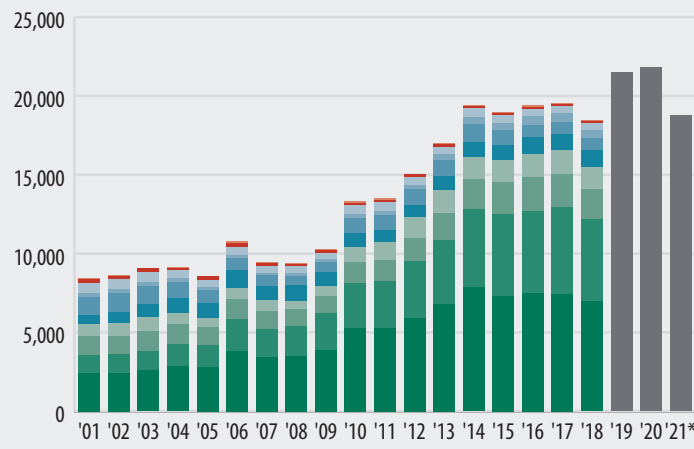
Legend:
- Construction & Building Materials
- Manufacturing, Assembling, & Treating
- Chemical & Organic Compounds/Materials
- Other
- Chemical Processing Technologies
- Measuring, Testing & Precision Instruments
- Health
- Electricity & Heating/Cooling
- Communications
- Computers, Data Processing & Information Storage

*estimate based on data through September 21 | Note: 2019-21 data not available by technology area.
Data Sources: United States Patent and Trademark Office | Analysis: Silicon Valley Institute for Regional Studies

Silicon Valley's annual number of patent registrations more than doubled between 2009 and 2020, reaching a record-high (of 21,770) before falling precipitously in 2021 (to an estimated 18,730). While this may have been due to a change in inventor-activity, it may also have been a result of increased turnaround times from the U.S. Patent and Trademark Office.[A]

A. "Average first action pendency" rose by more than two months in FY 2021-22 "due in large part to side effects of the COVID-19 pandemic on the agency, such as the provision of additional leave flexibilities to our employees for COVID-19 related situations and a decline in the use of overtime . . . which we anticipate will negatively affect average first action pendency during FY 2022." United States Patent and Trademark Office, Performance and Accountability Report (Fiscal Year 2021).

Entrepreneurs are the creative risk takers who create new value and new markets through the commercialization of novel and existing technology, products, and services. A region with a thriving innovation habitat supports a vibrant ecosystem to start and grow businesses.

Entrepreneurship in both new and established businesses hinges on investment and value generated by employees. Patent registrations track the generation of new ideas, as well as the ability to disseminate and commercialize those ideas. The activity of mergers and acquisitions (M&As) and initial public offerings (IPOs) indicate that a region is cultivating successful and potentially high-value companies.

Finally, tracking both the types of patents and areas of venture capital investment over time provides valuable insight into the region's longer-term direction of development and innovation in Silicon Valley.

Seven of California's top ten patent-generating cities in 2021 were in Silicon Valley, and San Francisco ranked second (up from third in 2020). San Jose also ranked first in the country, with nearly 3% of United States patents that year. While many of the same Silicon Valley cities topped the national list, cities beyond California that also made the top 15 list included Seattle and Austin (with 1.3% and 1.2% of United States utility patents, respectively), Houston (0.9%), New York (0.8%), and Portland (0.7%).

In 2021, more than half (52%) of the new California patents were registered to Silicon Valley or San Francisco inventors, and San Jose ranked as the number one patent-generating city in both the state and nation.

Patents Per 100,000 People

PATENT REGISTRATIONS
Share of California and United States Patents
Silicon Valley and San Francisco
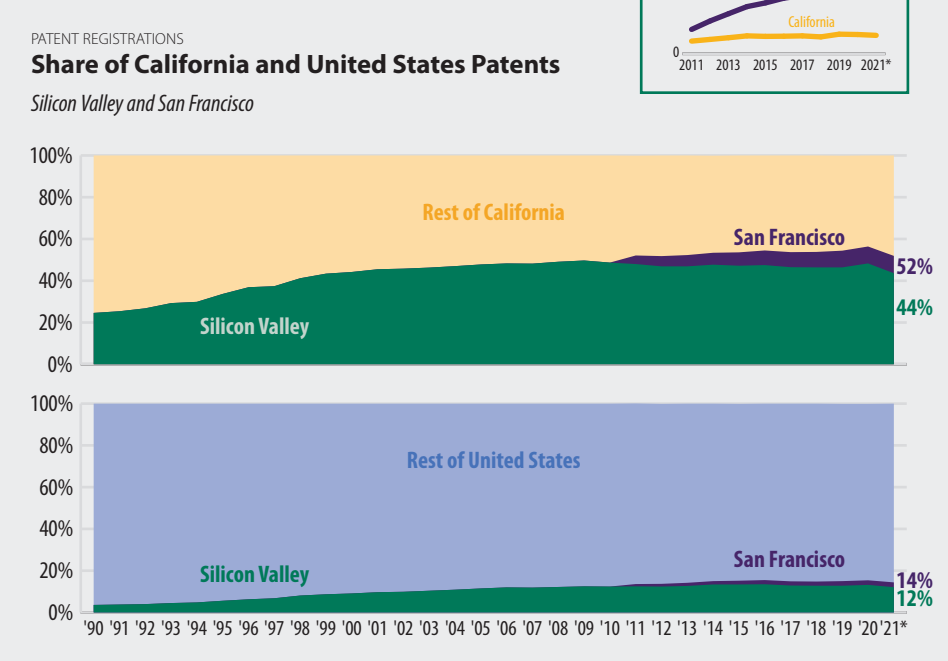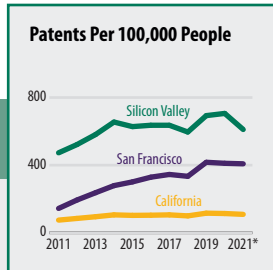
*data through September 23 | Note: San Francisco data unavailable prior to 2011.
Data Sources: United States Patent and Trademark Office; California Department of Finance | Analysis: Silicon Valley Institute for Regional Studies

Top 15 Patent Generating Cities in California
*With United States Rank and Share, 2021**

	Count	Share	U.S. Rank (Share)
San Jose	3,103	10.0%	1 (2.8%)
San Francisco	2,439	7.9%	2 (2.2%)
San Diego	2,310	7.4%	3 (2.1%)
Sunnyvale	1,328	4.3%	6 (1.2%)
Mountain View	1,203	3.9%	7 (1.1%)
Palo Alto	1,068	3.4%	8 (1.0%)
Santa Clara	905	2.9%	11 (0.8%)
Fremont	771	2.5%	13 (0.7%)
Cupertino	692	2.2%	14 (0.6%)
Los Angeles	674	2.2%	15 (0.6%)

*data through September 23 | Data Sources: United States Patent and Trademark Office; California Department of Finance | Analysis: Silicon Valley Institute for Regional Studies

Per capita patent registrations in San Francisco increased by 186% between 2011 and 2020, then decreased slightly (-1%) in 2021; Silicon Valley per capita patent registrations fell by an estimated 14% in 2021.

Over the past three decades (since 1990), Silicon Valley's share of California and nationwide patent registrations has increased dramatically (from 25% to 44%, and from 4% to 12%, respectively), although most of the increase occurred in the 1990s.

ECONOMY
Innovation & Entrepreneurship

Silicon Valley labor productivity was $290,400 per employee in 2021 (equivalent to approximately $140 per hour, per employee). This compares to $269,600 in San Francisco, $201,300 in California, and $156,700 throughout the United States.
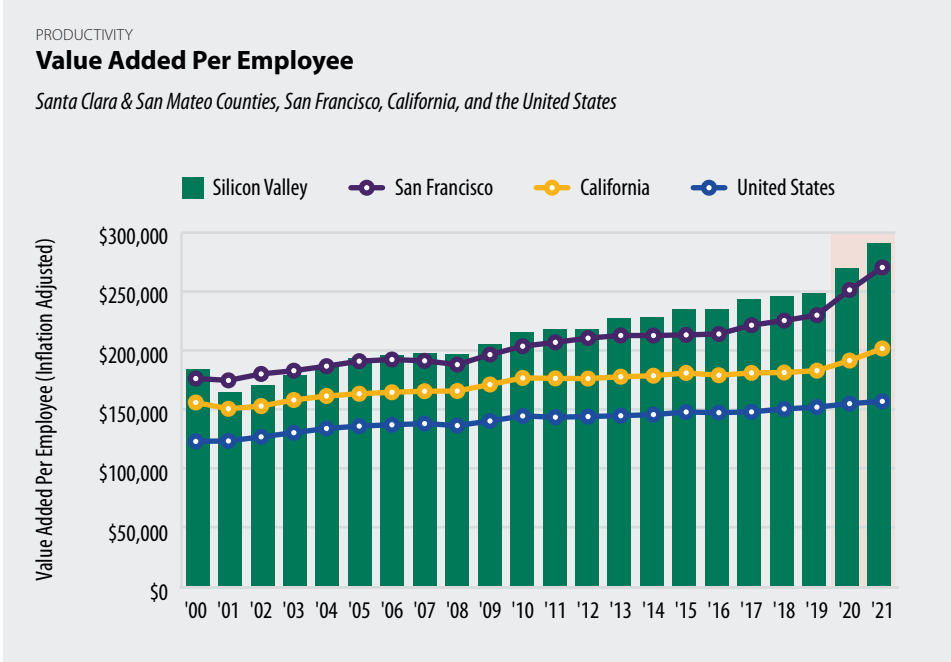
Despite the substantial increase in Silicon Valley's labor productivity since 2016 (amounting to nearly +$43 of GDP per employee per hour, in nominal values) and average wages in the two-county region which went up by $18/hour[A] since 2016, the statewide minimum wage only increased by $3-4 per hour[B] (and +$6.30/hour in the Silicon Valley cities with the highest minimum wages, by ordinance) over that period.

A. Based on data from the U.S. Bureau of Labor Statistics, QCEW data modified slightly by JobsEQ.
B. From $10/hour in 2016 to $13/hour (for employers with fewer than 26 employees) and $14/hour (for employers with 26+ employees) in 2021.

Inflation-Adjusted GDP
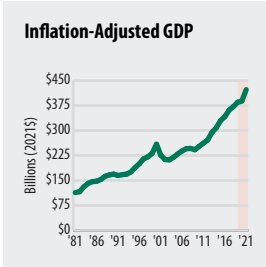
Regional GDP rose by 8.7% in 2021 after inflation-adjustment, representing the largest year-over-year increase since 2000 (+11.8%); Silicon Valley's inflation-adjusted GDP has nearly doubled since 2009 (from $242.1 billion to $422.5 billion).

Silicon Valley labor productivity jumped up by nearly 8% (after adjusting for inflation) to $290,400 per employee in 2021, amounting to approximately $140 per employee per hour – $10 more than in 2020.

PRODUCTIVITY
Value Added Per Employee

Santa Clara & San Mateo Counties, San Francisco, California, and the United States

Data Source: Moody's Economy.com | Analysis: Silicon Valley Institute for Regional Studies

The sustained growth in Silicon Valley's labor productivity over the last five years (+22% after adjusting for inflation) is the largest on record.[A]

A. In the Moodys.com (44-year) dataset.

PRIVATE EQUITY
Venture Capital Investment

Silicon Valley and San Francisco
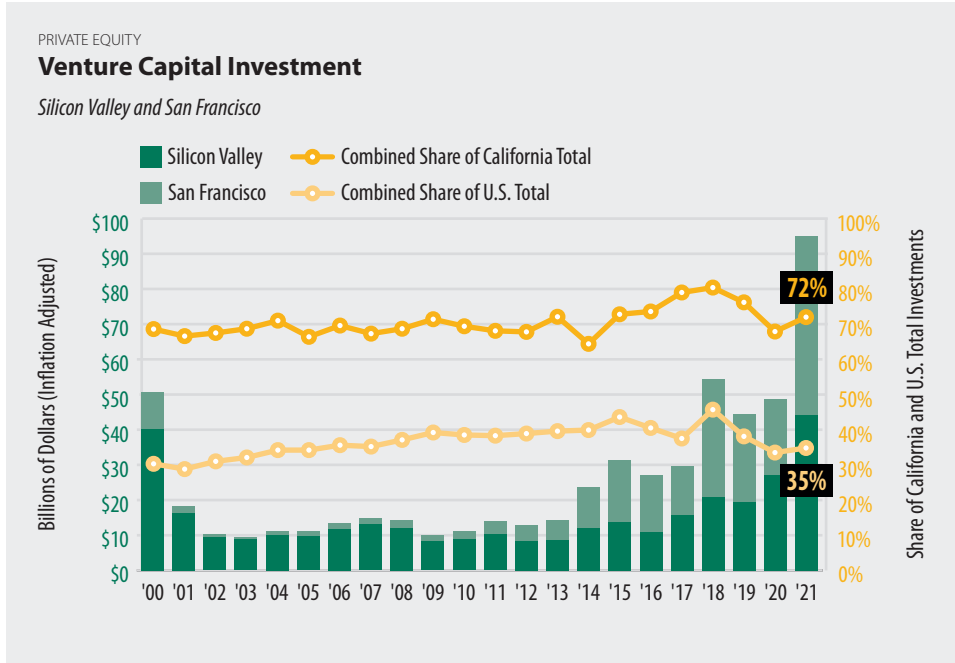
Data Source: PricewaterhouseCoopers/National Venture Capital Association MoneyTreeTM Report, Data: CB Insights (Q4 2015-2016), Thomson Reuters (prior to Q4 2015); Thomson ONE (2017+) | Analysis: Silicon Valley Institute for Regional Studies

At record amounts, venture capital funding totals in 2021 were $44.1 billion in Silicon Valley, $50.9 billion in San Francisco, $131.8 billion in California, and $272.5 billion in the United States overall.

Total venture capital funding to Silicon Valley companies in 2021 ($44.1 billion) was greater than the estimated wealth of 72% of the region's households, combined.

Venture capital investments skyrocketed in 2021, reaching an all-time high for Silicon Valley and San Francisco at $95 billion combined, compared to a nominal $29.3 billion at the height of the dot.com boom in 2000 (equivalent to approximately $50.6 billion in 2021 dollars).

The majority of Silicon Valley and San Francisco's top 20 VC deals of 2021 were in software and technology industries, including online gaming (Roblox) and financial products and services (Robinhood, Chime, Stripe, Carta, Varo Money), autonomous vehicle technologies (Waymo, Nuro), e-commerce (Heyday) and cloud-based collaboration software (Airtable).

Whereas the largest VC deals of 2020 included "at-home" market companies Instacart (which experienced a spike in sales within the first couple weeks of the pandemic, by as much as +145%[24]) and DoorDash (with nearly half of the food delivery market share that year, and nearly three-quarters of its customers new to the platform[25]), the at-home market was absent from the 20 largest deals of 2021.

Top Venture Capital Deals of 2021

Silicon Valley				San Francisco			
Investee Company Name	City	Amount (millions)	Quarter	Investee Company Name	Amount (millions)	Quarter
Robinhood	Menlo Park	$3,400	1	Databricks	$1,600	3
Waymo	Mountain View	$2,500	2	Chime	$1,105	3
Lacework	Alviso	$1,300	4	Databricks	$1,000	1
SambaNova Systems	Palo Alto	$678	3	Airtable	$735	4
Nuro	Mountain View	$600	4	Stripe	$600	1
Genesys	Daly City	$580	4	Heyday	$555	4
Lacework	Alviso	$525	1	Varo Money	$510	3
Roblox	San Mateo	$520	1	Commure	$509	3
Impossible Foods	Redwood City	$500	4	Discord	$500	3
PsiQuantum	Palo Alto	$450	4	Carta	$499	3

Data Sources: Thomson ONE; CB Insights | Analysis: Silicon Valley Institute for Regional Studies

Mountain View-based Waymo, a self-driving car company and Google spinoff, attracted the second largest deal of 2021 and the two largest deals of 2020 — totaling $5.7 billion over the two-year period. Among Waymo's investors are Google's parent company, Alphabet, Singapore-based global investment firm Temasek (which also participated in the Roblox Series G in 2020), Fidelity Investments, Florida-based auto retailer AutoNation, and two Menlo Park-based investors: Silver Lake and Andreessen Horowitz.

Menlo Park-based Fintech company, Robinhood, had the largest VC deal of 2021 at $3.4 billion, following a strong prior year with a $280 million Series F round in May 2020, a $320 million Series F-II in June, and back-to-back closings (Series G/G-II) in August and September totaling $660 million. At a valuation of $31.8 billion at the time, the company ultimately raised nearly $2.1 billion in its July 2021 IPO.

Many of the largest VC deals of 2021 went to companies expected to go public in 2022, including Redwood City-based Impossible Foods (which had a $500 million Series H round in November), and San Francisco-based Stripe ($600 million Series H in Q1), Databricks (with a Series G round in February and a Series H in August, totaling $2.6 billion), Chime ($1.1 billion in Q3), Plaid Technologies ($425 million Series D in April), and Discord[A] (with a $500 million Series I in July, launching it into the elite Decacorn[B] club).

A. Valuations after most recent venture rounds and Mobileye acquisition price from Crunchbase.
B. Private companies valued at more than $10 billion.
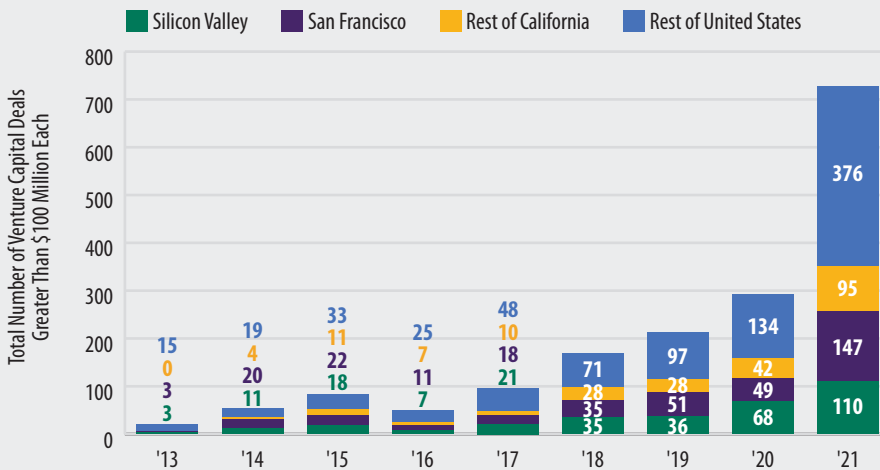
ECONOMY
Innovation & Entrepreneurship

PRIVATE EQUITY
Megadeals

Silicon Valley, San Francisco, Rest of California

There were a record number of Silicon Valley and San Francisco megadeals in 2021, with 257 (totaling nearly $60.7 billion) — more than double that of the prior year ($25.4 billion).

Legend: ■ Silicon Valley ■ San Francisco ■ Rest of California ■ Rest of United States

Y-axis: Total Number of Venture Capital Deals Greater Than $100 Million Each

Data values by year:

Year	Silicon Valley	San Francisco	Rest of California	Rest of United States
'13	3	3	0	15
'14	11	20	4	19
'15	18	22	11	33
'16	7	11	7	25
'17	21	35	18	48
'18	35	35	28	71
'19	36	51	28	97
'20	68	49	42	134
'21	110	147	95	376

Data Source: Thomson ONE | Analysis: Silicon Valley Institute for Regional Studies

The number of megadeals — a name given to venture capital deals over $100 million — skyrocketed in 2021, hitting an all-time high with 1,400 worldwide and nearly 730 in the United States — a large share (48%) of which were to companies headquartered in Silicon Valley (110), San Francisco (147), and the rest of California (95).

Of the $95 billion in total venture capital funding to Silicon Valley and San Francisco companies in 2021, nearly two-thirds of it (64%, or $60.7 billion) was in the form of megadeals.

At the end of 2021, there were 213 Silicon Valley and San Francisco Unicorns, and 17 San Francisco Decacorns (private companies valued at more than $100 million and $10 billion, respectively).

The number of United States and San Francisco Unicorns doubled in 2021; Silicon Valley Unicorn companies increased by 50% that year.

Unicorns and Decacorns
as of December 31, 2021
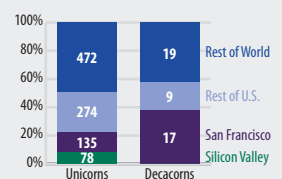
	Unicorns	Decacorns	
Rest of World	472	19	
Rest of U.S.	274	9	
San Francisco	135	17	
Silicon Valley	78		

Data Source: CB Insights | Analysis: Silicon Valley Institute for Regional Studies

Among the three Silicon Valley Decacorns that went public in 2021 was San Mateo-based gaming technology company, Roblox, which had gained popularity over the past several years and especially during the pandemic (with Google searches for the game up 33% in March 2020 alone[26] and sales up by an estimated 20x between the first and second quarters of the year). Roblox — which had originally planned to hold a traditional IPO, announced its intentions on January 6 to offer shares through a direct listing instead; it also announced its $520 million Series H VC round on the same day.[27,28]

The number of San Francisco Decacorns more than tripled in 2021, increasing from five (Stripe, Instacart, Chime, JUUL Labs, and Ripple) to 17 with the addition of Databricks, Plaid Technologies and Brex (two among the recipients of the largest VC rounds of the year at $425 million each in Q2), Grammarly, Faire, Airtable (with two massive VC rounds that year totaling nearly $1.01 billion) , Notion Labs, Talkdesk, Reddit, Gusto, Figma, and Discord (which had the ninth largest San Francisco-company VC deal of the year at $500 million in Q3).

Among the top VC deals of 2021 was the $1.1 billion Series G/G-II round to Chime — which was already on San Francisco's Decacorn list — in August and September.

Of the 487 U.S. Unicorn companies in December 2021, 28% are located in San Francisco and 16% in Silicon Valley. In total, these 213 Unicorns are worth approximately $820 billion.

At the start of 2021, there were three Silicon Valley Decacorns — Aurora, Robinhood, and Roblox; by the end of the year, all had gone public (Aurora and Robinhood with traditional IPOs, Roblox with a direct listing).

Consumer Products & Services companies — which received 23% of all 2018 venture capital funding to the greater Silicon Valley region as a result of megadeals to San Francisco vaping companies (primarily JUUL Labs, but also PAX), Palo Alto-based photography company, Light, San Carlos-based AI/Robotics company, Rokid, and others — only accounted for 0.6% of all funding in 2021. The largest Silicon Valley Consumer Products & Services deal in 2021 was a $250 million Series E round in March to Tonal, a San Francisco-based intelligent fitness system company with investments from dozens of athletes, including boxing legend Mike Tyson; the company also secured Angel funding and a brand partnership with NBA All-Star LeBron James later that year.

PRIVATE EQUITY
Venture Capital by Industry
Greater Silicon Valley
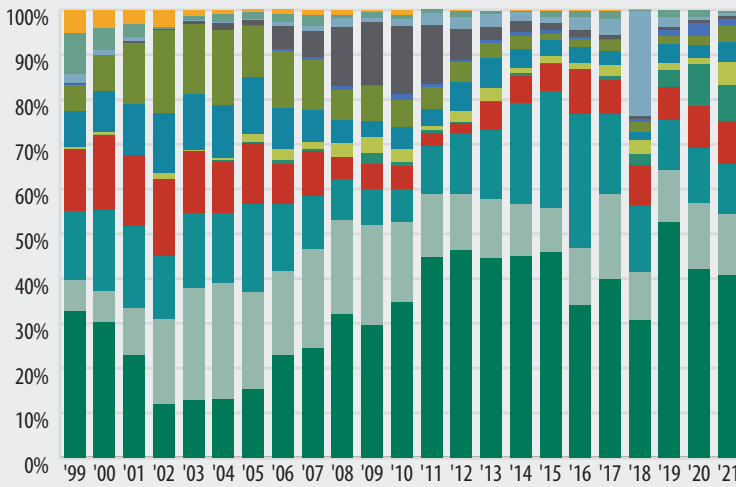
Greater Silicon Valley Healthcare companies continue to attract relatively steady shares of total VC funding, with 15% in 2020 and 14% in 2021 ($7.2 billion and $6.7 billion, respectively).

Over the past five years, the share of Greater Silicon Valley VC dollars going to Automotive & Transportation companies has risen from a mere fraction of a percent to 9.4% in 2020 and 7.9% in 2021. This trend has been driven primarily by funding to autonomous vehicle and delivery companies such as Waymo and Nuro.

Legend:
- Business Products & Services
- Other
- Consumer Products & Services
- Energy & Utilities
- Food & Beverages
- Electronics
- Computer Hardware & Services
- Industrial
- Automotive & Transportation
- Software (non-internet/mobile)
- Mobile & Telecommunications
- Healthcare
- Internet

The share of VC funding to Greater Silicon Valley electronics companies has slowly dwindled from a high of 18% in 2002 to only 4% in 2021; likewise, the share of VC funding to Computer Hardware & Services companies has declined from 13% to 4% over the same period.

The breakdown of VC dollars by industry did not change significantly between 2020 and 2021, with the largest shares still going to Greater Silicon Valley Internet companies (41%), followed by Healthcare (14%), and Mobile & Telecommunications (11%).

Note: The category Other includes Agriculture, Environmental Services & Equipment, Financial, Leisure, traditional Media, Metals & Mining, non-internet/mobile Retail, and Risk & Security. Industry definitions are provided in Appendix A. | Data Sources: PricewaterhouseCoopers/National Venture Capital Association MoneyTree™ Report, Data: CB Insights; CB Insights | Analysis: Silicon Valley Institute for Regional Studies

In 2021, 36% of California (and 19% of U.S.) Angel investments went to Silicon Valley or San Francisco companies. These shares tend to be lower during years with large dollar amounts from Angel-only deals, such as in 2019 (with $1.13 billion nationwide) and in 2021 ($1.92 billion) where no VCs participated.

Angel investments in Silicon Valley and San Francisco companies skyrocketed in 2021, reaching nearly $1.2 billion ($134 million of which were in Angel-only deals, with the remainder in seed-stage deals involving at least one Angel investor); likewise, the number of Angels and Angel groups participating in those deals rose by 40% year-over-year.

PRIVATE EQUITY
Angel Investment
Silicon Valley, San Francisco, California, and the United States
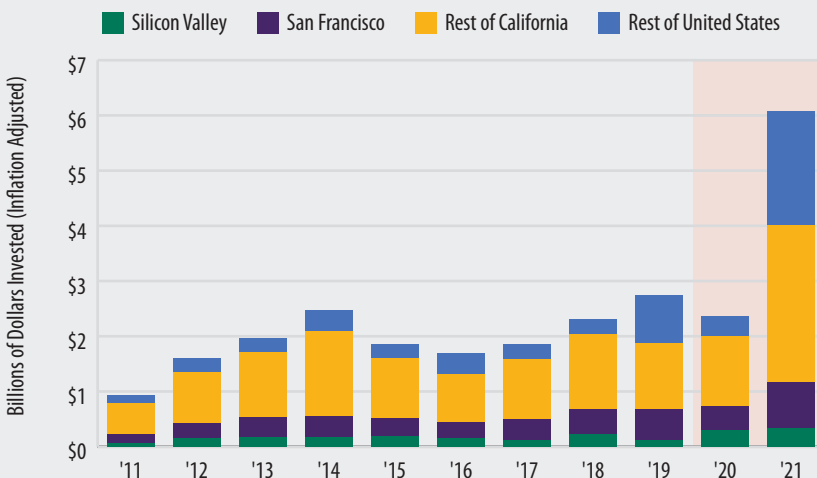
2021 Angel investments were up by 12% year-over-year in Silicon Valley and +92% in San Francisco even after adjusting for inflation.

Legend: Silicon Valley | San Francisco | Rest of California | Rest of United States

% Angel Investments
Silicon Valley & San Francisco
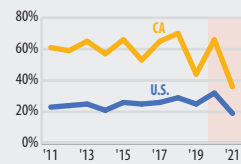
Angel Deals, Angels, & Companies Funded
Silicon Valley & San Francisco

Over the past decade, the number of Silicon Valley and San Francisco companies receiving Angel investments annually has more than doubled (from around 470 in 2011 to 990 in 2021).

The majority of Angel investment totals are in seed-stage deals that included at least one Angel investor. In 2021, one of the largest deals was to San Francisco-based Serve Robotics – the Uber (Postmates) robotic delivery spin-off.

Note: Include disclosed financing data for all Angel rounds and seed stage investments that included at least one Angel investor.
Data Source: CB Insights | Analysis: Silicon Valley Institute for Regional Studies

ECONOMY
Innovation & Entrepreneurship

The number of startup companies rose slightly in 2021 following a three-year decline, with approximately 226 newly-funded startups in Silicon Valley (and 437 in San Francisco).

The share of Silicon Valley and San Francisco startup companies with at least one woman founder has steadily increased over the past quarter century, though it has yet to exceed 25%.

Regional startup activity over the past decade has been more heavily concentrated in San Francisco, with 60% of the region's new startups (compared to 31% during the two decades prior).

While Silicon Valley has historically created more new startup companies than San Francisco, that trend has shifted over the past decade.

22% of new Silicon Valley startup companies in 2021 were founded by at least one woman — a share that has nearly tripled over the past two decades (from less than 8% in 2001).
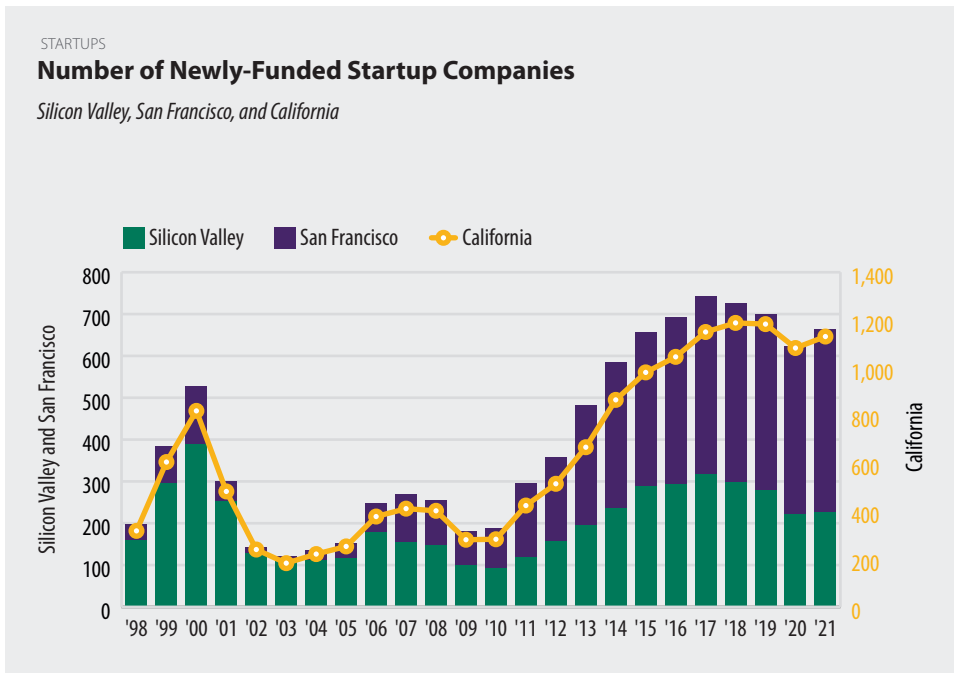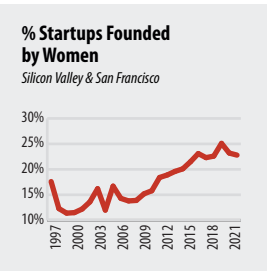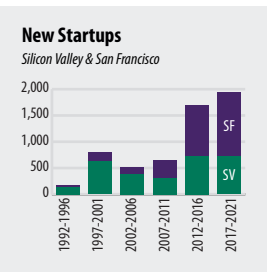
STARTUPS
Number of Newly-Funded Startup Companies

Silicon Valley, San Francisco, and California

Silicon Valley   San Francisco   California

New Startups
Silicon Valley & San Francisco

% Startups Founded by Women
Silicon Valley & San Francisco

Data Source: CB Insights; Crunchbase | Analysis: Silicon Valley Institute for Regional Studies

While 2021 was a record year for the number of IPOs on U.S. markets (with the most since 2000) and an all-time high for IPO proceeds,[A] the majority (62%) of pricings took a hit later on in the year and ended 2021 with negative return rates. The average return rate from the date of the IPO through 2021 was -9%; Silicon Valley companies' average was slightly better at 0%, and San Francisco's was +6% (largely due to the high return rates of Doximity, at +93%, and Affirm Holdings, at +105%); the average IPO return rate for international companies on U.S. markets in 2021 was -19%.

A. Proceeds include IPOs and direct listings, and exclude Special Purpose Acquisition Companies (SPACs). Renaissance Capital, US IPO Market, "2021 Annual Review" (December 16, 2021).

Of the record 26 billion-dollar IPOs in 2021, four were for Silicon Valley companies (AppLovin, SentinelOne, Robinhood, and Freshworks) and two were for San Francisco companies (Affirm Holdings and HashiCorp); an additional four were from other parts of California, including the largest deal since Alibaba in 2014[29] for Irvine-based Rivian Automotive, which raised nearly $12 billion.

San Francisco-based Affirm Corporation — a consumer lending platform, which has attributed approximately one-third of its revenue to Peloton alone — also reportedly delayed its IPO[30] in 2020 and ended up going public in mid-January 2021. Some believe the phenomenon of first-day "pops" in stock prices (the spike often observed on the first trading day after a company is listed on the market) were leading to delays, as they could indicate an underpricing of shares;[31] despite any intentions to avoid it, Affirm's first-day "pop" was +98%. Annual first-day "pops" averaged 28% across U.S. markets, with 2021 averages of +25% for Silicon Valley and +35% for San Francisco IPOs.

Silicon Valley had 31 traditional IPOs in 2021 that raised a combined total of $12.5 billion in proceeds — 45% more than the prior year's 24 IPOs (totaling $8.6 billion) and triple the total value of the 22 IPOs in 2019 ($3.9 billion) — representing 8% of the 379 traditional IPOs on U.S. markets and 9% of the $140 billion national total.

More than half (56%) of Silicon Valley's 2021 IPOs were in the Health Care industry; 41% were in Technology, and one company (Coursera) was in Consumer Discretionary. In contrast, San Francisco IPOs were more heavily weighted toward Technology companies (71%).

Silicon Valley and San Francisco's 49 traditional IPOs in 2021 represented 13% of those on U.S. markets that year, and 14% of the record-high U.S. IPO proceeds. Additionally, the region is home to three companies that went public via direct listings[A] (San Mateo-based Roblox, and San Francisco companies Coinbase and Amplitude).

A. Direct Public Offerings, where shares are offered directly to the public without a set price and the need to raise capital.
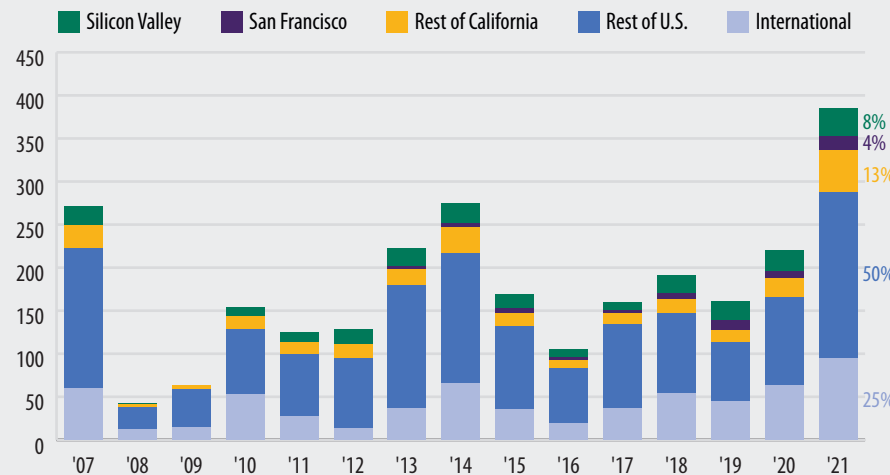
Silicon Valley and San Francisco companies represented 13% of all 2021 IPOs on U.S. stock exchanges; 13% were from other parts of California, 50% from the rest of the country, and 25% international (mostly from China, plus Israel and 13 other countries).

Silicon Valley IPOs were slow in the first and fourth quarters of 2021, with the majority (65%) taking place in the second and third quarters.

The average first day "pop" (spike in stock prices often observed on the first trading day after a company is listed on the market) was 28% across U.S. markets, with lower averages in 2021 for Silicon Valley (+25%) and San Francisco (+35%); this may be an indication of more appropriately-priced IPOs last year than in 2020, when the high first-day "pop" phenomenon was reportedly delaying several IPOs and/or encouraging direct listings.

There were more Silicon Valley IPOs in 2021 (32) than during any other year since 2000 (with 85).

INITIAL PUBLIC OFFERINGS
Total Number of U.S. IPO Pricings
Silicon Valley, San Francisco, Rest of California, Rest of U.S., and International Companies

Legend: ■ Silicon Valley ■ San Francisco ■ Rest of California ■ Rest of U.S. ■ International

Note: Location based on corporate address provided by IPO ETF manager Renaissance Capital; Rest of California includes all of the state except Silicon Valley for 2007-2013, and all of the state except Silicon Valley and San Francisco for subsequent years. | Data Source: Renaissance Capital | Analysis: Silicon Valley Institute for Regional Studies

Expected 2022 Silicon Valley IPOs include Intel's autonomous driving company, Mobileye (acquired for approximately $15 billion in 2017), Redwood City-based Impossible Foods and San Jose-based ThoughtSpot (valued at $7 billion and $4 billion, respectively, in November 2021); Additionally, San Francisco-based Stripe (valued at $95 billion in March), Instacart (valued at $39 billion in March), Databricks (valued at $38 billion in August), Chime (valued at $25 billion in August), Discord (valued at $15 billion in September), and Plaid (valued at more than $13 billion in April) are likely to go public in 2022.[A]

A. Valuations after most recent venture rounds and Mobileye acquisition price from Crunchbase.

Of the nearly $3.8 trillion gain in the aggregate market cap of Silicon Valley and San Francisco public companies in 2021, $182 billion (5%) was from new IPOs that year. The largest contributors of the newly-public companies were Fintech company Coinbase (with a market cap of $66.1 billion at the end of the year), Palo Alto-based AppLovin ($21.2 billion), San Francisco consumer loan platform company Affirm Holdings ($21.1 billion), and Menlo Park-based brokerage firm Robinhood ($13.8 billion).

Expected 2022 IPOs include six of San Francisco's 17 Decacorns (private companies valued at more than $10 billion) – Stripe, Instacart, Databricks, Chime, Discord, and Plaid.

ECONOMY
Innovation & Entrepreneurship
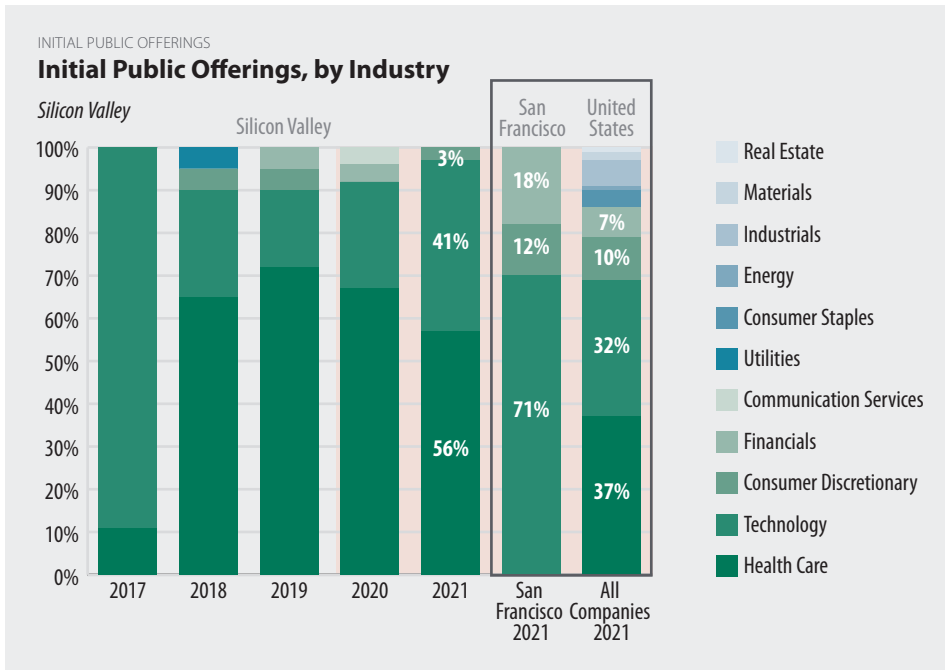
Initial Public Offerings, by Industry

Silicon Valley

Silicon Valley

					San Francisco	United States
				3%	18%	7%
				41%	12%	10%
				56%	71%	32%
						37%

Legend:
- Real Estate
- Materials
- Industrials
- Energy
- Consumer Staples
- Utilities
- Communication Services
- Financials
- Consumer Discretionary
- Technology
- Health Care

X-axis: 2017, 2018, 2019, 2020, 2021, San Francisco 2021, All Companies 2021

Y-axis: 0% to 100%

Note: Location based on corporate address provided by IPO ETF manager Renaissance Capital. | Data Source: Renaissance Capital | Analysis: Silicon Valley Institute for Regional Studies

Average IPO Return Rates

	2020	2021
Silicon Valley	+117%	0%
San Francisco	+101%	+6%
United States	+80%	-9%

Silicon Valley IPOs by Quarter
2021

1	2	3	4
19%	34%	31%	16%
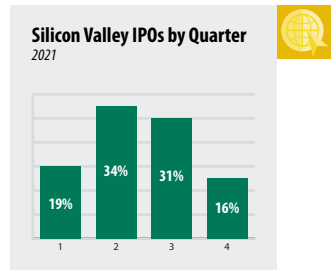
> **M&A deals in 2021 involving a Silicon Valley company were 42% Target Only, 52% Acquirer Only, and 6% Target & Acquirer deals.**

San Francisco continues to have a slightly higher share of Acquirer M&A deals (67%) compared to Silicon Valley (48%).

Percentage of Merger & Acquisition Deals, by Participation Type

Silicon Valley and San Francisco

SILICON VALLEY Target Acquirer
SAN FRANCISCO Target Acquirer

Y-axis: 15% to 85%

X-axis: '11, '12, '13, '14, '15, '16, '17, '18, '19, '20, '21
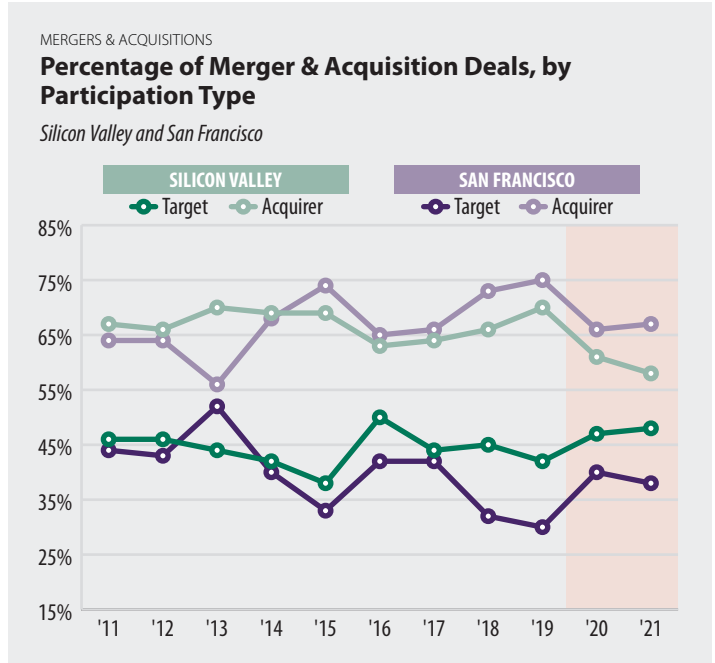
Note: Target and Acquirer shares of total M&A deals do not add up to 100% because some deals include both a local target and a local acquirer. | Data Source: FactSet Research Systems, Inc. | Analysis: Silicon Valley Institute for Regional Studies

2021 Merger & Acquisition (M&A) activity in both Silicon Valley and San Francisco was higher than any other year over the past decade with a combined total of more than 1,800 deals. This jump was partially due to the record-year for Special Purpose Acquisition Company (SPAC) mergers (with nearly 200 mergers and more than $143 billion raised nationwide[33]), which provided an alternate route for companies looking to go public.

MERGERS & ACQUISITIONS
Number of Deals and Share of California Deals
Silicon Valley and San Francisco

Note: Deals include Acquirers and Targets.
Data Source: FactSet Research Systems, Inc. | Analysis: Silicon Valley Institute for Regional Studies

While Silicon Valley, California, and U.S. M&A activity were up by modest amounts (31%, 36%, and 39%, respectively) year-over-year, San Francisco had 62% more M&A deals in 2021 owing to increases in both target (+65%) and acquirer (+54%) activity.

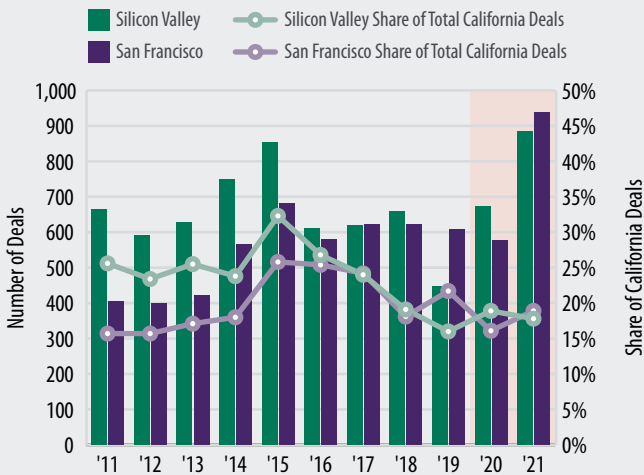60% of disclosed M&A transaction values in 2021 with a California company involved at least one from Silicon Valley or San Francisco ($581 out of $975 billion either pending or completed that year). The region's ten largest deals alone totaled more than $249 billion.

Silicon Valley cybersecurity acquisitions abounded in 2021, with Sunnyvale-based public company Proofpoint taken private through an August acquisition for $12.3 billion in cash; in July, San Jose-based McAfee's enterprise security business was sold to Menlo Park-based Symphony Technology Group, which completed its acquisition of another local cybersecurity company, FireEye, in October for $1.2 billion in cash – effectively merging the two.[32]

Among the disclosed 2021 M&A deals were ten by San Francisco-based Twitter, which acquired four San Francisco companies (including the Brief news app founded by two former Google employees in 2020[36]), plus two in Sunnyvale, one in New York, and three abroad for undisclosed amounts.

Among the 1,741 complete and pending M&A deals in 2021 that involved at least one Silicon Valley or San Francisco participant, 465 had estimated transaction values totaling more than $581 billion.

18% of all 2021 California M&A deals involved at least one Silicon Valley company; 35% included a Silicon Valley and/or San Francisco company.

Among the largest pending M&A deals of 2021 (announced in November) was San Francisco-based DoorDash's approximately $7.6 billion, all-stock acquisition of Helsinki-based Wolt Enterprises, which operates a food delivery platform in 23 countries.[34]

Among the completed M&A deals of 2021 that included either a Silicon Valley or San Francisco company were SPAC mergers bringing Sunnyvale-based 23andMe and San Francisco-based Nextdoor public.

Menlo Park-based Robinhood, which received the largest VC deal of 2021 ($3.4 billion) in Q1, acquired three companies that year including Say Technologies, Cove Markets, and Binc — a San Francisco-based firm which doubled the size of Robinhood's recruitment team.[35]

ECONOMY
Commercial Space

The pandemic continues to affect Silicon Valley's commercial real estate market in peculiar ways. Average rental rates increased in tandem with an increase in vacancies, all while a cautious optimism drove many companies to develop and implement return-to-work plans. While leasing activity had returned to relatively normal levels by the end of 2021 (reaching about 24 million square feet), efforts to resume pre-pandemic normalcy were sidetracked by the two prevalent COVID variants causing case outbreaks in the late summer and wintertime.

Although commercial leasing volume has rebounded in earnest, the total amount of commercial space under construction has steadily decreased to 11.59 million square feet (down 45 percent in comparison to the pre-pandemic high of 20.9 million square feet in Q1 2020). Speculative development may still be considered risky in the current climate, as the cumulative effect of the shift of sentiment toward remote work has yet to be fully understood and quantified; this is prolonging

the wait-and-see approach among real estate developers.

The region's major tech companies continue to plan and execute on leases for their growth and expansion, which may be considered barometers indicating a healthy market. Apple, Google, and Meta[37] (formerly Facebook) have led leasing volume for the year, each committing for over half a million square feet of commercial space in Silicon Valley. On a broader scale, many of the leases signed this year have been for renewals (with relocations and expansions continuing to be relatively subdued), indicating that many companies are still on pause, gathering information about the future of work.

> Among the largest commercial space developments completed in 2021 was a new warehouse for Amazon, a Class A industrial space in the Pacific Commons South Industrial Park in Fremont; the 374,000 square-foot facility includes an indoor fleet yard for as many as 450 vehicles to support an adjacent delivery facility.[38] In addition, Amazon had pre-leased another 224,000 square-foot building in San Jose for last-mile delivery warehousing,[39] also completed in Q1.

> The region's two largest industrial completions of 2021 were Amazon's new facility at Pacific Commons in Fremont (completed in Q1) and Shoe Palace's owner/user warehouse (Q2).

Over five million square feet of new commercial space was delivered to the Silicon Valley market in 2021—more than eighty percent had been leased at the time of delivery.

COMMERCIAL SPACE
New Commercial Development Completions

Silicon Valley
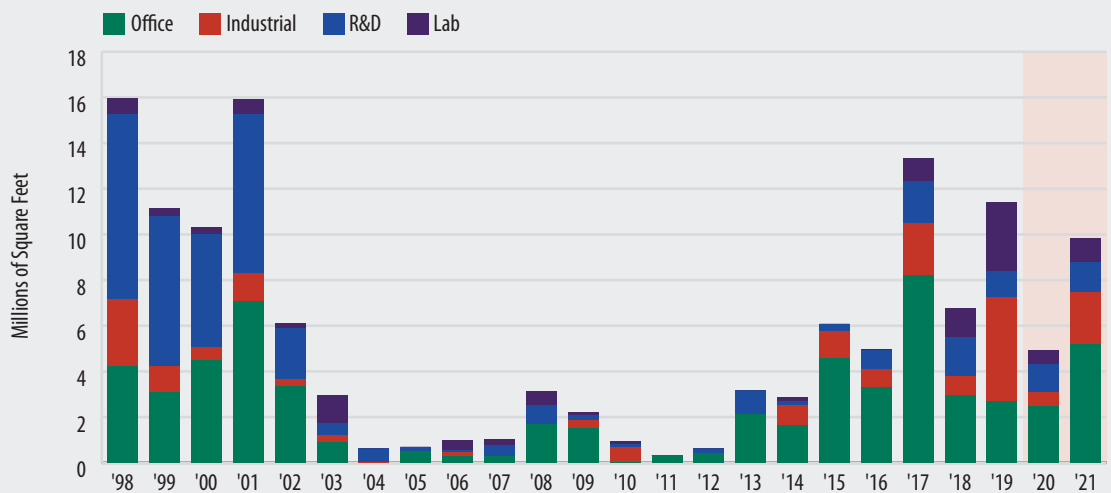
Data Source: JLL | Analysis: Silicon Valley Institute for Regional Studies

> Of the nearly ten million square feet of Silicon Valley commercial space completed in 2021, 53% was office space, 23% Industrial, 13% R&D, and 11% lab space. Just under half (49%) of the newly-constructed space was accounted for by the ten largest development projects alone; and about 53% (5.22 million square feet) of the total was completed in Q2. The most notable completions included Meta's new Burlingame Campus and Campus Expansion in Menlo Park, NVIDIA's second massive building in Santa Clara, Verizon's Campus in San Jose, and Microsoft's Campus redevelopment in Mountain View.

A total of 9.84 million square feet of new Silicon Valley commercial space was completed in 2021. This is just under double the amount completed last year, and the third highest it's been since the dot.com boom.

In Silicon Valley — especially in San Mateo County — there has been a growing demand for Lab space. This has prompted landlords and real estate developers to explore opportunities for repurposing dated R&D space or exploring new ground-up development opportunities. The region now has a record amount of 3.8 million square feet of lab space under construction, with rental rates for lab space also at an all-time high (commanding a premium of about 17 percent more than the rate for office space).

Vacancy continues to increase in the region (with the exception of industrial space), stemming from the lack of leasing activity during the prior year and a continued proliferation of remote work policies. With no immediacy for tenants leasing and activating commercial space, landlords may encounter difficulties in pulling back the greater concessions that are being offered until the demand increases.

Why is this important?

Changes in the supply of commercial space, vacancy rates, and asking rents provide leading indicators of regional economic activity. A decline in available commercial space may suggest strengthening economic activity and tightening in the commercial real estate market. Increases in vacancy (the amount of space that is not physically occupied), as well as declines in rents, can reflect slowing demand relative to supply. Rents and vacancy rates near transit illustrate the value that prime locations provide to tenants and their employees. Changes in the real estate footprint of major tech companies can be indicative of the prevalence of remote work, as well as either consolidation or expansion/contraction, with the latter thereby impacting regional employment levels. Leasing and tech company preleasing activity are also indicative of overall real estate demand and affect optimism toward speculative development.

10 Largest Commercial Space Completions					
Silicon Valley, 2021					
Development Name/Location	Owner/Developer	Rentable Building Area (square feet)	Percent Leased at Time of Delivery & Tenant	Class & Type of Space	Quarter Completed
Burlingame Point 300 Airport Boulevard, Burlingame	Kylli (Genzon Group)	800,000	100% (Meta)	Class A Office	Q2
NVIDIA Voyager Campus 2888 San Tomas Expressway, Santa Clara	NVIDIA / Sares Regis	754,800	100% (NVIDIA)	Class A Flex/R&D	Q4
Coleman Highline - Building 7-8 1199 Coleman Avenue, San Jose	AGC Equity Partners / Hunter Properties	603,363	100% (Verizon)	Class A Office	Q4
Shoe Palace Warehouse 745 Jarvis Drive, Morgan Hill	Owner-User	503,400	100% (Shoe Palace)	Class A Industrial	Q2
Meta Campus Expansion 301-309 Constitution Drive, Menlo Park	Meta	449,500	100% (Meta)	Class A Office	Q4
Microsoft Mountain View Campus 1045 La Avenida Drive, Mountain View	Owner-User	436,043	100% (Microsoft)	Class A Flex R&D	Q2
One Santana West 3160 Olsen Drive, San Jose	Federal Realty Investments / Winchester Investments	374,106	0%	Class A Office	Q4
Pacific Commons 44308 Pacific Commons Blvd, Fremont	Overton Moore Properties	373,957	100% (Amazon)	Class A Industrial	Q1
ServiceNow Campus 2200 Lawson Lane, Santa Clara	Northridge Capital	269,000	100% (ServiceNow)	Class A Office	Q3
3075 Tech 3075 Olcott Street, Santa Clara	MDY Properties	259,234	33%	Class A Office	Q4

Data Source: JLL | Analysis: Silicon Valley Institute for Regional Studies

ECONOMY
Commercial Space

The total amount of available commercial office space in Silicon Valley grew by more than 4.3 million square feet in 2021, owing to the continued pace of completions in the region. This is likely to continue through the first half of 2022, with 3.7 million square feet of office space slated to complete in that timeframe.
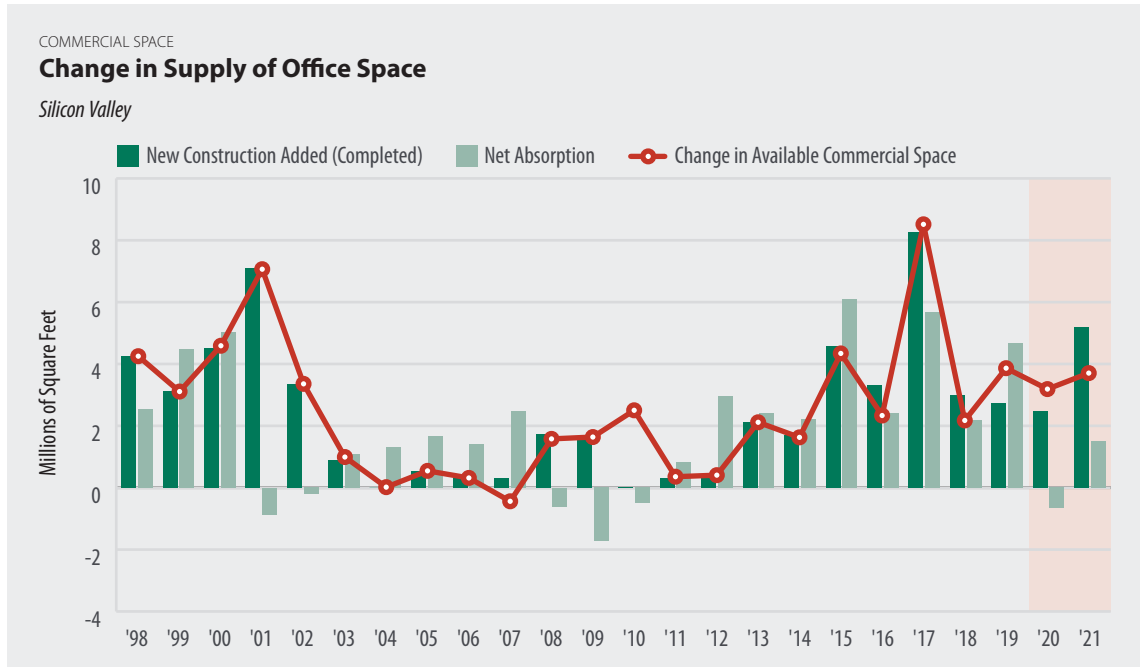
The three largest leases of 2021 were signed by the region's largest tech companies, with Meta leasing the former NetApp campus in Moffett Park, Apple leasing multiple buildings at Pathline Park in Sunnyvale, and Google renewing their lease of the Quad in Mountain View.

COMMERCIAL SPACE
Change in Supply of Office Space
Silicon Valley

Legend: New Construction Added (Completed) | Net Absorption | Change in Available Commercial Space

Data Source: JLL | Analysis: Silicon Valley Institute for Regional Studies

Major construction projects underway at the end of 2021 included several large owner-user developments, such as Adobe's North Tower in downtown San Jose, Google's 1.1 million square-foot Office project on Wright Avenue in Mountain View, and an additional 518,000 square-feet for two buildings at LinkedIn's campus in Mountain View
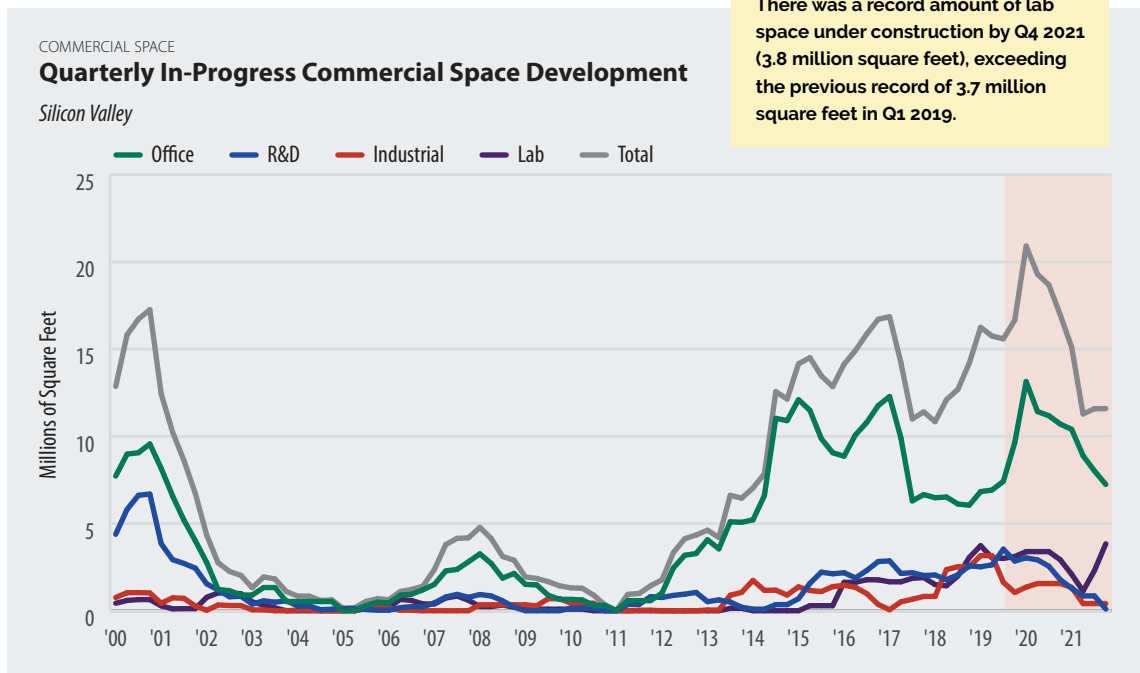
There was a record amount of lab space under construction by Q4 2021 (3.8 million square feet), exceeding the previous record of 3.7 million square feet in Q1 2019.

COMMERCIAL SPACE
Quarterly In-Progress Commercial Space Development
Silicon Valley

Legend: Office | R&D | Industrial | Lab | Total

Data Source: JLL | Analysis: Silicon Valley Institute for Regional Studies

In-progress commercial construction square-footage declined by 23% over the course of 2021 (-3.5 million square feet) as space was completed and delivered to the market, with relatively few *new* construction projects started.

Very little office space is expected to remain in the Silicon Valley development pipeline by 2023 (2.47 million square feet). For the pipeline to remain robust, developers may need to push proposed projects forward or restart stalled ones, such as Platform 16 in San Jose (a 1.1 million square-foot office development).[40]

With over five million square feet of office (alone) delivered, Silicon Valley's in-progress commercial space declined sharply as the developments were completed and delivered to the market.

Due to the sheer amount of commercial space completed in 2021, there remained only 11.5 million square feet under construction by Q4. Many projects are expected to break ground in 2022, such as Related Santa Clara (the City of Santa Clara/Related Companies partnership on a 9.2 million-square-foot LEED-Gold, mixed-use development near Levi's Stadium, which had delayed its groundbreaking due to the pandemic) and CityView Plaza in Downtown San Jose.
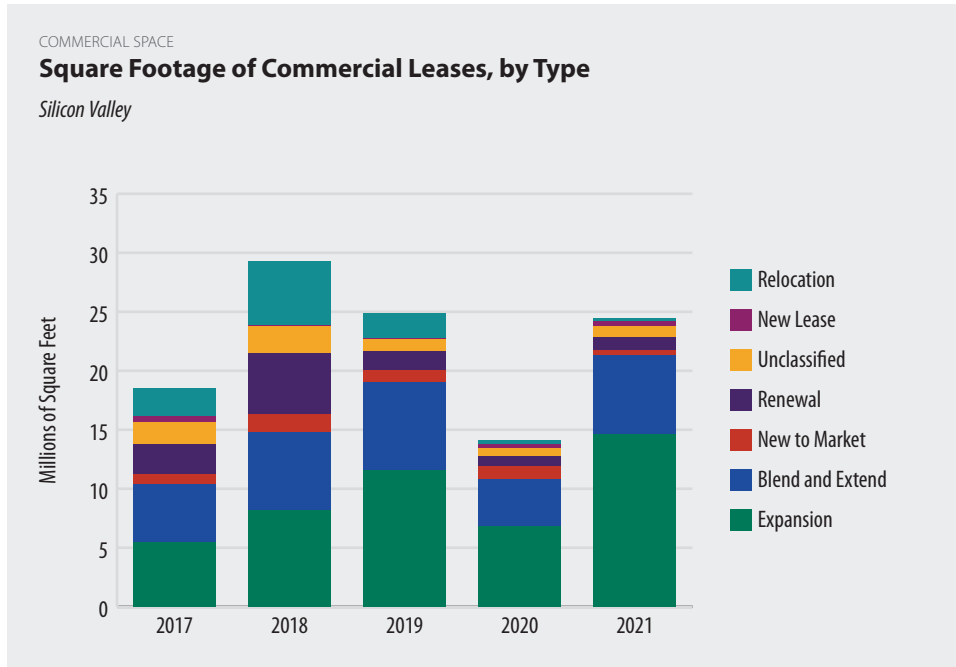
Continued declines in commercial leasing activity have been observed for New to Market leases (in which a tenant has moved from another market), and Relocation leases (tenant relocated within the same market), down by 68% year-over-year and 35% year-over-year, respectively, for all space types combined. In contrast, lease renewals have increased, up 68% over the prior year in 2021.

While leasing totals are back in line with pre-pandemic levels, we continue to see some surprising sublease space made available for rent (such as half of Verizon's building at Coleman Highline in San Jose, totaling 296,000 square feet).

COMMERCIAL SPACE
Square Footage of Commercial Leases, by Type

Silicon Valley

Legend:
- Relocation
- New Lease
- Unclassified
- Renewal
- New to Market
- Blend and Extend
- Expansion

Note: Lease transactions include New to Market (tenant moves into a new market from another market), Relocation (tenant moves from one location to another in the same market), Renewal (tenant renews its existing lease at its current location), Expansion (when a tenant expands its current premises to include new premises outside of its currently leased premises), Blend-and-extend (tenant's remaining lease term, usually one to three years, is extended and the current rental rate is "blended" with a newly negotiated one), and New Lease (when it is unclear if the tenant is new to market, relocating, expanding, or renewing, to indicate that a new lease transaction has taken place). | Data Source: JLL | Analysis: Silicon Valley Institute for Regional Studies

Silicon Valley's commercial space leasing activity rebounded in 2021, up 73% year-over-year (and +94% for office space) by square footage

Despite the 94% year-over-year increase in office leasing activity, the share of commercial leases accounted for by office space have remained stagnant in the longer-term; in contrast, the share accounted for by lab space has grown significantly (up from 7% in 2018 to 13% in 2020).

In 2021, the total square footage of office space leases was 94% higher than the prior year, but 36% below 2019 levels (and 57% below the recent peak in 2018).
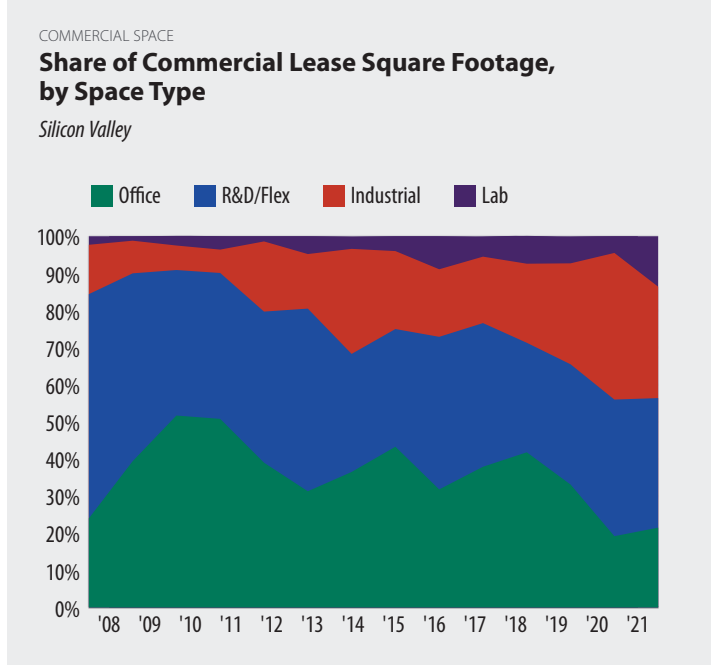
Of the 11.5 million square feet under construction at the end of the year, a large share (62%, or 7.2 million square feet) was office space; 3.8 million were Lab, 400,000 were Industrial, and only 95,000 square feet were R&D space.

Following the pandemic-related construction delays of 2020, there was a significant revival in commercial development in 2021 with 9.8 million square feet of space completed throughout Silicon Valley.

At the end of 2021, 3.8 million square feet of lab development was underway, fueled by aggressive demand for modern lab space and ballooning rental rates.

COMMERCIAL SPACE
Share of Commercial Lease Square Footage, by Space Type

Silicon Valley

Legend: Office | R&D/Flex | Industrial | Lab

Note: Lease transactions include New to Market (tenant moves into a new market from another market), Relocation (tenant moves from one location to another in the same market), Renewal (tenant renews its existing lease at its current location), Expansion (when a tenant expands its current premises to include new premises outside of its currently leased premises), Blend-and-extend (tenant's remaining lease term, usually one to three years, is extended and the current rental rate is "blended" with a newly negotiated one), and New Lease (when it is unclear if the tenant is new to market, relocating, expanding, or renewing, to indicate that a new lease transaction has taken place). | Data Source: JLL | Analysis: Silicon Valley Institute for Regional Studies

Number of Leases, by Space Type

Among Silicon Valley's largest commercial space leases executed in 2021 was the four-building former NetApp campus totaling 707,000 square feet on Crossman Avenue in Sunnyvale; the space was leased to Meta in December, just after the company rebranded (from Facebook). Earlier in the year, Splunk had subleased their 301,000 square-foot Class A office building at Santana Row to NetApp. Apple had also committed to 697,000 square feet across six buildings at Pathline Park in Sunnyvale.

ECONOMY
Commercial Space

Average vacancy rates for Silicon Valley commercial space were 13% for Office, 11.5% for R&D, 6% for Lab, and 4% for Industrial space in 2021. While these rates are higher than they were in 2019, they are still significantly lower than the Great Recession highs of 2010 (between eight and 19%).

Silicon Valley Office, R&D, and Lab vacancy rates continued to rise in 2021, protracted by the complications surrounding new COVID variants throughout the year; however, commercial vacancy rates are likely to decline as a result of the rebound in leasing activity.

Office Vacancy Rates
2020-2021
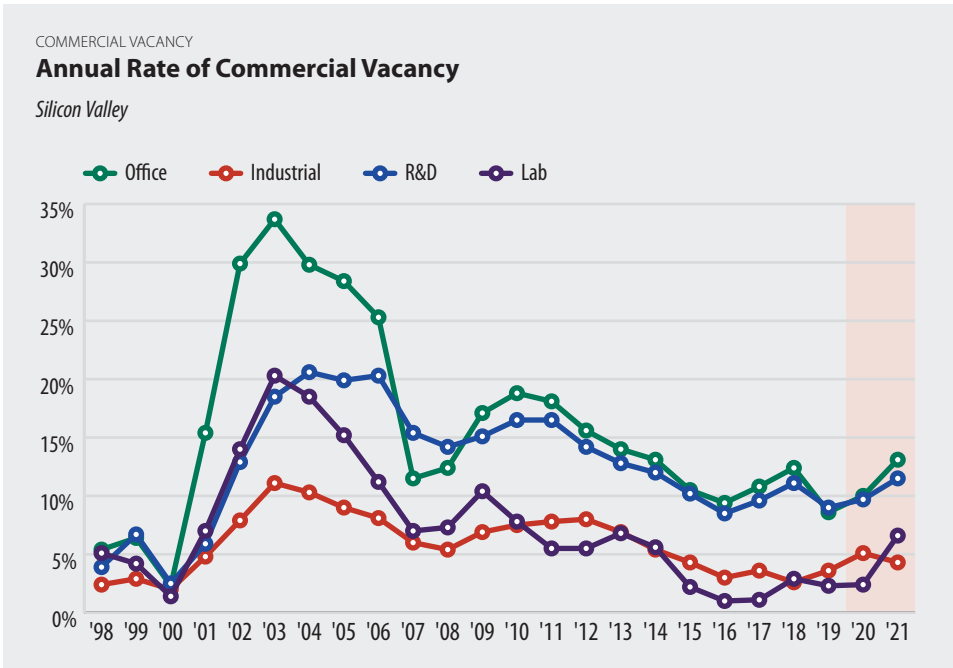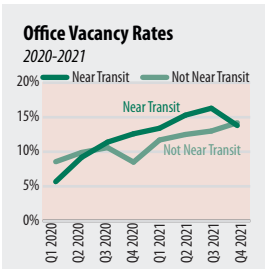
Silicon Valley commercial vacancy rates rose in 2021, most significantly for lab space (exclusive to San Mateo County, up 4.2 percentage points over 2020) and office space throughout the region (+3.1 percentage points year-over-year).

COMMERCIAL VACANCY
Annual Rate of Commercial Vacancy

Silicon Valley

Data Source: JLL | Analysis: Silicon Valley Institute for Regional Studies

Increases in online spending throughout the pandemic bolstered the need for goods warehousing and delivery, magnifying demand and resulting in a slight decline in Industrial vacancy rates. One of the more notable new industrial space deliveries in 2021 contributing to this decline was the completion of Amazon's 373,000 square-foot warehouse in Fremont.

Silicon Valley office space vacancy rates at locations within a 10-minute walk from public transit — which have traditionally been lower than elsewhere due to the ease of employee commutes — has nearly converged with vacancy rates for office spaces not near transit (13.8% in Q4 2021, compared to 14.2% not near transit). As downtown amenities have now adjusted to the new normal in tandem with more rigorously defined public health and safety guidelines, vacancy rates have started to come down.

Office space vacancy rates — which edged up slightly last year — have now come up more significantly in 2021 as the effects of COVID and telework become more fully realized. Vacancy rates are still within relatively normal ranges and are expected to reach an inflection point once tenants begin moving into their newly leased space.

While leasing activity effectively recovered in 2021 (which should cause vacancy rates to trend downward in the near future), it is unclear whether the increased prevalence of remote workers will cause commercial space demand in tech-heavy markets to decline long-term.

Silicon Valley commercial space rental rates began to rise in 2021 as landlords looked to capture demand, and as companies began to implement mandatory return-to-work policies.

Rental rates for R&D space continue to decline, with some space beginning to be repurposed and retrofitted to accommodate the outsized demand for Lab.

Silicon Valley's average rental rates in 2021 were $5.54 per square foot (full-service gross) for office space, $6.48 for Lab, $2.86 for R&D, and $1.41 per square foot for Industrial.

COMMERCIAL RENTS

Annual Average Asking Rents

Silicon Valley

Data Source: JLL | Analysis: Silicon Valley Institute for Regional Studies

Office Rental Rates
Silicon Valley, 2020-2021
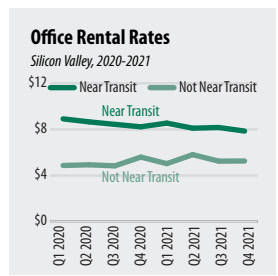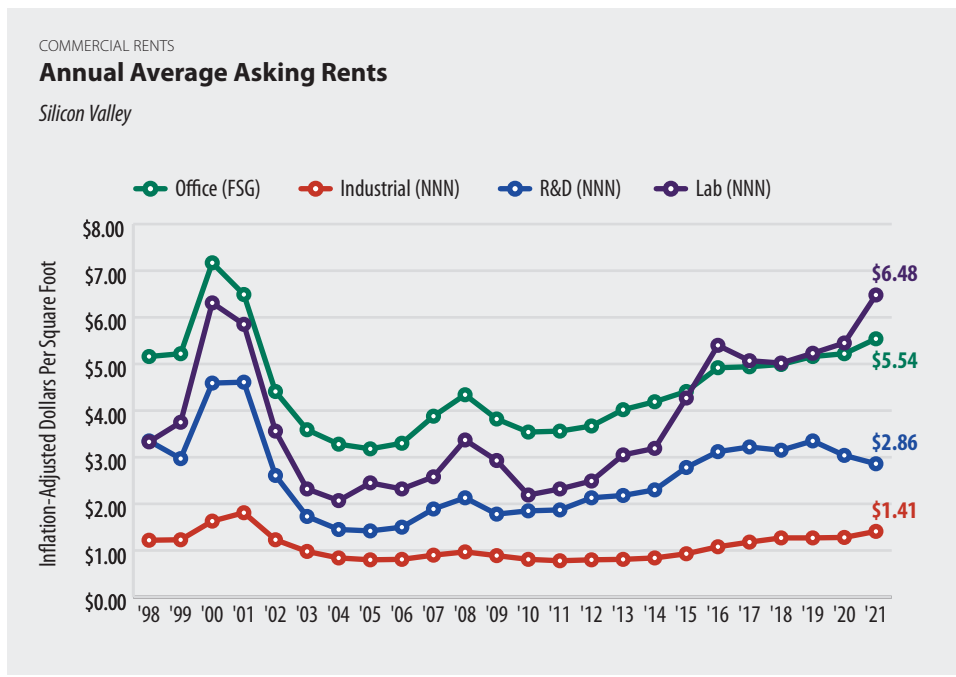
Average rental rates for Silicon Valley commercial space grew in 2021, with a sizable increase for Lab (+15% year-over-year, after adjusting for inflation), a slight increase for Industrial (+7%) and Office (+3%), and a continuing decline for R&D (-8% year-over-year).

While office rents were relatively stable throughout 2020, they shifted back to a pattern of growth by the end of 2021. The contrast between rents at locations near and not near public transit persists, despite a decline of average asking rents below $8.00 for office space near transit in Q4.

The overall increase in rental rates is largely a product of the continued strong performance, growth, and outsized demand for talent within the tech sector; this is coupled with continually rising construction costs, as well as aggressive pricing by institutional investors for commercial real estate sales.

Rental rates for lab space are now more than double the cost of other R&D ($6.48 per square foot, compared to $2.86).

Office space rental rates in Silicon Valley had rebounded at a moderate 13% increase between Q4 2020 and Q4 2021; in comparison, they only increased by 3% in places like Denver, Boston, and Austin. Silicon Valley Office rental rates have continued to outperform other markets, reaching $5.64 at the end of 2021. Rental rates continue to contract in New York City (down 2% year-over-year) and the margin between the two regions has now fallen below $0.75 per square foot.

Silicon Valley office space asking rents remained around 49% higher at locations near public transit (within a 10-minute walk of a Caltrain, BART, or VTA station) at the end of 2021.

ECONOMY
Commercial Space

Average Asking Rents for Office Space, by Region
2021

	Average Rental Rate per Square Foot (FSG)	Year-Over-Year % Change
New York City	$6.37	-1.55%
Silicon Valley	$5.64	+13.48%
Austin	$4.20	+3.19%
Los Angeles	$3.79	+1.61%
Seattle	$3.80	+2.70%
Boston	$3.98	+3.11%
Portland	$2.80	+1.45%
Denver	$2.63	+0.38%

Data Source: JLL | Analysis: Silicon Valley Institute for Regional Studies

Most of Silicon Valley's new commercial developments continue to be pre-leased. Minimal new speculative development is commencing; yet, seven Silicon Valley *spec* projects were completed in 2021 (for a total of 1.2 million square feet).

Tech companies continued to dominate pre-leasing activity. Of the 7.9 million square feet of commercial office space under construction throughout the Bay Area in Q4 2021 (92% of which was in Silicon Valley), 5.3 million (67%) was pre-leased – almost entirely (94%) to tech companies.
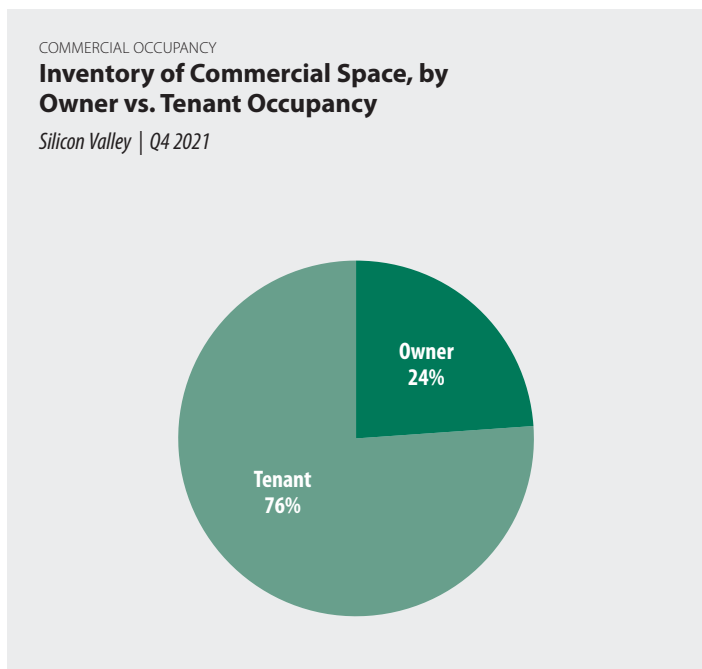
Silicon Valley office space was 76% tenant-occupied and 24% owner-occupied in Q4 2021.

COMMERCIAL OCCUPANCY
Inventory of Commercial Space, by Owner vs. Tenant Occupancy
Silicon Valley | Q4 2021

Owner 24%
Tenant 76%

Data Source: JLL | Analysis: Silicon Valley Institute for Regional Studies

COMMERCIAL OCCUPANCY
Commercial Office Space Under Construction and Share Pre-Leased to Tech Firms
Bay Area | Q4 2021

Pre-Leased to Non-Tech Firms 4%
Not Pre-Leased 33%
Pre-Leased to Tech Firms 63%
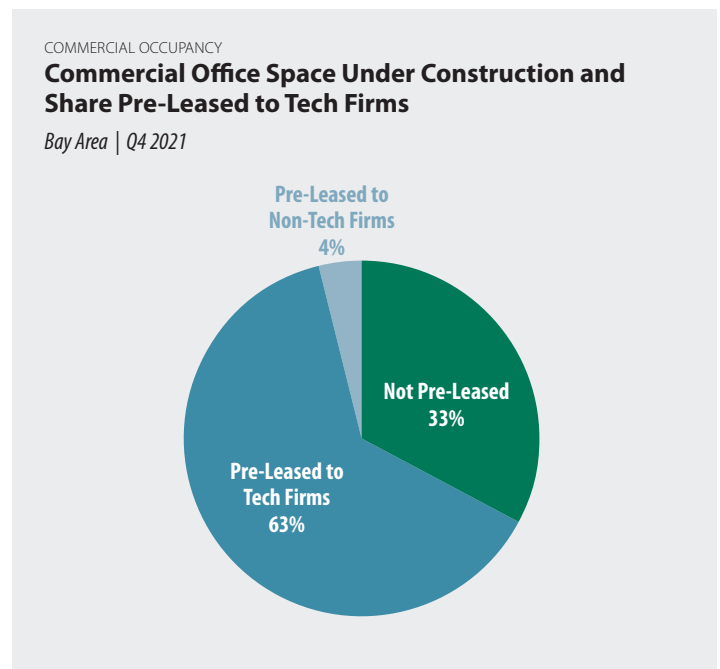
Data Source: JLL | Analysis: Silicon Valley Institute for Regional Studies

In the first half of 2021, 27% of the hotel rooms completed throughout the state (and 17% of the 17,962 under construction mid-year) were in either Silicon Valley or San Francisco.

Two among the largest hotels completed in the region in the first half of 2021 were the Ameswell Hotel Mountain View (255 rooms) and the Tetra Hotel in Sunnyvale (190 rooms).

Hotel development in Silicon Valley returned to a moderate level in 2021, with 1,087 new hotel rooms completed in the first half of the year; however, the pace of development remained lower than the record high of 2,745 rooms delivered in 2019.
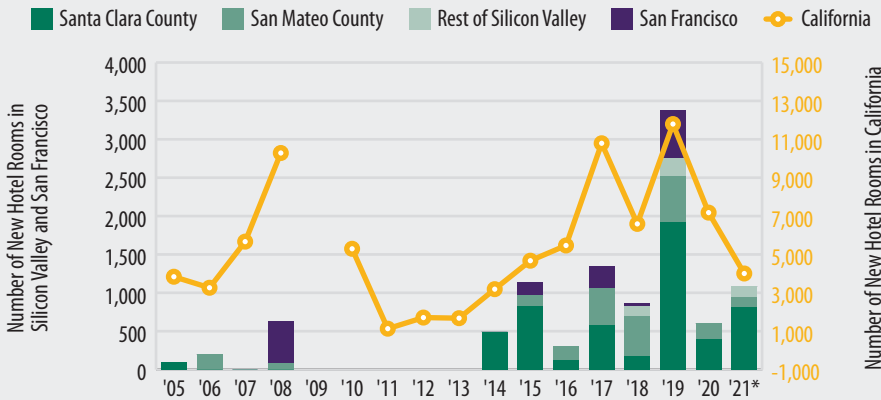
In June 2021, there were 12 hotels under construction in Santa Clara County, three in San Mateo County, and five in San Francisco.

HOTEL DEVELOPMENT
Number of New Hotel Rooms

Silicon Valley, San Francisco, and California

Legend: Santa Clara County, San Mateo County, Rest of Silicon Valley, San Francisco, California

*through June | Note: County-level data for 2009-2013 and state level data for 2009 were unavailable (reports were not published due to lack of significant hotel development). | Data Source: Atlas Hospitality Group | Analysis: Silicon Valley Institute for Regional Studies

TECH COMPANY PRESENCE
Amount of Commercial Space Occupied by Major Tech Tenants

Silicon Valley

Legend: Google, Apple, Meta, Amazon, LinkedIn, Netflix

Note: Includes Santa Clara County and the City of Fremont, plus Menlo Park. | Data Source: Colliers International Silicon Valley | Analysis: Colliers International Silicon Valley
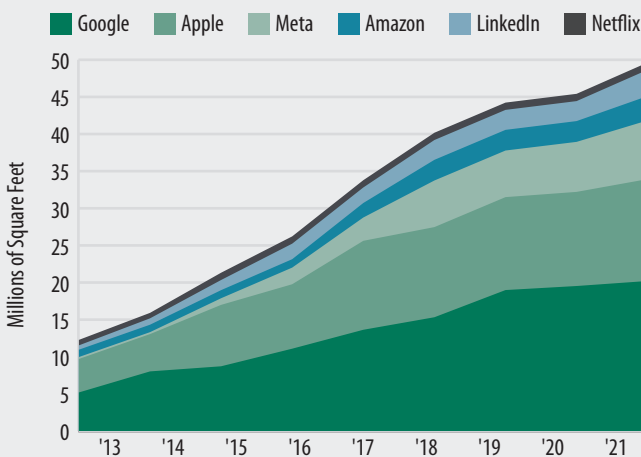
Six of the major tech companies (Google, Apple, Meta, Amazon, LinkedIn, and Netflix) occupy a combined 18% of all available office/R&D space in Santa Clara County, Menlo Park, and Fremont.

Six of the region's largest tech companies — Google, Apple, Meta, Amazon, LinkedIn, and Netflix — occupy 47.7 million square feet of commercial space in Silicon Valley, including (primarily) office and R&D space, as well as some industrial and warehouse. Of these six, Google occupies the most (approximately 20.1 million square feet in 2021).

SOCIETY
Preparing for Economic Success

The pandemic has affected Silicon Valley's students in a plethora of ways, many of which are unquantifiable. Those measures that do exist — graduation and dropout rates, and achievement of standards for college entry — indicate the extent to which the pandemic has negatively impacted preparations of Silicon Valley youth for future economic opportunities. High school dropout rates rose precipitously in Santa Clara County in 2020, particularly for Asian, White, and Filipino students; a quarter of those who dropped out were considered socioeconomically disadvantaged. While graduation and dropout rates varied significantly by race and ethnicity prior to the pandemic, those disparities have been exacerbated.

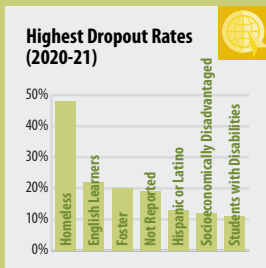During this past academic year (2020-21), data indicate some improvement as schools returned to in-person learning. The high school graduation rate — which declined by nearly four percentage points in the 2019-20 school year — increased similarly in 2020-21; the high school dropout rate — which shot up to 11.2 percent in 2019-20 — came back down in the 2020-21 school year (to 6.8 percent). The share of Silicon Valley high school graduates meeting UC/CSU requirements has risen steadily year-over-year for the past decade, even throughout the pandemic years.

The 2019-20 school year combination of distance-learning for students and remote work for adults increased the need for computers and access to the internet at home. The pandemic did not cause the digital divide, but it revealed the pervasive lack of access to broadband internet; nearly one-third of Silicon Valley households with an annual income less than $75,000 were without Internet access in 2019. Connectivity issues persist, particularly in coastal and rural parts of the region, due to access issues and/or insufficient internet speeds.

Why is this important?
The future success of Silicon Valley's knowledge-based economy depends on the ability of younger generations to prepare for and access higher education and to provide all residents with a fundamental requirement for 21st century life — robust, high-speed network connectivity.

Highest Dropout Rates (2020-21)

Bar chart categories: Homeless, English Learners, Foster, Not Reported, Hispanic or Latino, Socioeconomically Disadvantaged, Students with Disabilities

Silicon Valley's high school dropout rate — which shot up to 11.2% in 2019-20 — came back down in the 2020-21 school year (to 6.8%); however, both the early pandemic effects on dropout rates as well as their recovery varied significantly by race and ethnicity.

The share of Silicon Valley high school graduates meeting UC/CSU requirements has risen steadily year-over-year for the last decade (from 47% in 2010-11 to 64% in 2020-21).

GRADUATION AND DROPOUT RATES
Rate of Graduation, Share of Graduates Who Meet UC/CSU Requirements, and Dropout Rate
Silicon Valley and California
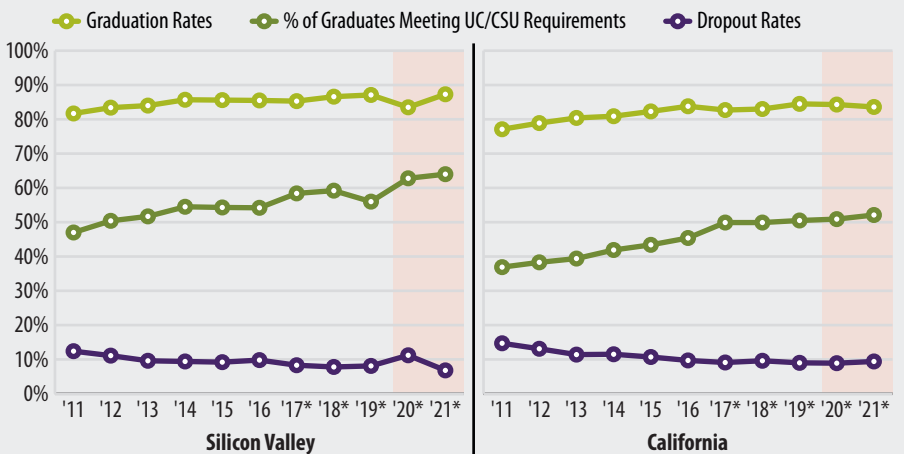
Legend: Graduation Rates — % of Graduates Meeting UC/CSU Requirements — Dropout Rates

Silicon Valley | California

*Due to changes in the California Department of Education methodology for 2017 and subsequent years, caution should be used in comparing cohort outcome data to prior years. | Note: Graduation and dropout rates are four-year derived rates. | Data Source: California Department of Education | Analysis: Silicon Valley Institute for Regional Studies

Silicon Valley's Asian high school students in the 2020-21 cohort graduated at a rate of 96% — 20 percentage points higher than Hispanic or Latino students (76%).

High school graduation and dropout rates are an important measure of how well our region prepares its youth for future success. Preparation for postsecondary education can be measured by the proportion of Silicon Valley youth that complete high school and meet entrance requirements for the University of California (UC) or California State University (CSU) systems. Educational achievement can also be measured by proficiency in math, which

is correlated with later academic success. Breaking down high school graduation rates and the share of those meeting UC/CSU entrance requirements by race and ethnicity sheds light on the inequality of educational achievement in the region. And, whether the region's residents have access to a computer with broadband internet connectivity is indicative of their ability to engage in the community, look for jobs, do homework, manage finances,

interact with government, access a wide variety of resources, and conduct the business of everyday life. During the pandemic, distance-learning has increased this need — making computer and internet access a necessity for remote learning.

The sharp increase in regional high school dropout rates in 2019-20 was due almost entirely to shifts in Santa Clara County, where increases were mostly driven by Asian (461 more dropouts), White (+228), and Filipino students (+160). Of the 1,029 additional students[A] who dropped out of high school that year (compared to the prior year), a quarter of them (265) were considered socioeconomically disadvantaged.

A. In Santa Clara and San Mateo Counties

GRADUATION AND DROPOUT RATES
High School Dropout Rates, by Race & Ethnicity
Silicon Valley
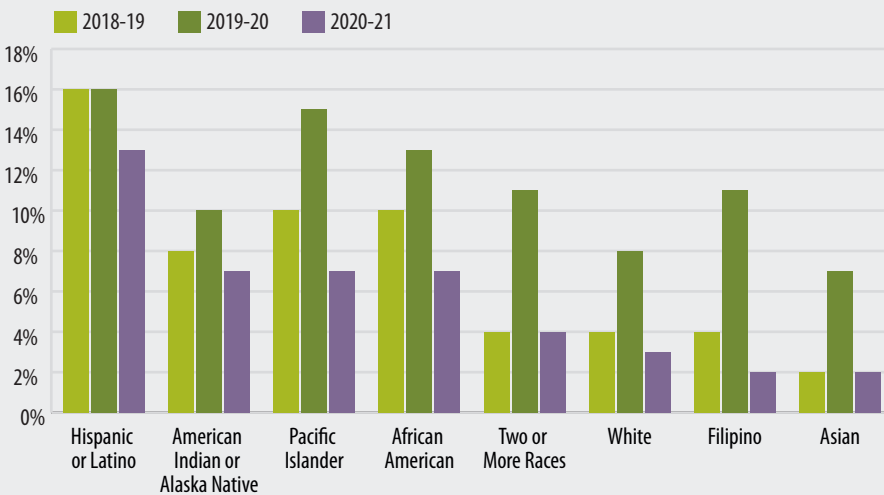
Data Source: California Department of Education | Analysis: Silicon Valley Institute for Regional Studies

Silicon Valley's high school graduation rate — which declined by nearly four percentage points in the 2019-20 school year — increased similarly in 2020-21; statewide pandemic effects on graduation rates were more muted, with a decline of only a fraction of a percentage point in 2019-20.

Silicon Valley's high school dropout rates increased significantly during the 2019-20 school year (+3 percentage points year-over-year), likely as a result of losses in student engagement due to pandemic/distance-learning challenges;[41] a quarter of the losses were from socioeconomically disadvantaged students, who were already dropping out at higher rates (14% in the 2018-19 school year).[A]

A. High school dropout data for socioeconomically disadvantaged students includes Santa Clara and San Mateo counties only.

SOCIETY
Preparing for Economic Success

The largest declines in Silicon Valley's eighth-grade math proficiency since pre-pandemic were among the racial and ethnic groups with the lowest proficiency levels to begin with — Hispanic or Latino, Black or African American, and Filipino students.

The largest declines in eighth-grade math proficiency since pre-pandemic were among Silicon Valley's Hispanic or Latino (with 20% proficient in 2020-21, -22% below pre-pandemic), Black or African American (23% proficiency — a 17% drop since 2018-19), and Filipino students (45% proficiency, representing a 16% decline). Meanwhile, the math proficiency rates for Asian students — already the highest among racial and ethnic groups — increased over the two-year period by 2%.

Approximately 57% of Silicon Valley eighth-graders were proficient in math during the 2020-21 school year (compared to only 31% in California overall). This represents a two percentage point increase since pre-pandemic (2018-19), although a much smaller share of students were tested/scored that year (39%, compared to 98% in 2018-19).

San Mateo County eighth-grade math proficiency increased by six percentage points since pre-pandemic (2018-19), while declining in Santa Clara County (-2pp), San Francisco (-15pp), and statewide (-9pp); however, the magnitude of change was likely affected by the significant drop in the share of students with scores in 2020-21, in addition to pandemic-related effects.

Share Who Met or Exceeded the Standard in Math, by Race and Ethnicity
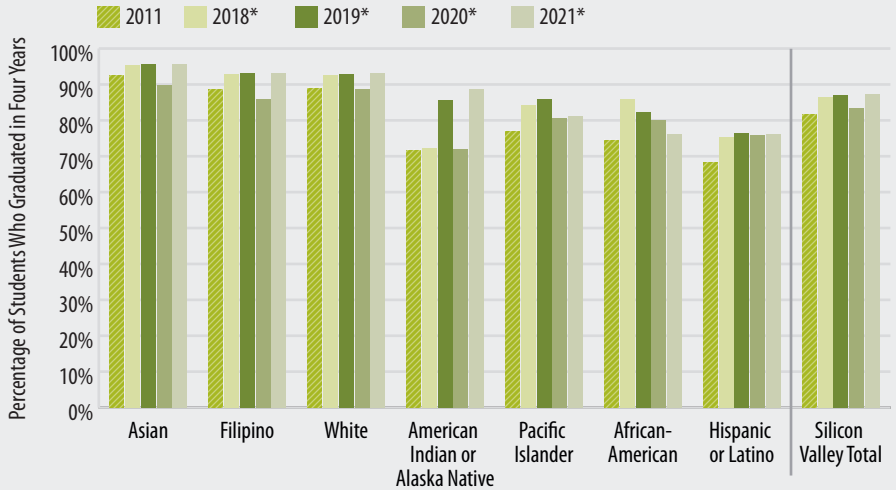Eighth-Graders, 2020-21
(with percent change since 2018-19)
Santa Clara & San Mateo Counties

Asian	87% (+2%)
Two or More Races	68% (-3%)
White	64% (-8%)
Filipino	45% (-16%)
Native Hawaiian or Pacific Islander	23% (-9%)
Black or African American	23% (-17%)
Hispanic or Latino	20% (-22%)
Overall	**57% (+4%)**

GRADUATION AND DROPOUT RATES
High School Graduation Rates, by Race and Ethnicity
Silicon Valley

*Due to changes in the California Department of Education methodology for 2017 and subsequent years, caution should be used in comparing cohort outcome data to prior years. | Note: Graduation rates are four-year derived rates. All racial/ethnic groups aside from Hispanic or Latino are non-Hispanic.
Data Source: California Department of Education | Analysis: Silicon Valley Institute for Regional Studies

Math proficiency data were unavailable for the 2019-20 school year due to the suspension of testing as a result of pandemic-related school closures/transition to remote-learning.[A] However, a national study that included 65 California school districts[42] in the fall of 2020 found that student math achievement scores were lower than the prior year, with eighth-grade proficiency down by approximately six percentage points.[43]

A. The California Assessment of Student Performance and Progress (CAASPP) testing was suspended in March, 2020, due to the pandemic. Subsequently, State Senate Bill 98 (June 2020) specifically prohibited the publishing of 2020 data on the California School Dashboard. Additionally, California Education Code prohibits reporting of interim testing results for "any high-stakes purpose."

MATH PROFICIENCY
Share of Eighth-Graders Who Met or Exceeded the Standard in Math
Santa Clara & San Mateo Counties, San Francisco, and California

Eighth-grade math proficiency remains much higher in Silicon Valley (57% in 2020-21) compared to San Francisco (35%) and California overall (31%).
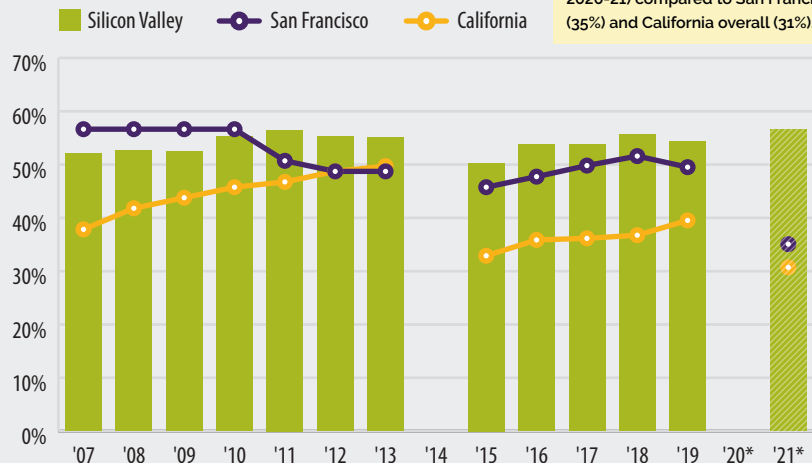
*Math proficiency data is not available for 2014 or 2020; data for 2020-21 include a lower share of enrolled students with scores than typical. | Note: 2019-20 school year data unavailable due to the suspension of CAASPP testing as a result of the COVID-19 pandemic. Beginning with the 2013-14 school year, the California Assessment of Student Performance and Progress (CAASPP) became the new student assessment system in California, replacing the Standardized Testing and Reporting (STAR) system. Data Source: California Department of Education | Analysis: Silicon Valley Institute for Regional Studies

Over the past decade, the share of Silicon Valley high school graduates meeting UC/CSU requirements has increased most dramatically for African American and Hispanic or Latino students (+24 and +19 percentage points, respectively).

COLLEGE PREPARATION
Share of Graduates Who Meet UC/CSU Requirements, by Race and Ethnicity

Silicon Valley

Legend: 2011 | 2018* | 2019* | 2020* | 2021*

Y-axis: Percentage of Students With UC/CSU Required Courses (0% to 100%)

X-axis categories: Asian, White, Filipino, African-American, Pacific Islander, Hispanic or Latino, American Indian or Alaska Native, Silicon Valley Total

*Due to changes in the California Department of Education methodology for 2017 and subsequent years, caution should be used in comparing cohort outcome data to prior years. | Note: All racial/ethnic groups aside from Hispanic or Latino are non-Hispanic.
Data Source: California Department of Education | Analysis: Silicon Valley Institute for Regional Studies
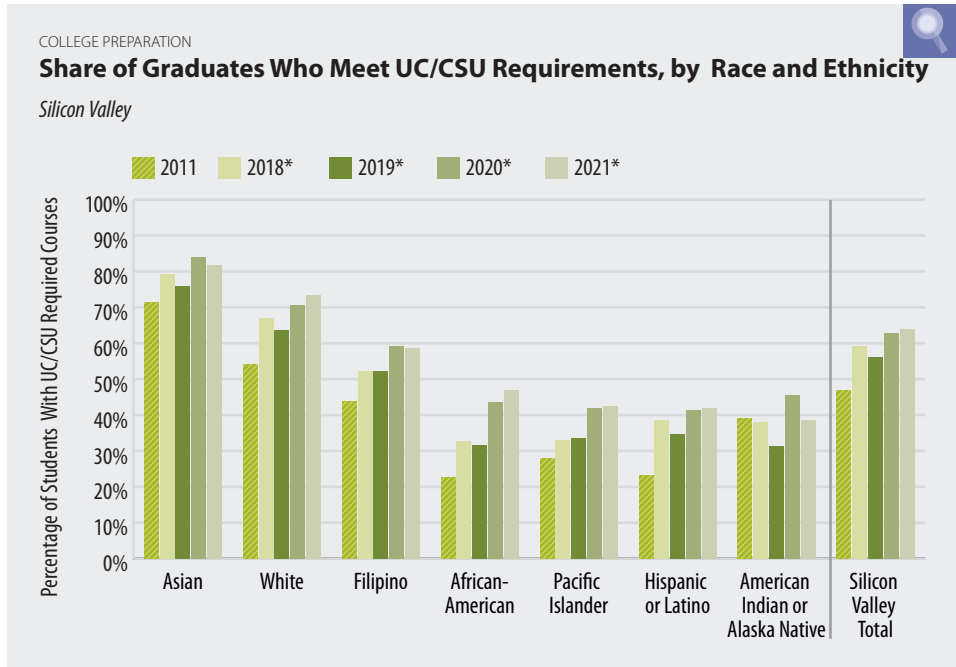
The share of Silicon Valley high school graduates meeting UC/CSU requirements has increased by 17 percentage points over the past decade (from 47% in 2011 to 64% in 2020-21).

More than one-third of households (36%) with an annual income less than $75,000 did not have internet access in Silicon Valley in 2019 (compared to 36% in California and 42% in the United States).

Silicon Valley has a greater share of households with computers and broadband internet access than San Francisco, California, or the United States overall.

An average of 8% of all Silicon Valley households did not have broadband internet access during the five-year period from 2014 to 2019; this share is significantly higher (24%) for low-income households (earning less than $35,000 annually). Disparities also exist across racial/ethnic groups with more than 11% of Hispanic or Latino households not having access to broadband internet.

COMPUTER & INTERNET ACCESS
Share of Households with a Computer and Broadband Internet Access

Santa Clara & San Mateo Counties, San Francisco, California, and the United States | 2019

Legend: With a Computer | With Broadband Internet

X-axis categories: Silicon Valley, San Francisco, California, United States

Data Source: United States Census Bureau, American Community Survey | Analysis: Silicon Valley Institute for Regional Studies

Share of Households Without Internet Access At Home, by Income Range

Santa Clara & San Mateo Counties, San Francisco, California, and the United States | 2019

	Low-Income	Moderate-Income	High-Income
Silicon Valley	24%	12%	2%
San Francisco	35%	11%	3%
California	25%	11%	4%
United States	30%	12%	4%

SOCIETY
Preparing for Economic Success

While the 2015-2019 American Community Survey data indicate that nearly all of the region's students had a computer and internet access at home, the pandemic revealed the digital divide that continues to persist in our region. As a short-term solution to address co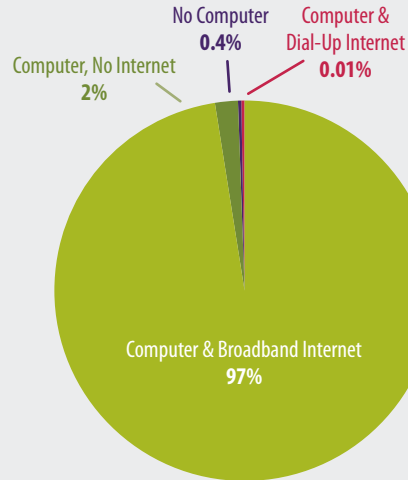nnectivity challenges through the 2020-21 school year, the Santa Clara County Office of Education reported creating 16,000 digital learning connections of which 14,200 were via 4G hotspots.[44] In an effort to remove barriers to students in San Mateo County, a coalition of public and private sector partners extended broadband internet as of January 2021 to over 3,600 students and thousands of households through a combination of expanding public wifi and sponsoring internet accounts for students in areas with connectivity challenges.[45]

Among the region's children, almost all had a computer and broadband internet access at home in 2019; 2% (nearly 14,000 children) had a computer without an internet subscription, and a fraction of a percent (0.4%, or approximately 2,300 children) had no computer in their home at all. The latter compares to 1.3% of California children, and 2% of children throughout the country.

COMPUTER & INTERNET ACCESS
Share of Children With Computers and Internet Access at Home
Santa Clara & San Mateo Counties | 2019

No Computer
0.4%

Computer & Dial-Up Internet
0.01%

Computer, No Internet
2%

Computer & Broadband Internet
97%

Data Source: United States Census Bureau, American Community Survey | Analysis: Silicon Valley Institute for Regional Studies

COMPUTER & INTERNET ACCESS
Share of Households with Computers and Internet Access, by Race & Ethnicity
Santa Clara & San Mateo Counties | 2019

With Computer   With Broadband Internet
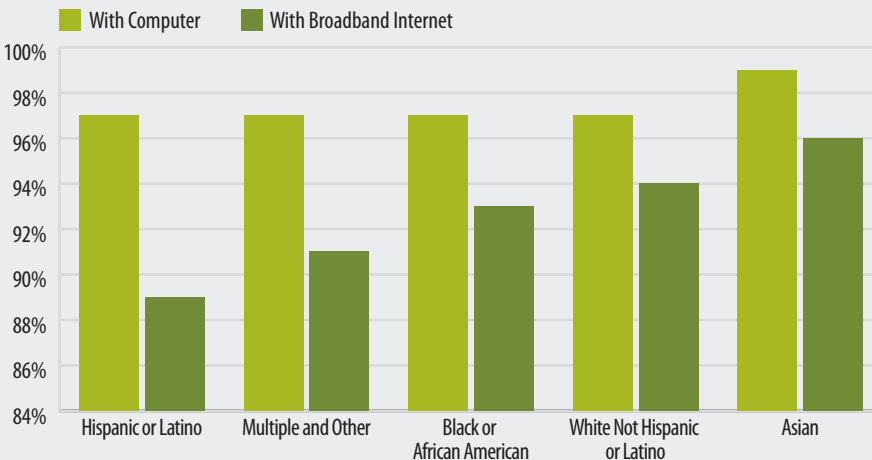
Penetration of households with broadband internet varies across racial and ethnic groups; only 89% of Hispanic or Latino households have access, compared to 96% of Asian households.

The share of Silicon Valley households with a computer is high across all racial and ethnic groups, with 99% of Asian households having a computer and 97% across all other groups.

Note: Multiple and Other includes American Indian and Native Alaskan, Native Hawaiian and Other Pacific Islander, Some Other Race and Two or More Races
Data Source: United States Census Bureau, American Community Survey | Analysis: Silicon Valley Institute for Regional Studies

Low internet speeds in coastal and rural Silicon Valley communities, in particular, posed a challenge for distance-learning during the pandemic. For example, there are more than 2,700 children enrolled in Half Moon Bay schools,[A] where last year internet speeds were among the lowest in the region at 3.9 Mbps upload/26.1 Mbps download.

A. Enrollment at Half Moon Bay schools from the California Department of Education, School Directory.

COMPUTER & INTERNET ACCESS
Average Internet Speeds

Silicon Valley, San Francisco, California, and the United States

*2021 data through December 22 | Data Source: M-Lab | Analysis: Silicon Valley Institute for Regional Studies

Silicon Valley's average internet speeds decreased significantly in 2020 (down by 68% for uploads and by 16% for downloads). While the 2019 to 2020 decline in s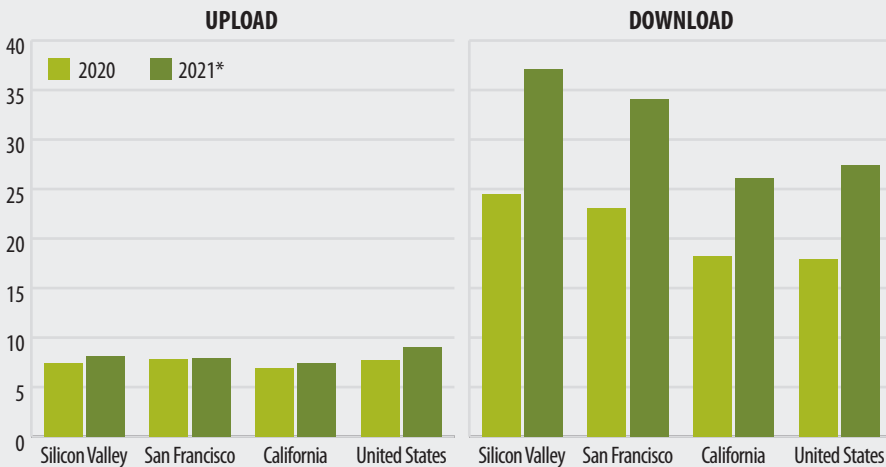peeds was likely due to increased internet traffic during the pandemic, Silicon Valley upload speeds may have already been hampered due to the high prevalence of home-based businesses and smart home devices — both of which tend to make heavy use of cloud storage and cloud computing (thereby putting heavy loads on upload capacity). In addition to impacts on internet speeds, the need for students and workers to have home connectivity in 2020 added more hotspots to the cellular networks — a likely cause of measurable data network slowdowns.[46]

Silicon Valley's average internet speeds decreased significantly in 2020 (down by 68% for uploads and by 16% for downloads), just as the region's newly remote workers and distance-learners needed adequate connectivity. In 2021, however, average speeds increased slightly (up 9% for uploads to 8.1 Megabits per second, and 52% for downloads to 37.1 Mbps).

Some Silicon Valley cities have much faster average internet speeds than others. For example, Atherton's speeds tested at an average of 20.9 Mbps upload/107.6 Mbps download in 2021, compared to Gilroy at 5.5 Mbps upload/25.0 Mbps download and Santa Clara at 6.7 Mbps upload/28.4 Mbps download.

Average download speeds in Silicon Valley (37.1 Mbps in 2021) were slightly higher than San Francisco (34.1 Mbps), the state (26.1 Mbps), and national averages (27.4 Mbps).

Silicon Valley's average internet upload speed in 2021 was 8.1 megabits per second (Mbps), which was slightly lower than the U.S. overall average of 9.0 Mbps that year.

SOCIETY
Early Education & Care

The effects of the pandemic on early childhood education and childcare persisted into the fall of 2020, with preschool enrollment reaching its lowest level since 1996 throughout the country. Enrollment rates in Silicon Valley — which had risen steadily for two decades —declined in 2020 by 38 percent. This decline threatened to undermine the progress made on kindergarten readiness, with disproportionate impacts on Black or African American and Hispanic or Latino children.

Childcare costs continued to rise sharply year-over-year — twice as quickly as the inflation rate, and up by 50 percent over the past decade. In 2021, the average cost of childcare for an infant at a licensed care center was $26,450 per year ($21,900 for a preschooler).
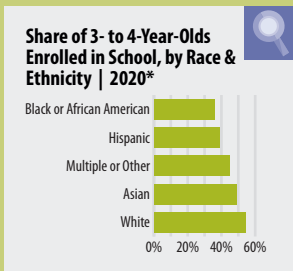
In-home childcare was even more expensive at $41,280 for one child — a five percent year-over-year increase due, most likely, to higher demand caused by the pandemic. Fewer than four out of ten in-person workers (those whose responsibilities cannot be done remotely) believe the Bay Area is a good place to raise a family — a share that is likely influenced by their greater need for dependable, affordable childcare.

Why is this important?

Early education for children provides the foundation for lifelong accomplishment. Research has shown that quality preschool-age education is vital to a child's long-term success. Private versus public school enrollment illustrates the economic structure of our community when compared to California and the United States. Reading and writing abilities function as important indicators for a child's future, as they are strongly correlated with continued academic achievement.

Childcare costs affect the ability of Silicon Valley parents to send their children to preschool, to provide quality care for their children and infants while they work, and to afford all other basic needs for their family.

Share of 3- to 4-Year-Olds Enrolled in School, by Race & Ethnicity | 2020*

Black or African American
Hispanic
Multiple or Other
Asian
White

0%   20%   40%   60%

Note: White is not Hispanic or Latino.

In 2020, slightly more than 32,300 three- and four-year-olds attended public and private preschools in Santa Clara and San Mateo Counties, amounting to less than half of the age group's total population. On a national level, 2020 was the first year since 1996 that less than half of the three- to four-year-old population was enrolled in school.[47]

PRESCHOOL ENROLLMENT
Percentage of the Population 3 to 4 Years of Age Enrolled in School
Santa Clara & San Mateo Counties, San Francisco, California, and the United States
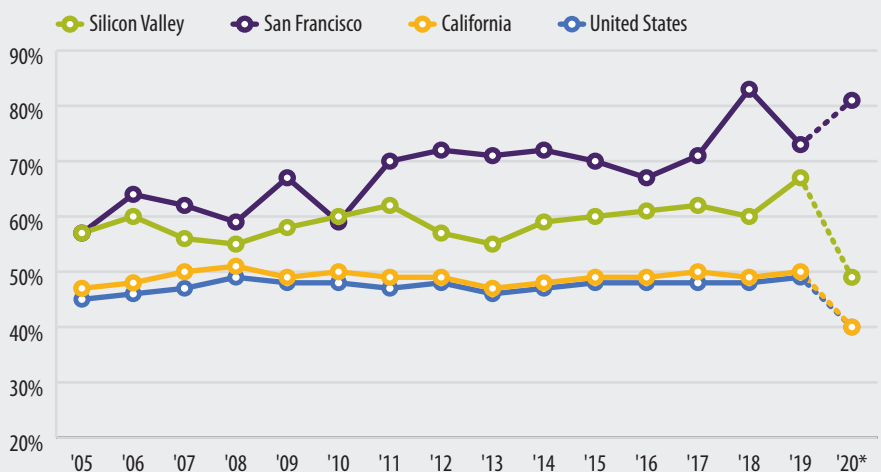
Silicon Valley · San Francisco · California · United States

*2020 data for Santa Clara, San Mateo and San Francisco counties and California are based on ACS-1 Year microdata with experimental weights. 2020 US data are from the U.S. Census Bureau Current Population Survey. | Note: Data includes enrollment at both public and private schools. | Data Source: United States Census Bureau, American Community Survey and Current Population Survey | Analysis: Silicon Valley Institute for Regional Studies

Data for three- and four-year-olds by race and ethnicity show disparities in enrollment with Black or African American children 50% less likely and Hispanic or Latino children 38% less likely than White, not Hispanic or Latino children to be enrolled in school in 2020.

Data for 2020 suggest that the initial decrease in attendance levels caused by the onset of the pandemic persisted into the 2020-21 school year, affecting overall enrollment for the entire calendar year (49%), with a year-over-year decline in enrollment of 38% from 2019 to 2020. National-level research has indicated three main reasons why parents did not enroll their children in preschool, including lack of in-person options, concerns about the safety of in-person schooling, and cuts in preschool funding.[48]

A greater share of Silicon Valley and San Francisco preschoolers attend private schools (32% and 63%, respectively, in 2020) than in the state (18%); nevertheless, the region's 2019 to 2020 preschool enrollment declines occurred in both public (-58%) and private schools (-27%). Although San Francisco experienced a decrease in enrollment in public schools (-18%), enrollment in private schools rose by 18% which drove the overall increase (+10%).

PRESCHOOL ENROLLMENT
Percentage of the Population 3 to 4 Years of Age, by School Enrollment
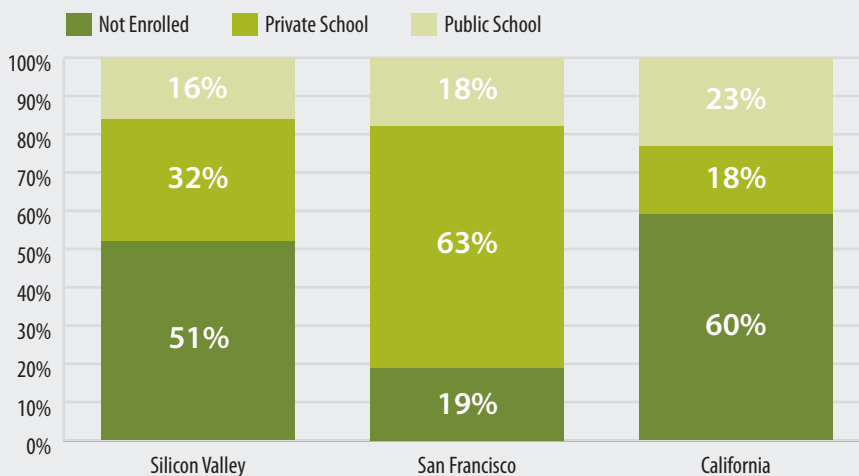
Santa Clara & San Mateo Counties, San Francisco, California, and the United States | 2020*

Legend: ■ Not Enrolled ■ Private School ■ Public School

Silicon Valley: Public School 16%, Private School 32%, Not Enrolled 51%
San Francisco: Public School 18%, Private School 63%, Not Enrolled 19%
California: Public School 23%, Private School 18%, Not Enrolled 60%

*2020 data for Santa Clara, San Mateo and San Francisco counties and California are based on ACS-1 Year microdata with experimental weights. 2020 US data are from the U.S. Census Bureau Current Population Survey. | Note: Data includes enrollment at both public and private schools. | Data Source: United States Census Bureau, American Community Survey and Current Population Survey | Analysis: Silicon Valley Institute for Regional Studies

Silicon Valley and San Francisco preschool enrollment rates (49% and 81%, respectively in 2020) were higher than both California (40%) and the United States overall (40%). Silicon Valley, the state and the nation all experienced significant year-over-year declines in enrollment from 2019 to 2020, which is a marked departure from the trend over the past decade (Silicon Valley experienced a seven percentage point increase in enrollment from 2010 to 2019, but those gains were wiped away during this last year); in sharp contrast, San Francisco showed an increase in enrollment of 10% between 2019 and 2020.

Percent Change in Enrolled 3- to 4-Year-Olds

2019-2020*

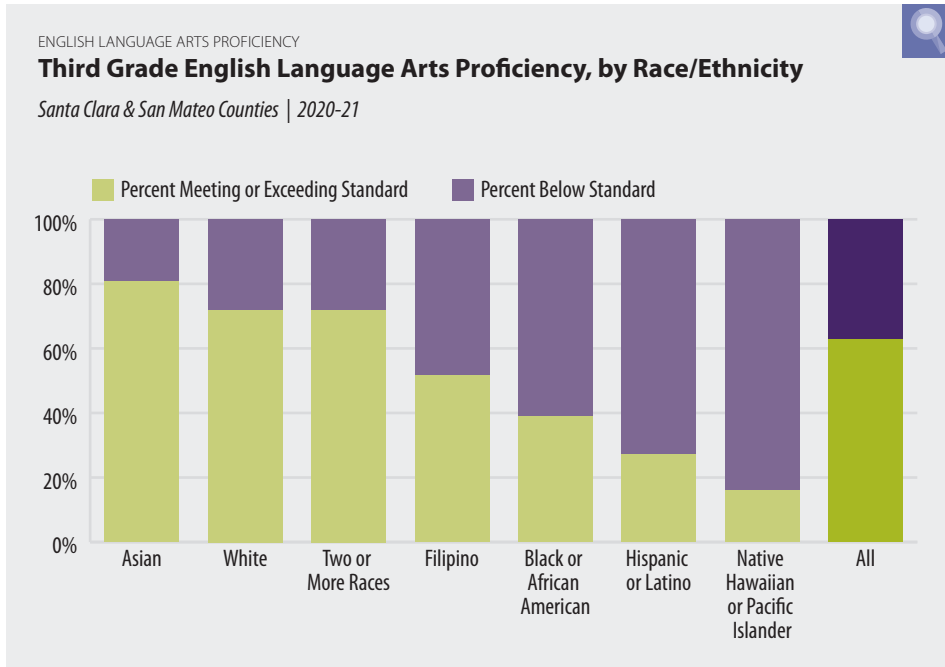|	Silicon Valley	San Francisco	California
Share Enrolled	-38%	+10%	-24%
Public School	-58%	-19%	-29%
Private School	-27%	+18%	-17%
Not Enrolled	+36%	-41%	+17%

Preschool enrollment in San Francisco (81% in 2020) has increased significantly since the implementation of the city's Preschool for All program[49] in 2005 and supplemented by the 2017 launch of an Early Learning Scholarship Program.[50] Prior to the implementation of Preschool for All, the share of three- and four-year-olds enrolled in school was 57% (in 2005).

Silicon Valley has a higher share of third-graders meeting or exceeding the English language arts standard (63% in 2020-21) than San Francisco (38%) or the state as a whole (40%).

ENGLISH LANGUAGE ARTS PROFICIENCY

Third Grade English Language Arts Proficiency, by Race/Ethnicity

Santa Clara & San Mateo Counties | 2020-21

Legend: Percent Meeting or Exceeding Standard | Percent Below Standard

Note: Data for 2020-21 include a lower share of enrolled students with scores than is typical. | Data Source: California Department of Education, California Assessment of Student Performance and Progress (CAASPP) | Analysis: Silicon Valley Institute for Regional Studies

Share of Third-Graders Meeting or Exceeding the Standard in English Language Arts

	2018-19	2020-21
Silicon Valley	60%	63%
San Francisco	52%	38%
California	49%	40%

Third-grade English language arts proficiency in Silicon Valley varies significantly by race and ethnicity, with Asian students having the highest share (81%) meeting or exceeding the standard while only 27% of Hispanic or Latino students and 39% of Black or African American students meeting or exceeding the standard during the 2020-21 academic year.

The average annual cost of an in-home childcare provider in Silicon Valley rose with increased demand during the pandemic, up by approximately 5% year-over-year to $41,280 annually in 2021 (not including additional employer costs such as household employment taxes, workers' compensation insurance, and/or tax and payroll services).

Some savings are possible by hiring one in-home childcare provider to care for multiple children in one household (or participating in a nanny share), amounting to around a 33% multiple-child discount.

Average In-Home Childcare Costs

Costs of Full-Time Care for One Child | 2021

Silicon Valley, San Francisco, California, the United States, and various U.S. cities

	Monthly	Annual
Silicon Valley	$3,440	$41,280
San Francisco	$3,830	$45,960
California	$3,000	$36,000
San Antonio, TX	$2,430	$29,160
Phoenix, AZ	$2,820	$33,840
Portland, OR	$3,030	$36,360
National Average	$2,790	$33,480

Data Source: Care.com; Nanny Lane
Analysis: Silicon Valley Institute for Regional Studies

The average costs of an in-home childcare provider in Silicon Valley and San Francisco ($3,440 and $3,830 per month, respectively) are higher than throughout the state ($3,000), the nation as a whole ($2,790), and many other major U.S. cities.

In-Home Childcare Costs, for 10 Most/Least Expensive Areas

Annual Cost of Full-Time Care

Silicon Valley | 2021

	1 Child	2 Children
Most Expensive: Portola Valley, Atherton, San Gregorio, Woodside, Los Altos Hills, Menlo Park, San Carlos, Palo Alto, Stanford, El Granada	$45,830	$61,100
Least Expensive: San Martin, Gilroy, Morgan Hill, Union City, Fremont, Scotts Valley, Newark, Mount Hamilton, Milpitas, Coyote	$37,570	$50,080

Data Source: Care.com; Nanny Lane
Analysis: Silicon Valley Institute for Regional Studies

The cost of an in-home childcare provider for one child is significantly higher in the ten most expensive Silicon Valley cities ($3,820 per month, on average) — including affluent places like Atherton, Woodside, and Los Altos Hills — than in the ten least expensive areas ($3,130 per month). This indicates that the cost of care is dictated to a larger extent by what parents can afford, than by the income needs of care providers.

The cost of childcare for children under age five has risen significantly since 2010 in Silicon Valley, San Francisco, and statewide. Full-time childcare for a Silicon Valley preschooler at a licensed childcare center has risen by 98% since 2010.

CHILDCARE COSTS
Average Monthly Cost of Childcare

Santa Clara & San Mateo Counties, Bay Area, and California

Monthly Cost (Inflation-Adjusted)

2010	2021*	2010	2021*	2010	2021*	2010	2021*	2010	2021*	2010	2021*
Infant		Preschooler		Infant		Preschooler		Infant		Preschooler	
SILICON VALLEY				BAY AREA				CALIFORNIA COUNTY AVERAGE			

Annual Cost Comparison
2021

*2021 estimated using statewide subsidy estimates for 2021 from the Center for American Progress. | Note: The 2020 Regional Market Rate Survey was delayed in 2020 due to COVID; the 2021 survey will be published by July 2022. 2010 and 2021 estimates based on 2009 and 2018 market rate data. Centers are licensed child care centers. Homes are licensed family child care homes. | Data Sources: California Department of Education, Regional Market Rate Surveys; kidsdata.org; Center for American Progress; Care.com; Nanny Lane | Analysis: kidsdata.org; Silicon Valley Institute for Regional Studies

Percent Change in Inflation-Adjusted Childcare Costs
2010 - 2021*

Cost of Full-Time Care at a Licensed Childcare Center	Infant	+72%
	Preschooler	+98%
Inflation Rate		+36%
Median Family Income		+66%

Nannies in Silicon Valley earn an average of $19.85 per hour, but are unlikely to receive medical or other benefits of employment.

Silicon Valley childcare costs have risen twice as quickly as the inflation rate since 2010; preschool costs have risen 1.5 times faster than median family income over that same period.

Average childcare costs at licensed care facilities in Silicon Valley were an estimated $26,450 per year for infants ($2,205 per month) and $21,900 per year for preschoolers in 2021.

% Think This is a Good Place to Raise a Family
Bay Area, 2021

San Mateo County	57%
Income $250,000+	55%
Homeowners	52%
Households with Children	47%
Santa Clara County	46%
In-Person Workforce	38%
Renters	36%

Data Source: The Silicon Valley Poll
(www.jointventure.org/svpoll)

An in-home childcare provider for one child in Silicon Valley costs nearly twice as much as preschool; furthermore, even when bundling one in-home provider to care for multiple children, it remains a more expensive option for both infants and preschoolers (even without taking into account potential sibling discounts at childcare centers).

Only 57% of San Mateo County and 46% of Santa Clara County residents think the Bay Area is a good place to raise a family; a higher share of homeowners (52%) than renters (36%) agree. Only 38% of the in-person workforce (those whose responsibilities cannot be done remotely) believe the Bay Area is a good place to raise a family — a share that is likely influenced by the greater needs of in-person workers to have dependable, affordable childcare.

SOCIETY
Arts & Culture

Pandemic-induced changes to in-person engagement and social interactions throughout the region persist. Arts and culture employment, especially hard-hit in 2020, regained about two-thirds of its losses in 2021. With the changing face of the pandemic, the arts and culture sector experienced a short-term surge of activity beginning in the first quarter of 2021 due to pent-up audience demand for social gatherings. A subsequent wave of Delta variant infections, however, generated caution mid-year, dampening the arts and culture rebound. Consumer spending on home-entertainment (such as books, gaming, and streaming services) hit a high point at the beginning of 2021, and remained above pre-pandemic levels despite tapering off in

the third quarter. In contrast, consumer spending on events and in-person entertainment fell dramatically at the start of the pandemic and increased steadily, recovering to near pre-pandemic levels by mid-year. Uncertainty remains in how rapidly audiences will resume participation in public arts and culture activities and in what ways cultural organizations will reboot or re-position events and activities in the long term.
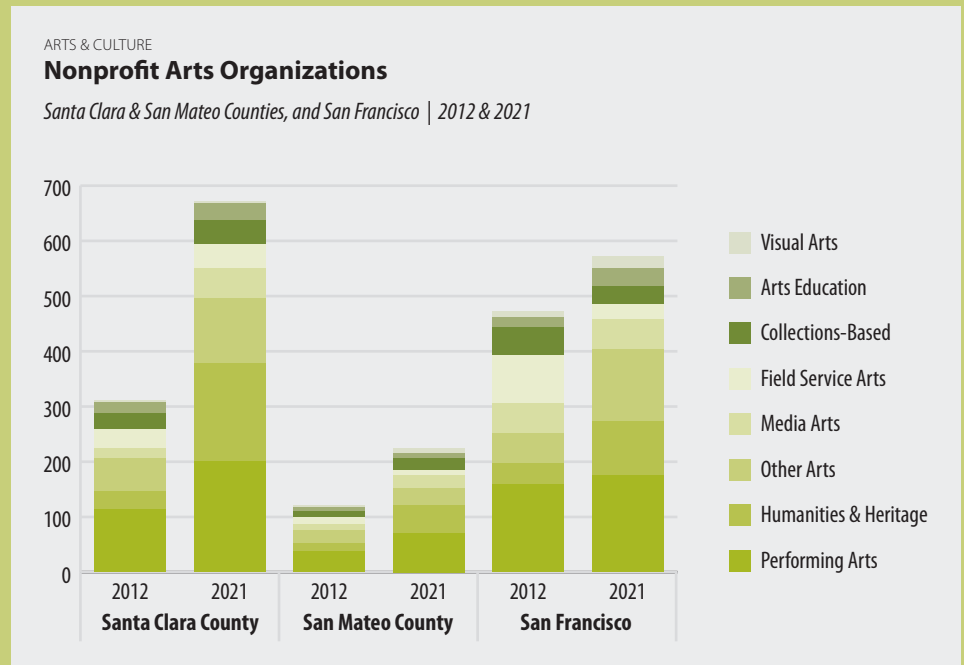
WHY IS THIS IMPORTANT?

Arts and culture industries play an integral role in Silicon Valley's economic, social, and civic vibrancy. They bring the community together for both enjoyment and enrichment, and contribute significantly to overall quality of life.

As both producers and employers, nonprofit arts and cultural organizations also reflect regional interests and diversity. Unique cultural activities help attract and retain residents, as well as support businesses and promote civic connections throughout the community.

The region's growing number and mix of local arts nonprofits are indicative of its ability to organize and generate cultural and creative activities for its increasingly diverse community. Event attendance and spending on arts and cultural activities reflect the public's interests; they help sustain the organizations and their employees, and indirectly support local retail, restaurant, and other economic activity within downtowns and neighborhood centers.

In spite of pandemic-related setbacks, Santa Clara and San Mateo counties continued to generate a characteristically high rate of nonprofit start-ups and, for the first time, were home to a larger total number of organizations than San Francisco.

Among the 896 Santa Clara and San Mateo County nonprofit arts and culture organizations in 2021, there were 43 with annual revenues over $1 million. This represents a 42% decline from 2020. Among those with the highest revenues were Minority Television Project (owner of the education television station, KMTP), San Jose Museum of Art, The Tech Interactive, the School of Arts and Culture at the Mexican Heritage Plaza, the Computer History Museum, Theatreworks Silicon Valley, the Children's Discovery Museum of San Jose, and CuriOdyssey (children's museum and zoo).

ARTS & CULTURE
Nonprofit Arts Organizations
Santa Clara & San Mateo Counties, and San Francisco | 2012 & 2021

Legend:
- Visual Arts
- Arts Education
- Collections-Based
- Field Service Arts
- Media Arts
- Other Arts
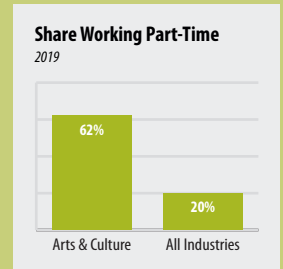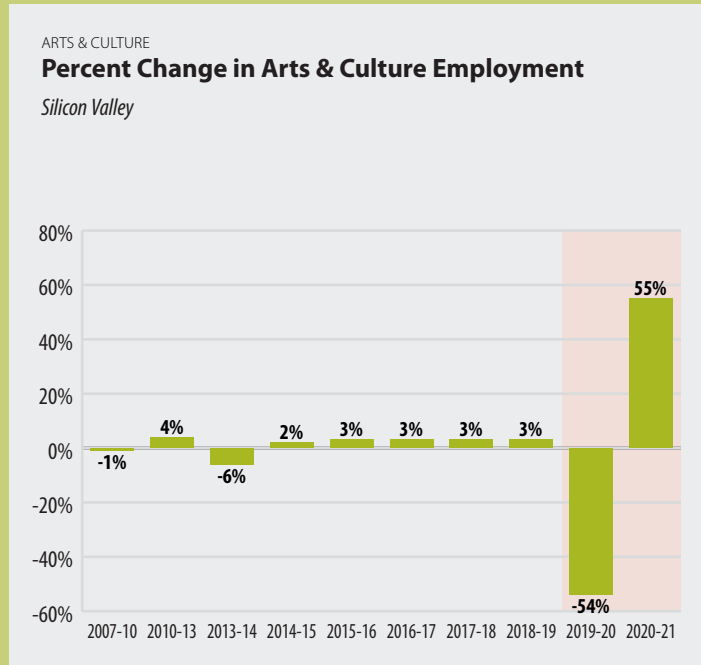- Humanities & Heritage
- Performing Arts

Average revenue among many larger nonprofit arts and culture organizations dropped precipitously through 2020 with some indications of growth in 2021 based on resumption of in-person activities.

Artists and creative workers were — and remain — among the most severely affected segment of the nation's workforce. Furthermore, pandemic-related unemployment and income losses across the country showed large disparities by race and ethnicity, and BIPOC organizations reported more financial difficulties with returning to in-person activities than non-BIPOC organizations (38%).[51]

Silicon Valley employment in Arts, Entertainment, and Recreation — which had been hard-hit in 2020 with a 54% loss (-10,710 jobs) — rebounded by mid-2021 with a gain of 5,100 jobs year-over-year (+55%). This massive growth rate compares to an overall regional gain of 5% across all industries.

> By June 2021, Silicon Valley's arts and culture employment had rebounded to 14,367, but remained 5,610 jobs short of pre-pandemic (2019) levels.

Whereas in 2012 there were significantly more nonprofit arts organizations in San Francisco than either Santa Clara or San Mateo Counties (472 compared to 312 and 119, respectively), by 2021 that was no longer the case. San Francisco registered fewer nonprofit arts organizations than Santa Clara but continued to report significantly more than San Mateo County (571 compared to 672 and 224, respectively); this was largely due to an increase in Humanities & Heritage organizations in Santa Clara County and newly-founded organizations in Performing and Other Arts.

ARTS & CULTURE
Percent Change in Arts & Culture Employment

Silicon Valley

Period	Percent Change
2007-10	-1%
2010-13	4%
2013-14	-6%
2014-15	2%
2015-16	3%
2016-17	3%
2017-18	3%
2018-19	3%
2019-20	-54%
2020-21	55%

Note: Includes jobs in arts, entertainment, and recreation. | Data Source: U.S. Bureau of Labor Statistics Quarterly Census of Employment and Wages; EMSI; United States Census Bureau, American Community Survey PUMS | Analysis: BW Research; Silicon Valley Institute for Regional Studies

Share Working Part-Time
2019

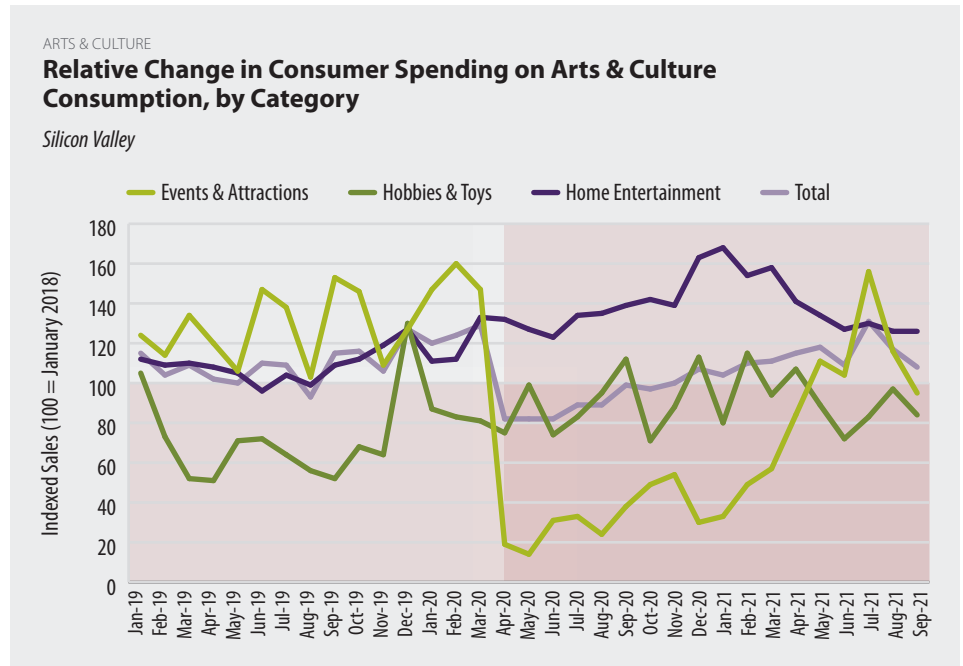|	Share
Arts & Culture	62%
All Industries	20%

A far greater percentage of Silicon Valley's Arts, Entertainment, and Recreation jobs were filled by part-time employees (62%) than across all industries (20% in 2019). Most of these pre-pandemic, part-time employees worked very limited hours (around 10 to 15 per week).

Spending on Events & Attractions began to rebound in early 2021 as more activities were held in-person; the trend moderated toward year end. In Silicon Valley, peak Events & Attractions spending increased by +329% year-over-year – higher than the increases statewide and nationally but still below pre-pandemic levels.

Percent Change in Arts & Culture Spending
2020-2021

	All	Events & Attractions
Silicon Valley	21%	329%
California	30%	219%
United States	34%	287%

Overall Silicon Valley consumer spending on Arts & Culture increased by 21% year-over-year in 2021 (compared to +30% statewide and +34% nationally). Specifically, spending Events & Attractions — such as concerts, movie theaters, sporting events, and theme parks — increased by 329%.

ARTS & CULTURE

Relative Change in Consumer Spending on Arts & Culture Consumption, by Category

Silicon Valley

Legend: Events & Attractions, Hobbies & Toys, Home Entertainment, Total

Note: Hobbies include arts and crafts, and music. | Data Source: Earnest Research, COVID-19 Tracker | Analysis: Silicon Valley Institute for Regional Studies

Spending on home entertainment such as music, books, gaming, video streaming services, and arts and crafts/hobbies — which was strong throughout 2020 — fell slightly in spring 2021 while remaining elevated relative to pre-pandemic levels.

Over the past five years, more than 300 new organizations were formed, 134 (43%) of which were categorized as having culturally-specific mission statements; 112 (83%) were non-Western European in their mission and activities.

ARTS & CULTURE

Organizations, by Cultural Group and Founding Year

Silicon Valley

Legend (top to bottom):
- North American
- LGBTQ+
- Religious
- Sub-Saharan African
- Eastern European
- Asian
- Middle Eastern
- Black or African American
- Latin American and Caribbean
- Western European
- South Asian
- East Asian and Pacific

*limited sample size (n=37) | Note: Organizations by year founded. | Data Source: SV Creates | Analysis: SV Creates

The numbers and diversity of newly-formed organizations representing BIPOC[A] communities continued to grow faster than those with Western European art forms as their primary focus, nearly paralleling the diverse population mix of Silicon Valley.

A. Black, Indigenous and People of Color (BIPOC). Cultural categories considered BIPOC include all categories with the exception of Eastern and Western European, Religious, and LGBTQ+ groups.
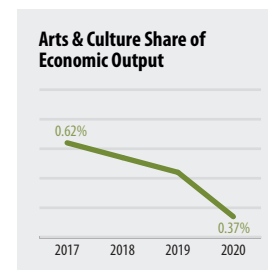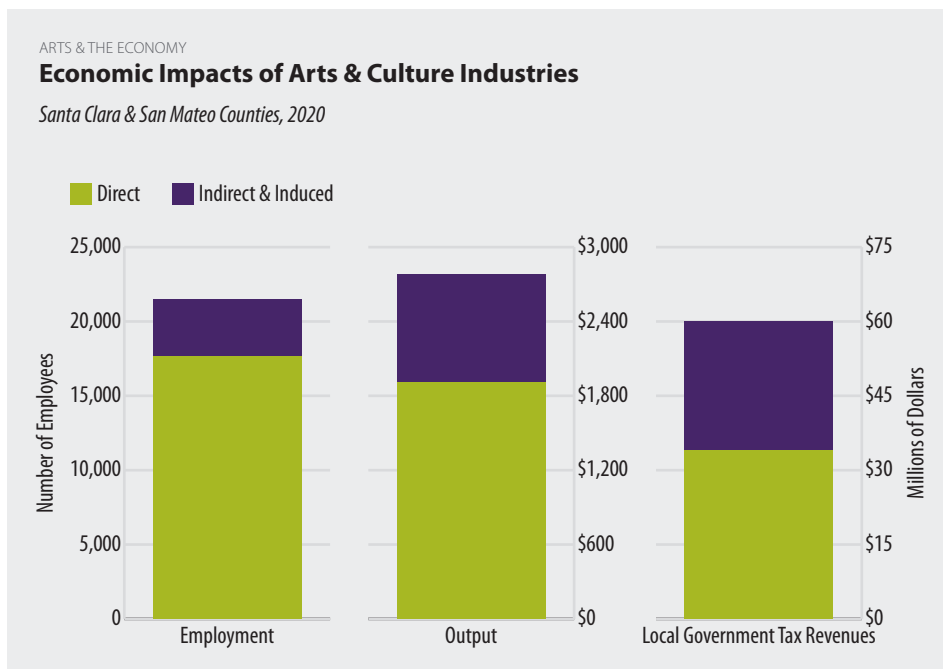
SOCIETY
Arts & Culture

Arts and culture consumption has a direct impact on Silicon Valley's economic activity in terms of employment and output, as well as relatively significant indirect (through business-to-business spending) and induced impacts (from household spending by employees within the supply chain) on employment, output, and especially local government tax revenues.

Lags in data reporting make it difficult to quantify the revenue rebound among Silicon Valley's Arts and culture industries in 2021. However, more current consumer spending data indicate an uptick, reflective of a gradual return to in-person activities.

ARTS & THE ECONOMY
Economic Impacts of Arts & Culture Industries

Santa Clara & San Mateo Counties, 2020

Arts & Culture Share of Economic Output

Arts and culture employment in 2020 was 82% direct (within the industry) and 18% indirect and induced. In total, the direct and indirect output was nearly $2.8 billion – a significant amount despite representing a mere fraction of a percent (0.37%) of the region's total.

Data Source: IMPLAN | Analysis: Silicon Valley Institute for Regional Studies

While arts and culture industries contributed approximately $34 million to local government (county- and city-level) in 2020, they also provided an indirect and induced contribution of $26 million that year. This illustrates how local government tax revenues are positively impacted by the arts and culture sector, with labor-intense activities taking place locally, using local suppliers, and including spillover spending at restaurants, bars, parking, and on other local services.

Arts and culture's contribution to Santa Clara and San Mateo Counties' total economic output declined slightly each year in 2018 and 2019, then fell sharply in 2020 (to 0.37%).

Total attendance for Silicon Valley's major sporting events recovered slightly during the 2020-21 season, but remained below pre-pandemic levels (around 49% of 2017-18 and 2018-19 season attendance totals, which averaged 5.2 million).

67% of attendees at Silicon Valley's major sporting events last year were at baseball games, primarily the San Francisco Giants (which attracted nearly 1.7 million attendees in 2021, following a significantly altered 2020 season due to the pandemic).

ARTS & CULTURE
Sporting Event Home Game Attendance

Major Silicon Valley Collegiate and Professional Teams
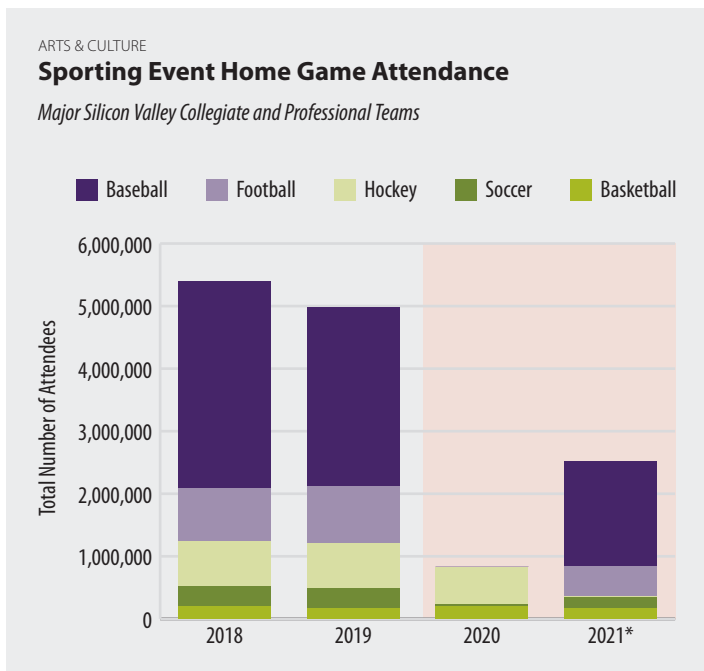
*attendance numbers not reported for all teams in the 2020-21 season due to severely limited attendance/capacity requirements during the pandemic. | Data Sources: National Collegiate Athletic Association (NCAA); ESPN; WorldFootball.net; The Baseball Cube; San Jose Sharks; StatBroadcast; San Jose State Spartans; Baseball Reference | Analysis: Silicon Valley Institute for Regional Studies

% Change in Home Game Attendance 2020-21, from 2018-19 season	
Collegiate	-80%
Professional	-49%

The San Jose Sharks reported almost no attendance for the 2020-21 season (approximately 9,000, compared to 712,000 in 2019). Although in-person events were allowed to resume in late April of 2021, attendance at home games was limited for the remainder of the season.[52]

The San Jose Earthquakes recorded a season total of about half of the team's typical home game attendance in 2021. Due to COVID restrictions, attendance for the Earthquakes' outdoor venue was limited at 20% at the beginning of the season and gradually increased.[53]

In contrast to the San Francisco Giants, which returned to in-person attendance for the 2021 season, the 49ers home games did not resume until midseason, resulting in much lower than average attendance numbers (approximately 390,000, compared to more than 562,000 during the 2018-19 season).

With the regular college basketball season nearing a close when the pandemic hit in mid-March 2020, attendance figures were at or above typical for the 2019-20 season. During the following season, however, college basketball attendance numbers declined to near zero. Attendance for other collegiate sports during the 2020-21 season declined significantly year-over-year as well, with the major exception of San José State University football (which recorded nearly 92,700 fans in attendance — a few hundred more than its pre-pandemic season).

SOCIETY
Quality of Health

COVID-19 was Silicon Valley's third leading cause of death in 2020 and 2021, after cancer and heart disease; it was responsible for 7% and 9% of the deaths in each of the two years, respectively.

Health disparities among Silicon Valley residents by race and ethnicity are evident with respect to COVID-19, and also across a variety of health outcomes. Black women in Santa Clara and San Mateo Counties are more at risk of dying of pregnancy-related complications (4.5 times more likely than those of other races), having an infant die before his or her first birthday (3.5 times more likely than White women and nearly three times the overall rate), and are 23 percent more likely to deliver a first baby via C-Section despite low risk-factors.

Socioeconomic factors have measurable impacts on health as well, such as the share of adults at what is considered a healthy Body Mass Index – 45% for moderate- to high-income adults (with incomes exceeding 300% of the poverty level) compared to 39% of adults at or below the poverty level.

Mental health continues to be a struggle for the region's residents. In January 2022 — more than a year and a half into the crisis — an estimated 27% of Bay Area residents were experiencing symptoms of anxiety and/or depression most days of the week (compared to 23% statewide and 24% in the U.S. overall). Rates of anxiety and/or depression since the early months of the pandemic have been particularly high (compared to the overall rate)

for Bay Area adults who are Black, Hispanic or Latino, and young adults ages 18 to 29 (to as many as 49% in October 2020); additionally, those with less than a high school diploma experienced high rates of anxiety and/or depression, peaking at 45% in June 2020 — a time when the regional unemployment rate was still elevated.

Health insurance coverage rates remain relatively high for Silicon Valley's working age population (ages 18-64) in 2020 (96%); data for 2021 are not yet available.

Why is this important?
Early and continued access to quality, affordable health care is important to ensure that Silicon Valley's residents are thriving. Given

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In 2020, an estimated 96% of Silicon Valley's 18- to 64-year-olds were covered by health insurance (compared to 95% in San Francisco, 90% in California, and 88% in the U.S. as a whole).

% Adults with Health Insurance Coverage
2020-21
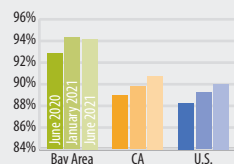
Little change was observed in the health insurance coverage status of the working age population (ages 18-64) overall in 2020 compared to the prior year, with less than a 2% increase in Silicon Valley, San Francisco, California, and the United States overall. However, coverage rates varied year-over-year by employment status, with a three percentage point decline in 2020 for unemployed residents in Santa Clara & San Mateo Counties.

HEALTHCARE
Share of the Population Ages 18-64 with Health Insurance Coverage

Santa Clara & San Mateo Counties, San Francisco, California, and the United States
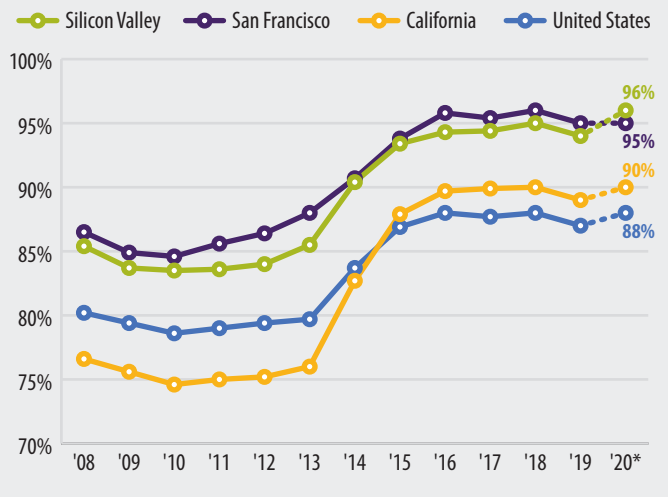
Legend: Silicon Valley — San Francisco — California — United States

*2020 estimate from 1-year American Community Survey microdata with experimental weights | Note: Bay Area includes San Francisco, Alameda, Marin, Contra Costa, and San Mateo Counties. | Data Source: United States Census Bureau, American Community Survey & Household Pulse Survey | Analysis: Silicon Valley Institute for Regional Studies

the high cost of healthcare, individuals with health insurance are more likely to seek routine medical care and preventive health screenings.

Being at an unhealthy weight increases the risk of many diseases and health conditions, including Type 2 diabetes, hypertension, coronary heart disease, stroke, and some types of cancers — all of which are among Silicon Valley's leading causes of death. These conditions decrease residents' ability to participate in their communities, may increase medical expenses, and have significant economic impacts on the nation's healthcare system as well as the overall economy.

Hypertension, in particular, is responsible for one out of every three deaths in California and is a risk factor for a number of other diseases. Additionally, the prevalence of hypertension has been closely tied to inequities in access to healthcare throughout the state.[54]

Improving the wellbeing of mothers, infants, and children is an important public health goal for any region. Maternal and infant health statistics provide information about how well we are preparing the next generation of healthy young residents. Timely childhood immunizations promote long-term health, save lives, prevent significant disability, and reduce medical costs. Cesarean Sections

(C-Sections) are a necessary intervention that can be life-saving, in many cases; overuse of non-medically indicated C-Sections, however, have been documented in wealthy communities around the world and have not been linked to added health benefits to mothers or babies.[55]

Mental and emotional health of individuals is essential to community wellbeing; the circumstances of the pandemic — such as financial hardships, loneliness and isolation, among many other challenges — may have contributed to the share of people experiencing symptoms of anxiety and/or depression.

While pandemic-related job losses were expected to affect health insurance coverage status for the region's working-age population and their dependents, the limited duration of those job losses likely dampened year-over-year changes in overall coverage rates. It has been estimated that more than six million workers lost their employer-sponsored health insurance throughout the U.S. between March and July (affecting approximately 12 million workers and their dependents), with 85% subsequently finding alternative forms of coverage. [57]

Percentage of Individuals Ages 18+ with Health Insurance, by Employment Status
2020*

	Unemployed	Employed	Not In Labor Force
Silicon Valley	88%	96%	95%
San Francisco	81%	97%	95%
California	83%	92%	92%

Change in the Percentage of Individuals Ages 18+ with Health Insurance, by Employment Status
Santa Clara & San Mateo Counties | 2019-2020*

Unemployed	-3%
Employed	+2%
Not in Labor Force	+4%

Bay Area, California, and national data show a slight rise in health insurance coverage for adults in 2021 in the range of 1-2% year-over-year. This change is consistent with the early-release data from the National Center for Health Statistics[56] for the first half of 2021, which indicated no significant difference in coverage over that six-month period (and only a slight increase in public vs. private coverage for working-age adults).

Health insurance coverage for the working age population has increased significantly since 2013, influenced by the availability of coverage through the Affordable Care Act. In Silicon Valley, the share of 18- to 64-year-olds with health insurance rose from 86% in 2013 to 94% in 2016, and increased to an estimated 96% in 2020. For unemployed workers, the increase in health insurance coverage rates has been even more dramatic, with a 23 percentage point increase between 2013 and 2020.

Compared to regional averages, Silicon Valley's Black or African American women are four and a half times more likely to die of pregnancy-related complications, three times as likely to have an infant die before his or her first birthday, and 23% more likely to deliver their baby via C-Section despite low-risk factors. At the national level, Black or African American women are 15% more likely to deliver their baby via C-Section compared to the national average.[59]

Black or African American women in the greater Silicon Valley region die of pregnancy-related complications at significantly higher rates than women of other races/ethnicities (58 per 100,000 live births, compared to 13 per 100,000 for non-Black or African American women); this disparity is slightly more pronounced in Silicon Valley than in the state overall.

Over the 11-year period between 2010 and 2021, Black or African American women in Silicon Valley were 3.5 times more likely than White women (and nearly three times the overall rate) to have an infant die before his or her first birthday.

MATERNAL, INFANT, AND CHILDREN'S HEALTH
Infant Mortality Rate

Santa Clara & San Mateo Counties, San Francisco, and California
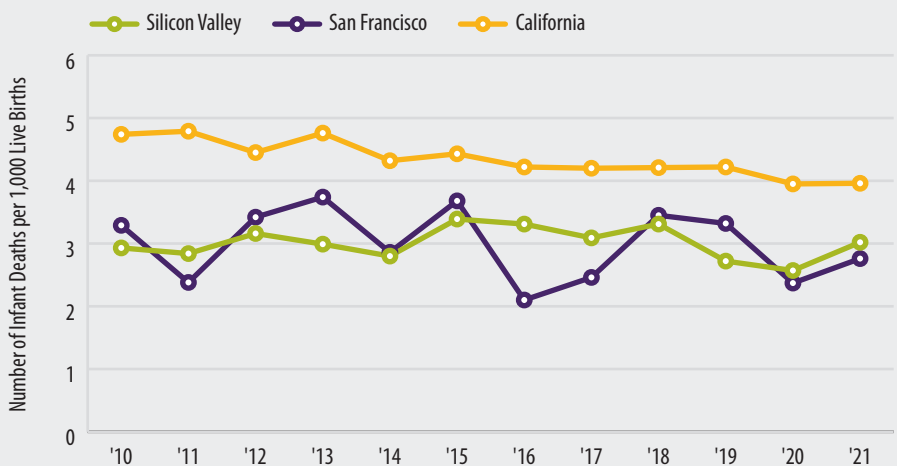
Note: Unless specified as Hispanic or Latino, all sub-populations are not Hispanic or Latino. | Data Source: U.S. Department of Health and Human Services, Centers of Disease Control and Prevention (CDC); California Department of Public Health | Analysis: Silicon Valley Institute for Regional Studies

Silicon Valley's infant mortality rate (3.02 per 1,000 live births) was higher than in San Francisco (2.76 per 1,000) and lower than California overall (3.96 per 1,000) in 2020. These rates are all lower than the 2019 United States average of 5.6 per 1,000 live births, and significantly lower than the world average that year of 28.2 per 1,000 live births (ranging from a low of 1.6 per 1,000 in Iceland, to 80.9 per 1,000 in Sierra Leone).[58]

Infant Mortality Rate by Race & Ethnicity	
Number of Infant Deaths per 1,000 Live Births	
*Santa Clara & San Mateo Counties	2018-2020*	
Black or African American	8.2
Hispanic or Latino	4.1
White	2.4
Multiple, Other or Unknown	2.2
Asian	2.1
Overall	2.8

Maternal Mortality by Race & Ethnicity	
*Greater Silicon Valley**	
Number of Deaths Related to Pregnancy, Childbirth, and the Postpartum Period Per 100,000 Live Births (1999-2020)	
Black or African American	58
Hispanic or Latino	14
Asian or Pacific Islander	14
White	11
Overall	15

*Santa Clara and San Mateo Counties, Alameda County, and San Francisco

A healthy BMI is more common among those at higher income levels in Silicon Valley. Nearly half (45%) of all adults with incomes greater than three times the poverty rate are at what is considered a healthy BMI, compared to 39% of those at or below the poverty level.

The share of adults at what is considered a healthy Body Mass Index (BMI) was higher in San Francisco (53%) than in Silicon Valley (44%) or statewide (36%) in 2020.

OBESITY
Adults at a Healthy Body Mass Index (BMI)

Santa Clara & San Mateo Counties, San Francisco, and California
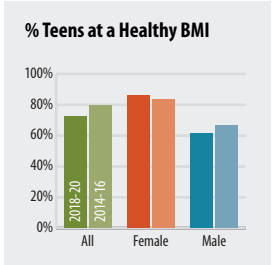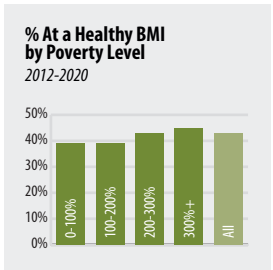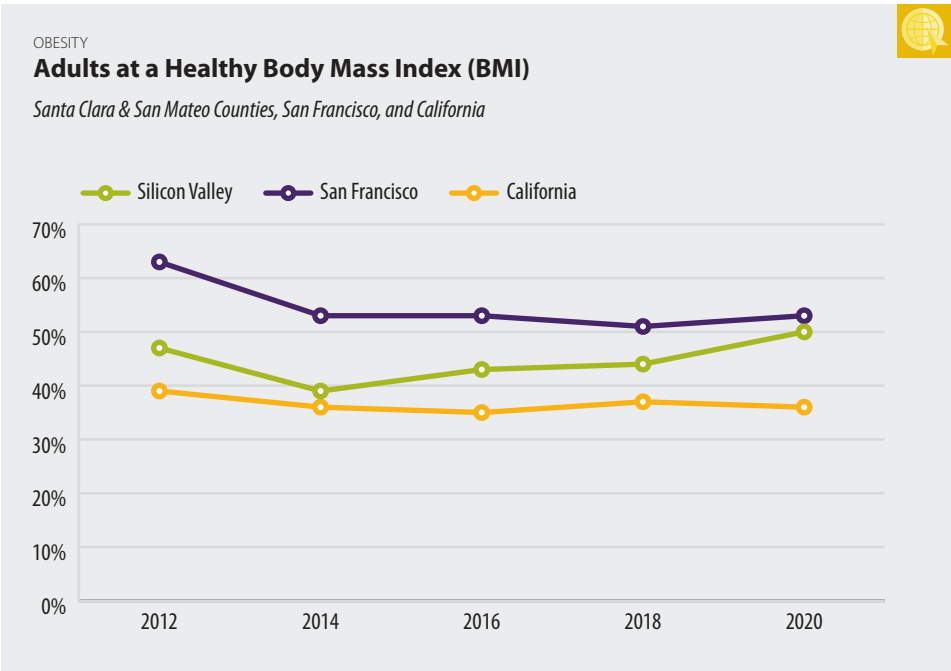
Data Source: California Health Interview Survey | Analysis: Silicon Valley Institute for Regional Studies

% At a Healthy BMI by Poverty Level
2012-2020

% Teens at a Healthy BMI

The majority of Silicon Valley teens were at a healthy BMI in 2018-20 (73%), although the share was much higher for females (86%) compared to males (61%).

Over a 16-year period, the C-Section rate in Silicon Valley increased by nearly three percentage points, reaching 28.9% in 2020 (ranging from 12.5% to 27.7% at the region's individual hospitals[60]). This compares to 26.5% in San Francisco, and 30.5% statewide.

MATERNAL, INFANT, AND CHILDREN'S HEALTH
Cesarean Section Rate

Santa Clara & San Mateo Counties, San Francisco, and California
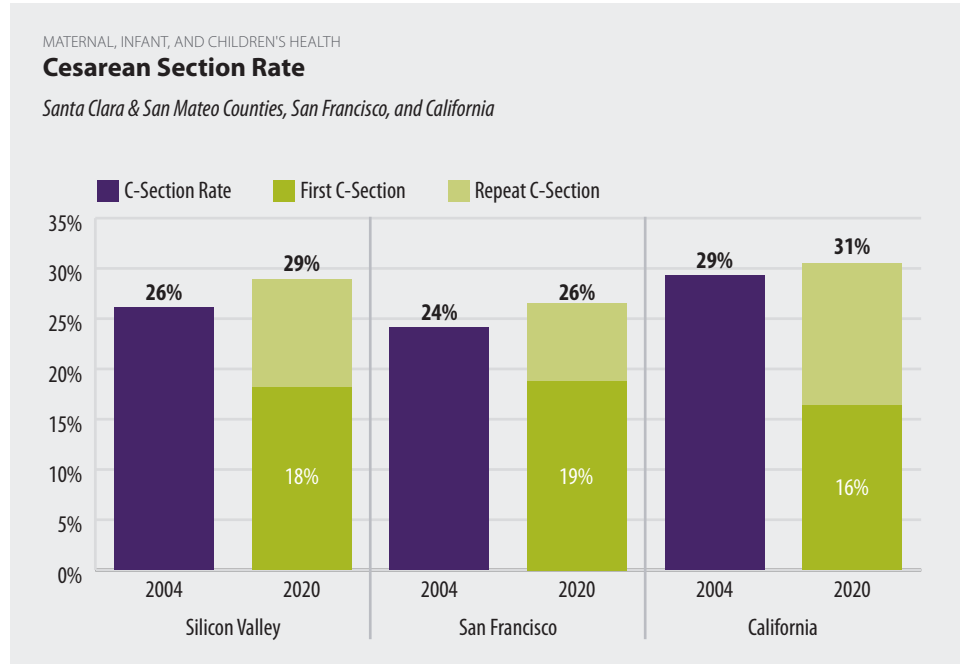
Note: C-Section data by primary (first) and repeat were not available prior to 2016. | Data Source: U.S. Department of Health and Human Services, Centers of Disease Control and Prevention (CDC) | Analysis: Silicon Valley Institute for Regional Studies

Black or African American women delivering their first at-term baby in Silicon Valley experience C-Sections at a rate (27%) that is significantly higher than women of other races and ethnicities (18-21%), despite low-risk factors. These findings are similar to those of a statewide study, which indicated a C-Section rate of 29.8% for Black women, compared to 25.6% for Asian/Pacific Islanders, 23.8% for Latina, and 23.8% for White women for low-risk first-births.[61]

Greater racial disparities in C-Section rates exist at the regional level than at the national level, where in 2020 Black or African American mothers were 15% more likely to experience C-Sections than the national average.
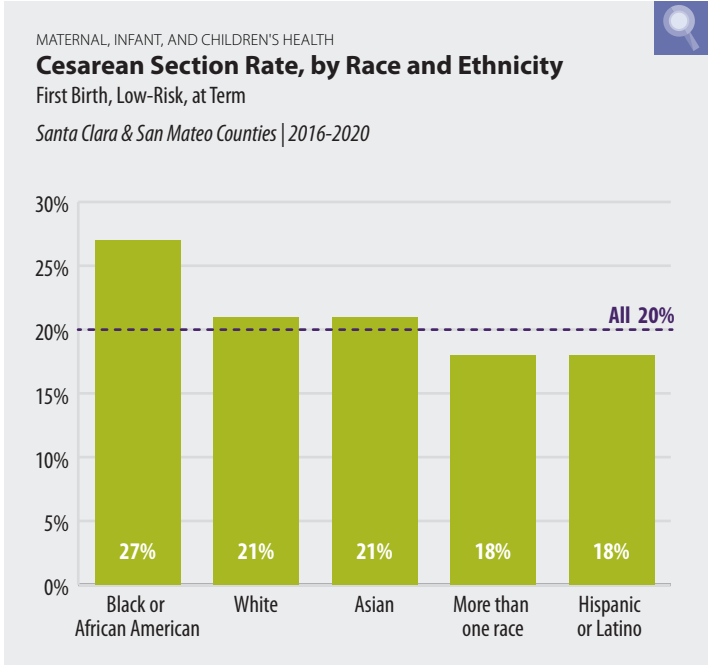
MATERNAL, INFANT, AND CHILDREN'S HEALTH
Cesarean Section Rate, by Race and Ethnicity
First Birth, Low-Risk, at Term

Santa Clara & San Mateo Counties | 2016-2020

Data Source: U.S. Department of Health and Human Services, Centers of Disease Control and Prevention (CDC) | Analysis: Silicon Valley Institute for Regional Studies

MATERNAL, INFANT, AND CHILDREN'S HEALTH

Kindergarten Immunization Rates

Santa Clara & San Mateo Counties, San Francisco, and California

96% of new 2019-20 Silicon Valley kindergarteners had all required immunizations.

The share of kindergarten students with all required immunizations declined slightly in Silicon Valley, San Francisco, and California between 20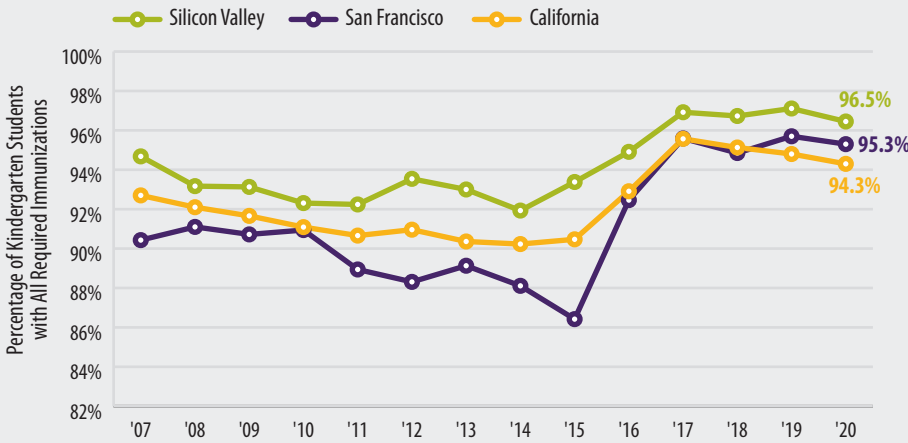19 and 2020 — a decrease that the California Department of Public Health has attributed to the new requirement of a second varicella (chickenpox) vaccine, which brought overall immunization rates down by 1.9 percentage points statewide and 1.5 percentage points in Santa Clara & San Mateo Counties combined.

Legend: Silicon Valley, San Francisco, California

Y-axis: Percentage of Kindergarten Students with All Required Immunizations

96.5%
95.3%
94.3%

Data Source: California Department of Public Health | Analysis: Silicon Valley Institute for Regional Studies
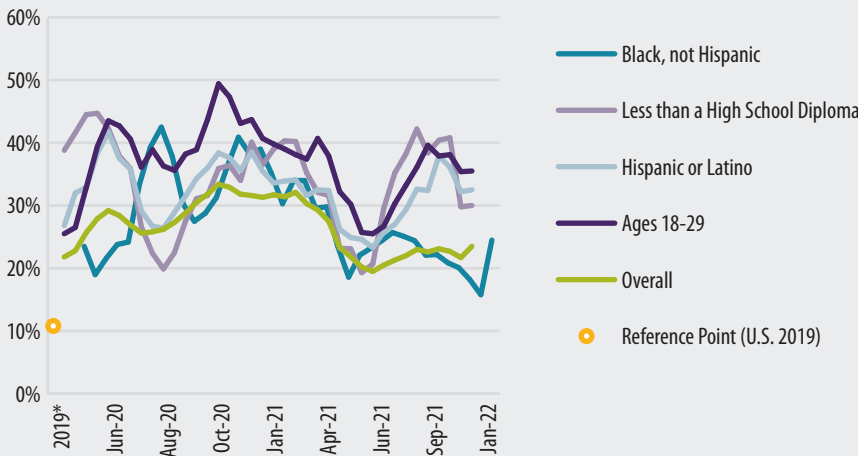
Based on early January 2021 survey results, around 22% of Bay Area residents were either seeing or would like to see a mental health professional (counselor or therapist); half of them had not yet done so, for one reason or another. One year later — in January 2022 — that share had remained relatively high at 16% (compared to 13% in California overall and 11% nationwide).

As many as half of the Bay Area's young adults (ages 18-29) experienced symptoms of anxiety and/or depression in October 2020 — coinciding with the early part of a new school year for many of them; Rates of anxiety and/or depression remained elevated in young adults through the following year compared to the overall adult population.

Even in January 2022 — more than a year and a half into the pandemic — an estimated 27% of Bay Area residents were experiencing symptoms of anxiety and/or depression most days of the week (compared to 23% statewide and 24% in the U.S. overall). These symptoms include feeling nervous or on edge, not being able to stop or control worrying, having little interest or pleasure in doing things, and feeling down, depressed, or hopeless.

MENTAL HEALTH

Share Experiencing Anxiety and/or Depression

More than half the days of the week

Bay Area

Legend: Black, not Hispanic; Less than a High School Diploma; Hispanic or Latino; Ages 18-29; Overall; Reference Point (U.S. 2019)

The estimated share of Bay Area residents experiencing anxiety and/or depression most days of the week increased by more than 12 percentage points between May and October 2020, reaching one in three Bay Area adults.

Rates of anxiety and/or depression since the early months of the pandemic have been particularly high (compared to the overall rate) for Bay Area adults who are Black, non-Hispanic, Hispanic or Latino, ages 18-29 (to as much as 49% in October 2020), and those with less than a high school diploma (peaking at 45% in June 2020 when the unemployment rate remained elevated).

*United States (2019) from Terlizzi EP, Schiller JS. Estimates of mental health symptomatology, by month of interview: United States, 2019. National Center for Health Statistics. March 2021. | Bay Area includes San Francisco, Alameda, Marin, Contra Costa, and San Mateo Counties. | Data Sources: U.S. Census Bureau, Household Pulse Survey; National Center for Health Statistics | Analysis: Silicon Valley Institute for Regional Studies

COVID-19 was the cause of 7% of all Santa Clara and San Mateo County deaths in 2020 and 9% in 2021, with a total of 2,540 lives lost to COVID at the start of 2022.

COVID-19 was Silicon Valley's 3rd leading cause of death in 2020 and 2021, with a crude death rate (42 and 51 per 100,000, respectively) higher than that of diabetes, hypertension, or chronic lower respiratory diseases.

The leading causes of death for Silicon Valley residents of all ages in 2021 were — in order of prevalence — cancer, heart disease, COVID-19, stroke, Alzheimer's, and accidents.

DEATHS
Deaths, by Cause

Santa Clara & San Mateo Counties

Legend:
- Other
- Homicide
- Influenza & Pneumonia
- Nephritis
- Suicide
- Liver Disease
- Parkinson's Disease
- Chronic Lower Respiratory Diseases
- Hypertension
- Diabetes
- Accidents
- Alzheimer's Disease
- Stroke
- COVID-19
- Heart Disease
- Cancer
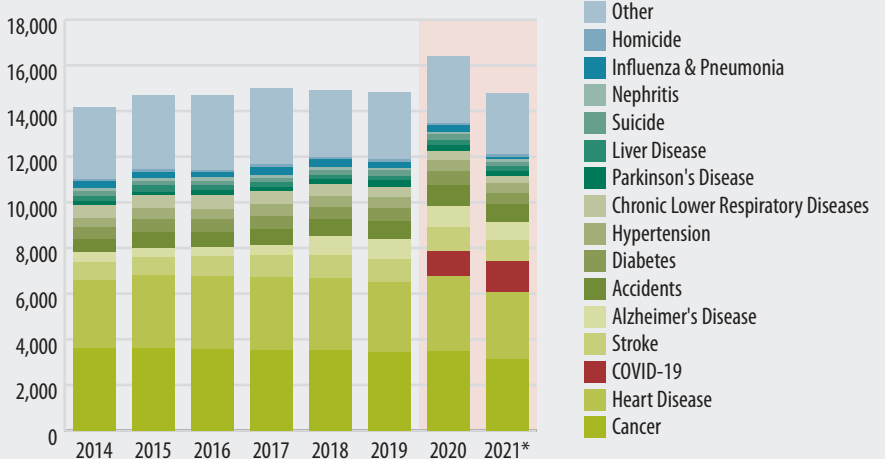
*data through November | Data Source: California Department of Public Health; County of Santa Clara | Analysis: Silicon Valley Institute for Regional Studies

The crude rate of hypertension-related death rate in Silicon Valley (16 per 100,000) was higher than that of San Francisco (8 per 100,000) or the state overall (15 per 100,000) in 2021.

The crude rate of deaths caused by hypertension or hypertensive renal disorders in Silicon Valley had more than quadrupled between 2000 and 2017 (to 20 per 100,000) before starting to decline in 2018 (to 16 per 100,000 in 2021). While the death rates due to chronic lower respiratory diseases and cancer have declined over the past two decades, rates of death due to diabetes, accidents, and Alzheimer's have gone up.

Accidents were the cause of more Santa Clara and San Mateo County deaths in 2020 than during a typical year, with a crude rate of 34 per 100,000 (totaling 913 deaths) compared to an average of 26 per 100,000 over the prior six years; the rate declined in 2021 to 29 per 100,000.

Silicon Valley's crude death rates from heart disease in 2021 were three to four times higher for Non-Hispanic White (203 per 100,000) and Black or African American residents (167 per 100,000) than for Hispanic or Latino (58 per 100,000) or Non-Hispanic Asian residents (66 per 100,000). Black or African Americans residents were also five times more likely to die of accidents (unintentional injuries), and twice as likely to die of cancer than Non-Hispanic Asian residents (who had the lowest crude death rates for nearly all leading causes of death that year).

SOCIETY
Safety

Silicon Valley had more than five thousand sworn full-time and reserve public safety officers employed throughout the region in mid-2021.

The region has both a lower violent crime rate and felony arrest rate than in the state overall, with marked year-over-year declines in 2020 for both (11 percent and five percent, respectively); the 2020 decline in juvenile felony arrests was even greater (-37 percent), primarily accounted for by 350 fewer arrests for violent and property offenses.

Eighty-eight percent of the crimes reported in 2020 were property crimes; there were

13,900 motor vehicle and 3,400 bicycles thefts, and a rate of one in 175 residents who reported a wallet or purse stolen.

The region's seventh-grade students feel less safe at school than in years past, with large disparities among those of different races and ethnicities. While some of the region's residents are more likely to feel safe in their neighborhoods or at school (White, Asian, high-income), others are less likely. Furthermore, the gap in feelings of personal safety among men and women has a negative correlation with income level, and crime rates are two- to nine-times
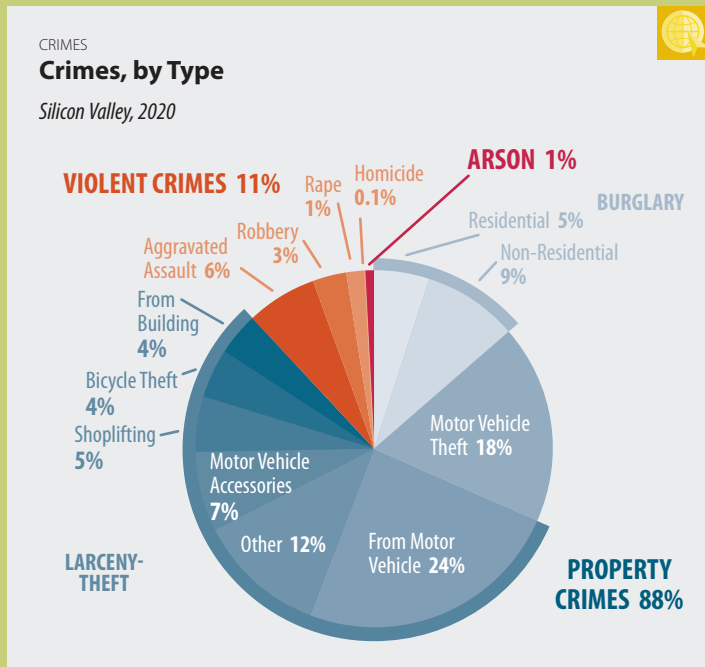
higher in high poverty Silicon Valley cities than in low-poverty ones.

Why is this important?

Public safety is an important indicator of societal health. Crime erodes our sense of community by creating fear and instability and poses an economic burden as well. The number of Silicon Valley public safety officers provides a unique window into the changing infrastructure of our city and county governments and affects the public's perception of safety.

Despite an 11% year-over-year decline, Silicon Valley's rate of reported rapes in 2020 was double that of 2012.

> Thefts from Silicon Valley coin-operated machines peaked in 1991 with 572 reported annually; by 2020, that number had gradually decreased to a mere 71.

CRIMES
Crimes, by Type
Silicon Valley, 2020

VIOLENT CRIMES 11%
Rape 1%
Homicide 0.1%
ARSON 1%
Robbery 3%
Aggravated Assault 6%
BURGLARY
Residential 5%
Non-Residential 9%
From Building 4%
Bicycle Theft 4%
Shoplifting 5%
Motor Vehicle Accessories 7%
Other 12%
From Motor Vehicle 24%
Motor Vehicle Theft 18%
LARCENY-THEFT
PROPERTY CRIMES 88%

Data Sources: California Department of Justice; California Department of Finance | Analysis: Silicon Valley Institute for Regional Studies

> Silicon Valley's violent crime rate (281 per 100,000) remained well below that of the state (439 per 100,000) in 2020.

Violent Crimes per 100,000

Total
Rapes
'95 '00 '05 '10 '15 '20
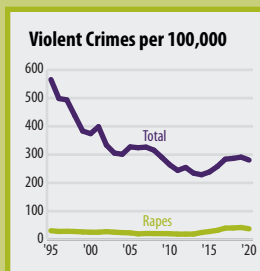
While the overall violent crime rate in Silicon Valley has declined significantly over the past 25 years (from 565 per 100,000 residents in 1995 to 281 per 100,000 in 2020), the number of reported rapes has increased by 22% over that period.

% Think Crime is a Serious Problem
Bay Area, 2021

Hispanic or Latino Parents with Children <18	83%
Renters with Children <18	74%
Overall	65%
Homeowners with Children <18	58%
Current Tech Employee/Household	53%
Fully Remote Workers	53%

Data Source: The Silicon Valley Poll (www.jointventure.org/svpoll)
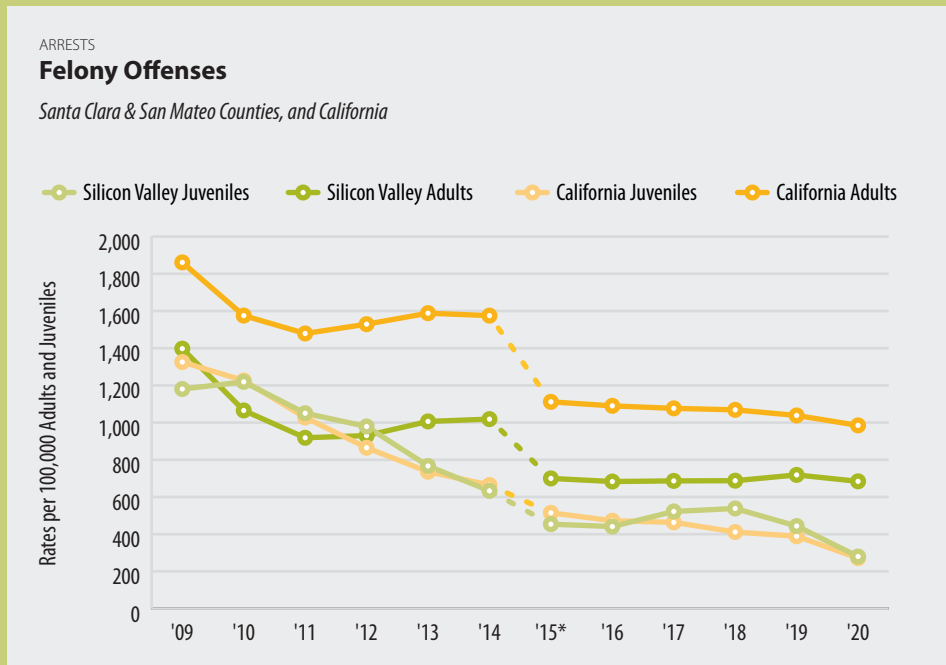
There were 8,659 crimes reported within the region in 2020, 88% of which were property crimes (mostly from or of motor vehicles); 11% were violent crimes.

Nearly 13,900 motor vehicles and 3,400 bicycles were stolen in Silicon Valley in 2020, as well as 268 wallets/purses, indicating that approximately one in every 175 residents had one or another stolen during that calendar year.

Silicon Valley's juvenile felony arrest rate declined significantly in 2020 (by 37% in Silicon Valley), representing 455 fewer felony arrests of 10- to 17-year-olds than during the prior year (-165 violent, -192 property, and -98 drug, sex, or other offenses). Likewise, the juvenile felony arrest rate statewide declined by 30% in 2020.

Adult felony arrest rates declined slightly in 2020, down 5% in Silicon Valley and throughout the state.

ARRESTS
Felony Offenses

Santa Clara & San Mateo Counties, and California

Silicon Valley Juveniles   Silicon Valley Adults   California Juveniles   California Adults

*The felony arrest rates for 2015 and subsequent years were affected by the passage of Propositions 47 and 64, so caution is advised in comparing to previous years.
Data Source: California Department of Justice; United States Census Bureau | Analysis: Silicon Valley Institute for Regional Studies
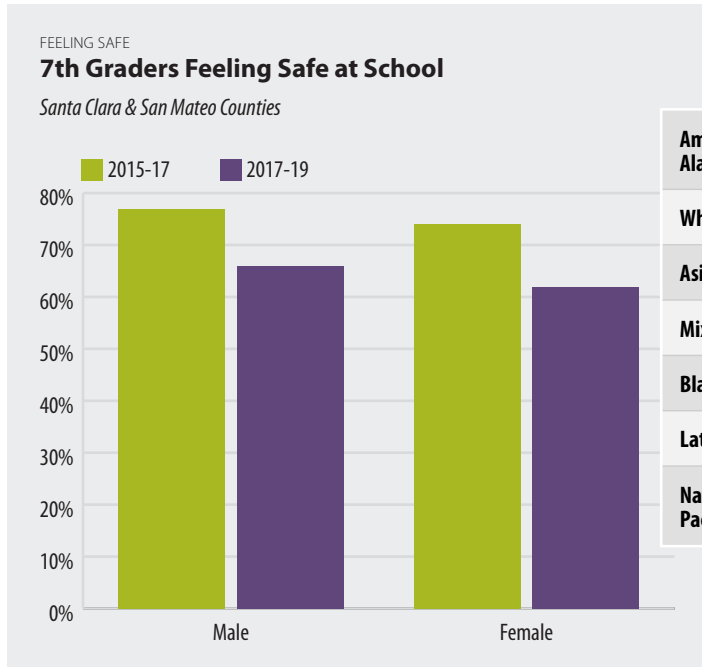
Silicon Valley's juvenile felony arrest rate in 2020 was one-fifth of what it was a decade prior; the adult felony arrest rate in 2020 was 37% below that of 2010 -- a decline almost entirely accounted for by the large 2014-2015 drop due to the passage of Propositions 47 and 64.[A]

A. See Appendix A for details.

FEELING SAFE
7th Graders Feeling Safe at School
Santa Clara & San Mateo Counties

Legend: 2015-17 | 2017-19

(Bar chart, Male and Female, axis 0%–80%)

American Indian or Alaska Native*	72%
White	70%
Asian	69%
Mixed (two or more) races	64%
Black or African American*	60%
Latino/a	58%
Native Hawaiian or Pacific Islander*	55%

*small sample size | Note: Data represent an unweighted average of the share of students among districts with available data by race and ethnicity. | Data Source: CalSCHLS; WestEd, California Healthy Kids Survey; kidsdata.org
Analysis: Silicon Valley Institute for Regional Studies; kidsdata.org

The gap in perceptions of personal safety among men and women is largest for low-income residents (80% of males feel safe in their neighborhoods, compared to 76% of females). In contrast, there is no gap in perceptions of neighborhood safety at incomes four times the poverty level (approximately 96% for both males and females).

FEELING SAFE
Share of Adults Feeling Safe in their Neighborhood
by Gender, Poverty Level, Race & Ethnicity

Santa Clara & San Mateo Counties

Legend: 2007 & 2009 | 2011-2020

(Bar chart, axis 75%–100%, categories: White (non-Latino), Latino, Black or African American, Native Hawaiian/Pacific Islander, and American-Indian/Alaska Native*, All)

(Scatter chart: Male, Female)

% Federal Poverty Level
2011-2020
< 100% | 100-200% | 200-400% | >400%

Note: *2007/2009 based on a small sample size (95% confidence interval 94-100%) | Data Sources: California Health Interview Survey (CHIS); kidsdata.org
Analysis: Silicon Valley Institute for Regional Studies

While more than nine out of ten White residents feel safe in their Silicon Valley neighborhoods, that number is closer to eight out of ten for all other races and ethnicities; declines in the share feeling safe since 2007 have been more pronounced for those groups as well.

The share of Silicon Valley adults feeling safe in their neighborhoods declines as income approaches the Federal Poverty Level, with a growing gap in perceptions of personal safety among males and females.

% Think Hate Crimes are a Serious Problem
Bay Area, 2021

Asian / Pacific Islander (Women)	72%
Women Ages 18-34	68%
Asian / Pacific Islander	66%
Hispanic or Latina (Women)	66%
Women	64%
Democrats	64%
Overall	56%
Men	47%
Republicans	38%

Data Source: The Silicon Valley Poll
(www.jointventure.org/svpoll)

Male seventh-grade students are slightly more likely to feel safe at school than female students (66%, compared to 62%). Larger differences exist among students of different races and ethnicities, with only 58% of Latino/a students feeling safe at school (compared to 70% of White and 69% of Asian students).
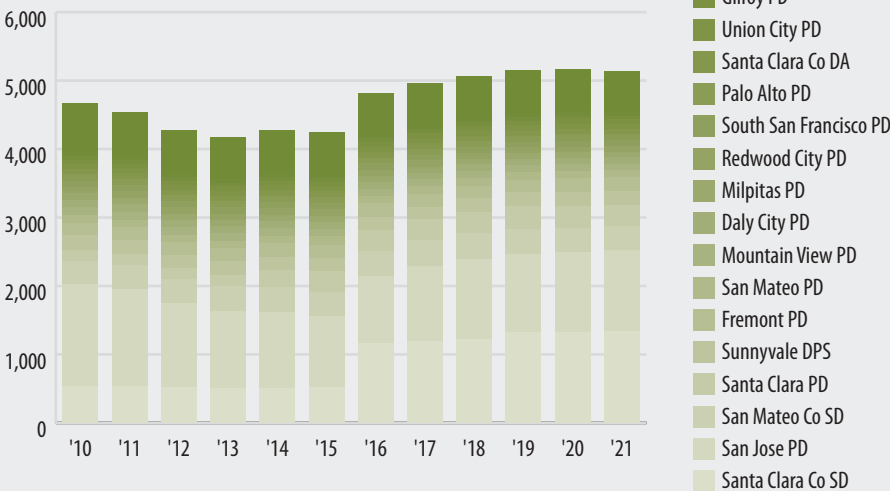
Seventh-grade students are less likely to feel safe at school than they used to. In the 2017-18 and 2018-19 school years, an additional one in ten reported feeling unsafe than during the prior reporting period.

The share of adults feeling safe in their neighborhoods decreases more precipitously for women than for men with declining income levels. This may be related to higher crime rates per capita in higher-poverty areas of the region. In 2020, the violent crime rate was three times higher in the region's six highest poverty rate cities than in its six lowest, the homicide rate was nine times higher, and the robbery rate was four times higher; the rate of reported rapes, aggravated assaults, and property crimes were twice as high.

PUBLIC SAFETY OFFICERS
Total Number of Public Safety Officers, by Agency
Silicon Valley

Legend: Other (24) Agencies, Newark PD, Campbell PD, Gilroy PD, Union City PD, Santa Clara Co DA, Palo Alto PD, South San Francisco PD, Redwood City PD, Milpitas PD, Daly City PD, Mountain View PD, San Mateo PD, Fremont PD, Sunnyvale DPS, Santa Clara PD, San Mateo Co SD, San Jose PD, Santa Clara Co SD

Data Sources: California Commission on Peace Officer Standards and Training; California Department of Finance
Analysis: Silicon Valley Institute for Regional Studies

Nearly half (49%) of Silicon Valley's public safety officers are employed by just two of the region's 42 agencies—the San Jose Police Department and the Santa Clara County Sheriff's Office.

Silicon Valley had more than five thousand sworn full-time and reserve public safety officers employed throughout the region in 2021.

The total number of public safety officers in Silicon Valley fell slightly (by 32 officers) to 5,131 between mid-2020 and mid-2021.

Silicon Valley is home to nearly 1,000 active grantmaking foundations with a total of $72 billion in total assets — approximately $4 billion or more of which is distributed on an annual basis. These foundations, plus corporate and individual philanthropists, continue to provide much-needed funding to the region's nonprofit, community-based organizations.

Among the top 50 corporate philanthropists alone, $225 million was donated to local organizations in FY 2019-20, representing $43 million more than the prior year thanks to annual increases by Cisco (+$15.6 million), Google (+$6 million), and others. Sobrato Philanthropies

topped the list of corporate donors for local giving during eight of the past nine years, with a total of half a billion dollars donated worldwide (75 percent locally) over that time.

Corporate-advised grants through the Silicon Valley Community Foundation (SVCF) rose year-over-year as well, reaching $5.3 million to local Santa Clara & San Mateo County organizations (and another $11 million to others throughout the Bay Area) in 2020, responding to increased need during the pandemic. Likewise, SVCF discretionary grantmaking to local nonprofits rose in 2020 to $6.3 million that year ($1.9 million more than in 2019). Donor-advised

giving through SVCF represented a significant contribution (of $97 million) to address local needs, with the rest (94 percent of all donor-advised grants) directed to recipients elsewhere in the Bay Area or outside of the region.

More than eight out of ten Silicon Valley individuals who itemize their taxes deducted some amount of charitable contributions in 2019. In total, these contributions exceeded $5.28 billion in donations, although some may have been directed to donor-advised funds for disbursement in future years. These donations represented 19 percent of all charitable giving

> While only a fraction of individual tax returns in Santa Clara and San Mateo Counties are itemized (43% and 23%, respectively, in 2011 and 2019), donations to charity were deducted in eight out of ten of them. Among itemizers with an adjusted gross income of $200,000 or more — those less likely to take advantage of the increased standard deduction (since 2018) — 86% deducted some amount of charitable contributions.

Based on those who itemize deductions on their tax returns, 4% of individuals in Silicon Valley donate to charity — a share that declined by 1.4 percentage points between 2018 and 2019. In comparison, a slightly smaller share (3.6%) of California filers who itemize deducted some sort of charitable giving.

19% of all charitable giving deducted on individual tax returns throughout California (and 3% on all those in the United States) in 2019 came from Silicon Valley filers.

INDIVIDUAL GIVING
Share of Individual Taxable Income Donated to Charity

Santa Clara & San Mateo Counties, and California
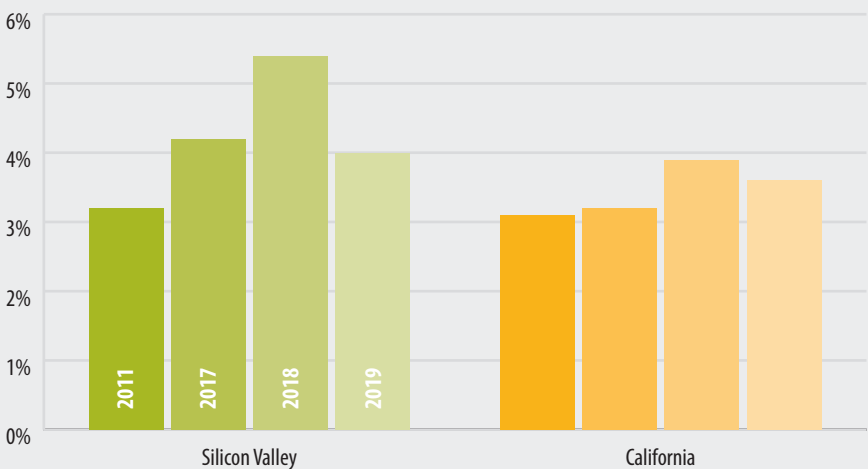
Note: Data is by tax return (includes single and joint filers); only includes returns with itemized deductions.
Data Source: United States Internal Revenue Service | Analysis: Silicon Valley Institute for Regional Studies

> The total amount in charitable contribution deductions on California individual tax returns declined by $3.1 billion between 2018 and 2019, as did the share coming from Santa Clara or San Mateo County filers (from 24% in 2018 to 19% in 2019).

deducted on California (and three percent on all U.S.) individual tax returns that year.

Why is this important?

A region's community-based nonprofit organizations serve a vital role by providing needed services and resources across a wide variety of sectors such as social and human services, arts and culture, education, health, and the environment. These organizations rely on local philanthropy in addition to other revenue and sources outside the region, and many struggle to fund their work.[62] Local philanthropy — particularly in a region with as much wealth as Silicon Valley — is therefore a critical component sustaining the work of these nonprofits and hence the vitality of the community.

Nationally there has been a decline in the propensity to give to charities since the Great Recession, attributed to behavioral changes from economic uncertainty and changing attitudes about giving (rather than a 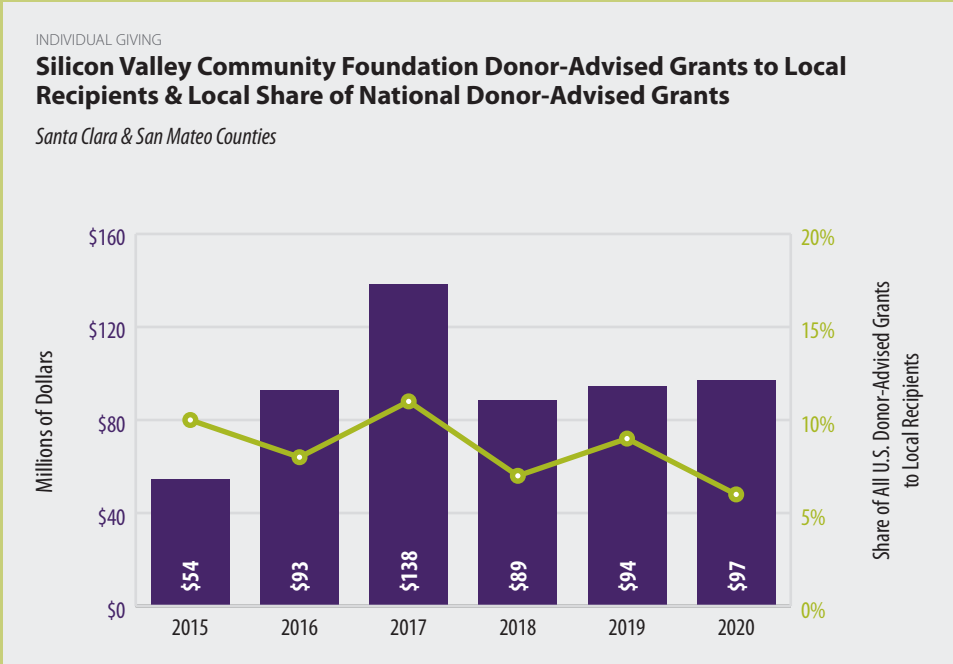lack of wealth or income).[63] Additionally, recent tax reform has had a significant impact on giving behavior, resulting in large shifts in the number of individuals itemizing tax returns (and thus able to deduct charitable giving). While national trends may be reflected on the regional level, tracking local philanthropy provides a clearer picture of support for Silicon Valley's community-based nonprofit organizations and their ability to grow over time and through fluctuations in the economy.

As indicated by national-level data, the magnitude of donor-advised giving through national charities (founded by firms like Fidelity, Schwab, and Vanguard) may be as much as three times greater than the dollar amount granted through foundations. While the more than 600 community foundations nationwide reported donor-advised fund (DAF) grants totaling $8.29 billion in 2020 (with $45.84 billion in charitable assets), DAFs at national charities granted $34.67 billion that year and had $159.83 billion in charitable assets. Additionally, DAFs at single-issue charities, such as those with a religious or other specific focus area, granted $5.21 billion (with $13.84 billion in charitable assets) that year.[64]

A total of $5.28 billion in charitable contributions was deducted on the 2019 tax returns for Santa Clara and San Mateo County filers. These deductions include transfers to donor-advised funds, which may be disbursed that year or in subsequent years.

Donor-advised grants through the Silicon Valley Community Foundation to local Santa Clara or San Mateo County community-based organizations totaled $97 million in 2020,[A] representing only 6% of the donor-advised grants made through the foundation that year.

A. Local donor-advised grants through the Silicon Valley Community Foundation totaled $112 million in 2020 (as listed on www.siliconvalleycf.org/grantees as of February 2, 2022). The $97 million to community-based organizations excludes grants to Stanford University, Santa Clara College, Stanford Health Care, and various small grants to community foundations.

INDIVIDUAL GIVING
Silicon Valley Community Foundation Donor-Advised Grants to Local Recipients & Local Share of National Donor-Advised Grants

Santa Clara & San Mateo Counties

Note: Data includes all donor-advised grants through the Silicon Valley Community Foundation, with the exception of a $550 million grant in 2016 to the Chan Zuckerberg Biohub, Inc, as well as large grants to Stanford University and Santa Clara College, and grants to community foundations. Local organizations include those in Santa Clara and San Mateo Counties. | Data Source: Silicon Valley Community Foundation | Analysis: Silicon Valley Institute for Regional Studies

The largest local donor among Silicon Valley's top 50 corporate philanthropists for FY 2019-20 was Sobrato Philanthropies ($63.4 million), which has topped the corporate donor list during eight out of the past nine years with a total of half a billion dollars donated worldwide (75% locally) over that time. In 2020, more than three-quarters of its COVID-19 Rapid Response Fund dollars (which totaled $2.43 million) went to organizations in Santa Clara and San Mateo Counties.[65]
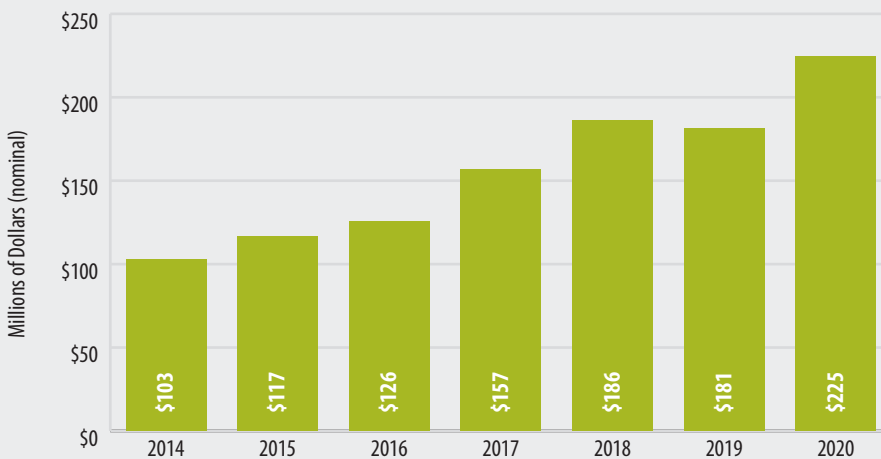
Top 15 Corporate Philanthropists
Local Giving | 2020

	Amount (millions)
Sobrato Philanthropies	$63.4
Cisco Systems	$45.6
Alphabet/Google	$28.9
Wells Fargo Bank	$9.04
KLA Corp.	$8.5
SAP	$8.19
Applied Materials	$7.34
Gilead Sciences	$5.34
Nvidia	$4.89
Intel	$4.58
Adobe	$4.52
Bank of America	$4.34
Silicon Valley Bank	$2.74
Micron Technology	$2.2
eBay	$2.1

CORPORATE PHILANTHROPY
Local Giving by Top 50 Corporate Philanthropists

Silicon Valley

Bar chart — Millions of Dollars (nominal):
- 2014: $103
- 2015: $117
- 2016: $126
- 2017: $157
- 2018: $186
- 2019: $181
- 2020: $225

Note: Data are for the fiscal year; amounts are self-reported and only include companies that chose to participate.
Data Source: *Silicon Valley Business Journal*, Book of Lists | Analysis: Silicon Valley Institute for Regional Studies

Among the top 50 corporate philanthropists alone, $225 million was donated to local organizations in the 2019-20 fiscal year.[A] This represents a $43 million (24%) increase over the prior year, due in large part to increased local giving by five donors: Cisco (+$15.6 million), Google (+$6 million), Wells Fargo (+$3.6 million), Gilead Sciences (+$3.4 million), and Sobrato Philanthropies (+$2.4 million).

A. From self-reported data, which may or may not include things such as in-kind donations of products or services, employee volunteer time, and/or employee donation matching.

The top 15 corporate philanthropists in 2020, based on local giving (and those that chose to self-report), included those from a variety of sectors such as sports, banking, tech, real estate, and healthcare.

Corporate-advised grants through the Silicon Valley Community Foundation to Bay Area organizations nearly doubled in 2020, primarily as a response to increased need during the COVID-19 pandemic.

Santa Clara or San Mateo County recipients represented 18% of all Silicon Valley Community Foundation Corporate-Advised grants in 2020, but only 6% of the grant dollars; an additional 12% of total grant dollars went to other Bay Area organizations, and 82% went outside the region.

CORPORATE PHILANTHROPY

Silicon Valley Community Foundation Corporate-Advised Grants to Local Recipients

Santa Clara & San Mateo Counties, Rest of Bay Area

Legend: Silicon Valley, Rest of Bay Area

Y-axis: Millions of Dollars (nominal)

Year	Silicon Valley	Rest of Bay Area
2015	$6.3	$5.8
2016	$6.5	$5.7
2017	$4.0	$4.2
2018	$3.6	$3.7
2019	$4.1	$4.4
2020	$5.3	$11.0

Data Source: Silicon Valley Community Foundation | Analysis: Silicon Valley Institute for Regional Studies

Silicon Valley Share of Grants

Line chart showing Grants and Dollars as percentages from '15 to '20.
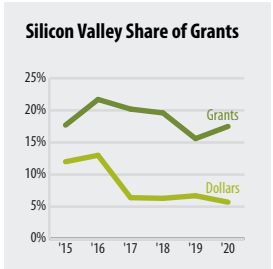
The total dollar amount of corporate-advised grants through the Silicon Valley Community Foundation totaled $5.3 million to Silicon Valley organizations and an additional $11 million to those in the rest of the Bay Area in 2020, representing a 31% and 93% increase year-over-year, respectively. While this is a significant amount of money, it likely represents a relatively small share of total regional corporate philanthropy (as many of the larger corporate donors tend to donate directly to nonprofit organizations).

SOCIETY
Philanthropy

Silicon Valley has nearly 1,000 foundations actively making grants in recent years, with a total of $72 billion in total assets (representing a 17% increase over the prior year).

An estimated minimum of $3.6 billion would have been distributed in 2021 by Silicon Valley foundations, based on $72 billion in total assets and the 5% minimum distribution rule.[A]

A. By federal law, private non-operating foundations are required to distribute 5% of their previous years' net investment assets. Loren Renz, Understanding and Benchmarking Foundation Payout (The Foundation Center, 2012).

Number of Active Grantmaking Foundations & Total Assets
2019-2022

	Number	Total Assets (billions)
Santa Clara County	688	$53.84
San Mateo County	275	$18.61
Total	963	$72.45

Data Source: Foundation Directory Online | Analysis: Silicon Valley Institute for Regional Studies

Based on available data for 2019, the total value of grants made by Santa Clara and San Mateo County foundations that year reached $641 million, 78% of which went to Silicon Valley community-based nonprofit organizations ($500 million).[A]

A. Foundation Directory Online is an online database of foundations and grant information. While the database is detailed and extensive, search query features are limited and the data may be missing some information, so grant totals should be considered minimum estimated amounts. Totals exclude large grants to colleges/universities and hospitals whenever possible.
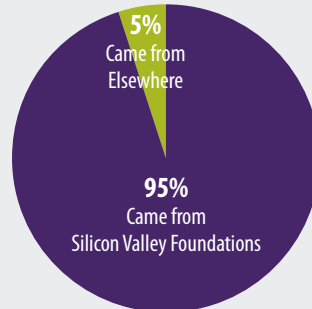
In 2019, Silicon Valley community-based organizations received foundation grants totaling $525 million (excluding those to colleges/universities, and hospitals). Of that total, approximately $500 million came from foundations located in Santa Clara or San Mateo Counties.
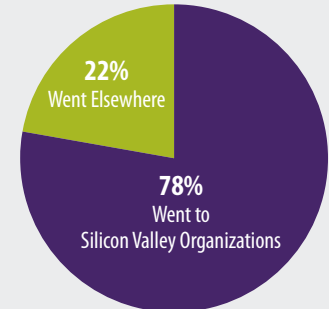
FOUNDATION GRANTS

Share of Foundation Grant Dollars, by Foundation and Recipient Location
2019

Grants TO Silicon Valley Organizations

5% Came from Elsewhere

95% Came from Silicon Valley Foundations

Grants FROM Silicon Valley Foundations

22% Went Elsewhere

78% Went to Silicon Valley Organizations

Data Source: Foundation Directory Online | Analysis: Silicon Valley Institute for Regional Studies

Silicon Valley's community-based nonprofit organizations received the vast majority (approximately 95%) of their foundation grants from local foundations in 2019. At the same time, those local foundations gave 22% of their grant dollars to organizations elsewhere.

Of the 2019 foundation grants to local organizations, 95% came from within the region; 5% came from foundations outside of Santa Clara and San Mateo Counties.
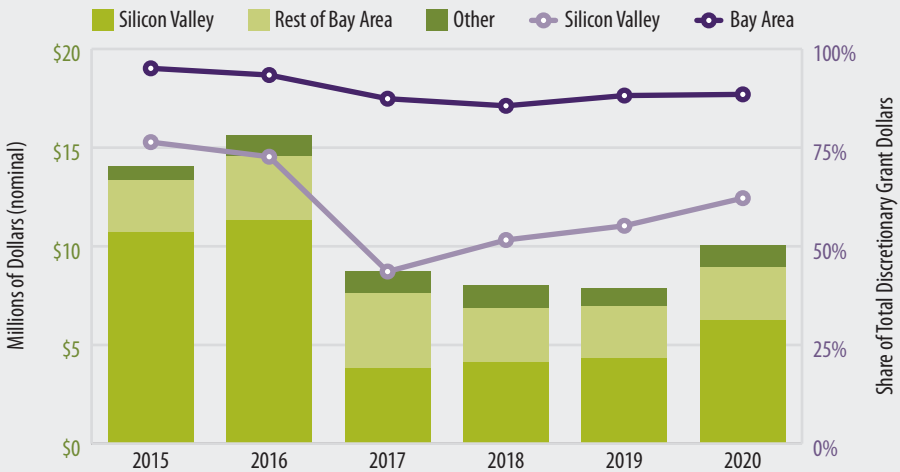
> Of the Silicon Valley Community Foundation's $10.1 million in total discretionary grantmaking in 2020, 62% went to Silicon Valley-based organizations (and 89% to those within the nine-county Bay Area).

FOUNDATION GRANTS
Silicon Valley Community Foundation Discretionary Grants
to Local Recipients & Share of National Total

Santa Clara & San Mateo Counties, Bay Area, and Other

Note: Other may include organizations operating locally but based in another part of California or elsewhere in the United States.
Data Source: Silicon Valley Community Foundation | Analysis: Silicon Valley Institute for Regional Studies

Discretionary grantmaking to local organizations by the Silicon Valley Community Foundation had declined for several years since the recent high of $11.4 million in 2016; however, the total amount awarded to grantees in 2020 was $1.9 million more than the prior year (totaling nearly $6.26 million).[A]

A. Excludes disbursements not categorized under "discretionary" (such as those directed by staff and board members).

PLACE
Housing

Silicon Valley's housing availability and afford-ability are closely linked to recent outmigration patterns, which have been influenced by the persistence of remote work throughout the pandemic. Rising median home sale prices and a shift toward the sale of more high-end homes support outmigration data showing that most households leaving Silicon Valley are moving to the outskirts of the Bay Area and neighbor-ing regions — possibly maintaining ties to their current employers.

Average multifamily rental rates have come down, which is likely a factor keeping some renters in the area. However, average rents are still more than $2,000 for a studio apart-ment — much higher than rates elsewhere in the state and country. The share of Silicon

Valley renters who are severely burdened by housing costs (paying more than 50 percent of their gross income on rent) varies widely by their industry of employment, with 27 percent of Personal Services workers severely burdened (compared to four percent of tech industry workers).

The share burdened by rental payments is also much higher for those of retirement age (65+), making the region a difficult place for older residents who do not own a home. In 2021, only 25 percent of San Mateo County and 32 percent of Santa Clara County potential first-time homebuyers could afford a median-priced home — a share much smaller than California (47 percent) or the United States overall (67 percent). With such high costs, a growing share

of Silicon Valley residents live in households with multiple generations (near 26 percent in 2019, with an estimated four to five percent of grandparents living with their grandchildren).

Housing insecurity remained higher for renters during the pandemic than for home-owners, reaching as many as 20 percent of renter households in September 2021 (with peak housing insecurity rates the highest for households with children, divorcées, and those with less than a high school diploma). Despite the mobilization of the region's public agencies, nonprofits, and philanthropists, homeless-ness remains a critical issue in the region. In 2020, Santa Clara County topped the list out of nearly 400 U.S. regions for the total number of
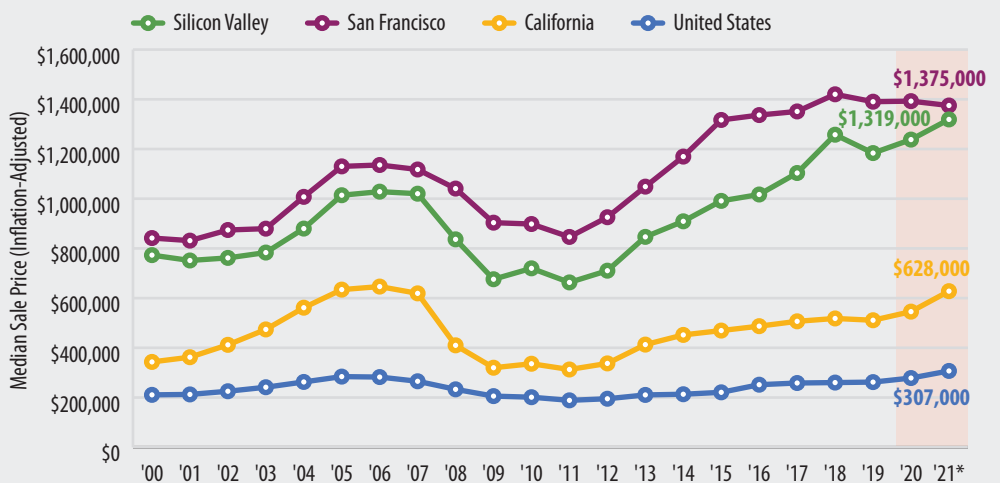
The pandemic did not appear to hinder home sales in Silicon Valley. Median sale prices rose steadily between 2019 and 2021, and there was a relatively normal seasonal pattern of inventory on the market (unlike the national trend) that only showed slight dampening of summer peak inventory. In 2021, the total number of Silicon Valley homes sold rose sharply — up by 48% over the prior year.

The median sale price of a Silicon Valley home — single-family detached houses and condos combined — was $1.32 million in 2021 ($119,000 more than the prior year, before adjusting for inflation). This rise may be indicative of increased demand, but also of the trend toward a greater number of higher-end homes sold each year. For example, in 2021 69% of the homes sold were over $1 million, whereas that share was only 59% just two years prior. Recent research has also shown that a variety of factors during the pandemic (economic impacts, persistent working-from-home, decreased access to amenities, and the desire to stay away from dense crowds) have led to a 'doughnut effect'— increasing demand and home prices around the perimeter of the Bay Area, away from dense cities. The same study found that high-priced regions (like the Bay Area and New York) and lower-priced regions like Austin, Houston, and Phoenix, did not have a correlation indicating that housing demand is transferring from one to the other; furthermore, change-of-address data did not support longevity of remote-work outposts.[66] These findings are in line with longer-term Silicon Valley outmigration trends, which illustrate a larger share moving to other parts of the Bay Area (28%) than to less expensive cities out-of-state (16% among 12 major U.S. destinations).

HOME SALES
Median Home Sale Prices

Santa Clara & San Mateo Counties, San Francisco, and California

Legend: Silicon Valley — San Francisco — California — United States

Y-axis: Median Sale Price (Inflation-Adjusted), from $0 to $1,600,000

X-axis: '00 '01 '02 '03 '04 '05 '06 '07 '08 '09 '10 '11 '12 '13 '14 '15 '16 '17 '18 '19 '20 '21*

Labels: $1,375,000 (San Francisco); $1,319,000 (Silicon Valley); $628,000 (California); $307,000 (United States)

*Based on data through October | Data Source: CoreLogic (provided by DQNews) | Analysis: Silicon Valley Institute for Regional Studies

Data relating to both real estate demand/prices and regional migration patterns indicate that those looking for lower-priced homes are migrating toward the outskirts of the Bay Area and beyond, rather than moving out of state (and thus out of driving distance from their place of employment).

unsheltered homeless and the unsheltered share of unaccompanied youth.
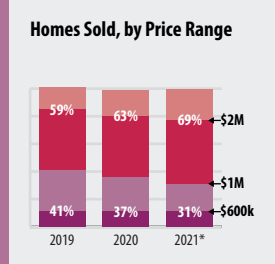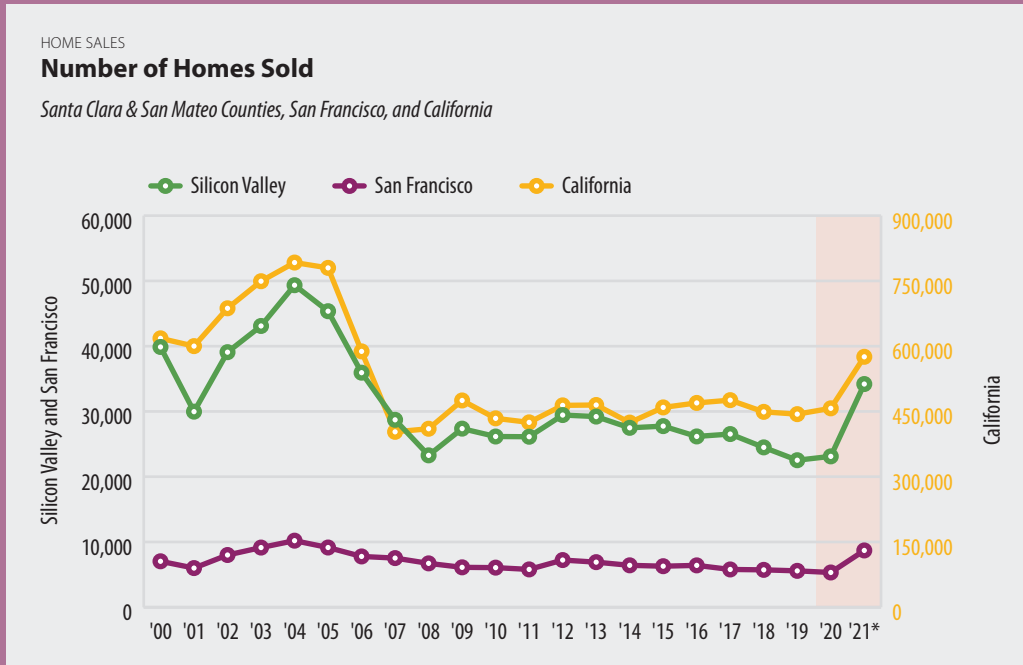
Why is this important?

The housing market impacts a region's economy and quality of life, particularly in places where housing costs are extraordinarily high. An inadequate supply of new housing negatively affects prospects for job growth. A low for-sale inventory drives up prices. And a lack of affordable housing results in longer commutes, diminished productivity, curtailment of family time, and increased traffic congestion. It also restricts the ability of crucial service providers — such as teachers, registered nurses, and police officers — to live

near the communities in which they work. Additionally, high housing costs can limit families' ability to pay for basic needs, such as food, health care, transportation, childcare, and clothing. They can push residents to live with one another for economic reasons and can increase homelessness. Being evicted from a rental unit can also cause a rise in multifamily households and is a leading cause of homelessness in our region. As a region's attractiveness increases, average home prices and rental rates tend to increase. Higher levels of new housing and attention to increasing housing affordability are critical to the economy and quality of life in Silicon Valley.

Whereas in 2019 41% of the homes sold in Silicon Valley were below $1 million, that share declined to 31% in 2021. This trend toward more higher-end homes being sold is a major factor in the region's increasing median home sale prices.

One of the factors contributing to sustained home sales during the pandemic has been the availability of extremely low interest rates — averaging 3.11% for a primary, 30-year fixed rate mortgage in 2020 and 2.96% in 2021 with an historic-low rate of 2.65% in January.[A]

A. Freddie Mac, Primary Mortgage Market Survey. Current Mortgage Rates Data Since 1971, accessed January 8, 2020.

HOME SALES
Number of Homes Sold
Santa Clara & San Mateo Counties, San Francisco, and California

*Based on data through October | Data Source: CoreLogic (provided by DQNews) | Analysis: Silicon Valley Institute for Regional Studies

Homes Sold, by Price Range

The total number of homes sold in Silicon Valley spiked in 2021 to 34,200 (up by 48%) — more than any other year since 2006. Similarly, the number of homes sold in San Francisco rose by 63% year-over-year.

Median home sale prices continued to rise in 2021 in Silicon Valley (up 7% to $1.3 million), statewide (up 15% to $628,000), and nationally (up 10% to $307,000). In contrast, San Francisco's median home sale price decreased slightly (-1%) year-over-year after inflation adjustment.

In 2021, average weekly home listings in the greater Silicon Valley area (both MSAs combined) ranged from around 9,000 each week during the winter months, to nearly 12,000 weekly in late summer.

The average number of homes listed on the market in California and throughout the United States declined significantly since pre-pandemic (-36% and -38%, respectively), whereas averages in the greater Silicon Valley declined to a lesser extent (-4% and -11%, respectively in the San Francisco and San Jose MSAs).

HOME SALES
Weekly For-Sale Inventory

San Jose and San Francisco Metropolitan Statistical Areas, and the United States

Data Source: Zillow Real Estate Research | Analysis: Silicon Valley Institute for Regional Studies
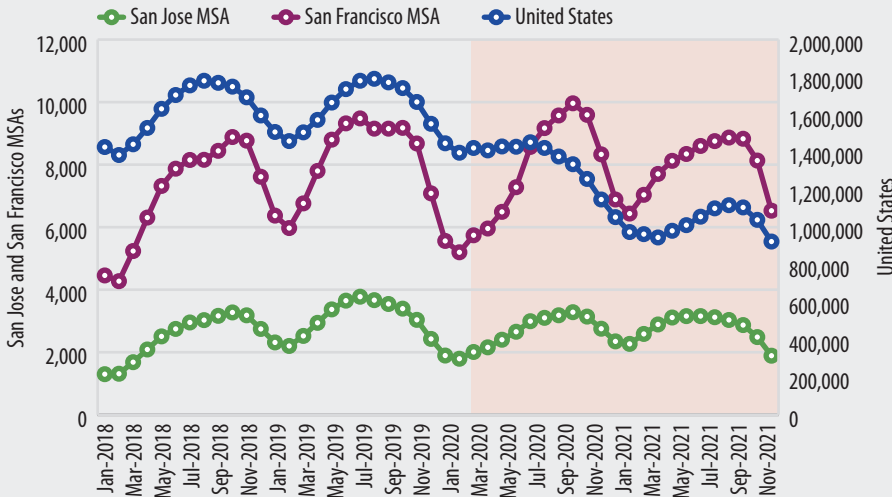
Percent Change in Inventory	
2019-2021	
San Francisco MSA	-4%
San Jose MSA	-11%
California	-36%
United States	-38%

At the end of 2021, detached single-family homes listed in Santa Clara & San Mateo Counties had an average time on the market of ten days (down 11% and 17% year-over-year, respectively).[A]

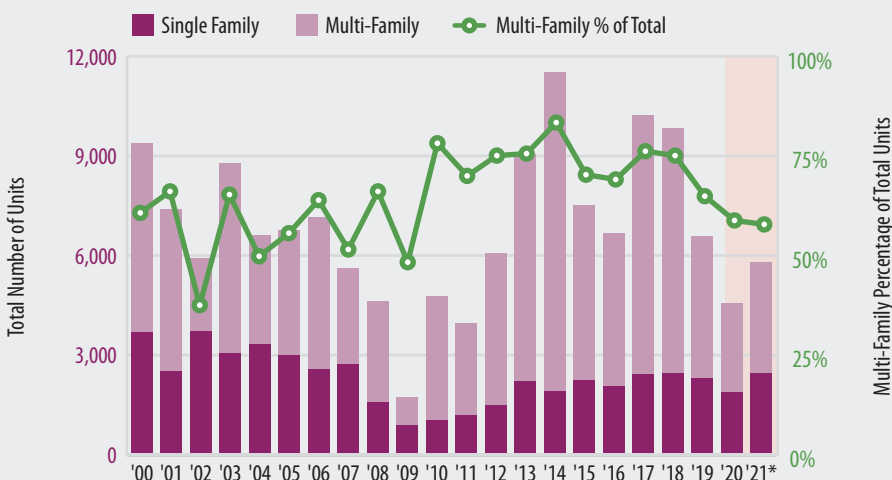A. California Association of Realtors Research & Economics, County Market Updates (December 2021).

693 new residential units were approved in FY 2020-21 that were specifically intended to be affordable for Very Low-Income residents (earning less than 50% of the Area Median Income) — such as a family of four with two full-time income-earners at $20 per hour each in Santa Clara County ($22/hour in San Mateo County), or an individual living alone earning anything less than $28 per hour in Santa Clara County ($31 per hour in San Mateo County).

RESIDENTIAL BUILDING
Units Included in Residential Building Permits Issued

Santa Clara & San Mateo Counties

*estimate based on data through November. | Data Source: Construction Industry Research Board and California Homebuilding Foundation | Analysis: Center for Continuing Study of the California Economy; Silicon Valley Institute for Regional Studies
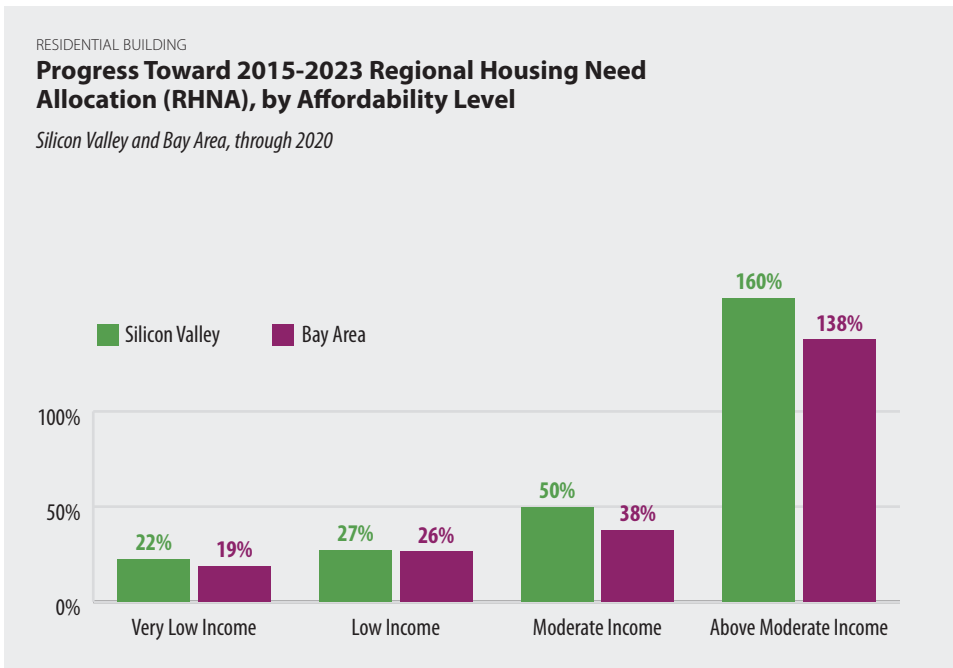
Based on responses from 37 Silicon Valley city and county building or planning departments, two-thirds reported a noticeable increase in residential remodeling permits during FY 2020-21. This finding is consistent with the 18% increase in Bay Area consumer spending on Home Improvement[A] and 22% increase in Bay Area residents' use of search-term "remodel" between those two fiscal years.

A. Includes the San Jose-Sunnyvale-Santa Clara & San Francisco-Oakland-Hayward MSAs; home improvement spending includes purchased and store card payments made to 28 home improvement stores such as The Home Depot, Lowe's, ClosetMaid, Ace Hardware, Build.com, and Sherwin Williams. Data from Earnest Research (accessed 2/7/22).

The rate of residential building in Silicon Valley — which slowed in 2020 — rose slightly in 2021 with a 27% year-over-year increase in the number of residential units permitted (+30% single-family units, and +25% multi-family). Despite this upward trend, the total number of units permitted in 2021 remained less than two-thirds of the number permitted in 2017 or 2018.

More than three-quarters (76%) of Silicon Valley's residential units permitted thus far in the 2015-2023 Regional Housing Needs Allocation (RHNA) cycle were in the Above Moderate (120%+ of the Area Median Income) category; 11% were Moderate Income, and 13% were Low- and Very-Low Income, combined. The relatively small share of low-income units permitted thus far in Silicon Valley and throughout the Bay Area (12%) undoubtedly informed efforts to develop the 2023-2031 cycle allocations — approved in December 2021 — which aimed to not only increase the region's stock of low-income units but also address racial and economic segregation within and between communities.

RESIDENTIAL BUILDING
Progress Toward 2015-2023 Regional Housing Need Allocation (RHNA), by Affordability Level

Silicon Valley and Bay Area, through 2020

Data Source: California Department of Housing & Community Development | Analysis: Silicon Valley Institute for Regional Studies

Progress Toward 2015-2023 RHNA			
	Total Number of Units Permitted	RHNA	Progress Toward RHNA
Silicon Valley	66,724	82,893	80%
Bay Area	137,731	187,990	73%

In the first six years of the eight-year (2015-2023) RHNA Cycle, Silicon Valley permitted 80% of the total number of new residential units allocated.

As the region nears the 6th RHNA Cycle (2023-2031, with allocations more than double that of the current cycle), reports summarizing permits during the 2015-2023 cycle through 2020 indicate some continued progress toward RHNA allocations with more than 100% the Silicon Valley and Bay Area RHNA met in the Above Moderate income category; however, in the first six years of an eight-year cycle, the region had not yet met a proportional share of new Very Low-, Low-, or Moderate-Income housing.

Silicon Valley has far surpassed the 2015-2023 RHNA allocation for residential units in the Above Moderate Income category (at 160% through 2020); in contrast, only 22% of the RHNA had been met for Very Low Income (0-50% of the Area Median Income), 27% for Low Income (50-80% AMI), and 50% for Moderate Income (80-120% AMI) units; the total number of Very Low Income units permitted during the RHNA Cycle had the greatest year-over-year increase, more than doubling in 2020.

Of the estimated 5,800 residential units permitted throughout Santa Clara and San Mateo Counties in 2021, 58% were multi-family units. This compares to 44% statewide, and 95% in San Francisco.
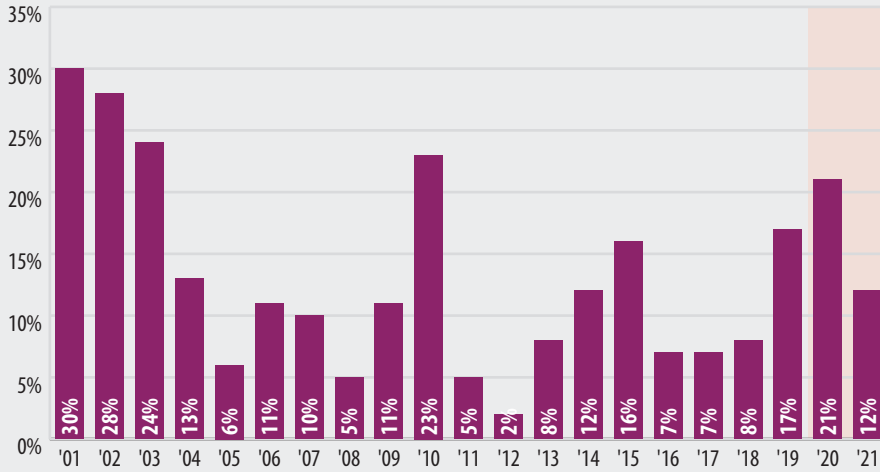
PLACE
Housing

In the 2020-21 fiscal year, Silicon Valley cities and counties approved 2,392 new housing units that are affordable to residents earning less than 80% of the area median income, representing 12% of all residential units approved that year.

Affordable Share of Newly Approved Residential Units

Silicon Valley

Number of New Affordable Housing Units

Note: Beginning in 2008, the Land Use Survey was expanded to include cities northward along the U.S. 101 corridor (Brisbane, Burlingame, Millbrae, San Bruno and South San Francisco). In 2014, the Survey was further expanded to include all Silicon Valley cities (adding Colma, Daly City, Half Moon Bay and Pacifica).
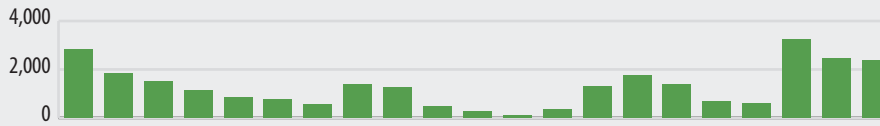Data Source: City Planning and Housing Departments of Silicon Valley | Analysis: Silicon Valley Institute for Regional Studies

Of the 2,392 newly-approved affordable housing units in FY 2020-21, 693 (29%) were affordable to very-low income residents (those earning less than half of the area median income); it is possible that some additional units approved as "below market rate" may end up being affordable to very-low income residents, as well.

Rental rates declines since pre-pandemic have been more pronounced in Silicon Valley (-17% between 2019 and 2021 after adjusting for inflation) and San Francisco (-20%) than in California overall (-8%) or throughout the country (-3%).

Average monthly rental rates in multifamily buildings (such as apartments and duplexes) were $2,560 in Silicon Valley during the first three quarters of 2021; average rents were $2,880 in San Francisco during that period.

Average Multifamily Rental Rates

Silicon Valley, San Francisco, California, and the United States

In mid-2021, average Bay Area rental rates ranged from $2,200 for a studio apartment to $3,600 for a 3-bedroom/3-bath.

*based on data through Q3 | Data Source: CBRE | Analysis: CBRE; Silicon Valley Institute for Regional Studies
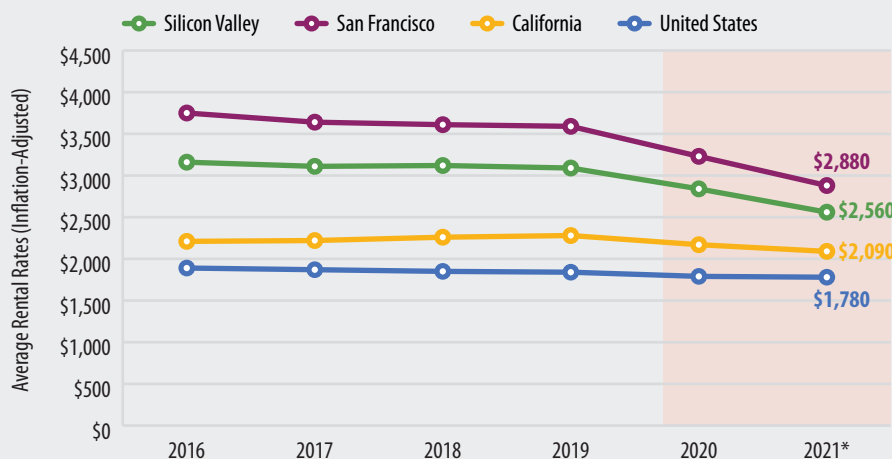
Average Monthly Apartment Rental Rate
Bay Area (Q2 2021)
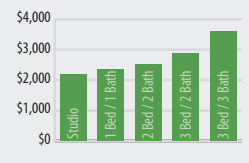
Percent Change in Multifamily Rental Rates

	2019-20	2020-21
Silicon Valley	-8%	-10%
San Francisco	-10%	-11%
California	-5%	-4%
United States	-3%	-1%

Silicon Valley renters are much more likely to be burdened[A] by housing costs than homeowners, with 47% spending more than 30% (and nearly a quarter spending more than half) of their *gross* income on rent. In 2020, the share of burdened renters in Santa Clara and San Mateo Counties rose to an estimated 69% within the first few months of the pandemic.[67]

A. According to the U.S. Department of Housing and Urban Development, housing costs greater than 30% of household income pose moderate to severe financial burdens.

Of the 173,000 burdened renter households in Santa Clara and San Mateo Counties, as many as 18,100 of them are ones with two or more children under age six — a family type which typically spends as much on taxes and childcare as on housing; this means they are at risk of paying more than 90% of their gross income on those three costs alone, leaving little for anything else.
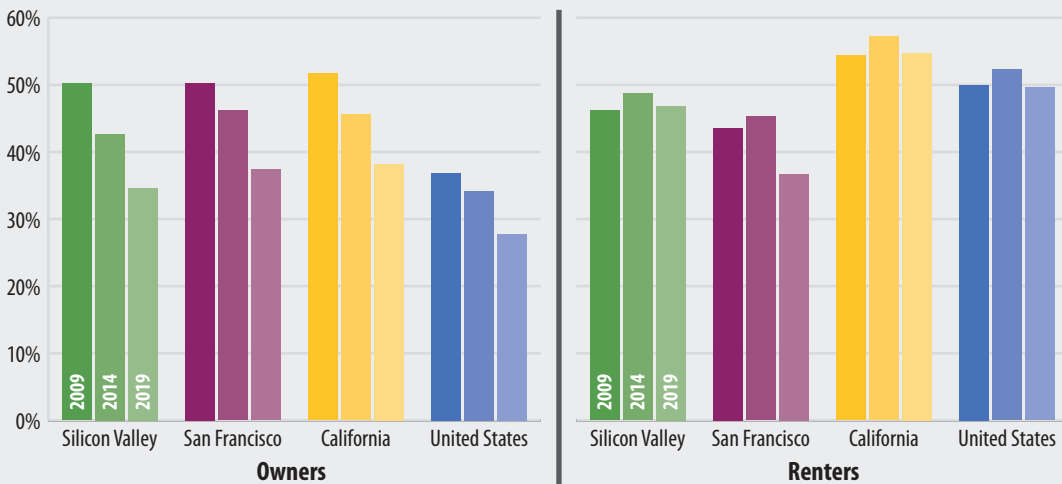
The share of Silicon Valley renters severely burdened by housing costs varies significantly by industry of employment, with 27% of those working in Personal Services jobs paying more than 50% of their gross income on rent, compared to only 4% of tech industry workers.
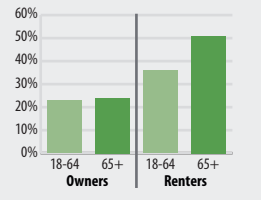
HOUSING AFFORDABILITY
Housing Burden
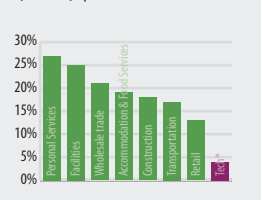Percent of households with housing costs greater than 30% of income

Santa Clara & San Mateo Counties, San Francisco, California, and the United States

*includes Software, Computer Hardware Design & Manufacturing, and Internet & Information Services
Data Source: United States Census Bureau, American Community Survey | Analysis: Silicon Valley Institute for Regional Studies

Housing Burden by Age
(2015-2019)

% Renters Severely Burdened
by Industry | 2019

Nearly half (47%) of all Silicon Valley households who rented in 2015-2019 were burdened by housing costs, meaning that they spent more than 30% of their gross income on their rent.

The share of Silicon Valley homeowners (with a mortgage) that were burdened by housing costs in 2015-2019 was 16 percentage points lower than a decade prior, amounting to 68,000 fewer burdened households. This long-term trend may be due to declining ownership costs over time due to refinancing, and/or the increasingly high bar of becoming a homeowner (with a more financially-select group able to purchase homes each year). In contrast, the number of burdened renters has increased over that period by 26,200 households.

Homeownership is a key factor providing housing stability to residents over age 65. Between 2015 and 2019, the share of renters burdened by housing costs was 15 percentage points higher for those ages 65+ (compared to renters ages 18-64); in contrast, the share of homeowners burdened by housing costs did not vary significantly by age.

While the housing burden for Silicon Valley renters is relatively similar to that of the nation as a whole, the burden for Silicon Valley owners is slightly higher (35% of Silicon Valley owners, compared to 28% across the country between 2015 and 2019).
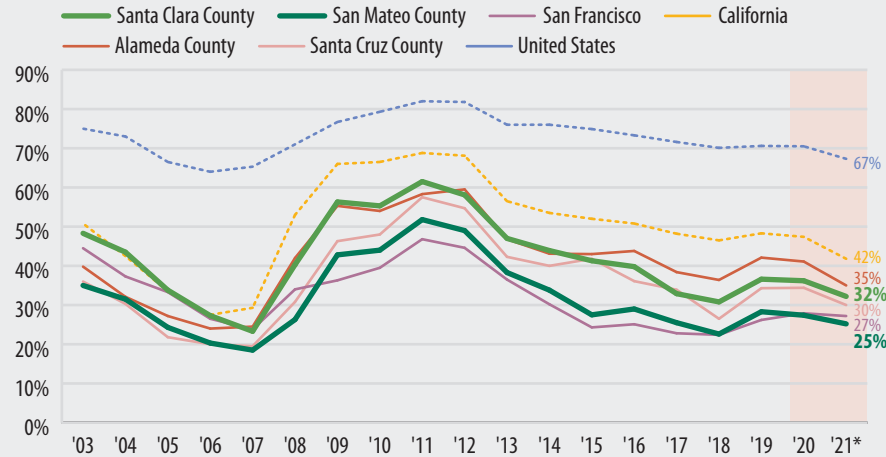
Potential first-time homebuyers are less likely to be able to afford a median-priced home in the greater Silicon Valley area (25-35%) than in California overall (42%) or other parts of the state, such as Sacramento (57%). For comparison, 67% of potential first-time homebuyers nationwide were able to afford a median-priced home in 2021.

HOUSING AFFORDABILITY

Percentage of Potential First-Time Homebuyers That Can Afford to Purchase a Median-Priced Home

Santa Clara and San Mateo Counties, San Francisco, Alameda County, Santa Cruz County, California, and the United States

Legend: Santa Clara County, San Mateo County, San Francisco, California, Alameda County, Santa Cruz County, United States

(Line chart showing percentages from '03 to '21*, with values: United States 67%, California 42%, Santa Cruz County 35%, Santa Clara County 32%, San Francisco 30%, San Mateo County 25%)

*includes Q1-3 | Data Source: California Association of Realtors | Analysis: Silicon Valley Institute for Regional Studies

Only 25% of potential first-time homebuyers living in San Mateo County can afford a median-priced home; this compares to 33% in Santa Clara County, 27% in San Francisco, 30% in Santa Cruz County, and 35% in Alameda County; meanwhile, workers who commute into the region from other counties (with a smaller share of affluent individuals) are even less likely to afford a median-priced home in the area.
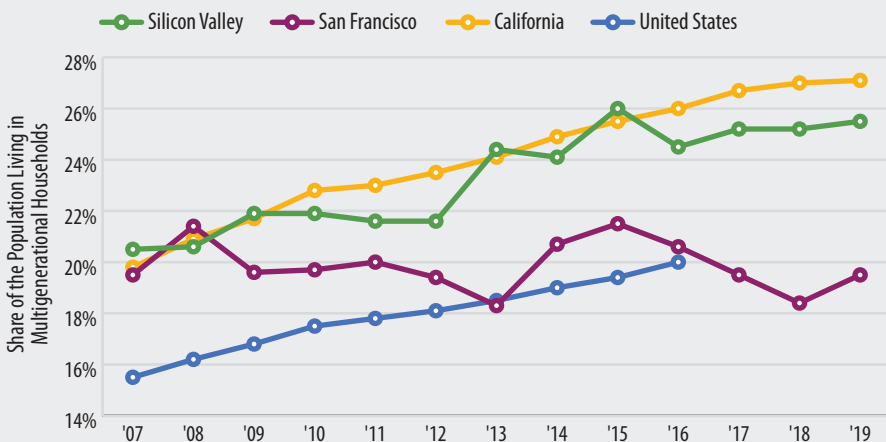
The Silicon Valley Housing Affordability Index declined in 2021 in 50 out of 51 counties included in the Index (by as much as 12 percentage points year-over-year), as well as in California overall (down six percentage points). Because the Index is calculated based on the household income distribution, these declines were likely a result of pandemic-related income losses combined with rising median home prices.

One out of four Silicon Valley residents live in a multigenerational household; this share has been slowly rising over time, up by four percentage points in 2019 from a decade prior.

OCCUPANCY CHARACTERISTICS

Multigenerational Households

Santa Clara & San Mateo Counties, San Francisco, California, and the United States

Legend: Silicon Valley, San Francisco, California, United States

Y-axis: Share of the Population Living in Multigenerational Households

(Line chart from '07 to '19 showing share of population, ranging 14%-28%)

*2020 estimate from 1-year American Community Survey microdata with experimental weights. | Note: Multigenerational households include all households with two or more adult generations, where an adult is defined as age 25 and over. | Data Sources: IPUMS-USA, University of Minnesota; Pew Research Center | Analysis: Kyle Neering; Silicon Valley Institute for Regional Studies

% Households with Grandparents & Grandchildren

(Bar chart showing SV: 2000, 2010, 2019, 2020* and CA values ranging 0%-6%)
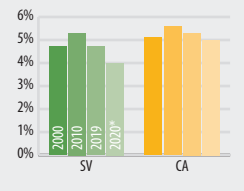
Around 4% of Silicon Valley households include both grandparents and grandchildren (compared to 5% throughout the state).

Living in multigenerational households is more common in Silicon Valley compared to San Francisco, where residents are more likely to live with non-family members (one in five San Francisco residents live in a multifamily household).

More than a third (36%) of all Silicon Valley young adults, ages 18-34, lived with their parent(s) in 2019; estimates for 2020 indicate as much as a three percentage point rise year-over-year.

OCCUPANCY CHARACTERISTICS
Young Adults Living with a Parent

Santa Clara & San Mateo Counties, San Francisco, and California

*estimate based on national percent change between January-July 2019 and 2020 reported by Richard Fry, Jeffrey S. Passel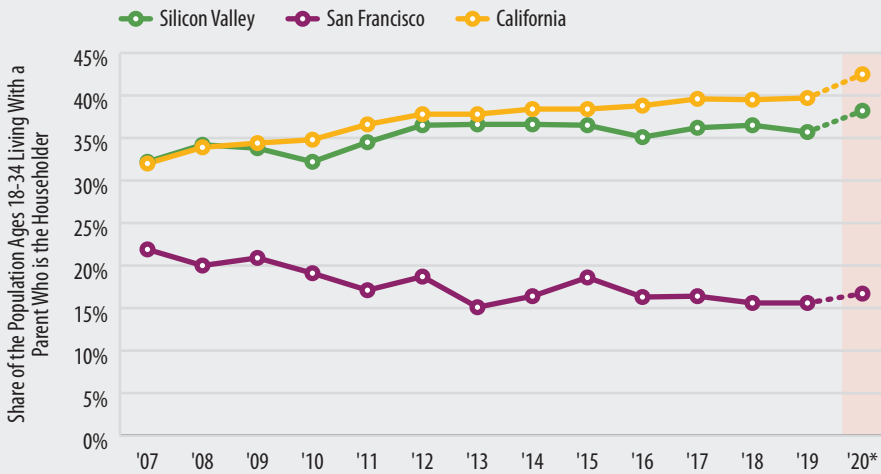, and D'Vera Cohn. "A majority of young adults in the U.S. live with their parents for the first time since the Great Depression," Pew Research Center (September 4, 2020). | Data Source: IPUMS-USA, University of Minnesota | Analysis: Kyle Neering; Silicon Valley Institute for Regional Studies

An estimated four in ten young adults (ages 18-34) in Silicon Valley lived with their parent(s) in 2020.

The high cost of housing in Silicon Valley and other parts of the state is a likely contributor to the number of young adults living with their parent(s); additionally, many college students moved back home during periods of distance learning in 2020.

Share of the Population Living in Multifamily Households

Santa Clara & San Mateo Counties, and California

|	2009	2019
Silicon Valley	9.6%	11.7%
California	9.7%	10.4%

Note: Multifamily households include all households with at least two unrelated families.
Data Source: IPUMS-USA, University of Minnesota | Analysis: Kyle Neering; Silicon Valley Institute for Regional Studies

Approximately 374,000 Silicon Valley residents lived in multifamily households in 2019, representing a year-over-year increase of nearly 34,500 people.

PLACE
Housing

More than four out of ten Silicon Valley households with children experienced housing insecurity in June 2020, having rent or mortgage payments that were deferred, or zero to slight confidence that they will be able to pay on time; even at the end of 2021, three out of ten households with children remained housing insecure. This finding is consistent with pandemic-period food insecurity rates, which have been shown to be significantly higher in households with children (42% in April, compared to 30% of households without children).[68]

HOUSING INSECURITY
Share of Households that are Housing Insecure, by Tenure
Santa Clara & San Mateo Counties
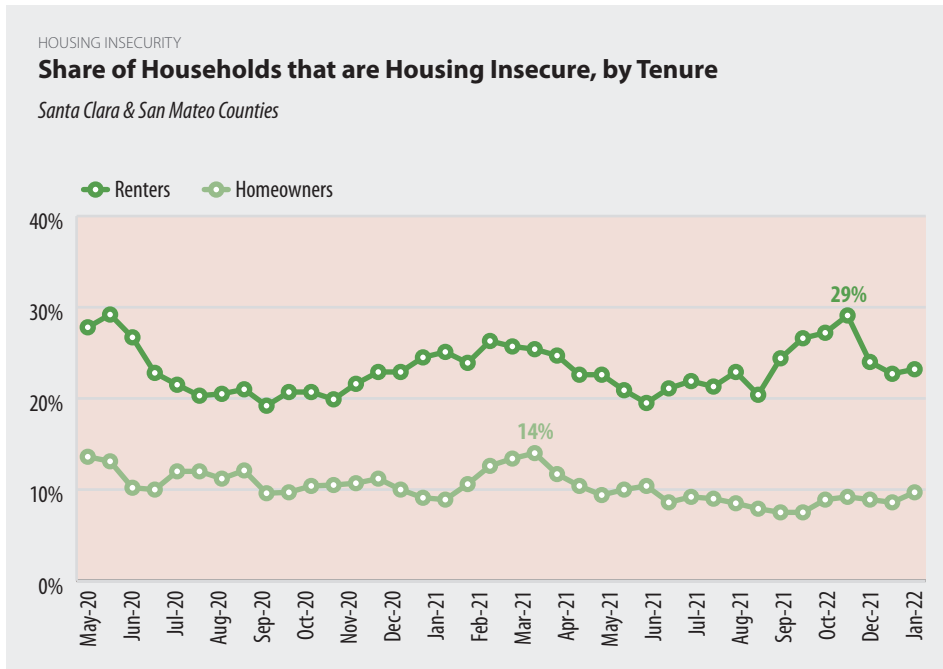
Data Source: U.S. Census Bureau, Household Pulse & Community Resilience Estimates | Analysis: Silicon Valley Institute for Regional Studies

Peak Pandemic Housing Insecurity Rates by Household(er) Characteristics
Santa Clara & San Mateo Counties

	Renters
Households with Children	44%
Divorced Householder	46%
Householder with less than a High School Diploma	65%
Overall	**29%**

Among homeowners who pay a mortgage, overall housing insecurity rates tend to be much lower than that of renters; rates over the pandemic-period ranged from 7-14% for homeowners and 19-29% for renters.

Housing insecurity rates for Silicon Valley renters peaked at an estimated 29% in May 2020, and subsequently during two additional periods – January 2021 (26%) and September 2021 (29%). These peaks appear to coincide with peak COVID case rates throughout the region.

Peak housing insecurity rates for Silicon Valley renters during the pandemic period were significantly higher for households with children (44%), divorced householders (46%), and householders with less than a high school diploma (65%) compared to 29% overall within the region.
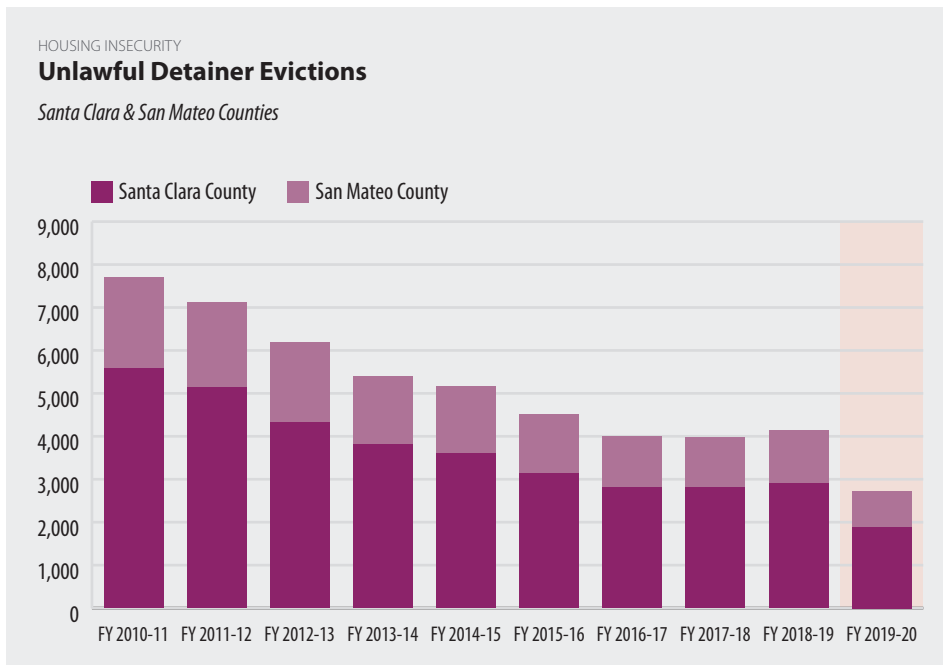
HOUSING INSECURITY
Unlawful Detainer Evictions
Santa Clara & San Mateo Counties

Data Source: Judicial Council of California | Analysis: Silicon Valley Institute for Regional Studies

The total number of unlawful detainer evictions in Santa Clara & San Mateo Counties in FY 2019-20 was 35% lower than the previous year (down by 1,430 from FY 2018-19). This may have been affected by both renter protections in the early months of the pandemic and/or pandemic-related delays in the processing of evictions.

HOMELESSNESS
Homeless Population Share and Percentage Sheltered/Unsheltered

Santa Clara & San Mateo Counties

Legend: Sheltered, Unsheltered

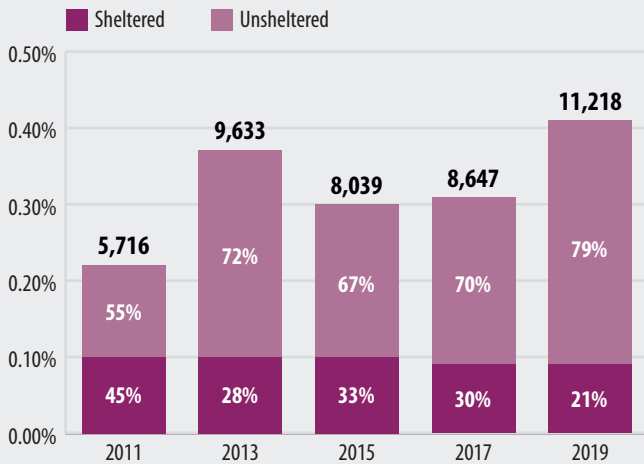- 2011: 5,716 (Unsheltered 55%, Sheltered 45%)
- 2013: 9,633 (Unsheltered 72%, Sheltered 28%)
- 2015: 8,039 (Unsheltered 67%, Sheltered 33%)
- 2017: 8,647 (Unsheltered 70%, Sheltered 30%)
- 2019: 11,218 (Unsheltered 79%, Sheltered 21%)

Data Sources: County of San Mateo, Human Services; County of Santa Clara, Office of Supporting Housing; California Department of Finance | Analysis: Silicon Valley Institute for Regional Studies

Nine out of ten Santa Clara County and eight out of ten San Mateo County residents believe homelessness in the region is a serious problem; 76% and 54%, respectively, believe it has gotten worse over the past year.[A]

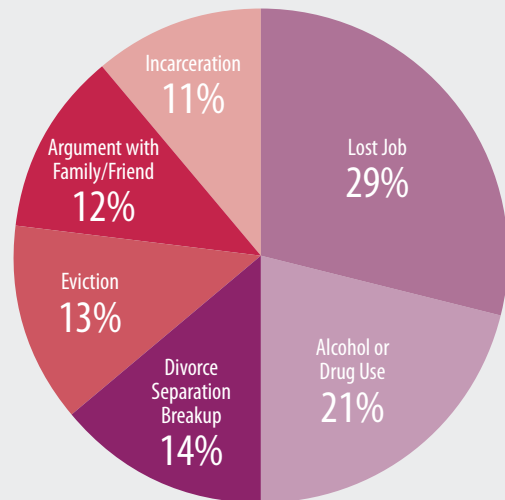A. 2021 Silicon Valley Poll (www.jointventure.org/svpoll).

In 2019 — prior to the increased efforts to shelter people experiencing homelessness during the pandemic — 79% of Silicon Valley's homeless population was unsheltered, representing the highest rate of unsheltered homeless individuals over the prior eight years (at least). In total, there were an estimated 11,218 homeless residents in Santa Clara and San Mateo Counties combined (including 267 unsheltered, unaccompanied youth under age 18[69]), more than half (54%) of which were in San Jose alone. In comparison, San Francisco had a homeless population of 8,011 in 2019.

More than a quarter of the homelessness in Santa Clara County was prompted by issues with family and friends — an argument with a family member or friend (12%), or divorce/separation/breakup with a significant other (14%); 42% was due to lost jobs or evictions, and incarceration was cited 11% of the time as a primary cause — nearly double what it was in 2017.

In the 2019-20 fiscal year – which included the first 2.5 months of the pandemic period – there were just over 2,700 unlawful detainer evictions of renters in Santa Clara and San Mateo Counties (a rate of seven per day); while not all of these renters were ultimately forced to leave their homes, approximately one in every 135 Silicon Valley renters faced the threat of losing their home to eviction that year.

HOMELESSNESS
Primary Causes of Homelessness

Santa Clara County | 2019

- Lost Job: 29%
- Alcohol or Drug Use: 21%
- Divorce Separation Breakup: 14%
- Eviction: 13%
- Argument with Family/Friend: 12%
- Incarceration: 11%

Data Sources: County of San Mateo, Human Services; County of Santa Clara, Office of Supporting Housing
Analysis: Silicon Valley Institute for Regional Studies

In response to the disproportionate impact of the pandemic on those at-risk of homelessness, federal Coronavirus Relief Funds (plus state General Funds and philanthropic dollars) were made available to local public agencies[A] to repurpose motels, hotels, and other types of buildings for housing/housing assistance. Several local projects were funded through this program, Project Homekey, including the City of San José award for $12 million to purchase of 76-unit Best Western, the County of San Mateo's $35 million award to purchase two hotels (170 units total), and the County of Santa Clara's awards (totaling $38.8 million award) for the purchase of two properties with a combined 200 units and possible plans for expansion, to serve as permanent and interim housing.[70] In total, Silicon Valley public agencies were funded to provide 474 units; the Bay Area received awards for four projects with interim units, 22 permanent units, and eight projects with interim housing expected to be converted into permanent for a total of $275 million (34% of overall Homekey Funds Awarded and 28% of the 120 projects statewide).

A. by the the California Department of Housing & Community Development

Number of Units Funded through Project Homekey *for interim and permanent housing*	
San Mateo County	169
Santa Clara County	305
San Francisco	214
Alameda County	413
Rest of Bay Area	526
Rest of State	5,385

Data Source: State of California Department of Housing & Community Development | Analysis: Silicon Valley Institute for Regional Studies

In 2020, the region mobilized to house and provide services to unsheltered individuals. Regional COVID-19 response funds[A] provided grants totaling $33 million for housing assistance and other basic necessities, such as food. Additionally, the counties of San Mateo and Santa Clara were among the entities funded through the state's Project Roomkey,[B] enabling Santa Clara County to serve more than 1,600 households (including 560 households requiring isolation) and 2,100 clients in non-congregate shelters/hotels by mid-December (with an estimated 150,000+ hotel room nights[C] and 400,000 meals provided).[71] By April, the County of San Mateo had leased a block of 60 hotel rooms through Project Roomkey, in addition to sheltering 77 clients at other hotels and expanding capacity at local shelters.[D]

A. Including (but not limited to) $31 million from the Silicon Valley Strong Financial Assistance Program, $1,000,000 of the San Mateo Credit Union Community Fund to shelter providers and core services agencies, and approximately $300,000 from the Palo Alto Community Fund.
B. Project Roomkey provided FEMA Public Assistance Program reimbursements for motel/hotels (and some trailers) for temporary, emergency housing, food, and other services.
C. County of Santa Clara, Office of Supportive Housing.
D. County of San Mateo, County Manager's Office.

Homelessness throughout California and the United States overall rose between January 2019 and January 2020 (by 5.4% and 2.2%, respectively), with a disproportionate rise in the nation's major cities (+2.9%) and for unsheltered individuals (+7.0%). Among 396 major U.S. regions included in 2020 point-in-time counts, the San Jose/ Santa Clara City & County Continuum of Care (CoC) was at the top of the list for the total number of unsheltered homeless (7,922) and unsheltered share of unaccompanied youth (96%).[72]

HOMELESSNESS
Estimated Number of Homeless Individuals

San Jose/Santa Clara City & County Continuum of Care | 2019-20

- Other/Unknown
- Other/Unknown Unsheltered
- Chronically Homeless (Unsheltered)
- Chronically Homeless (Sheltered)
- Veterans (Unsheltered)
- Veterans (Sheltered)
- Unaccompanied Youth (Unsheltered)
- Unaccompanied Youth (Sheltered)
- People in Families with Children (Unsheltered)
- People in Families with Children (Sheltered)
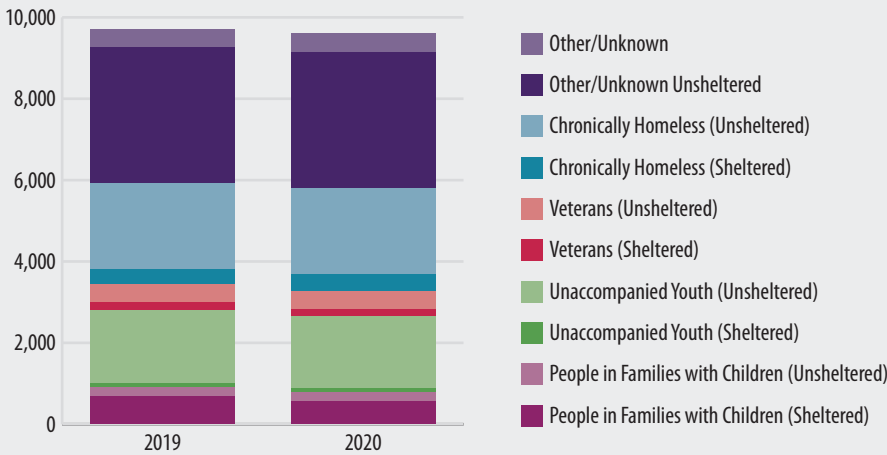
Data Source: U.S. Department of Housing and Urban Development | Analysis: Silicon Valley Institute for Regional Studies

In 2020, an estimated 29 percent of the regional workforce worked from home most days, and nearly half of all households had at least one worker remaining primarily remote at the end of the year. This drastic shift had an equally dramatic impact on the region's commute patterns and public transit ridership (which remains at only a fraction of pre-pandemic levels).

In stark contrast to the long-term trends, which indicate a steady rise in the number of vehicle miles traveled (VMT) per person since the Great Recession (primarily driven by freeway commuters and megacommuters), VMT fell in 2020 to levels not seen before (in 17+ years). Declines in traffic delays and transportation-related injury crashes were observed

as well, with fewer speeding-related crashes and fatalities (by 46 percent and 38 percent, respectively) throughout the Bay Area that year. While VMT and traffic delays did come back up in 2021, they remained below pre-pandemic levels (by nine percent and 51 percent, respectively, in December 2021 from December 2019). The combination of fewer commuters on the roads and faster commute times may have saved Silicon Valley workers as much as 108 million hours of collective drive-time that year in 2020 (including 20 million due to traffic reduction alone). At the 2020 rate of $140/hour in regional GDP per Silicon Valley per employee, this time savings would be equivalent to approximately $2.7 billion in worker productivity.

Between 2019 and 2020, the number of miles traveled by California autonomous vehicle testing permit holders tripled, yet the total number of collisions declined by 58 percent. Among the state's 52 autonomous vehicle testing permit holders, Silicon Valley and San Francisco companies reported 44 collisions in 2020, with a collision rate significantly lower than the national automobile average.

The cost of basic, minimal transportation needs has risen continually over the past decade, outpacing the inflation rate. The costs rose to such a height in 2021, that a Silicon Valley family of four with two minimum-wage workers would have to spend 14 percent of their pre-tax income just to share one car. While part of the rise in transportation costs has been due

Daily All-Road VMT per Capita
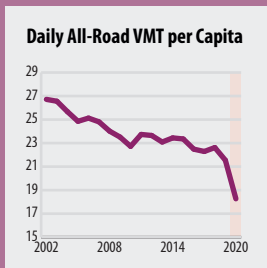
Data Sources: California Department of Transportation; California Department of Finance | Analysis: Silicon Valley Institute for Regional Studies

Average monthly freeway driving remained around 10% lower than pre-pandemic (2019) levels in the second half of 2021; this compares to 9% throughout the Bay Area, and 2% statewide.

Following the stay-at-home orders in mid-March, 2020, Silicon Valley freeway VMT per capita declined sharply — from 10 miles per person per day in February to half that in April, resulting in a year-over-year decline of 52% (compared to -39% in the Bay Area, and -32% throughout California).

VEHICLE MILES TRAVELED
Monthly Freeway Vehicle Miles Traveled Per Capita

Santa Clara & San Mateo Counties, Bay Area, and California
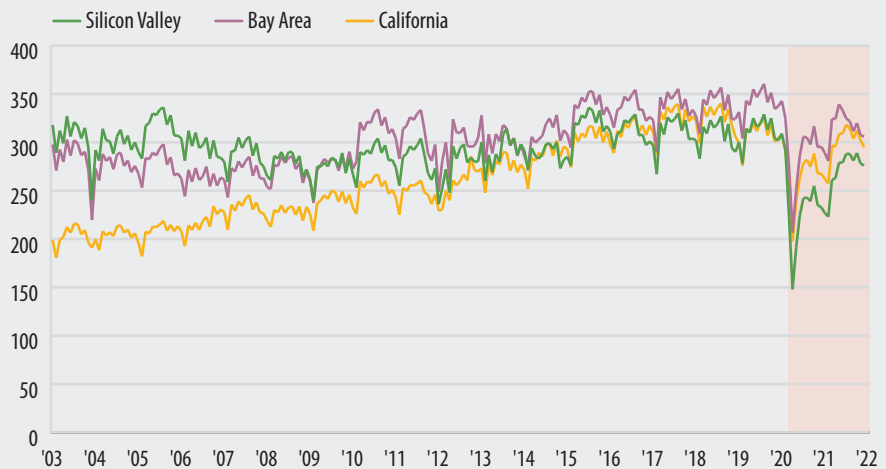
Data Sources: Caltrans PeMS; California Department of Finance | Analysis: Silicon Valley Institute for Regional Studies

In 2021, Silicon Valley residents averaged approximately 3,200 freeway miles driven — 14% below the 2018-2019 average (compared to 24% below in 2020).

Declines in Silicon Valley freeway VMT during the pandemic have been more pronounced than in the Bay Area overall. While the average has generally been lower since 2009, the gap has grown from 23 miles to 52 miles per person per month since March 2020.

to factors such as car insurance and gas prices, it is also due to the low utilization rates of public transit.

Why is this important?

Adequate highway capacity and improved transportation options, both public and private, are important for the mobility of people and goods. Investments in public transportation, walking and bicycling infrastructure, along with improving automobile fuel efficiency and shifting from fossil fuels to electric vehicles, are important for meeting air quality and carbon emission reduction goals. Further, creating safe conditions for active modes of transportation, such as biking and walking, is important for helping residents get around within the region as well as promoting healthy lifestyles and enhancing quality of life. These modes have become especially critical during the pandemic, with many people looking for alternatives to indoor exercise and public transit.

Creating affordable housing close to jobs can cut or eliminate commutes. How much residents are driving their cars, how they commute, and changes in overall commuting behavior affect congestion on the region's roadways. Transportation-related injuries, including deaths, are significantly reduced with declines in regional vehicle miles traveled (VMT), an indicator of collision exposure. And the amount of time wasted due to long commutes and traffic delays affects the everyday lives of our residents — taking time away from work, participating in the community, or being with family and friends.

VEHICLE MILES TRAVELED
Relative Change in Monthly Freeway Vehicle Miles Traveled Per Capita

Santa Clara & San Mateo Counties, Bay Area, and California

Data Sources: Caltrans PeMS; California Department of Finance | Analysis: Silicon Valley Institute for Regional Studies

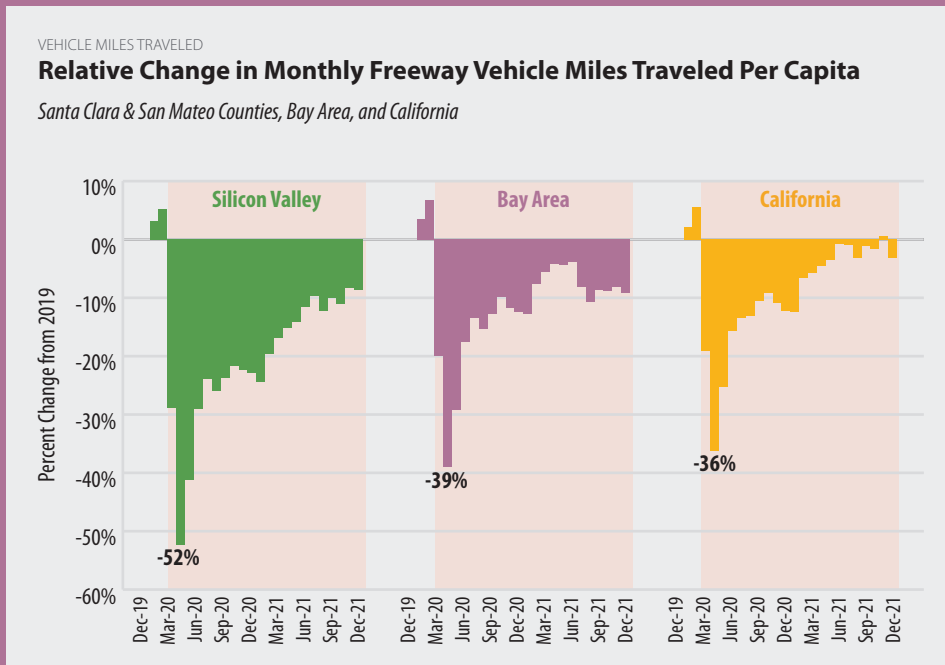**Pandemic-related transportation declines throughout the region led to fewer freeway miles driven than any other time on record[A] in April 2020; statewide, monthly VMT per capita was reduced to levels not observed since 2006.**

A. At least 17 years, the length of the Caltrans Freeway Performance Measurement System monthly VMT dataset.

Silicon Valley's pre-pandemic VMT on all types of roadways (not just freeways) was 22 miles per person per day in 2019 (compared to nine miles in San Francisco, and 23 miles per person in Alameda County and statewide).[A] In 2020, Silicon Valley all-road VMT fell by 15% to 18 miles/person/day.

A. Based on Caltrans Highway Performance Monitoring System (HPMS) data.
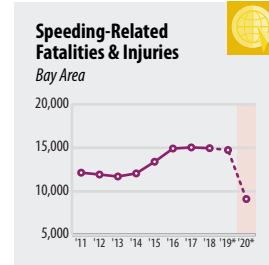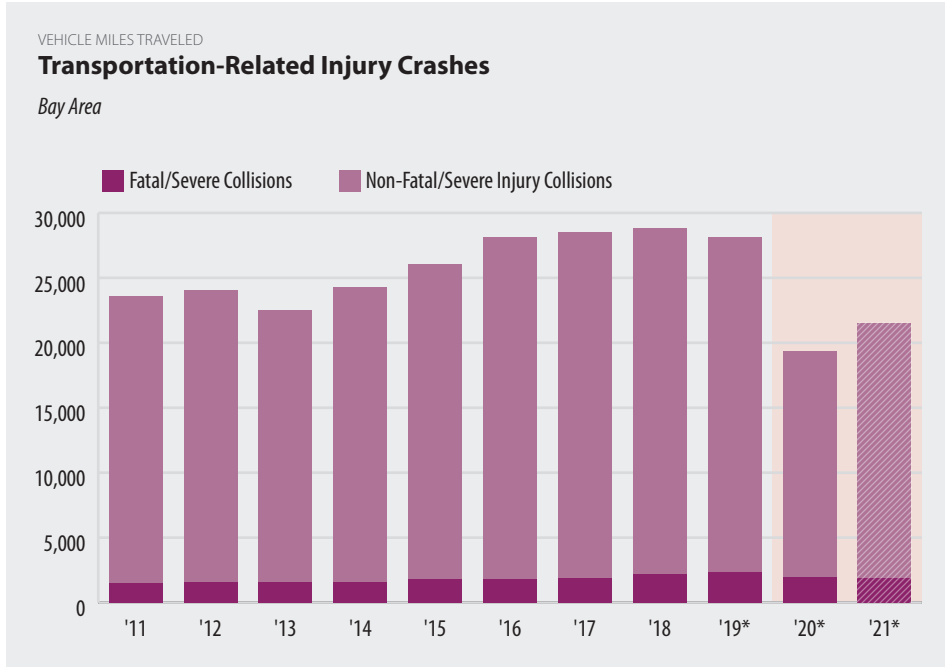
While freeway VMT has been increasing steadily in Silicon Valley since the Great Recession economic recovery began in 2010, estimates of the total number of miles driven per resident (on all public roadways) has slowly fallen year after year — indicating that VMT increases are primarily commuter-driven.
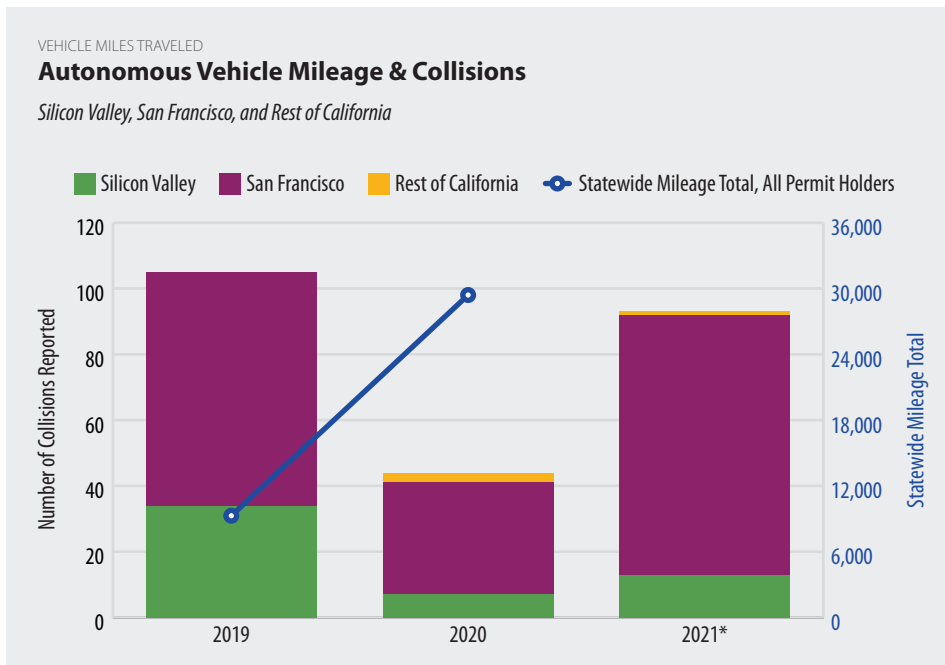
PLACE
Transportation

Bay Area DUI (Driving Under the Influence) crashes — which declined by 15% in 2020 — remained relatively low in 2021 with only 2% more year-over-year.

In 2020, San Mateo and Santa Clara Counties combined experienced approximately 6,900 transportation-related injury crashes (41% on state highways), representing a 36% decline from the prior year. These injury crashes included 646 bike, 190 pedestrian, and 398 motorcycle collisions. There were 130 transportation-related fatalities that year (down from 159 in 2019).

VEHICLE MILES TRAVELED
Transportation-Related Injury Crashes

Bay Area

Fatal/Severe Collisions Non-Fatal/Severe Injury Collisions

Speeding-Related Fatalities & Injuries
Bay Area

Bay Area speeding-related fatalities and injuries declined by an estimated 38% in 2020, corresponding to a 46% drop in Unsafe Speed Crashes. In 2021, injury crashes due to unsafe speed increased by 19% (up by nearly 590 throughout the five-county region).

*2019 and 2020 data are provisional and subject to change; 2021 data are estimated using state highway provisional crash data and Statewide Integrated Traffic Records System (SWITRS) Summary Data. | Note: Bay Area includes Alameda, Contra Costa, Marin, Santa Clara, San Francisco, and San Mateo Counties. Vehicle miles traveled are considered a measure of exposure to transportation-related vehicle crashes. | Data Sources: California Highway Patrol, SWITRS; Transportation Injury Mapping System (TIMS) | Analysis: Silicon Valley Institute for Regional Studies

VEHICLE MILES TRAVELED
Autonomous Vehicle Mileage & Collisions

Silicon Valley, San Francisco, and Rest of California

Silicon Valley San Francisco Rest of California Statewide Mileage Total, All Permit Holders

Number of Collisions Reported

Statewide Mileage Total

Since much of the 2021 autonomous vehicle testing took place in San Francisco and Silicon Valley, a large share of the collisions and collision-related injuries reported did as well (99% and 100%, respectively).

Between 2019 and 2020, the number of miles traveled by California autonomous vehicle testing permit holders tripled, yet the total number of collisions declined by 58%.

*2021 through December 14 | Note: Miles traveled is a statewide total across all permit holders; 2021 autonomous vehicle miles traveled not yet available. Data Source: California Department of Motor Vehicles | Analysis: Silicon Valley Institute for Regional Studies

As a result of pandemic-related declines in vehicle miles traveled (an indicator of collision exposure), the number of transportation-related injury crashes throughout the Bay Area[A] declined significantly in 2020 – down 31% year-over-year, with 16% fewer fatal/severe injury collisions and an estimated 38% fewer speeding-related fatalities and injuries) – then subsequently increased slightly in 2021 (up 11%).

A. Including Alameda, Contra Costa, Marin, Santa Clara, San Francisco, and San Mateo Counties.

The cost of basic transportation needs for a Silicon Valley family of four was $8,370 per year in 2021 (assuming a two-adult household shares one car, and only drives to work and school/daycare plus one errand per week). If both adults worked minimum-wage[A] jobs, that amount would add up to approximately 14% of their pre-tax household income.

A. At the 2021 statewide minimum wage for employers with more than 25 employees ($14.00/hour), assuming year-round full-time work.

TRANSPORTATION COSTS

Average Cost of Transportation Needs per Household, by Family Type

Santa Clara & San Mateo Counties, Bay Area, and California
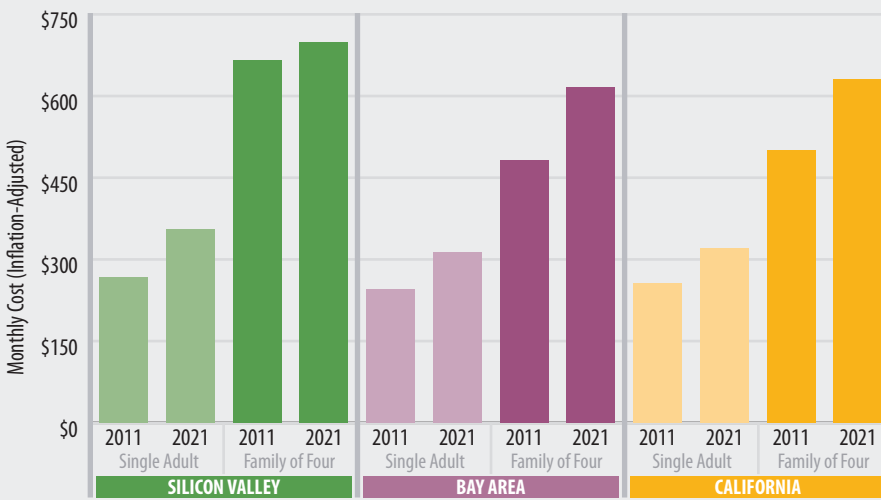
Note: Family of four is based on a two-adult household. California represents a statewide county-average. | Data Source: Center for Women's Welfare, University of Washington; California Department of Finance; U.S. Bureau of Labor Statistics | Analysis: Silicon Valley Institute for Regional Studies

Percent Change in Inflation-Adjusted Cost of Transportation Needs
Family of Four

	2011-2021	**2020**-2021
Silicon Valley	+5%	+9%
Bay Area	+28%	+9%

Transportation costs were higher in Silicon Valley in 2021 (approximately $4,270 annually for a single adult and $8,370 for a family of four with two adults and two children) than in the Bay Area ($3,760 and $7,400, respectively) or California overall ($3,850 and $7,560, respectively).

Transportation costs have increased more quickly than the inflation rate over the past decade — up 5% after inflation-adjustment in Silicon Valley, and up 28% in the Bay Area overall due a combination of the increasing costs of car ownership as well as shifts in commuting patterns (which led to a switch from assuming public transportation in five out of nine Bay Area counties to only two).

Among the state's 52 autonomous vehicle testing permit holders (as of December 2021) are Silicon Valley-based Apple, Waymo (an Alphabet subsidiary[A]), Zoox (acquired by Amazon in June 2020[B]), Pony.ai, and San Francisco-based GM Cruise and Lyft, among others. Collectively, they reported 44 collisions in 2020 (with 34 in San Francisco and seven in Silicon Valley) resulting in a collision rate of one per 668 vehicle miles driven; this compares to a Tesla autopilot collision rate of one per 4.41 million miles,[73] and a national average automobile collision rate of one every 483,000 miles.[74]

A. www.waymo.com
B. CB Insights

PLACE
Transportation

The pandemic-related rise in remote work led to an estimated 29% of Silicon Valley workers[A] who *primarily* worked from home in 2020 — up from 5% in previous years; even at the very end of the year, the share of households with at least one worker substituting telework for in-person was higher in the Bay Area (46% – resulting in an estimated 21% of workers) than in California (39%) or the United States (37%).[75]

A. Residents who work

Average commute times for Santa Clara and San Mateo Counties residents — which had steadily been on the rise — fell in 2020[A] from approximately 29 minutes in 2016-19 to an estimated 27 minutes per commuter per day. In combination with a declining number of commuters on the road each weekday (from 1.3 million in 2015-19 to an estimated 940,000 in 2020), this drop may have saved Silicon Valley workers 108 million hours of collective drive-time that year.[B]

A. Based on the limited data available.
B. Assuming they commuted five days per week.

While the estimated share of Silicon Valley commuters utilizing public transportation only declined by two percentage points (from 6% to 4%) between 2015-19 and 2020, the number of those commuters was cut nearly in half (from around 88,000 on most weekdays to an estimated 48,000).

Between 2006 and 2019, the share of Silicon Valley commuters driving alone to work declined by a mere two percentage points to 73%; estimates for 2020 indicate a drop to 55% due to the steep pandemic-related rise in remote work.

COMMUTING
Means of Transportation to Work
Santa Clara & San Mateo Counties
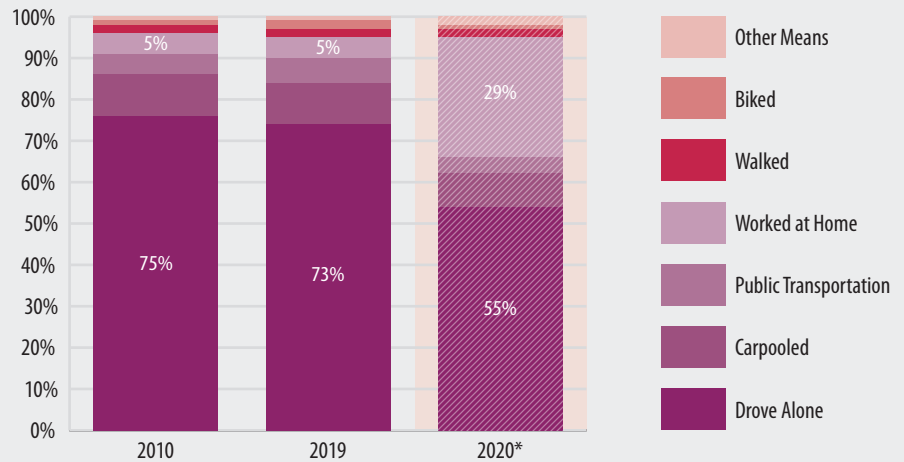
Legend: Other Means, Biked, Walked, Worked at Home, Public Transportation, Carpooled, Drove Alone

*2020 estimate from 1-year American Community Survey microdata with experimental weights | Note: Other Means includes taxicab, motorcycle, and other means not identified separately within the data distribution. | Data Source: United States Census Bureau, American Community Survey | Analysis: Silicon Valley Institute for Regional Studies

COMMUTING
Mean Commute Times and Number of Commuters
Santa Clara & San Mateo Counties
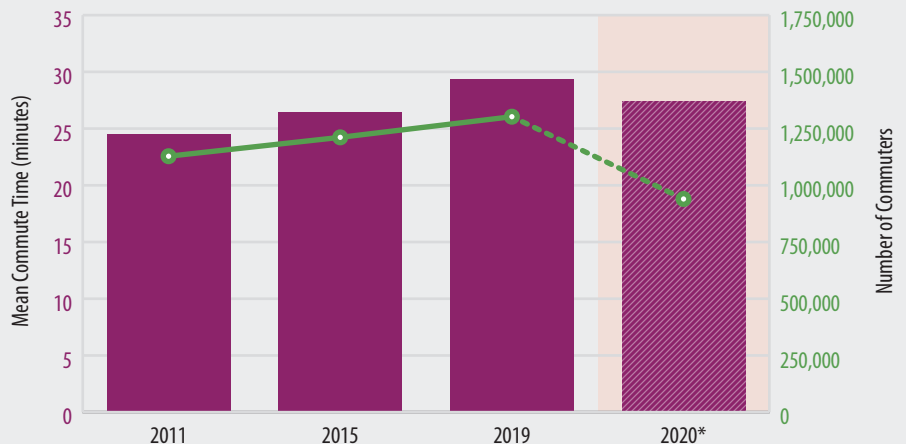
*2020 estimate from 1-year American Community Survey microdata with experimental weights | Note: Excludes those working from home. | Data Source: United States Census Bureau, American Community Survey | Analysis: Silicon Valley Institute for Regional Studies

Pre-pandemic commute trends showed a steady but steep rise in the number of commuters traveling more than three hours daily to/from work in Silicon Valley, reaching more than 7% in 2019 (nearly 111,000 workers); this compares to a 5% megacommuting rate throughout the state that year.

As many as one in five of those who commuted to work in Silicon Valley prior to the pandemic but stopped in 2020 were megacommuters.

COMMUTING

Megacommuters

Santa Clara & San Mateo Counties, Bay Area, and California

% Megacommuting
Bay Area & California

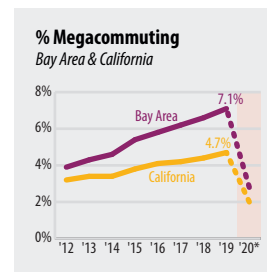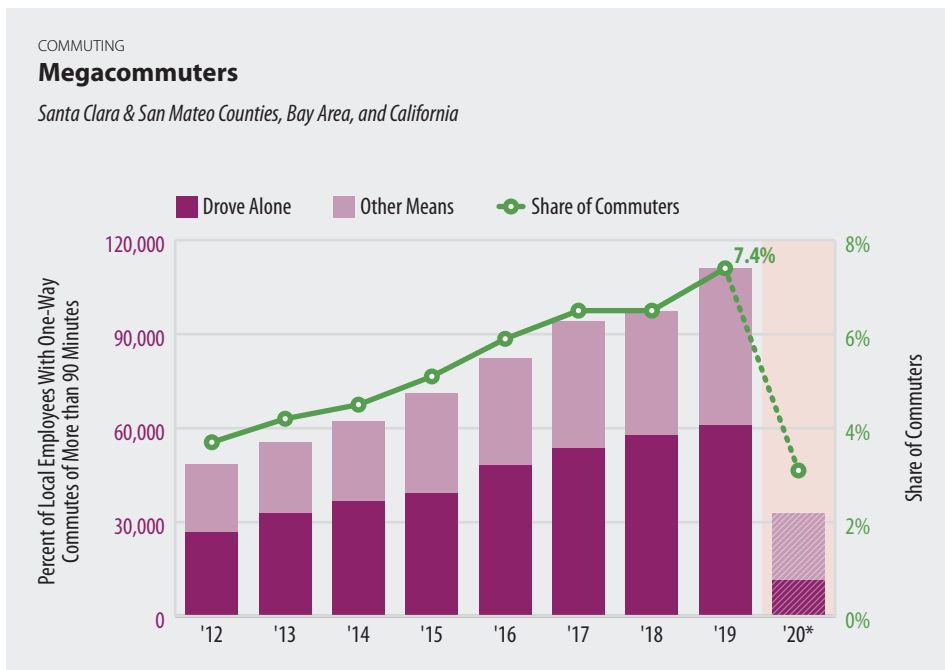*2020 estimate from 1-year American Community Survey microdata with experimental weights | Data Source: United States Census Bureau, American Community Survey | Analysis: Silicon Valley Institute for Regional Studies; Jon Haveman, Marin Economic Consulting

Based on the limited data available for 2020, the number of megacommuters working in Silicon Valley declined disproportionately (-70% year-over-year) compared to the overall decline in commute activity (-29% year-over-year); this is likely related to the disproportionate loss of lower-income jobs and workers from other counties during the early parts of the pandemic.

41% of the Bay Area megacommuters in 2019 worked in Santa Clara or San Mateo Counties; that share remained relatively unchanged in 2020 (at 42%).

Prior to the substantial changes in commute patterns that took place at the onset of the pandemic in 2020, megacommuting rates into Silicon Valley had increased steadily in the region since the beginning of the Great Recession economic recovery period (2010).

Of the megacommuters driving more than 3 hours daily to/from work in Silicon Valley over the past decade, consistently more than half (55-59%) were driving alone; that share decreased to an estimated 35% in 2020, with the remaining megacommuters typically utilizing (public or private) mass transit.

Workers commuting more than three hours daily to/from work in Santa Clara or San Mateo Counties had an estimated average commute time of 4.4 hours daily in 2020; this compares to 3.7 hours in 2019.

While the number of megacommuters traveling more than three hours daily to/from work in Silicon Valley declined significantly in 2020 (based on the limited data available), their average commute times increased by 42 minutes.

PLACE
Transportation

% Change in Inbound Bridge Traffic

(chart showing VMT and Delay lines from '18 to '21, y-axis 20% to -100%)

Pandemic-related declines in Silicon Valley county-to-county commuters were most pronounced for San Mateo and Alameda County residents working in San Francisco, which declined by an estimated 41% and 46%, respectively, between 2019 and 2020. While most commute paths declined year-over-year, one reportedly increased — San Francisco residents commuting to San Mateo County (+40%).

Prior to the pandemic, there were around 175,000 Silicon Valley residents commuting to San Francisco or Alameda County on an average weekday, and 219,000 commuters going the other way; in 2020, those numbers declined by an estimated 36% and 13%, respectively.

The number of commuters traveling between San Francisco or San Mateo County and Alameda County — who would presumably cross either the Bay Bridge or the San Mateo-Hayward Bridge — declined by 43% in 2020 according to the limited survey data available.[A] This decline was also observed in traffic data, which indicated a 24% year-over-year decline in bridge usage corresponding to a 76% decline in congestion-related delays.[B]

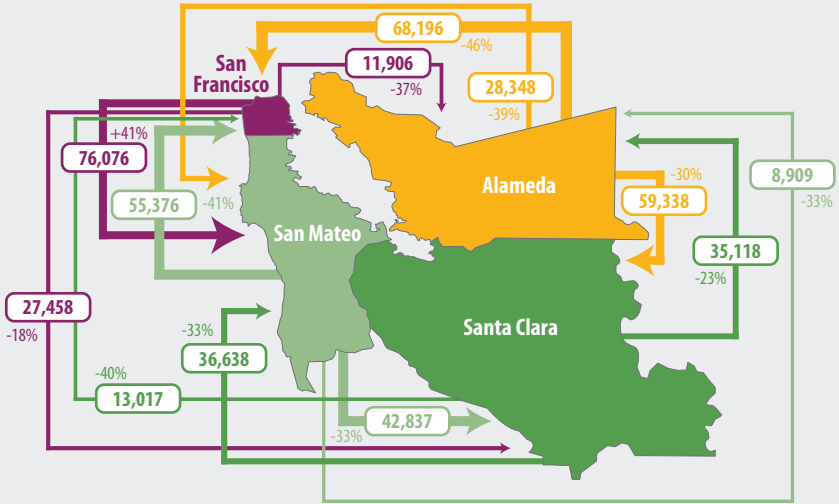A. U.S. Census Bureau, American Community Survey 1-year estimates using experimental weights.
B. Based on Vehicle Miles Traveled (VMT) and Vehicle Hours of Delay for the Bay Bridge (westbound I-80) and San Mateo-Hayward Bridge (SR-92 westbound) combined, from Caltrans Performance Measurement System (PeMS).

COMMUTING
Greater Silicon Valley Commute Patterns
2020* and year-over-year percent change

*estimated | Note: Percent change in inbound bridge traffic includes Vehicle Miles Traveled (VMT) and Vehicle Hours of Delay for the Bay Bridge (westbound I-80) and San Mateo-Hayward Bridge (SR-92 westbound) combined. | Data Source: United States Census Bureau, American Community Survey PUMS Analysis: Silicon Valley Institute for Regional Studies; Jon Haveman, Marin Economic Consulting;

The rate of bicycle accidents in Silicon Valley declined by 37% over the past decade.

Overall, nearly 13% of Santa Clara County residents ride a bike during an average week for one reason or another.[77] Men are slightly more likely to ride a bike for exercise or recreation (10% compared to 6% of women), whereas women are much more likely to ride because the environment is "very important" to them (57% compared to 39% of men). Among other characteristics of those surveyed, those who are most likely to ride a bike for any purpose include young adults (15% of those ages 35-49), people born outside of California (11% from other parts of the United States and 16% of those from a foreign country), those with a bachelor's degree or higher (14%), and White residents (14%).

The long-term trend shows a near doubling of Silicon Valley bicycle commuters (from 0.9% to 1.5%) between 2003 and 2020. Overall, with more people working from home during the pandemic, the total number of people commuting by bicycle declined between 2019 to 2020 (a decrease of 7,700 people).

Number of Bicycle Commute Trips
Santa Clara & San Mateo Counties

2003	2020	% Change
18,572	27,634	49%

Share of Residents Who Ride a Bike
Santa Clara County, early 2020

To Reach Any Destination	6.7%
For Exercise or Recreation	8.5%
For Any Purpose	12.5%

Note: On an average week.

While less than 2% of Silicon Valley commuters biking to work, greater shares of Santa Clara County residents bike for other reasons on an average week — including reaching any destination (7%, including to transit stops) or for exercise or recreation (9%) in 2020, pre-pandemic.[76]

BICYCLING
Share of Commuters Who Bike to Work
Santa Clara & San Mateo Counties, San Francisco, and California

2005	2010	2015	2019	2020	2019	2020	2019	2020
1.0%	1.6%	2.0%	1.8%	1.5%	4.1%	6.2%	1.2%	0.8%

Silicon Valley / San Francisco / California
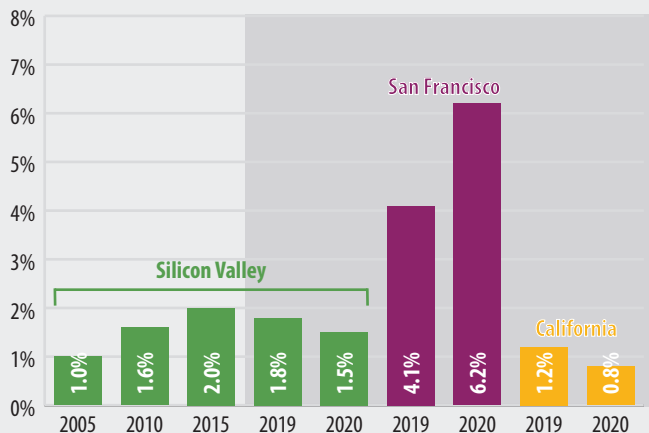
Note: Share excludes those who Work at Home.
Data Sources: United States Census Bureau, American Community Survey; Silicon Valley Bicycle Coalition
Analysis: Silicon Valley Institute for Regional Studies

The collective mileage of bikeways throughout Santa Clara and San Mateo Counties has increased by 33% (496 miles) over the past three years alone, reaching a total of nearly 2,000 miles of shared use paths for biking, dedicated bikeways, bike boulevards, and protected bikeways in 2021.

BICYCLING
Miles of Bicycle Facilities
Santa Clara & San Mateo Counties

Data Source: Silicon Valley Cities; Metropolitan Transportation Commission; Santa Clara Valley Transportation Authority; Google Maps; Nelson\Nygaard Consulting Associates | Analysis: Silicon Valley Institute for Regional Studies; Nelson\Nygaard Consulting Associates
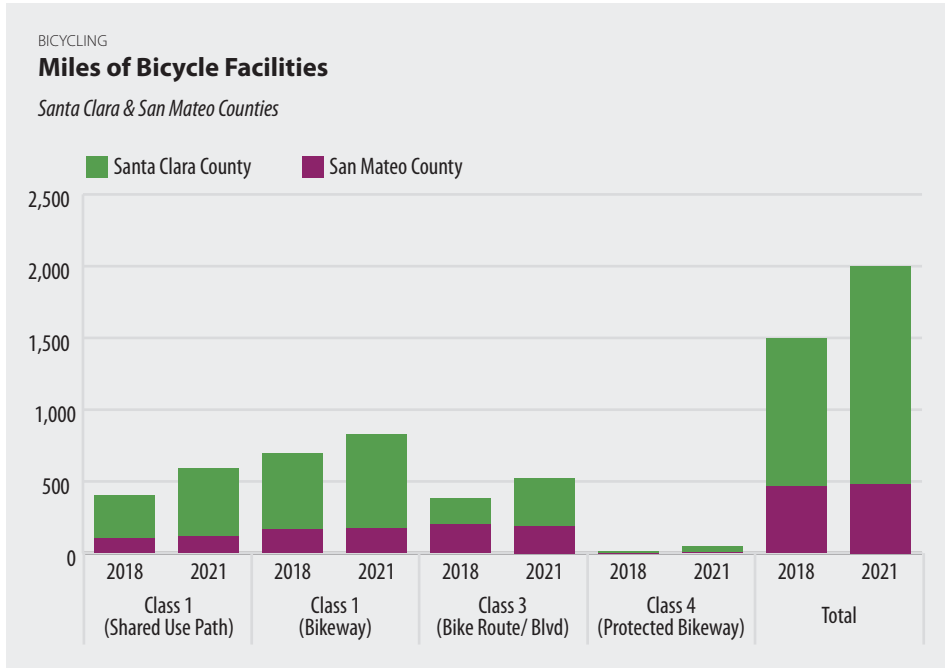
Since 2016, Silicon Valley has gone from having zero protected bikeways — the "gold standard" for bicyclists' comfort and safety — to having 46 miles in 2021 (over 30 miles have been added since 2018). Based on a pre-pandemic 2020 survey of Santa Clara County residents,[78] more than three-quarters (81%) of respondents are comfortable biking on an off-street path, and slightly more than half are comfortable biking in a buffered bike lane or lane with vertical posts (compared to only 35% in a regular bike lane with a road speed limit of 25 miles per hour, and 11% with 45 mile-per-hour speed limits).

More than 80% of Silicon Valley cities and counties have a Bicycle Master Plan in place, in the planning stage, or in-progress; this share is up from 61% in 2016.

BICYCLING
Share of Jurisdictions with a Bicycle or Pedestrian Master Plan
Silicon Valley | 2016 & 2021

Note: Data includes all bicycle and pedestrian master plans created since 2011.
Data Source: Silicon Valley Cities & Counties | Analysis: Silicon Valley Institute for Regional Studies

Silicon Valley had 646 bicycle collisions in 2021 resulting in either injury or death (233 fewer than the prior year); eight were fatalities, and 81 were severe injuries.

BICYCLING
Bicycle Collisions, by Severity
Santa Clara & San Mateo Counties
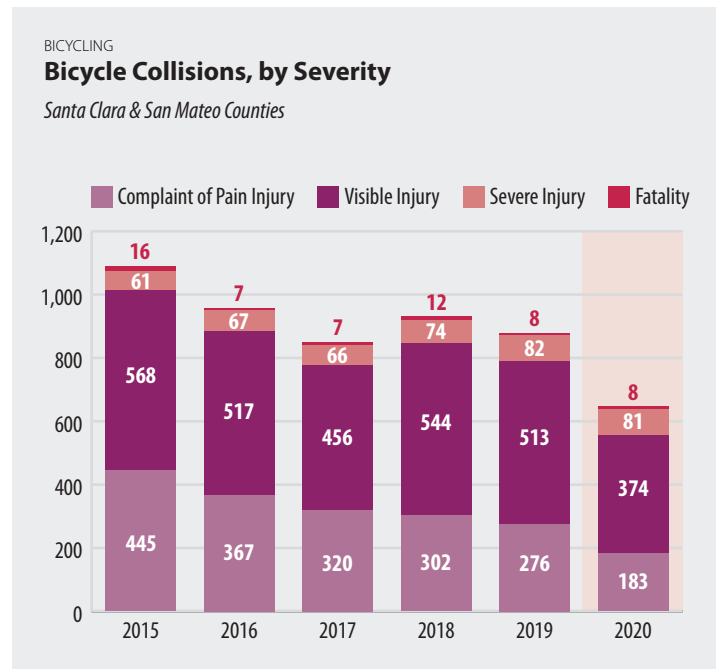
Data Source: Statewide Integrated Traffic Records System (SWITRS); Transportation Injury Mapping System (TIMS)
Analysis: Silicon Valley Institute for Regional Studies

Nearly three-quarters of Bay Area residents surveyed feel that traffic congestion is a serious issue; however, concerns about traffic delays are more prevalent among in-person workers (81%) than those who work remotely (62%), have very high ($250,000+ annual) incomes (65%), or current/former tech employees (61%).

While traffic delays on Silicon Valley and Bay Area freeways have risen significantly since the pandemic-low in April 2020, monthly totals remain well below that of pre-pandemic (2019) levels.

TRAFFIC CONGESTION
Daily Vehicle Hours of Delay Due To Congestion
Santa Clara & San Mateo Counties, Alameda County, Bay Area, and California

Data Source: Caltrans PeMS | Analysis: Silicon Valley Institute for Regional Studies

% Think Traffic Congestion is a Serious Issue *Bay Area*	
In-Person Workers	81%
Republicans	77%
Overall	71%
Democrats	68%
Income $250,000+	65%
Exclusively Remote Workers	62%
Tech Employee	61%

Data Source: Silicon Valley Poll (www.jointventure.org/svpoll)

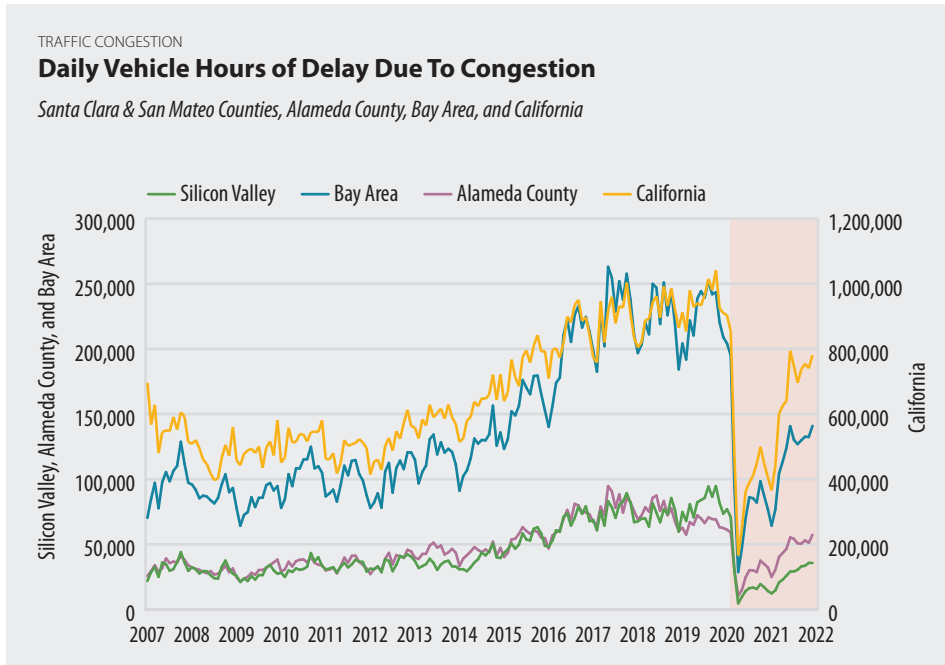In 2021, Silicon Valley commuters lost 27,000 hours to traffic congestion every day — 6% more than in 2020, but 67% fewer than pre-pandemic (2019). With the drastic declines of 2020 and 2021 combined, the annual loss in regional productivity due to traffic delays[A] may have been lessened by as much as $4.6 billion over a two-year period (from as much as $3.5 billion lost in 2019 to $1.2 billion 2020 and $1.3 billion in 2021).

A. In 2021 dollars, based on annual estimates of labor productivity ($140 per employee per hour in 2021, $130 in 2020, and $119 in 2019).

Prior to pandemic-related declines in traffic congestion, vehicle hours wasted due to traffic in Silicon Valley and the Bay Area had tripled within a decade (2009-2019); most of that precipitous rise occurred since 2014.

There were significantly fewer traffic delays in the earliest months of the pandemic, with sharp declines experienced between February and April 2020 in Silicon Valley (-93%), Alameda County (-82%), the Bay Area overall (-85%), and statewide (-81%). Subsequent rebounding of Silicon Valley traffic delays through December 2021 have resulted in a 7x rise since the pandemic-low (compared to 4x in Alameda County, Bay Area, and California).

The sudden increase in remote-work during the pandemic, and associated decline in commuting, led to daily hours of traffic delay lower than any other year on record (hitting a low point in April 2020) in Silicon Valley. Even at the end of 2021, monthly hours of delay were lower than any other month since mid-2014.

At the end of 2021, Silicon Valley traffic delays remained 51% below that of the same month in 2019.

SamTrans ridership experienced a low of approximately 202,000 bus riders in April 2020, but subsequently rebounded to some extent — doubling that monthly total within six months and gaining another +62% over the following year.[79]

MASS TRANSIT
Per Capita Transit Use

Santa Clara & San Mateo Counties
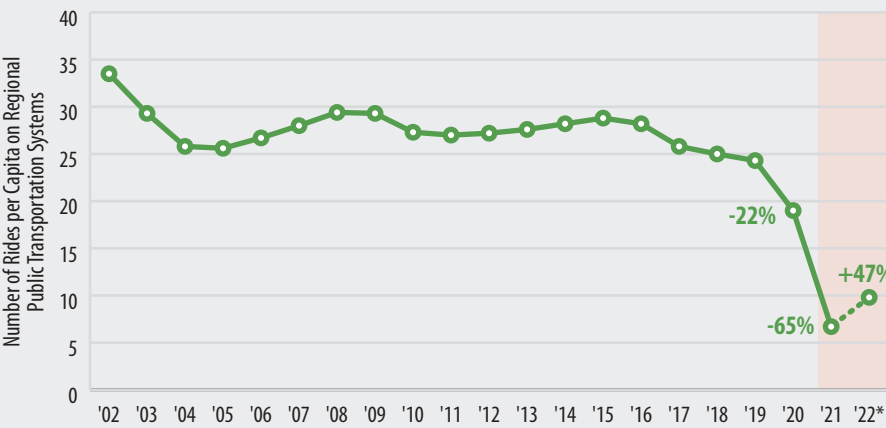
*estimated. | Note: Transit data are in fiscal years. | Data Sources: Altamont Corridor Express, Caltrain, SamTrans, Santa Clara Valley Transportation Authority, California Department of Finance | Analysis: Silicon Valley Institute for Regional Studies

Public transit ridership dropped to only a fraction (35%) of pre-pandemic levels in the 2020-21 fiscal year; 2021-22 estimates suggest that ridership remains low at around 52%.

Silicon Valley's public transit use per capita declined steadily for four years prior to the pandemic, then fell dramatically by 22% year-over-year in 2019-20 with the pandemic affecting the last several months of the fiscal year. In FY 2020-21, ridership was down another 65% (to an average of less than seven rides per person per year).

MASS TRANSIT
Caltrain Ridership
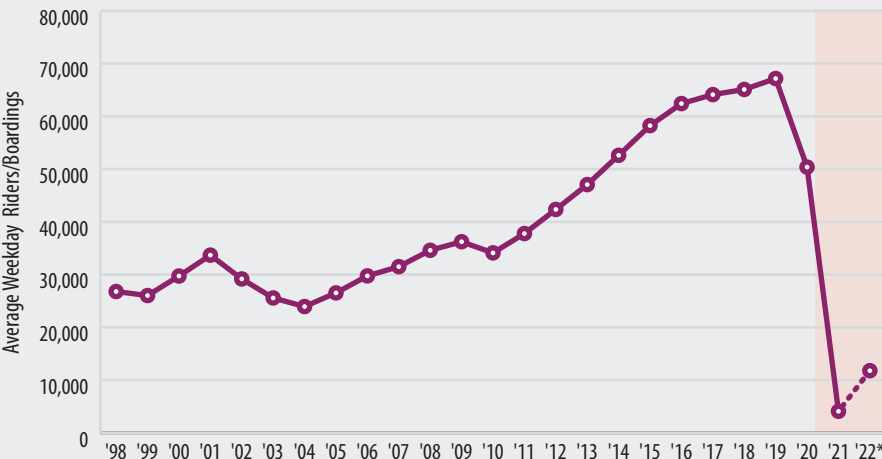
*based on data through November. | Note: Data are in fiscal years. | Data Source: Caltrain | Analysis: Silicon Valley Institute for Regional Studies

In FY 2020-21 alone, pandemic-related declines in Caltrain ridership resulted in a 58% year-over-year farebox revenue loss (amounting to more than $44 million).[80]

Average weekday ridership on Caltrain — which reached more than 67,000 in FY 2018-19 — dropped down to a mere 4,100 in FY 2020-21 (a -92% year-over-year decline). Ridership increased to some extent in the first five months of FY 2021-22, but remained at only a fraction of pre-pandemic levels.

Of the more than 1,500 shuttle-type vehicles registered in California (as of early 2020), 74% are registered within the 9-county Bay Area (39% in Silicon Valley).

SHUTTLES
Cumulative Count of Shuttle-Type Buses Registered, by Model Year

Santa Clara & San Mateo Counties, Rest of Bay Area, and Rest of California

■ Silicon Valley ■ Rest of Bay Area ■ Rest of California

395
524
590

Total: 1,509
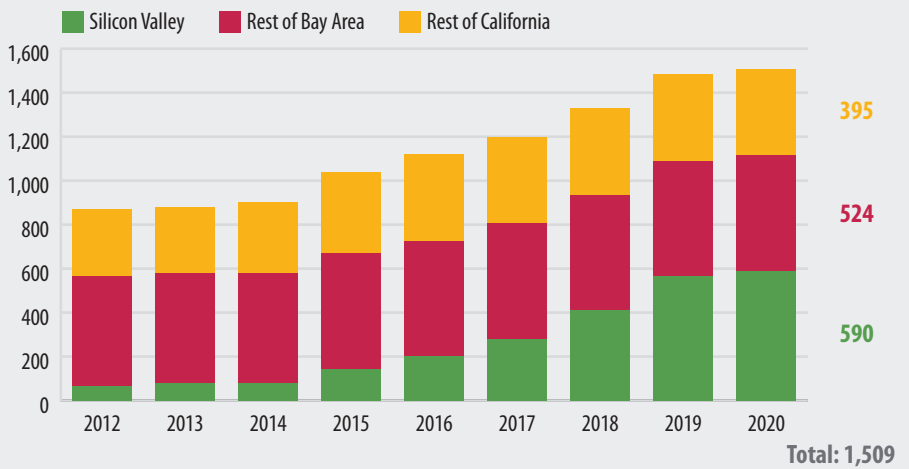
Note: Includes common shuttle bus manufacturers. | Data Source: California Department of Motor Vehicles | Analysis: Silicon Valley Institute for Regional Studies

SHUTTLES
Weekday Shuttle Trips, by Path

*Bay Area | 2019**

Line weight is proportional to the number of shuttles traveling between two counties.

< 5 shuttles
5-10 shuttles
11-50 shuttles
51-100 shuttles
101-200 shuttles
>200 shuttles

Circles represent shuttles that operate within a single county.

Number of Weekday Shuttle Trips
*Santa Clara & San Mateo Counties, San Francisco, and the Bay Area 2019**

San Francisco	576
San Mateo County	940
Santa Clara County	1,253
Bay Area	1,705

The popularity of private commuter shuttles in the Bay Area grew by more than 51% between 2014 and 2019, increasing to more than 1,700 average weekday shuttle trips within the region.[A]

A. based on preliminary 2019 Shuttle Census data from the Bay Area Council and Metropolitan Transportation Commission; 2014 data collected in 2016 for the two-year period from 2012.

*preliminary | Note: Line weight is proportional to the number of shuttles. | Data Source: Bay Area Council and Metropolitan Transportation Commission | Analysis: Bay Area Council and Metropolitan Transportation Commission; Silicon Valley Institute for Regional Studies

Prior to the pandemic and related increase in remote work, there were a total of 1,509 vehicle registrations throughout the state of shuttle-type buses commonly used for private commuter operations (350 more than in 2018). While not all of these vehicles were necessarily privately-operated commuter shuttles, the number of registrations by model year illustrates the growth of this transportation mode.

Prior to the pandemic-related rise in remote work, private shuttles represented the Bay Area's sixth largest mass transit system, with annual ridership higher than SamTrans.

SHUTTLES
Ridership on Private Shuttles and Regional Transit Systems

Bay Area | 2018-2019

Total Annual Passengers (millions)

Operator: Tri Delta, Marin Transit, SF Bay Ferry, County Connection, Golden Gate Transit + Ferry, SamTrans, Shuttles, Caltrain, VTA, AC Transit, BART, SFMTA
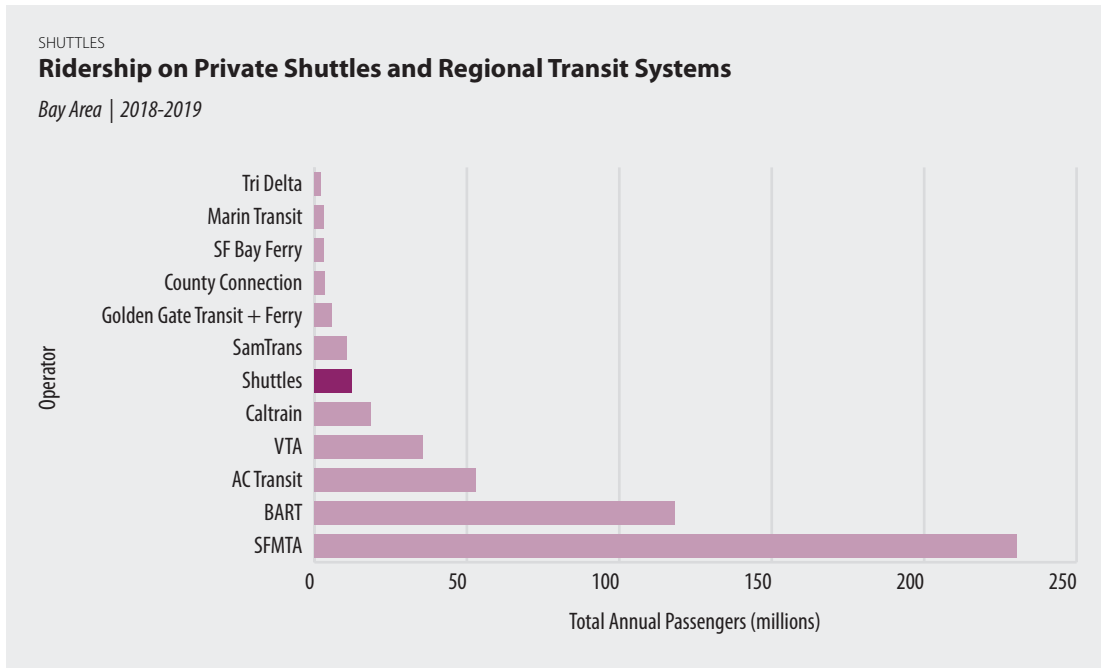
Data Sources: Bay Area Council and Metropolitan Transportation Commission; Bay Area Transit Agencies; American Public Transportation Association
Analysis: Bay Area Council and Metropolitan Transportation Commission; Silicon Valley Institute for Regional Studies

While private shuttles made an average of more than 1,600 trips within Silicon Valley on a daily basis (with nearly 400 trips between Santa Clara County and San Francisco alone) prior to the pandemic, that number likely declined in 2020 and 2021 with the rise in remote work and decline in freeway vehicle miles traveled.

PLACE
Land Use

Silicon Valley has had an unprecedented amount of new commercial construction over the past several years, and there is even more in the pipeline. Approvals of new non-residential development hit an all-time high in FY 2020-21 with 21.5 million square feet of new space across 135 sites (netting 16.5 million after planned demolition) with 81 percent within walking distance of major public transit stations. The largest share of FY 2020-21 approvals were in San José (62 percent), with projects such as Google's Downtown West and the Woz Way Office Towers. Nearly three-quarters of the region's planned demolition was either industrial space or older office space, making way for commercial and new office space (85 percent), light industrial (13 percent) and institutional developments (two percent).

In addition to commercial space, the number of newly-approved housing units shot up to nearly 15,000 in FY 2020-21, with 79 percent near major transit stations. Average residential density of newly-approved units also spiked, with more than two-thirds of Silicon Valley cities/counties having average residential densities in the medium to high range (10+ units per acre). While the addition of accessory dwelling units (ADUs), by state law, does not count toward official density calculations, they were a major factor in influencing the trend in this regional data with 87 percent more approved (or issued a permit in lieu) compared to the prior fiscal year.
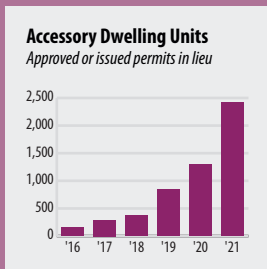
There are an estimated 117 hotels with 18,500 rooms throughout Silicon Valley in various stages of planning; of those hotels, about 10 percent were issued approvals last year.

Why is this important?
By directing growth to already-developed areas, local jurisdictions can reinvest in existing neighborhoods, increase access to transportation

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There were 87% more accessory dwelling units (ADUs) approved (or issued a building permit in lieu) in FY 2020-21 over the prior year; the vast majority (93%) of the more than 2,400 ADUs were standalone projects – not approved along with construction of a primary (main house) unit.

The average density of newly-approved residential development among Silicon Valley cities and counties during the past three fiscal years was significantly higher than for any other year on record (spanning more than two decades); the average for FY 2020-21 was more than double what it was in FY 2016-17.

Accessory Dwelling Units
Approved or issued permits in lieu

(Chart values, approximate, '16 through '21: 100, 250, 350, 850, 1,300, 2,400)

In the 2020-21 fiscal year, more than two-thirds of Silicon Valley cities/counties had average planned residential development densities in the medium to high range (ten or more units per acre); ten cities had average densities in the 40- to 80-units/acre range, and six had an average densities of 80+ units/acre for newly-approved residential projects.
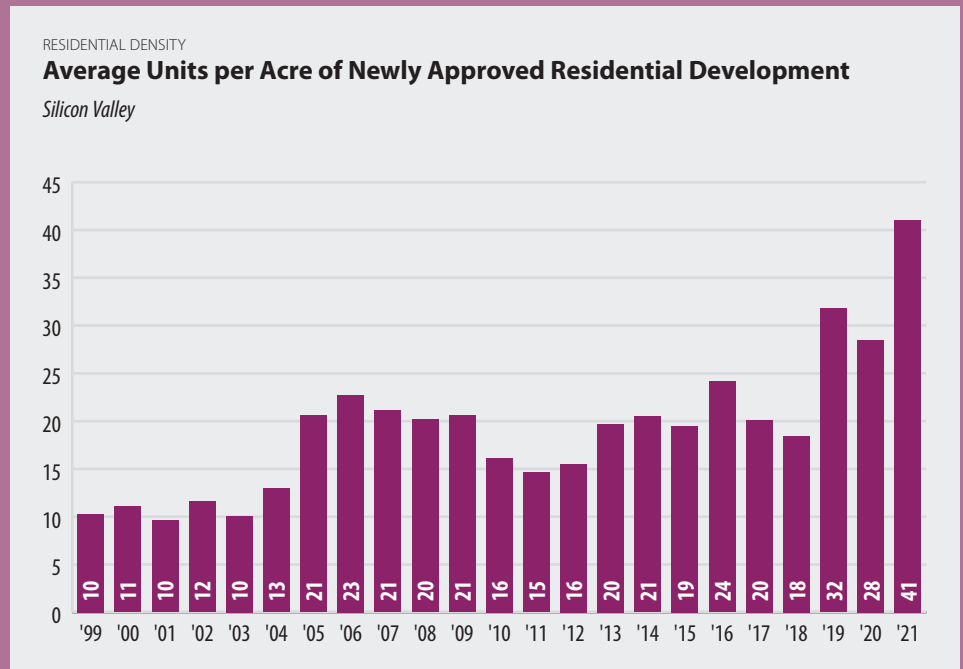
RESIDENTIAL DENSITY
Average Units per Acre of Newly Approved Residential Development
Silicon Valley

Year	Units/Acre
'99	10
'00	11
'01	10
'02	12
'03	10
'04	13
'05	21
'06	23
'07	21
'08	20
'09	21
'10	16
'11	15
'12	16
'13	20
'14	21
'15	19
'16	24
'17	20
'18	18
'19	32
'20	28
'21	41

Note: Beginning in 2008, the Land Use Survey was expanded to include cities northward along the U.S. 101 corridor (Brisbane, Burlingame, Millbrae, San Bruno and South San Francisco). In 2014, the Survey was further expanded to include all Silicon Valley cities (adding Colma, Daly City, Half Moon Bay and Pacifica). Beginning in 2020, the residential density calculation included accessory dwelling units (ADUs) that were issued a building permit in lieu of a planning approval.
Data Source: City Planning and Housing Departments of Silicon Valley | Analysis: Silicon Valley Institute for Regional Studies

systems, and preserve the character of adjacent rural communities while reducing vehicle miles traveled and associated greenhouse gas emissions. Siting new commercial and residential developments near rail stations and major bus corridors reinforces the creation of compact, walkable, mixed-use communities linked by transit. This helps to reduce traffic congestion on freeways, preserve open space near urbanized areas, and improve energy efficiency. By creating mixed-use communities, Silicon Valley gives workers alternatives to driving and increases access to workplaces. Adding accessory dwelling units provide leasing opportunities for residents (with potential income to buffer high ownership costs) and add to the region's much-needed housing supply.
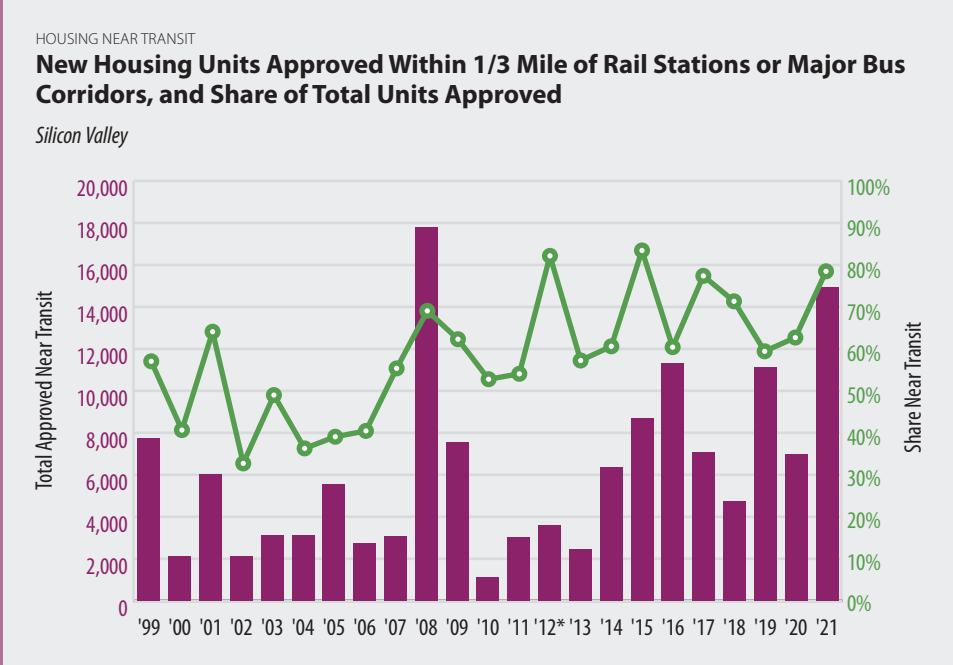
Silicon Valley housing units within walking distance to public transit represented 79% of all newly-approved residential units in FY 2020-21.

While there are large year-to-year variations, there has been an overall upward trend over the past two decades in the share of new housing units approved near major transit stations (up from 32% in 2002 to 79% in 2021).

Pockets of medium- to high-density residential development approvals over the last fiscal year were spread throughout the region; among them were a four-story affordable housing project on Baden Avenue in South San Francisco (with 36 units on a 0.32 acre lot), a mixed-use project with 102 residential units and 1,803 square feet of commercial space at 788 San Antonio Road in Palo Alto (near the Oshman Family Jewish Community Center), and the Weeks Street Townhomes project with ten pre-fabricated townhome units on one empty residential lot in East Palo Alto (streamlined under California Senate Bill 35).

The 2,423 ADUs that were issued a planning approval (or building permit in lieu) in FY 2020-21 by Silicon Valley cities/counties contributed significantly to the precipitous year-over-year rise in Silicon Valley's regional average residential density in planning approvals. While these ADUs may or may not be used as rental properties (thus expanding housing availability), and do not count toward density calculations according to state law[A] (in order to prevent a violation of General Plan density limits), they were included in the regional density analysis as an indicator for housing inventory.[B]

A. California Government Code, §65852.2, subd. (a)(1)(C)
B. Note that state law with regard to ADUs changed significantly as of January 1, 2021 — mid-way through the 2020-21 fiscal year. The changes included, but were not limited to, the approval/permitting process and the rental/leasing of ADUs.

HOUSING NEAR TRANSIT
New Housing Units Approved Within 1/3 Mile of Rail Stations or Major Bus Corridors, and Share of Total Units Approved

Silicon Valley

*Beginning in 2012, the definition of transit oriented development was changed from 1/4 mile to 1/3 mile. | Note: Beginning in 2008, the Land Use Survey was expanded to include cities northward along the U.S. 101 corridor (Brisbane, Burlingame, Millbrae, San Bruno and South San Francisco). | Data Source: City Planning and Housing Departments of Silicon Valley | Analysis: Silicon Valley Institute for Regional Studies

The number of approved housing units near transit in FY 2020-21 (14,915) was more than double the number approved during the prior fiscal year.

Silicon Valley's non-residential development approvals hit an all-time high in FY 2020-21, with more than 21.5 million square feet of space approved (with a net of 16.5 million square feet after planned demolition).
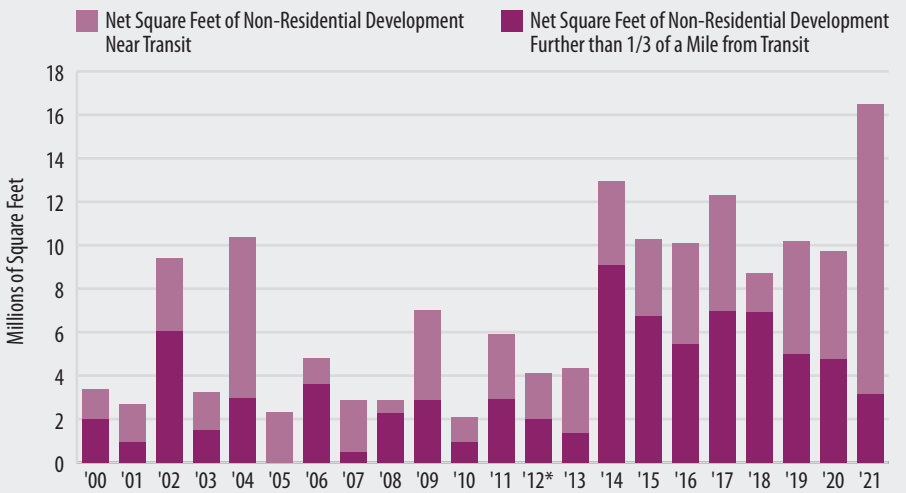
While approved non-residential development was spread throughout Silicon Valley, 77% (by square footage) was concentrated in just three cities alone: San José, Santa Clara, and Sunnyvale; San José alone accounted for 62%.

Net non-residential development approvals (after planned demolition) in FY 2020-21 totaled 16.5 million square feet across 135 different development sites; the vast majority of the approved square footage (81%) is within walking distance to major public transit stations.

NON-RESIDENTIAL DEVELOPMENT
Net Non-Residential Development Approved, by Proximity to Transit
Silicon Valley

■ Net Square Feet of Non-Residential Development Near Transit   ■ Net Square Feet of Non-Residential Development Further than 1/3 of a Mile from Transit

Millions of Square Feet

*Beginning in 2012, the definition of transit-oriented development was changed from 1/4 mile to 1/3 mile. | Note: Beginning in 2008, the Land Use Survey was expanded to include cities northward along the U.S. 101 corridor (Brisbane, Burlingame, Millbrae, San Bruno and South San Francisco). In 2014, the Survey expanded to include all Silicon Valley cities (adding Colma, Daly City, Half Moon Bay, and Pacifica). In 2014, the Survey was expanded to include all Silicon Valley cities (adding Colma, Daly City, Half Moon Bay, and Pacifica). | Data Source: City Planning and Housing Departments of Silicon Valley | Analysis: Silicon Valley Institute for Regional Studies

Among some of Silicon Valley's smaller non-residential development approvals in FY 2020-21 were San Bruno's new recreation and aquatic center, an historic preservation/renovation and reuse project at the former Burlingame Main Post Office, and a new Chick-Fil-A restaurant in Milpitas.

Within the three Silicon Valley cities with the most non-residential development approved in FY 2020-21 (San José, Santa Clara, and Sunnyvale), major projects include the Downtown West mixed-use development around Diridon Station (Google's 15-acre office, residential, and 15 acres of park/plaza/trail space open to the public[81]), the two 20-story office plus ground-floor retail Woz Way Office Towers in downtown San José (with a total of 1.8 million square feet[82]), and Cityline Sunnyvale, a mixed-use development with 500,000 square feet of office plus 50,000 of retail on the former Macy's site downtown.

More net-new non-residential development was approved over the past six years (67 million square feet) than over the entire fourteen-year period between 2000 and 2013 (65.2 million square feet).

More than three-quarters (77%) of all newly-approved non-residential development in FY 2020-21 was commercial space, planned for uses such as retail, restaurants, and services.

70% of all non-residential demolition approved in FY 2020-21 was either office or industrial space.

NON-RESIDENTIAL DEVELOPMENT

Share of Non-Residential Demolition and Development Approvals, by Type

Silicon Valley, FY 2020-21

Legend: Light Industrial | Office | Commercial | Institutional

Share of Planned Demolition: Institutional 2%, Light Industrial 37%, Office 34%, Commercial 28%

Share of Non-Residential Development Approvals: Institutional 2%, Light Industrial 13%, Office 8%, Commercial 77%

*Beginning in 2012, the definition of transit-oriented development was changed from 1/4 mile to 1/3 mile. | Note: Beginning in 2008, the Land Use Survey was expanded to include cities northward along the U.S. 101 corridor (Brisbane, Burlingame, Millbrae, San Bruno and South San Francisco). In 2014, the Survey expanded to include all Silicon Valley cities (adding Colma, Daly City, Half Moon Bay, and Pacifica). In 2014, the Survey was expanded to include all Silicon Valley cities (adding Colma, Daly City, Half Moon Bay, and Pacifica). | Data Source: City Planning and Housing Departments of Silicon Valley | Analysis: Silicon Valley Institute for Regional Studies
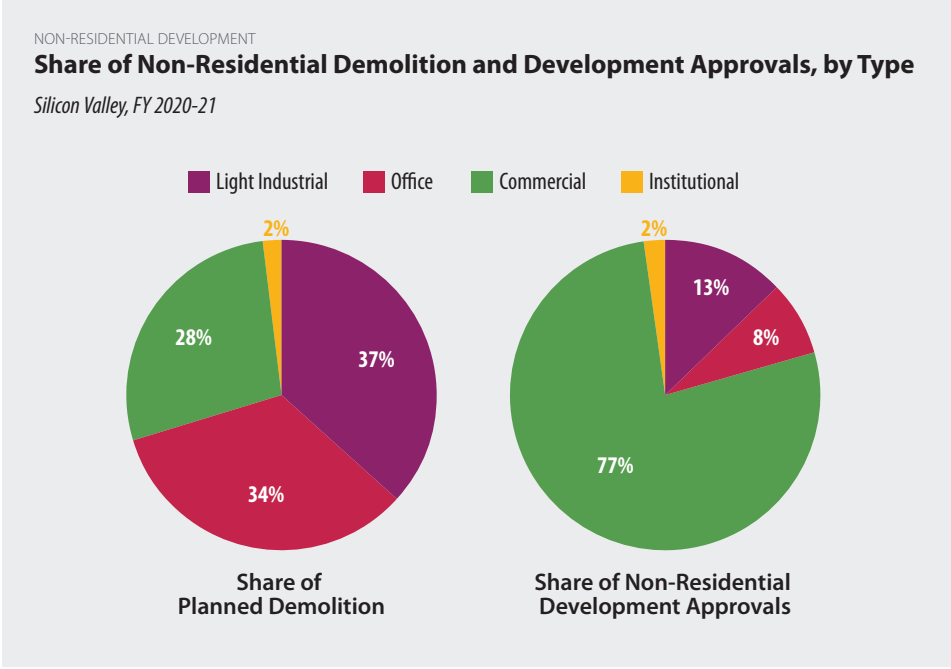
Planned Hotel Development
2021, with year-over-year percent change

	Hotels	Rooms
Silicon Valley	117 (+10%)	18,650 (+20%)
San Francisco	49 (-6%)	5,822 (-8%)
California	1,240 (-0.5%)	163,904 (-0.5%)

Note: Planned hotels are in various stages, and have not necessarily received planning approvals; 2021 data as of June. Silicon Valley includes the city-defined region. | Data Source: Atlas Hospitality Group Analysis: Silicon Valley Institute for Regional Studies

In 2021, the number of Silicon Valley and San Francisco hotel rooms in various stages of planning accounted for 13% of all planned hotel developments (and 15% of planned hotel rooms) throughout the state of California.

Of the 117 hotels (with 18,650 hotel rooms) planned for Silicon Valley, approximately one out of ten received planning approvals in the 2019-20 fiscal year.

There are an estimated 166 hotels (with nearly 24,500 rooms) throughout Silicon Valley and San Francisco in various stages of planning; while not all of these projects will necessarily be built, the total represents more than 2.5 times the amount that has been developed over the past 17 years combined.

Over the past five years, wildfires have burned nearly 6.1 million acres in Northern California. In 2020 alone, there were nearly 10,000 individual fire incidents throughout the state, with 22 major fires affecting one or more Bay Area counties. While there is a large and growing body of research and observational data linking climate change to the wildfire activity, Bay Area residents are more likely to believe wildfires are a serious issue than to believe the impacts of climate change are. With the increasing prevalence of wildfires, in addition to other factors, Silicon Valley has experienced 65 unhealthy air days over the past five years.

Regional electricity use per capita has continued to decline, and Silicon Valley remains a leader in the adoption of clean technologies. Electric vehicle ownership has risen (tripling in just five years) along with associated charging infrastructure, which has increased nearly sixfold since 2015. Solar and energy storage capacity have risen exponentially over the past decade, and the region's swift shift to community choice energy programs has effectively reduced regional greenhouse gas emissions by 77 percent since 2016.

Why is this important?

Environmental quality directly affects the health and well-being of all residents as well as the Silicon Valley ecosystem.[A] The environment is affected by the choices that residents make about how to live, how to get to work, how to purchase goods and services, where to build homes, their level of consumption of natural resources, and how to protect environmental resources.
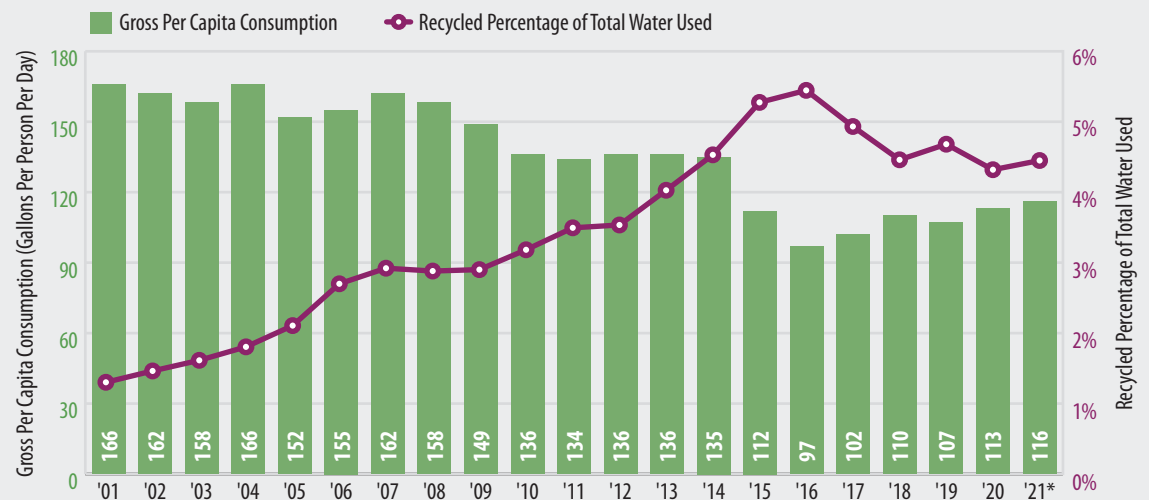
Electricity and fuel use affect the environment by emitting greenhouse gasses (GHGs) and atmospheric pollutants from fossil fuel combustion — the extent to which must be drastically reduced in response to the climate crisis. Sustainable energy policies include increasing energy efficiency and the use of clean, renewable energy sources. For example, more widespread use of solar-generated power diversifies the region's electricity portfolio, increases the share of reliable and renewable electricity, and reduces GHGs and other harmful emissions. Shifting more customers

A. Studies have quantified the importance of the ecosystem services provided by the region's natural capital to the health of the economy including clean air, water quality and supply, healthy food, recreation, storm and flood protection, tourism, science and education. "Healthy Lands & Healthy Economies: Nature's Value in Santa Clara County" (Open Space Authority and Earth Economics, 2014) found that each year, Santa Clara County's natural and working lands provide a stream of ecosystem services to people and the local economy that range in value from $1.6 billion to $3.9 billion.

Per capita water use and the recycled share did not change significantly in FY 2020-21.

While the share of recycled water used in Silicon Valley (4.4% in FY 2020-21) is much higher than it was two decades prior (1.3%), it has not changed much over the past several years.

WATER RESOURCES
Gross Per Capita Water Consumption & Share from Recycled Water

Silicon Valley

Legend: Gross Per Capita Consumption | Recycled Percentage of Total Water Used

Gross Per Capita Consumption (Gallons Per Person Per Day):
'01: 166, '02: 162, '03: 158, '04: 166, '05: 152, '06: 155, '07: 162, '08: 158, '09: 149, '10: 136, '11: 134, '12: 136, '13: 136, '14: 135, '15: 112, '16: 97, '17: 102, '18: 110, '19: 107, '20: 113, '21*: 116

*FY 2020-2021 data are preliminary | Note: Data are for the fiscal year. | Data Sources: Bay Area Water Supply & Conservation Agency (BAWSCA), Santa Clara Valley Water District, and Scotts Valley Water District | Analysis: Silicon Valley Institute for Regional Studies

The region's water agencies observed a notable decline in commercial water consumption during the early months of the pandemic (particularly April through June, 2020), paired with an increase in residential usage. While this affect was largely attributed to the prevalence of remote work and people sheltering at home, its persistence (to some degree) into the 2020-21 fiscal year may have been due to a combination of factors – the effects of the pandemic, wildfires, and the impacts of multiple, consecutive dry winters on typical irrigation patterns.

to lower-emissions energy providers also decreases regional GHG emissions. The region's relatively clean electricity has enabled the implementation of a variety of "natural gas fuel-switching" efforts, including programs that promote the use of heat pump water heaters and space heaters, induction cooktops, and swapping electricity for other gas-powered appliances. It also helps to advance electric vehicle adoption throughout the region, and enables efforts to achieve environmental, air-quality, and cost benefits with all-electric buildings.

Electricity productivity is a measure of the degree to which the region's production of economic value is linked to its electricity consumption, where a higher value indicates greater economic output per unit of electricity consumed. Electric vehicle infrastructure and adoption provide indicators on the extent to which Silicon Valley residents are utilizing a cleaner transportation alternative to fossil fuel combustion.

Water consumption and the use of recycled water are particularly important indicators given California's recent drought conditions. Local emissions and other contributing factors, such as wildfires, have an effect on regional air quality with potential health implications.

WASTE
Per Capita Waste Production

Silicon Valley, San Francisco, and California

% CHANGE 2019-2021*
-16% -28% +1%

Legend: Silicon Valley, San Francisco, California

*based on Q1-3 | Data Source: CalRecycle; California Department of Finance | Analysis: Silicon Valley Institute for Regional Studies.
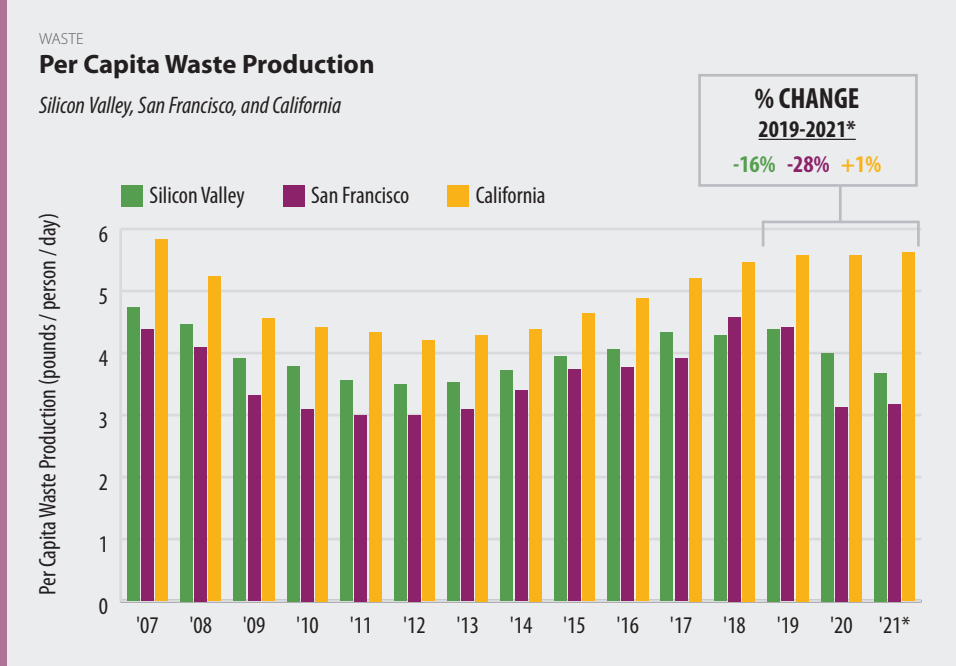
Silicon Valley waste production has declined since the onset of the pandemic (and related increase in remote work) — down from the recent high of 4.4 pounds/person/day in 2019 to 3.7 pounds/person/day in the first three quarters of 2021 (down by 16%); this compares to a 28% decline in San Francisco and a 1% increase statewide over that period.

Waste production per capita in Silicon Valley and San Francisco were significantly lower than the statewide 5.6 pounds per person per day in 2021.

Silicon Valley per capita water consumption has been much lower over the past seven years than during prior years, with per capita usage dipping below 100 gallons per person per day in 2016 and 2017. In 2021, average water usage per person per day was 111 gallons.

In 2020 alone, there were nearly 10,000 individual fire incidents throughout the state, with 37 major fires in Northern California (22 of which affected one or more Bay Area counties). The August Complex Fire — which burned more than one million acres of land across seven counties over an 86-day period — was the largest single fire in California history since (at least) 1932.

WILDFIRES
Land Area Burned by Wildfires

Bay Area, Northern California, and California
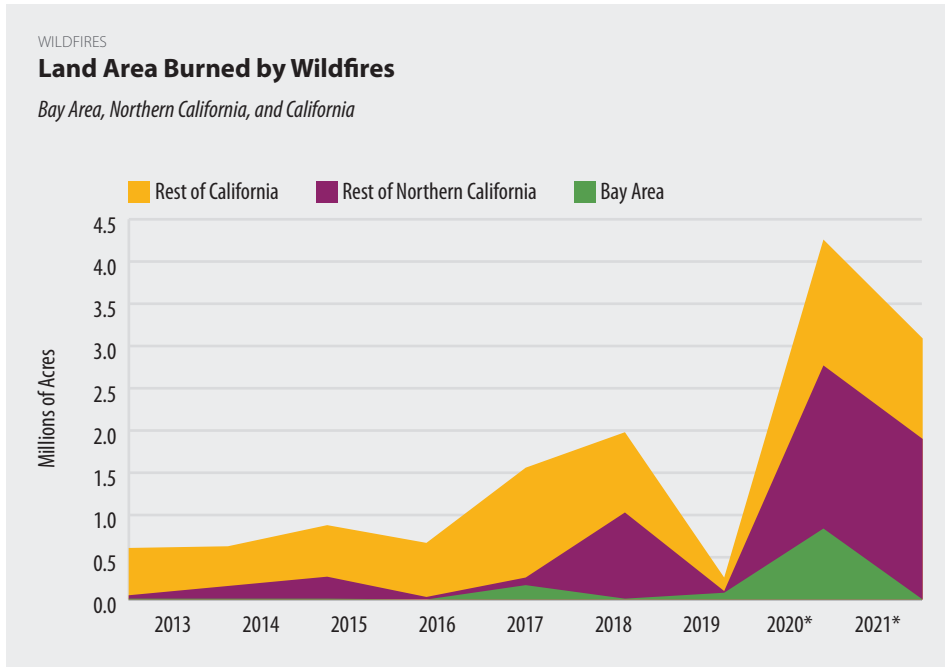
*preliminary | Data Source: CAL FIRE | Analysis: Silicon Valley Institute for Regional Studies

% Think Wildfires & Climate Change are Serious Problems
Bay Area, 2021

	Increasing Frequency of Wildfires	Impacts of Climate Change
Remote Workers	92%	75%
Democrats	88%	89%
Overall	85%	70%
Republicans	77%	22%

Data Source: The Silicon Valley Poll (www.jointventure.org/svpoll)

Since 2017, there has been a marked increase in both the number of California wildfires as well as the land area affected. Over that five-year period, 11.1 million acres have burned, including nearly 6.1 million acres in Northern California.

While there is a large and growing body of research and observational data linking climate change to the wildfire activity, there is a disconnect between the share of Bay Area residents who believe wildfires are a serious issue (85%) and those who believe the impacts of climate change are of equal concern (70%); this discrepancy is most pronounced for those identifying as Republicans (77% are seriously concerned about wildfires, but only 22% are concerned about climate change impacts).
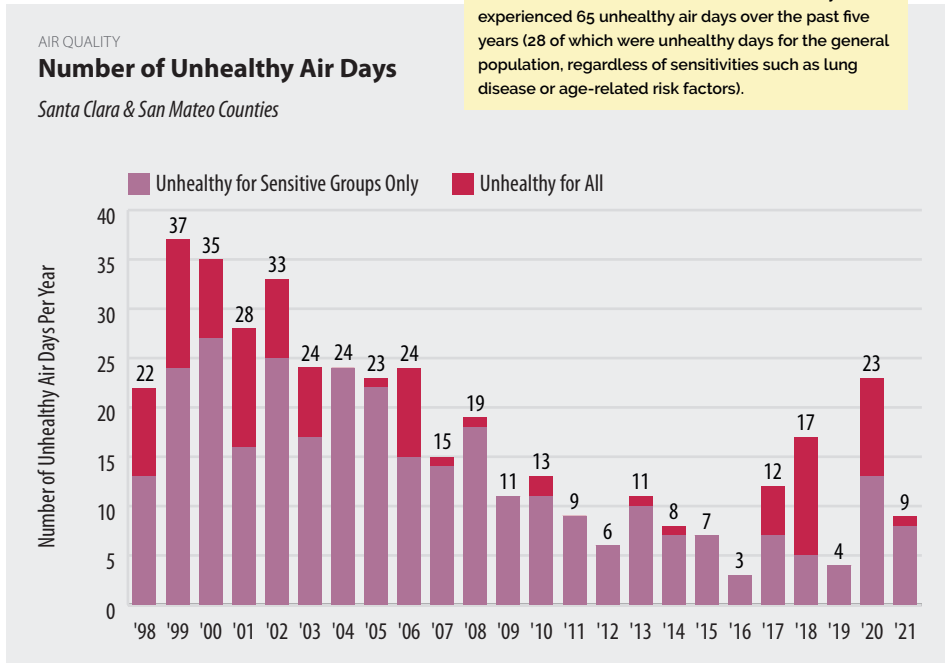
Due to the prevalence of wildfires throughout the state (in addition to other factors), Silicon Valley has experienced 65 unhealthy air days over the past five years (28 of which were unhealthy days for the general population, regardless of sensitivities such as lung disease or age-related risk factors).

AIR QUALITY
Number of Unhealthy Air Days

Santa Clara & San Mateo Counties

Note: 2021 data through December 7. | Data Source: United States Environmental Protection Agency, Outdoor Air Quality Data | Analysis: Silicon Valley Institute for Regional Studies

Nearly half of the unhealthy air days since 2017 have been *extremely* unhealthy — amounting to unsafe conditions for both the general population as well as for sensitive groups.

With the extreme amount of wildfire activity in 2020, there were 23 unhealthy air days in Silicon Valley, 10 of which were unhealthy for the general population (not only for sensitive groups). The region had not experienced such a high number of unhealthy air days since 2006.

Per capita electricity consumption in Silicon Valley has declined by 16% (nearly 1,400 kilowatt-hours per person) since the most recent high in 2008.

ELECTRICITY USE
Electricity Consumption per Capita

Santa Clara & San Mateo Counties, San Francisco, Rest of California
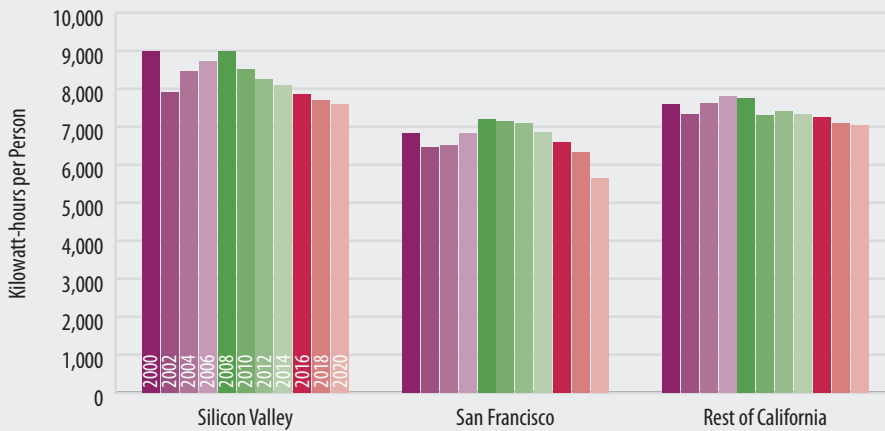
Data Source: Moody's Economy.com; California Energy Commission; State of California, Department of Finance
Analysis: Silicon Valley Institute for Regional Studies

ELECTRICITY USE
Electricity Productivity

Santa Clara & San Mateo Counties, San Francisco, Rest of California
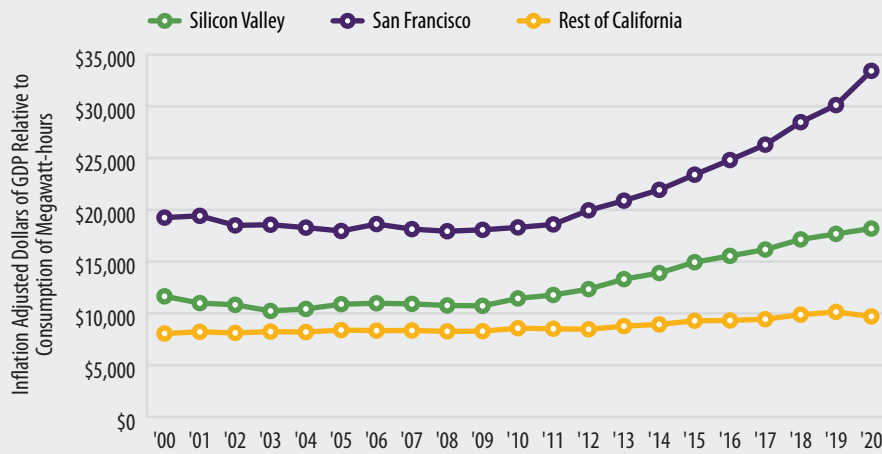
Data Source: Moody's Economy.com; California Energy Commission; State of California, Department of Finance
Analysis: Silicon Valley Institute for Regional Studies

Silicon Valley electricity consumers use more per capita than in San Francisco or elsewhere within the state.

Compared to Silicon Valley, San Francisco electricity users consumed 26% less in 2020, and the electricity productivity — ratio of regional GDP to electricity use — was 84% higher.

While the rest of California's electricity productivity has remained relatively low over the past two decades, it has risen significantly in Silicon Valley and San Francisco since the start of the post-recession economic recovery period (up 70% and 85%, respectively, between 2009 and 2020).

Although PG&E has relatively clean energy — with a 2020 emissions intensity factor that has declined by 84% over the previous decade — it is not as clean as that of Silicon Valley's community choice energy programs, which procure a larger share of power from renewable resources.

ELECTRICITY USE
Emissions Intensity for Power Providers
Silicon Valley, California, and the United States | 2019/20
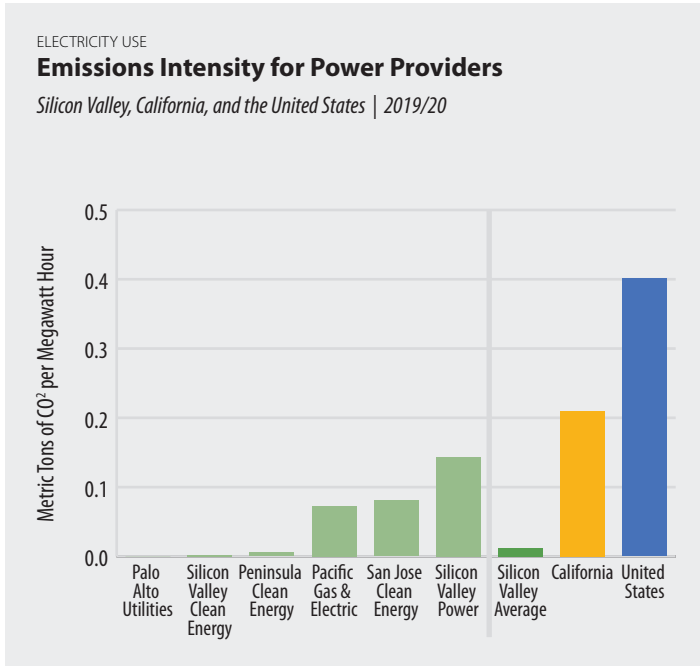
*estimate | Note: California is for the CAMX eGrid Subregion, which encompasses most of the state. The United States is an average of all eGRID subregions. Silicon Valley average weighted based on customer counts. | Data Sources: Silicon Valley electricity providers (Peninsula Clean Energy, Silicon Valley Clean Energy, Palo Alto Utilities, Silicon Valley Power, Pacific Gas & Electric, and San Jose Clean Energy); The Climate Registry; Center for Resource Solutions; U.S. Environmental Protection Agency; California Energy Commission | Analysis: Silicon Valley Institute for Regional Studies

The transition of electricity customers to Silicon Valley's community choice energy programs happened over just a few years, and effectively reduced the region's overall carbon dioxide emissions from electricity by approximately 77% since 2016.

Across all providers, the power used by Silicon Valley electricity customers carries a fraction of the greenhouse gas emissions intensity[A] of the United States grid average (ranging from 0 to 36%, with a weighted average of 3%), and is significantly cleaner than California's state average residual emissions intensity.

A. The emissions rate of carbon dioxide equivalent relative to energy use.

Three community choice energy programs now serve 89% of Silicon Valley's residential customers, and 82% of non-residential customers; Pacific Gas & Electric (PG&E), which served 92% of customers across Santa Clara and San Mateo Counties in 2016 — now provides bundled energy, transmission, and distribution service to only 3%.

ELECTRICITY USE
Share of Electricity, by Generation Sources
Silicon Valley, California, and the United States | 2019
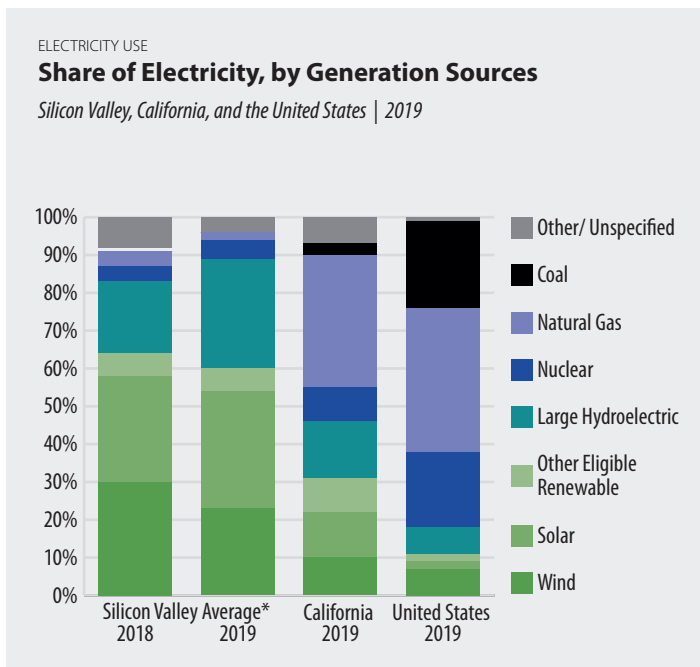
*Silicon Valley Average is an approximation; it is an un-weighted average of all power plans available to residential and non-residential customers. | Data Sources: Silicon Valley electricity providers (Peninsula Clean Energy, Silicon Valley Clean Energy, Palo Alto Utilities, Silicon Valley Power, Pacific Gas & Electric, and San José Clean Energy); The Climate Registry; Center for Resource Solutions; U.S. Environmental Protection Agency; California Energy Commission | Analysis: Silicon Valley Institute for Regional Studies

Share of Electricity Customers Served, by Provider
Silicon Valley | 2020

	Residential	Non-Residential
San Jose Clean Energy	34%	28%
Peninsula Clean Energy	29%	26%
Silicon Valley Clean Energy	26%	28%
Silicon Valley Power	5%	8%
Palo Alto Utilities	3%	3%
Pacific Gas & Electric	3%	8%

Among Silicon Valley's electricity power plans available to residential and non-residential customers, the average share of renewable generation resources is nearly double the statewide power mix, and five times higher than the national average.

Over the past decade, the total capacity of solar photovoltaic (PV) systems installed in Silicon Valley has increased sixfold, from 107 megawatts (MW) in 2010 to 636 MW in 2021.

Based on the amount of sunshine and available rooftop space, Silicon Valley has the technical potential for around 668,200 rooftop solar PV systems, with a total system size of approximately 12,000 MW.[A] As of 2021, the region had installed approximately 5% of that total technical potential.

A. Google Project SunRoof, Data Explorer

CLEANTECH
Cumulative Installed Solar & Storage Capacity
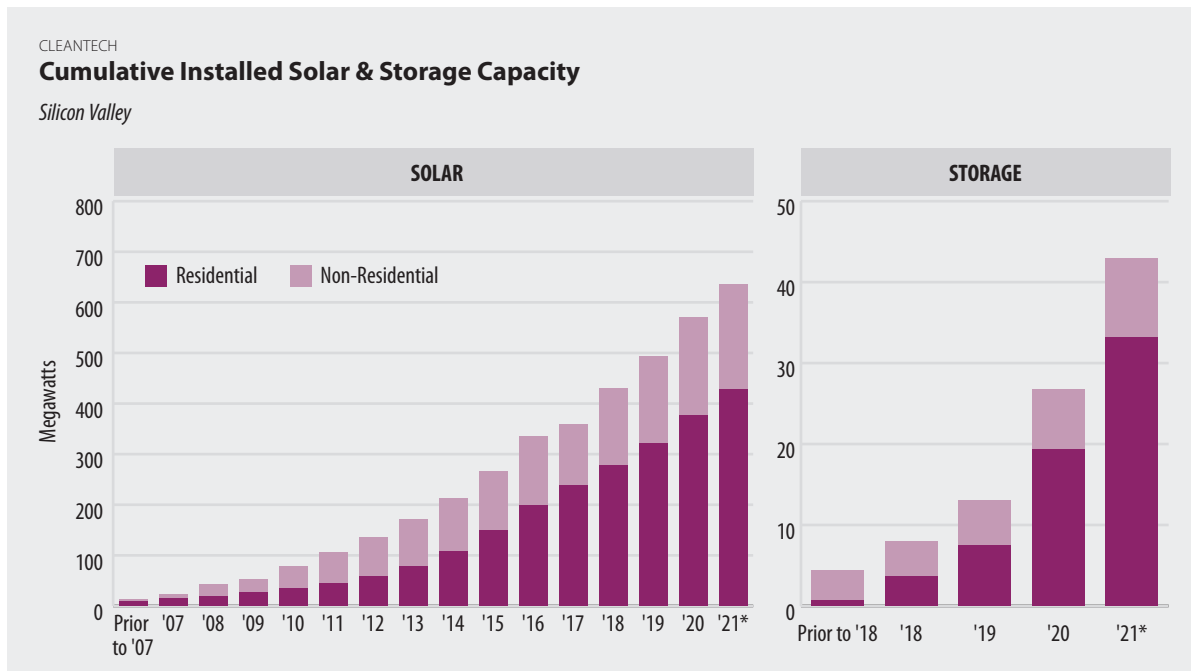
Silicon Valley

*2021 data are through June for the City of Palo Alto, through September for Silicon Valley Power and PG&E. | Note: Includes interconnected, Net Energy Metered (NEM) systems only. | Data Source: Palo Alto Municipal Utilities; Silicon Valley Power; Pacific Gas & Electric | Analysis: Silicon Valley Institute for Regional Studies

More than 8,200 new solar PV systems were installed in Silicon Valley in 2021, 99% of which were residential systems (by count); however, by installed capacity, residential systems represented 78% of all solar PV installations that year.

There are nearly 83,000 solar PV systems on residential rooftops throughout Silicon Valley, plus another 2,000 non-residential installations.

Silicon Valley's interconnected energy storage, paired with (non-export) solar PV systems, has increased significantly over the past several years. Prior to 2018, there were only 4.3 MW interconnected to the electrical grid; as of 2021, there were more than 43 MW. Additionally, energy storage systems participating in the California Self-Generation Incentive Program (SGIP) totaled 36.1 MW as of November 2021, with 96% residential by count (50% by capacity).

Silicon Valley's available electricity power plans, on average, consist of nearly one-third (32%) solar, 23% wind generation, 6% from other eligible renewables, and 29% large hydroelectric, with only 9% from nuclear, natural gas, and other/unspecified sources combined. In contrast, those non-renewable sources comprise 51% of the California power mix (plus 3% from coal) and 59% of the national average power mix (plus 23% from coal).

Share of California Electric Vehicle Charging Outlets	
Santa Clara & San Mateo Counties, 2021	
Public	18%
Private	35%
All	27%

More than a quarter of all California's public and private electric vehicle (EV) charging infrastructure is located in Silicon Valley.

While many Silicon Valley cities were well-equipped with EV charging infrastructure at the end of 2021, a handful of cities had almost no charging stations whatsoever. East Palo Alto, for example, had only three public charging stations (aside from the one that is only available to Teslas) located along the edge of the city at IKEA, the Four Seasons Hotel, and the University Circle office development that houses the Four Seasons; there are no privately-owned charging stations either.[A]

A. According to the United States Department of Energy, Alternative Fuels Data Center Fueling Station Locator (as of 11/23/2021).

CLEANTECH
Electric Vehicle Infrastructure
Public Electric Vehicle Charging Outlets

Silicon Valley
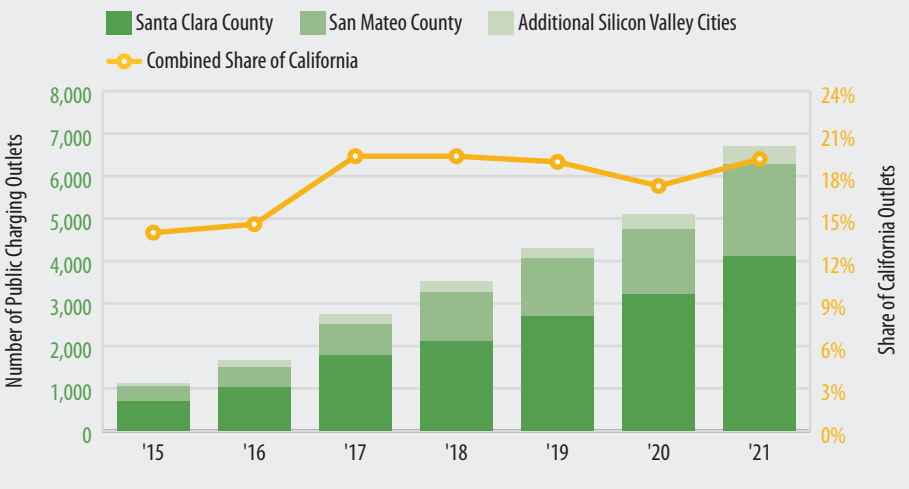
Data Sources: United States Department of Energy, Alternative Fuels Data Center; California Energy Commission
Analysis: Silicon Valley Institute for Regional Studies

The region installed a significant amount of new publicly-available EV infrastructure in 2021, adding more than 1,600 additional public outlets to the region. The greatest year-over-year increases in public EV charging outlets were in San Jose, Menlo Park, and Santa Clara.

Silicon Valley has a higher share of private EV charging outlets (70% of the nearly 20,800 total) than the state overall (55% private).

Silicon Valley has a higher share of private EV charging outlets (70% of the nearly 20,800 total) than the state overall (55% private).

Since 2015, the number of public EV charging outlets in Silicon Valley has increased nearly sixfold. As of late 2021, Silicon Valley had 6,300 public electric vehicle charging outlets and 15,000 private ones[A] (an increase of 12% year-over-year).

A. Private charging outlet total is for Santa Clara and San Mateo counties alone, not including the rest of the city-defined Silicon Valley region.

CLEANTECH
Electric Vehicle Adoption

Silicon Valley

Data Source: California Energy Commission | Analysis: Silicon Valley Institute for Regional Studies
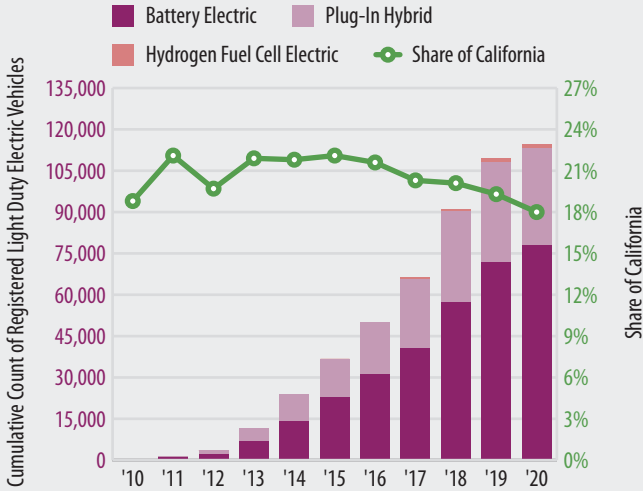
Electric % of Light Duty Vehicles

While adoption has accelerated over the past decade, electric vehicles still only represented around one in 20 Silicon Valley (and 44 California) registered light-duty vehicles.

The total number of EVs registered to Silicon Valley drivers continued to climb in 2020, reaching nearly 115,000 in total, more than triple the number registered only five years prior. The majority (68%) are Battery Electric, 31% are Plug-In Hybrids, and a very small share (approximately one percent) are Hydrogen Fuel Cell vehicles.

Teslas, Chevrolets, Toyotas, and Nissans account for 75% of all EVs registered in Santa Clara and San Mateo counties, with the most popular models being Tesla Model 3 (25%), Tesla Model S (12%), Chevrolet Volt (9%), Nissan LEAF (7%), Chevrolet Bolt EV (7%), and the Tesla Model X (5%).[83]
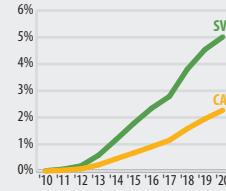
San Jose has, by far, the highest number of EV drivers in the region, with 29,800 registered vehicles; the city with the next-highest number of EVs, Fremont, has around 11,500 registered.

Tesla's share of Silicon Valley registered EVs has more than doubled over a five-year period, growing from 19% in 2014 to 41% in 2020. Among the top-ten cities for EV adoption, Los Altos Hills and Saratoga have the highest shares of Tesla ownership, representing more than half of all light-duty EVs (55% and 54%, respectively), compared to 41% throughout the region and 32% in the state overall.

CLEANTECH
Registered Light-Duty Electric Vehicles, by Make

Top 10 Silicon Valley Cities, Silicon Valley, and California | 2020

Data Source: California Department of Motor Vehicles | Analysis: Silicon Valley Institute for Regional Studies

GOVERNANCE
Local Government Administration

Silicon Valley cities tightened their budgets by decreasing expenses in response to pandemic-related revenue losses (reducing them by an estimated 13 percent in FY 2020-21, in aggregate). Despite these efforts, the duration of the crisis has taken a toll on city finances. The first full fiscal year of the pandemic showed a nominal decline in Silicon Valley cities' aggregate revenues of 15 percent ($7.36 billion from $8.67 billion the prior year), including a two percent decline in Sales and Use Tax revenues (-$12.3 million year-over-year) and Charges for Services (down 29 percent, or -$1.2 billion).

Pandemic-related revenue declines were expected to lead to more than $200 million in city budget shortfalls regionally in FY 2020-21; however, revenues for that fiscal year are now estimated to have narrowly exceeded expenses by $91 million. Investment earnings for Silicon Valley cities and counties, in aggregate, had increased in FY 2019-20 to $503 million (nearly reaching the last peak of $567 million in 2007) but fell back down to less than $100 million in the most recent fiscal year (FY 2020-21).
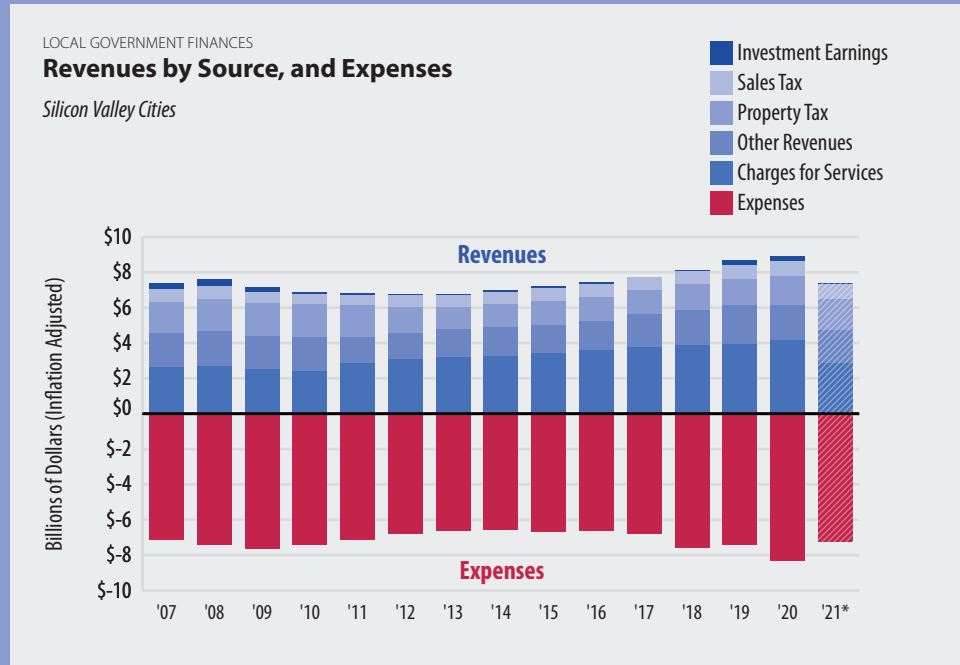
The aggregate net position (assets minus liabilities) of Silicon Valley cities, as well as the total amount of household wealth, both exhibited a slight decline between 2020 and 2021, though neither made much difference in the overall ratio between the two. In 2021, the region's household wealth outweighed the aggregate city net position by 49 to one.

Silicon Valley experienced much higher-than-typical rates of city/county manager turnover in 2018 and 2019, replacing 14 out of 41 managers in each of those two years (compared to the region's average turnover rate of eight or nine managers per year). Less than one-third (32 percent) of Silicon Valley city/county managers in 2021 were women; this share is higher than the latest statewide estimate of 19 percent (with women leading 76 out of the 473 cities with a manager) and has grown over time (from 22 percent in 2013 and 2014).

Silicon Valley city revenues declined by an estimated 15% in the first full fiscal year of the pandemic. This decline was due to changes across many revenue streams, particularly Charges for Services (-29% year-over-year). In contrast, Property Tax revenues increased year-over-year (by an estimated 9% regionally, or +$139 million) in FY 2020-21.

While there are many factors affecting year-to-year changes in public agency revenues, expenses, and net position, the overall trend during the first full fiscal year of the pandemic was a tightening of budgets with declining expenses (down by an estimated 10% in FY 2020-21, in nominal values) to counteract the decrease in revenues (-15% year-over-year, for all Silicon Valley cities combined).

LOCAL GOVERNMENT FINANCES
Revenues by Source, and Expenses
Silicon Valley Cities

Legend: Investment Earnings, Sales Tax, Property Tax, Other Revenues, Charges for Services, Expenses

*Estimated | Data Source: Silicon Valley Cities | Analysis: Silicon Valley Institute for Regional Studies

Silicon Valley city revenues totaled nearly $8.7 billion in FY 2019-20, with 47% coming from Charges for Services totaling nearly $4.1 billion — more than double what it was at the beginning of the Great Recession recovery period in 2010 (without adjusting for inflation). For comparison, Charges for Services represented 38% of San Francisco's total revenues in FY 2019-20.

Why is this important?

Many factors influence local government's ability to govern effectively, including the availability and management of resources, as well as staffing levels and retention. To maintain service levels and respond to a changing environment, local government revenue must be reliable.

Property tax revenue is the most stable source of city government revenue, fluctuating much less over time than other sources, such as sales and other taxes.

Since property tax revenue represents only about a quarter of all revenue, other revenue streams are critical in determining the overall volatility of local government funding.

The amount of public capital (assets minus debts) in relation to overall regional wealth can be indicative of the government's ability to invest in infrastructure, which has been linked to distributive equity from both an economic and social perspective.[84,85]

Investment earnings for Silicon Valley cities and counties, in aggregate, increased in FY 2019-20 to $503 million — reaching nearly the last peak of $567 million in 2007; however, that amount is estimated to have fallen to less than $100 million in the most recent fiscal year (FY 2020-21).

The first full fiscal year of the pandemic reflected a decline in Silicon Valley cities' aggregate revenues of an estimated 15% (-$1.31 billion, without adjusting for inflation), including a 2% decline in Sales and Use Tax revenues (-$12.3 million year-over-year) and a 29% decline in Charges for Services (-$1.2 billion).

Of the $8.06 billion in Silicon Valley city expenses for FY 2019-20 (in nominal values), approximately 29% went to Public Safety (42% of Governmental Activities-only expenses).

LOCAL GOVERNMENT FINANCES
Investment Earnings

Silicon Valley Cities, Santa Clara & San Mateo Counties
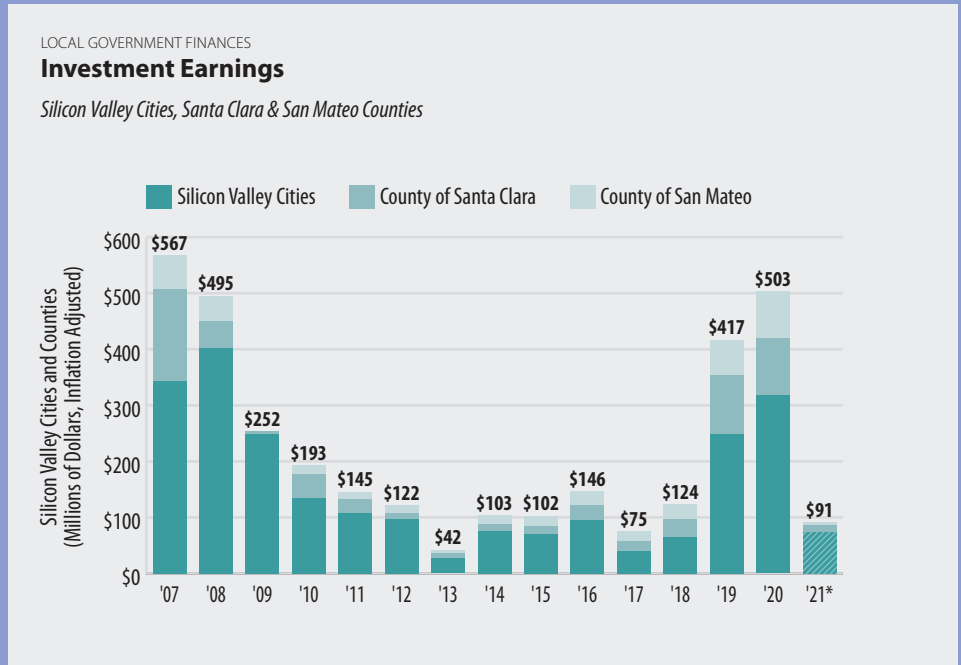
*Estimated | Data Source: Silicon Valley Cities and Counties | Analysis: Silicon Valley Institute for Regional Studies

GOVERNANCE
Local Government Administration

While Silicon Valley city revenues have exceeded expenses every year since FY 2012-13, the margin is estimated to have narrowed significantly in FY 2020-21 leaving a margin of only $91.4 million; meanwhile, the County of Santa Clara's annual financial statement for that fiscal year indicated a $155 million loss in net position.

Pandemic-related revenue declines were expected to lead to more than $200 million in city budget shortfalls regionally in FY 2020-21; however, revenues for that fiscal year are now estimated to have narrowly exceeded expenses by $91 million.

The 2018 dip in aggregate Silicon Valley cities' revenues minus expenses was largely due to a $207 million City of San Jose "decrease in net position before transfers" attributed to an increase in expenses and an inadequate increase in revenue to offset them.
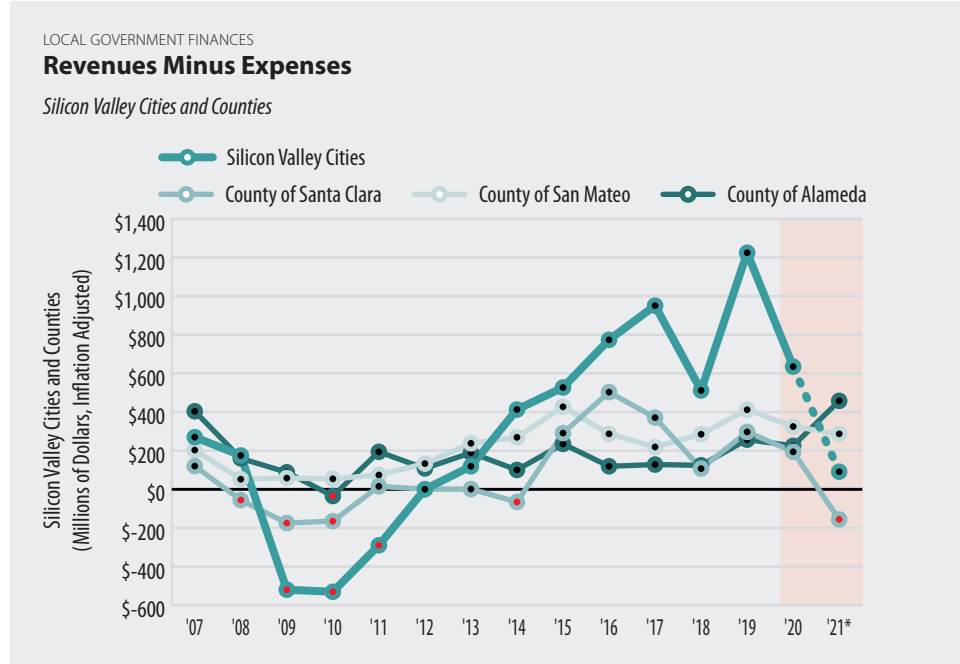
LOCAL GOVERNMENT FINANCES
Revenues Minus Expenses

Silicon Valley Cities and Counties

*Estimated | Data Source: Silicon Valley Cities & Counties | Analysis: Silicon Valley Institute for Regional Studies

In 2021, Silicon Valley's household wealth was more than 49 times that of the city governments themselves. This trend of a declining share of public capital relative to private wealth has been documented on a national level in the United States, as well as in various countries throughout Western Europe and Asia since the 1980s.[86]

Both the total household wealth and the aggregate net position (assets minus liabilities) of Silicon Valley cities appear to have declined between 2020 and 2021 (down by an estimated 3% and 0.4%, respectively). Neither decline made much difference in the overall ratio between the two, however, with the region's household wealth still outweighing aggregate city net position by 49 to one.

CITY FINANCE
Public Capital
Ratio of Total Household Wealth to Aggregate City Net Position

Santa Clara & San Mateo Counties

*Estimated | Data Source: Silicon Valley Cities; Claritas; Phoenix Global Wealth Monitor | Analysis: Silicon Valley Institute for Regional Studies

Silicon Valley's average city/county manager turnover rate is approximately eight or nine managers per year (amounting to an average term of seven years per manager), although some cities have had significantly more (or less) turnover than others. Nine out of 41 city/county managers in 2021 had been in their positions for eight or more years.

CITY AND COUNTY LEADERSHIP

City/County Manager Turnover

Silicon Valley
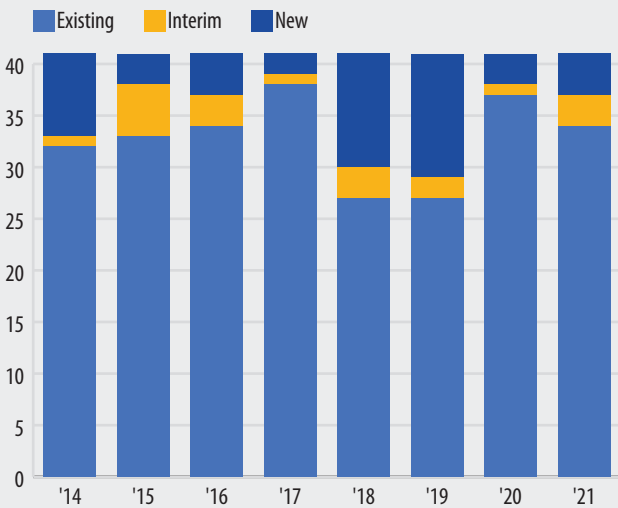
Note: Annual counts represent a snapshot in time, taken in August of each year. 2021 snapshot includes one September and two October appointments. | Data Sources: Silicon Valley City and County Websites | Analysis: Silicon Valley Institute for Regional Studies

Female % City/County Managers
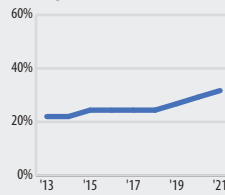
Each year, Silicon Valley cities and counties typically appoint anywhere from three to fourteen new (or interim) city/county managers, representing a turnover rate of 7-34%.

Less than one-third (32%) of Silicon Valley city/county managers are women; however, this share is higher than the latest statewide estimate of 19% (with women leading 76 out of the 473 cities with a manager)[87] and has grown over time (from 22% in 2013 and 2014).

Silicon Valley experienced much higher-than-typical rates of city/county manager turnover in 2018 and 2019, replacing 14 out of 41 managers in each of those two years.

GOVERNANCE
Civic Engagement

The statewide gubernatorial recall election, which was held on September 14, 2021, had a voter turnout of 55 percent in Silicon Valley (52 percent statewide). While this rate is low compared to a typical General Election, it was more than the 2003 recall election which had a turnout rate of 45 percent in Silicon Valley (and 43 percent statewide). Mail-in ballots were sent to all registered voters in California, continuing the pandemic-inspired policy established in advance of the 2020 General Election. This policy has now been codified into law with the signing of Assembly Bill 37 by Governor Newsom, making California the eighth state in the nation to require every registered voter to be sent an absentee ballot.

Registered Democrats represent a narrow majority (51 percent) of the Silicon Valley electorate, whereas the share of registered Republicans has declined to the lowest level since 1970 (16 percent); the remaining 33 percent either have no party preference, or are registered as American Independent or other political party. The share of eligible Santa Clara and San Mateo County voters who registered in advance of the 2020 general election (85.5 percent) was higher than in any other year in a half-century, if ever.

Why is this important?

An engaged citizenry shares in the responsibility to advance the common good, is committed to place, and holds a level of trust in community institutions. Voter participation is an indicator of civic engagement and reflects community members' commitment to a democratic system, confidence in political institutions, and optimism about the ability of individuals to affect decision-making.

> 51% of Silicon Valley voters were registered as Democrats (compared to 46% statewide) at the time of the November 2020 presidential general election.

> Over the past 50 years, the share of Silicon Valley voters registered with No Party Preference has risen from less than 5% in 1970 to 29% in advance of the 2020 general election (compared to 24% statewide).

> The share of Silicon Valley registered voters with no political party affiliation has continued to grow, reaching historically high levels. At the same time, the share of registered Republicans has declined to the lowest ever in the available record (back to 1970) of 16%.

PARTISAN AFFILIATION
Percentage of Registered Voters, by Political Party

Santa Clara & San Mateo Counties
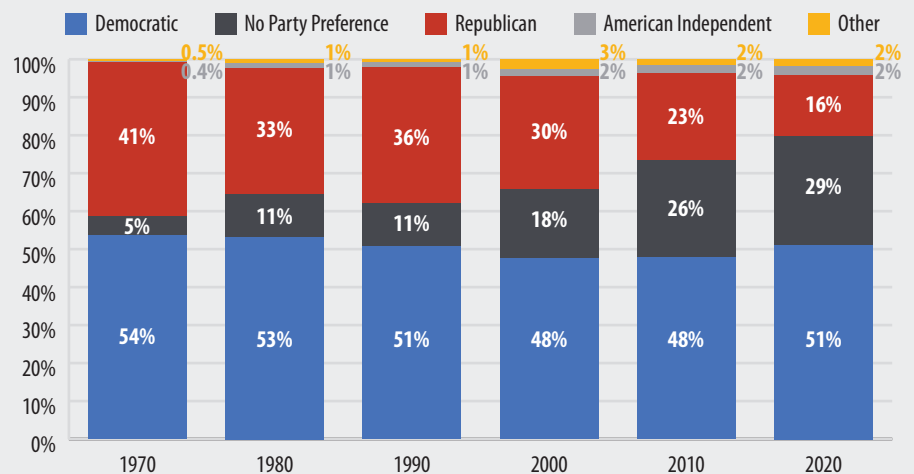
Data Source: California Secretary of State, Elections Division | Analysis: Silicon Valley Institute for Regional Studies

Share of Eligible Voters Who Registered

Santa Clara & San Mateo Counties, San Francisco, and California

2016 & 2020 General Elections

	2016	2020
Silicon Valley	75%	85%
San Francisco	79%	78%
California	78%	88%

The share of eligible Santa Clara and San Mateo County voters who registered in advance of the 2020 general election (85.5%) was higher than in any other year in a half-century, if ever. The only other elections that came close to this rate were in 2004 (82.1%) and 1994 (81.6%, the highest on record for any midterm general election).

Voter registration rates were higher in 2020 than 2016 in both Silicon Valley and statewide (up by ten percentage points).

Voter turnout for the gubernatorial recall special election on September 14, 2021 (universal mail-in ballots were mailed in August, 2021) showed much higher levels of voter participation than in the only other gubernatorial recall election in California's history; Silicon Valley's voter turnout was 55% in 2021, compared to 45% in 2003.

The region and state as a whole experienced historic voter turnout for the November 2020 general election (73% of eligible voters in Silicon Valley, and 71% statewide). Prior to this election, the highest eligible voter turnout in Silicon Valley was 62% in both the 2008 and 2016 presidential general elections.

VOTER PARTICIPATITON
Eligible Voter Turnout and Absentee Voting, by Election

Santa Clara & San Mateo Counties, and California

Cast Ballots: ■ Silicon Valley ■ California   Voted Absentee: ●— Silicon Valley ●— California

Data Source: California Secretary of State, Elections Division | Analysis: Silicon Valley Institute for Regional Studies
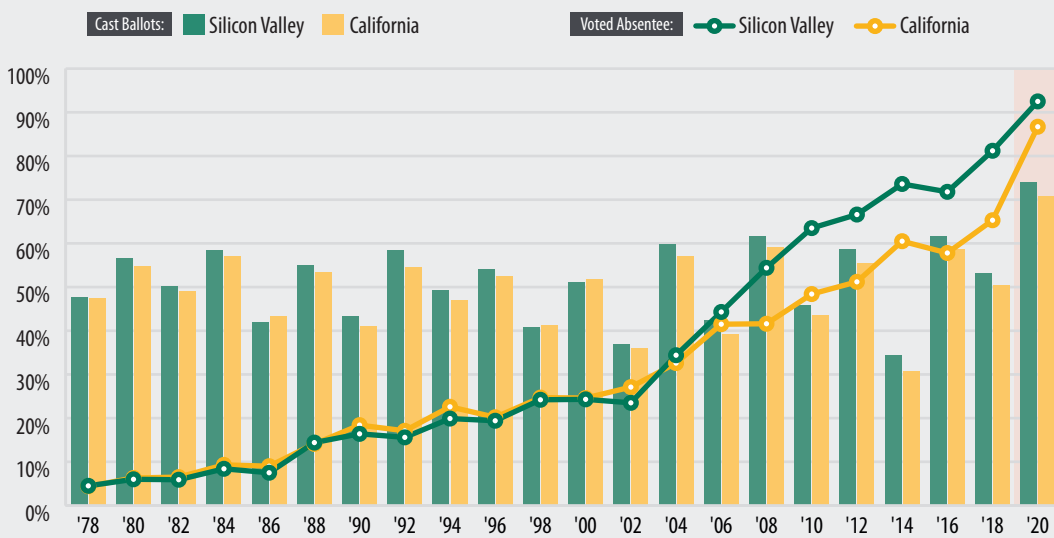
Eligible % Voted in Gubernatorial Recall Elections

SV	CA
45%	43%
55%	52%
2003	2021
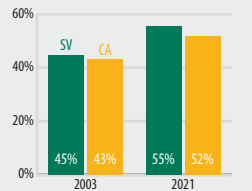
Voter turnout in Silicon Valley (55%) for the 2021 gubernatorial recall election was slightly higher than turnout at the state level (52%).

Silicon Valley's absentee voting rate reached an all-time high for the November 2020 elections, reaching 93%; this compares to a statewide absentee voting rate that rose to 87%. Due to the pandemic, mail-in ballots were sent to all registered voters in California.

Young adults (ages 18-24) across the state were highly mobilized to vote in the 2020 general election; however, they remained underrepresented at the polls in Silicon Valley, San Francisco, and statewide; in Santa Clara and San Mateo Counties combined, young adults accounted for 12% of all eligible voters but only 10% of the ballots cast.

Young voters turned out for the 2020 General Election at record rates. The rise may have been partly driven by this age cohort reaching adulthood during the turbulent times of the Great Recession, and its lasting impacts on their decision-making (though it may have had the opposite effect on engagement for some, as well). Additionally, civic engagement among young adults has been found to rise in response to increased engagement in politics online, particularly through social media.[88] In 2020, social networking sites were a key mode of sharing and discussing election-related content, much of which was made more accessible remotely due to the pandemic. Thus, increased online engagement likely played a role (among numerous other factors) in the record turnout.

VOTER PARTICIPATION
Eligible Voter Turnout of Young Adults (Ages 18-24)
Santa Clara & San Mateo Counties, San Francisco, and California
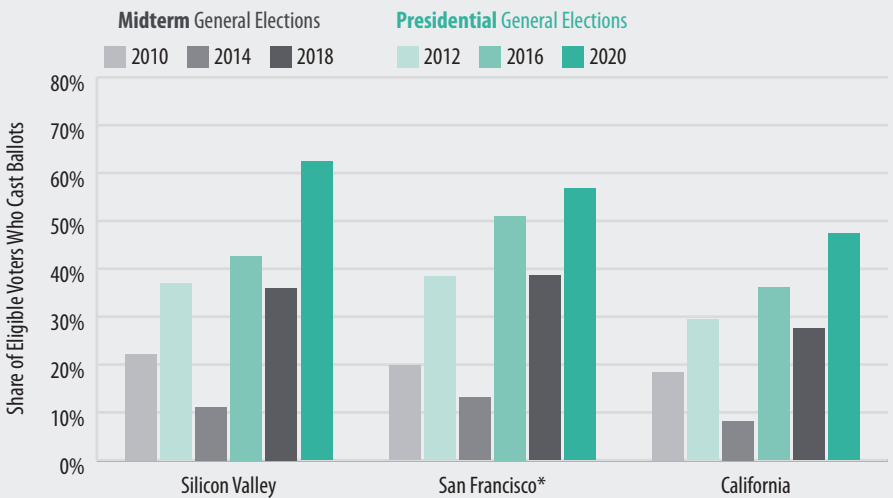
Midterm General Elections 2010 2014 2018
Presidential General Elections 2012 2016 2020

*The eligible turnout rate in San Francisco increased significantly in 2020 due to an estimated decline in the citizen voting age population ages 25-34.
Data Source: Center for Inclusive Democracy (Data: Statewide Database and California Department of Finance)
Analysis: Center for Inclusive Democracy at the USC Sol Price School of Public Policy

While eligible voter turnout of young adults ages 18-24 has traditionally been much lower compared to other age groups, rates have increased in recent years — up from 37% in 2012 to 43% in 2016, and 63% in 2020 among presidential general elections; eligible voter turnout of young adults was higher in November 2018 than any other midterm general election on record. Young adult engagement will be particularly important in the coming decades given the projected declines statewide in the 18- to 24-year-old share of the voting age population.[89]

VOTER PARTICIPATION
Eligible Voter Turnout, by Age

Santa Clara & San Mateo Counties | 2016 & 2020 Presidential General Elections

Legend: 18-24 | 25-34 | 35-44 | 45-54 | 55-64 | 65+ | Total

Y-axis: Share of Eligible Voters Who Cast Ballots (0% to 100%)

X-axis categories: 2016 Presidential General Election | 2020 Presidential General Election

Data Source: Center for Inclusive Democracy (Data: Statewide Database and California Department of Finance)
Analysis: Center for Inclusive Democracy at the USC Sol Price School of Public Policy
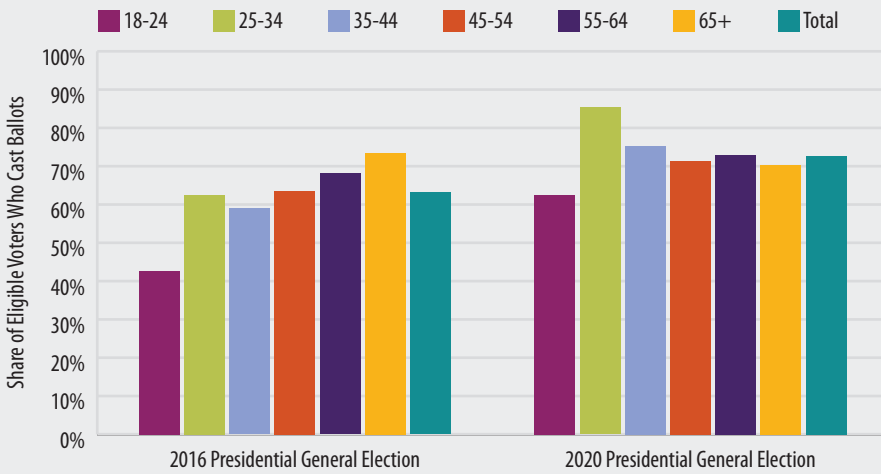
Eligible voter turnout in Silicon Valley was higher than in the state overall, across all age groups in 2020 (ranging from 62 to 85%, compared to 47 to 74% statewide).

GOVERNANCE
Representation

Due to a transition to even-year elections, as mandated by the Voter Participation Rights Act (Senate Bill 415),^A no local elections were held in Silicon Valley last year. The only seat change in 2021 was for a vacant city council seat in the City of South San Francisco, which brought Silicon Valley's total number of local city/county elected officials to 229.

Women continue to be underrepresented in local elected office; however, the share has risen from 36 percent in 2017 to 46 percent in 2021 — higher than in the state's cities/counties overall (38 percent). The majority of Silicon

Valley's local elected officials are Democrats (75 percent). In comparison with the state overall, the region has particularly high shares of Asian and Pacific Islander representation (21 percent) and representation by those with professional backgrounds in engineering, technology, and science (18 percent) and business (19 percent). Diversity in representation is not evenly distributed throughout the region. For example, seven of the 39 cities in Silicon Valley do not have any representation from racial/ethnic groups other than White.

In addition to city council members and county supervisors and mayors of local jurisdictions, judges and justices are elected to

serve in the Superior Courts (also known as Trial Courts) in each county. These judges/justices are the first level of court proceedings, whether civil or criminal, for cases that occur within local jurisdictions. Over the past decade, the overwhelming majority of judges/justices serving in Santa Clara and San Mateo counties have identified as White (60 percent in 2020) with a modest increase since 2010 in the percentage of judges/justices who identify as Black or African American (5 percent to 6 percent) and larger gains for Asian judges/justices (five percent to 13 percent). The percentage of Hispanic and Latino judges/justices declined from nine percent to six percent.

A. California Senate Bill 415 aims to increase voter participation and lower costs in local elections. All jurisdictions — state, county, municipal, district, and school district — in California must transition to an even-year election by November, 2022 if their voter turnout is less than the threshold established by the legislation.

Consistent with State and Federal government representation,[91] women are underrepresented in local elected office in Silicon Valley; however, the share of female local elected officials is quickly approaching proportional representation with a gain of ten percentage points since 2017.

> The share of female local elected officials in Silicon Valley (46%) is higher than in the state overall (38%).

> 46% of those elected to Silicon Valley city or county office in 2020 were women (plus 59% newly elected in 2018), increasing female representation from 36% in 2017 to 46% after the 2020 elections. By comparison, in 2021 women represented just under one-third of the California State Legislature (38% of the Senate, and 30% of the House[92]).

REPRESENTATION
Share of Local Elected Officials, by Gender
Silicon Valley

Legend: ■ Men ■ Women

Year	Men	Women
2017	64%	36%
2021	54%	46%
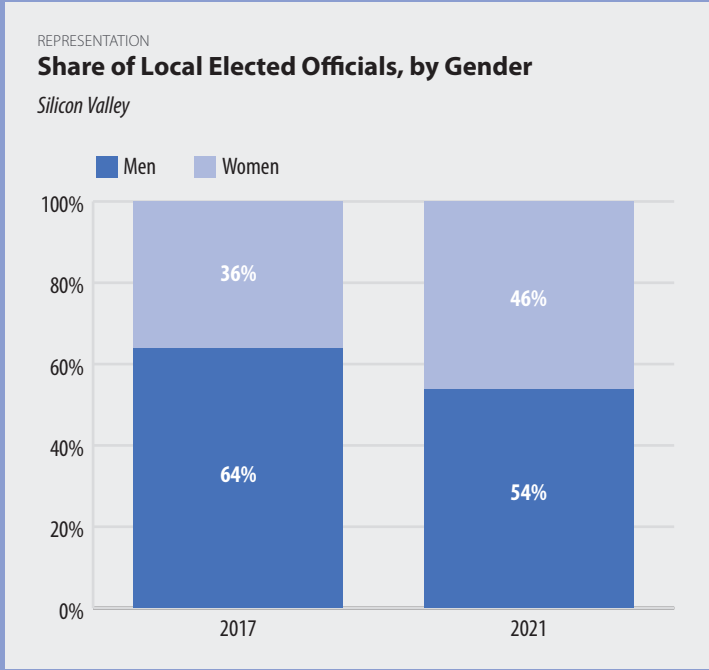
Data Source: GrassrootsLab (www.grassrootslab.com) | Analysis: GrassrootsLab

Why is this important?

Local government is considered the closest level of government to the people, yet there is little scholarship or reporting on the activities and identities of local elected officials. In many respects, local elected officials create the policies that shape and affect residents' daily lives. From affordable housing to public transportation, city council members represent their constituents on these and other important 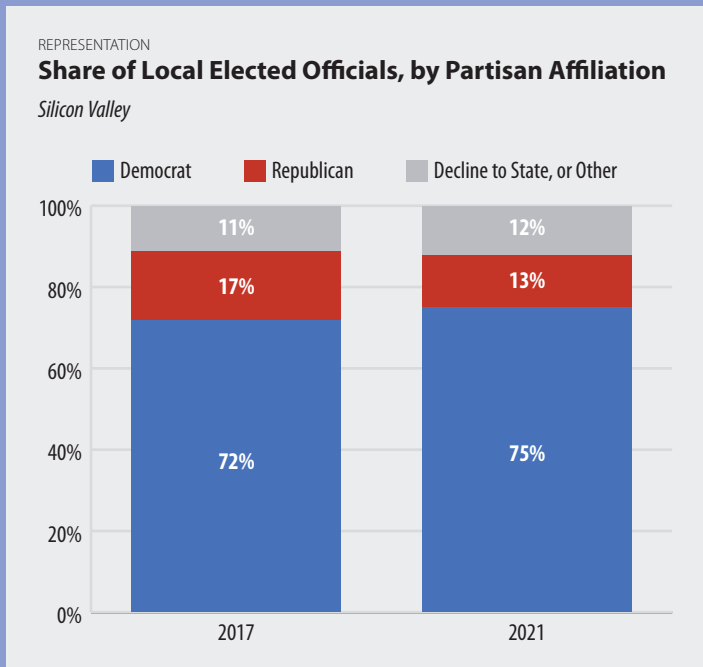issues. The County Board of Supervisors also has an important role across many areas including public health and health equity, planning and development, as well as the Registrar of Voters. In Silicon

Valley, each local elected official represents, on average, nearly 12,000 residents. By examining these local representatives, we are able to illustrate the extent to which Silicon Valley's constituency is represented, and gain insight on the backgrounds that may shape their decisions as representatives of our communities. The composition of a region's local elected officials is also critical because it represents the future cohort of state and regional leadership[B]. If any given constituency is not cultivated at the local level, they are unlikely to gain increased

representations at the State and Federal levels. In June, 2021, President Biden signed an Executive Order committing the nation's largest employer, the federal government, to be the "model for diversity, equity, inclusion, and accessibility" by removing barriers to recruiting, hiring, promoting, and retaining talent in order to advance diversity, equity and inclusion.[90] These same principles are critical to removing barriers that exist in local government.

B. For example, in 2015, 58% of California Senators and Assemblymembers had previously served in local government – in the Assembly alone, 67% of members were former local government officials. This means that broadly, more than half of the California State legislature is comprised of former local elected officials.

REPRESENTATION
Share of Local Elected Officials, by Partisan Affiliation
Silicon Valley

Data Source: GrassrootsLab (www.grassrootslab.com) | Analysis: GrassrootsLab

The majority of elected officials serving on City and Town Councils and County Boards of Supervisors in Silicon Valley are Democrats (75%, up from 72% in 2017).

13% of Silicon Valley's local elected officials are Republicans, compared to 16% of registered voters.

GOVERNANCE
Representation

Asian and Pacific Islander representation is relatively high in Silicon Valley, with 21% of local elected officials identifying as such (compared to 6% of local elected officials throughout the state).

Representation by Number of Jurisdictions
Number of Cities and Counties with at Least One Elected Official by Race & Ethnicity
Silicon Valley, 2021

	Cities	Counties
Caucasian/Other/Unknown	37	2
Asian and Pacific Islander	22	1
Hispanic or Latino	17	1
Black or African American	11	0

REPRESENTATION
Share of Local Elected Officials, by Race and Ethnicity
Silicon Valley

Legend: Caucasian/Other/Unknown · Asian and Pacific Islander · Hispanic or Latino · Black or African American

2017: Caucasian/Other/Unknown 70%, Asian and Pacific Islander 16%, Hispanic or Latino 10%, Black or African American 4%
2021: Caucasian/Other/Unknown 61%, Asian and Pacific Islander 21%, Hispanic or Latino 14%, Black or African American 5%

Note: Numbers may not add up to 100% due to elected officials identifying as more than one race/ethnicity.
Data Source: GrassrootsLab (www.grassrootslab.com) | Analysis: GrassrootsLab

The share of local elected officials identifying as Hispanic or Latino increased from 10% in 2017 to 12% in 2019, and 14% in 2021.

Diversity in representation is not evenly distributed throughout the region. At the local municipal level, seven of the 39 cities in Silicon Valley do not have any representation from racial/ethnic groups other than White; there are two cities in which all five members of the city council are Hispanic or Latino, Black or African American, or Asian. At the county level, two of five members on the Santa Clara County Board of Supervisors identify as either Hispanic or Latino, Black or African American, or Asian, whereas all five of San Mateo County's Supervisors are White.

An overwhelming majority of city and county officials in both Silicon Valley and California identify as working in Business, Law, Education, and Government (48% and 46%, respectively); however, representatives in Silicon Valley show a much higher affinity toward careers in Engineering, Technology, and Science (18%) than those throughout the state as a whole (7%).

REPRESENTATION
Share of Local Elected Officials, by Professional Background

Silicon Valley and California | 2021

Legend:
- Unidentifed/Other
- Non-Profit
- Science
- Banking/Finance
- Public Safety
- Technology
- Engineering
- Government Affairs
- Education
- Law
- Business

Silicon Valley: 21%, 4%, 5%, 5%, 3%, 8%, 5%, 10%, 10%, 11%, 17%

California: 34%, 1%, 3%, 7%, 4%, 2%, 2%, 9%, 11%, 7%, 19%
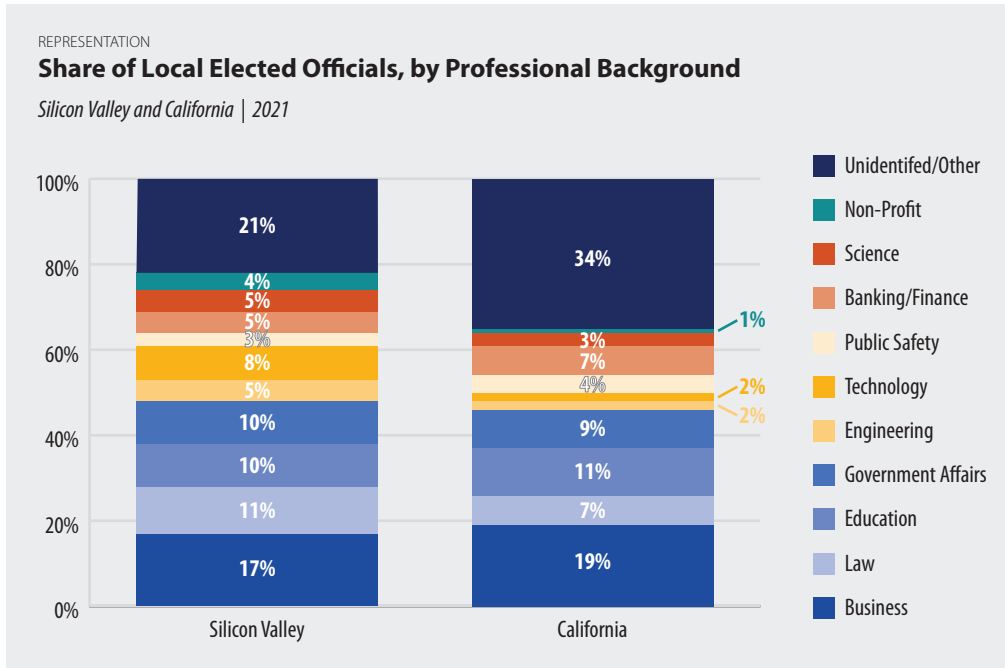
Note: Numbers may not add up to 100% due to rounding. | Data Source: GrassrootsLab (www.grassrootslab.com) | Analysis: GrassrootsLab

Share of Trial Court Justices and Judges, by Race & Ethnicity
Santa Clara and San Mateo Counties

	2010	2015	2020
Black or African American	5%	7%	6%
Hispanic or Latino	9%	8%	6%
Asian	5%	10%	13%
Multiple and Other	13%	13%	13%
White	68%	62%	62%

Note: Multiple and Other includes American Indian and Alaskan Native, Pacific Islander, Some Other Race, More than One Race, and Information not provided. | Data Source: Judicial Council of California | Analysis: Silicon Valley Institute for Regional Studies

In 2020, there were 100 justices and judges serving in Trial/Superior Courts in San Mateo and Santa Clara Counties.[A] The racial and ethnic demographics of the judges/justices have shifted slightly over the past ten years, with the largest gains occurring in the percentage of Asian (+60%) and Black or African American (+21%) justices/judges and the largest decline in the percentage of Hispanic or Latino(-43%) justices/judges.

A. California has 58 trial or superior courts, one in each county. The number of justices and judges in each trial court is determined by the State Legislature. Superior court judges serve six-year terms and are elected by county voters on a nonpartisan ballot at a general election during even-numbered years. Vacancies occurring during those terms—due to retirements, deaths, or other departures—are filled through appointment by the Governor.

The overwhelming majority of judges and justices in 2020 were White (62%).

APPENDIX A

PROFILE OF SILICON VALLEY

Area
Land Area includes Santa Clara and San Mateo counties, Fremont, Newark, Union City, and Scotts Valley. Land Area data (except for Scotts Valley) are from the U.S. Census Bureau: State and County QuickFacts. Land area is based on current information in the TIGER® database, calculated for use with Census 2010. Scotts Valley data are from the Scotts Valley Chamber of Commerce.

Population
Data for the Silicon Valley population come from the E-1: City/County Population Estimates with Annual Percent Change report by the California Department of Finance and are for Silicon Valley cities. Population estimates are for January 2021.

Jobs
The total number of jobs in the city-defined Silicon Valley region for Q2 of 2021 was estimated by BW Research using data from the United States Bureau of Labor Statistics Quarterly Census of Employment and Wages, using Q1 2021 QCEW data and updated based on Q2 2021 reported growth and totals, and modified slightly by JobsEQ, which removes suppressions and reorganizes public sector employment.

Average Annual Earnings
Data are from the California Employment Development Department and JobsEQ. Earnings include wages, salaries, profits, benefits, and other compensation, and are calculated by dividing total earnings by the number of jobs. Data for Silicon Valley includes San Mateo and Santa Clara Counties, and the Cities of Fremont, Newark, Scotts Valley, and Union City. Earnings include wages and supplements.

Foreign Immigration and Domestic Migration
Data are from the California Department of Finance E-2 and E-6 Population Estimates and Components of Change, and include San Mateo and Santa Clara Counties. Estimates for 2021 are preliminary. Net migration includes all legal and unauthorized foreign immigrants, residents who left the state to live abroad, and the balance of hundreds of thousands of people moving to and from California from within the United States.

Adult Educational Attainment
Data for adult educational attainment are for Santa Clara and San Mateo counties and are derived from the United States Census Bureau, 2019 American Community Survey, 5-Year Estimates. Footnoted 2020 estimates are from the U.S. Census Bureau 2020 American Community Survey 1-Year Public Use Microdata (PUMS) with experimental weights. Data reflects the educational attainment of the population 25 years and over. Percentages may not add up to 100% due to rounding.

Age Distribution
Data are for Santa Clara and San Mateo Counties (2021) and are from the California Department of Finance, P-2B: Population Projections by Individual Year of Age, 2010-2060 California Counties (2019 Baseline) updated July 19, 2020 using the latest historical population, birth, death, and migration data available as of July 1, 2020. Percentages may not add up to 100% due to rounding.

Racial/Ethnic Composition
Data are for the city-defined Silicon Valley region and are derived from the United States Census Bureau, 2020 Census State Redistricting Data from the California Department of Finance, H2: Population and Percent Change by Race (Not Hispanic/Latino) and Hispanic/Latino: 2010 and 2020. Multiple and Other includes Native Hawaiian and Other Pacific Islander Alone, Some Other Race Alone, American Indian and Alaska Native alone, and Two or More Races. Percentages may not add up to 100% due to rounding. Multiple and Other, White, Asian, and Black or African American are not Hispanic or Latino.

Foreign Born
Data are for Santa Clara and San Mateo counties and are derived from the United States Census Bureau, 2019 American Community Survey 5-Year estimates (2015-2019). Footnoted 2020 estimates are from the U.S. Census Bureau 2020 American Community Survey 1-Year Public Use Microdata (PUMS) with experimental weights. The Foreign Born Population excludes those who were born at sea. Data for China includes Taiwan. Oceania includes American Samoa, Australia, Cook Islands, Fiji, French Polynesia, Guam, Kiribati, Marshall Islands, Federated States of Micronesia, Nauru, New Caledonia, New Zealand, Northern Mariana Islands, Palau, Papua New Guinea, Samoa, Solomon Islands, Tonga, Tuvalu, Vanuatu, Wallis, and Futuna. Percentages may not add up to 100% due to rounding.

SNAPSHOT OF KEY COVID-19 INDICATORS & IMPACTS

COVID-19 Data
COVID-19 case, death, and hospitalization data are from the County of Santa Clara and the California Department of Public Health. Santa Clara County cases are by specimen collection date; San Mateo County cases are by episode date (the earliest of: symptom onset date, specimen collection date, diagnosis date, lab result date, or death date); for California, United States, and the world, data are by reporting date. Death is by death date. Cases and deaths by age are calculated using case and death data through February 8, 2022. Case data for per capita cases are from the County of Santa Clara Open Data portal; County of San Mateo COVID-19 Dashboard, the California Department of Public Health, The New York Times, and the World Health Organization. Population data used to calculate per capita values were from the California Department of Finance (E-1: City/County Population Estimates with Annual Percent Change for January 1, 2021), the United States Census Bureau Population Clock (Estimate for January 2021), and the United Nations Population Fund World Population Dashboard (mid-year 2021). Age-adjusted deaths rates by race and ethnicity, and deaths by location are from the United States Department of Health & Human Services, Centers for Disease Control and Prevention CDC Wonder.

Population share by race and ethnicity are from the 2020 Census State Redistricting Data from the California Department of Finance, H2: Population and Percent Change by Race (Not Hispanic/Latino) and Hispanic/Latino: 2010 and 2020. Multiple and Other, White, Asian, and Black or African American are not Hispanic or Latino. Visit the Silicon Valley COVID-19 Dashboard for data updated daily (https://siliconvalleyindicators.org/live-updates/covid-data). The Silicon Valley COVID-19 Dashboard was developed in partnership with the Stanford Future Bay Initiative (Student Lead: Simone Speizer; Mentor: Derek Ouyang). Vaccination data were from the County COVID-19 data dashboards, the California Department of Health, and the United States Department of Health & Human Services, Centers for Disease Control and Prevention. Data are as of February 8, 2022, except Santa Clara County (February 9) and United States (February 10). The share of the population fully vaccinated includes those who received either the one-dose vaccine or two doses of the two-dose vaccines; partially vaccinated includes those with only one dose of the two-dose vaccines. Population figures used to compute percentages were also from the COVID-19 dashboards.

PEOPLE

TALENT FLOWS AND DIVERSITY

Population Change
Data are from the California Department of Finance E-2 and E-6 Population Estimates and Components of Change, and include San Mateo and Santa Clara Counties. Estimates for 2021 are preliminary. Natural Change equals births minus deaths. Net migration includes all legal and unauthorized foreign immigrants, residents who left the state to live abroad, and the balance of hundreds of thousands of people moving to and from California from within the United States. 2011 to 2021 data are from the December 2021 release. 2000-2010 data were updated with the revision released in December 2011; 1991-1999 data were updated with the revised historical data released February 2005.

Net Migration Flows
Data are from the California Department of Finance E-2 and E-6 Population Estimates and Components of Change, and include San Mateo and Santa Clara Counties. Estimates for 2021 are preliminary. Net migration includes all legal and unauthorized foreign immigrants, residents who left the state to live abroad, and the balance of hundreds of thousands of people moving to and from California from within the United States. 2011 to 2021 data are from the December 2021 release. 2000-2010 data were updated with the revision released in December 2011; 1991-1999 data were updated with the revised historical data released February 2005. Refugee Arrivals data are from the Refugee Processing Center, via the California Immigrant Data Portal (National Equity Atlas), and include the number of refugees admitted into the United States. Silicon Valley data includes Santa Clara & San Mateo Counties, plus the City of Fremont. Percent likely to move out is from the 2021 Silicon Valley Poll, and include those who responded that it is an "agree" or "strongly agree." Democrats and Republicans include "*leaners*."

Domestic In/Out Migration
Worker migration data are from the LinkedIn Economic Graph Workforce Reports, December 2019-2021. Domestic in/out migration is estimated using worker migration estimates, average household size (from the California Department of Finance, E-5 estimates), average number of workers per household (from the U.S. Census Bureau American Community Survey 1-Year Estimates), LinkedIn member estimates, and the approximate share of California workers represented on LinkedIn (from LinkedIn Talent Insights). This estimation method assumes that workers move their entire household at once, that workers on and off LinkedIn are moving in/out at approximately the same rates, and that households with 3+ workers have three. Migration data only includes the top ten U.S. origins/destinations.

Domestic Outmigration Destinations
Domestic migration data are from the United States Census Bureau, County-to-County Migration Flows using data from the American Community Survey (ACS) 5-Year Estimates, 2015-2019; data are estimates for a one-year period, based on a five-year data collection period. Silicon Valley includes Santa Clara and San Mateo counties, and migration between those two counties are not included. Domestic Outmigration is the gross outmigration (not net, which would subtract counterflow). The Monterey Bay Area includes Santa Cruz, San Benito, and Monterey counties; the Sacramento Metro area includes Sacramento, Yolo, El Dorado, Placer, Sutter, Yuba, and Nevada counties; San Joaquin Valley includes San Joaquin, Kern, Kings, Stanislaus, Merced, Fresno, Madera, and Tulare counties; Rest of Southern California includes Imperial, Los Angeles, Orange, Riverside, San Bernardino, San Diego, Santa Barbara, San Luis Obispo, and Ventura counties; Seattle-Tacoma includes King, Snohomish, Pierce, Kitsap, Thurston, Skagit, Iland, and Mason counties; the Greater Phoenix, AZ area includes La Paz, Yuma, Maricopa, Pima, Pinal, Gila, and Yavapai counties; the Greater Portland, OR area includes Multnomah, Clackamas, Washington, Yamhill, and Columbia counties; the Dallas-Fort Worth, Texas Metro includes Collin, Dallas, Ellis, Hunt, Kaufman, and Rockwall counties; New York City includes Bronx, Kings, New York, Queens, and Richmond counties; Las Vegas, NV includes Clark County; Greater Austin, Texas includes Bastrop, Caldwell, Hays, Travis, and Williamson counties; Greater Boston, MA includes Norfolk, Plymouth, Suffolk, Essex, Middlesex, Rockingham, and Strafford counties; Greater Chicago, IL includes Cook, DuPage, Kane, Kendall, Lake, McHenry, and Will counties; the Salt Lake City, UT Metro Area includes Salt Lake and Tooele counties; the Washington, D.C. Metro area includes the District of Columbia, Maryland (Calvert, Charles, Frederick, Montgomery, and Prince George's counties), Virginia (Alexandria, Arlington County, Clarke County, Culpeper County, Fairfax County, Fairfax, Falls Church, Fauquier County, Fredericksburg, Loudoun County, Manassas, Manassas Park, Prince William County, Rappahannock County, Spotsylvania County, Stafford County, and Warren County), and West Virginia (Jefferson County); Greater Denver, CO includes Denver, Arapahoe, Douglas, Elbert, Jefferson, Boulder, Broomfield, Weld, Adams, Park, Clear Creek, and Gilpin counties.

Population by Age
California and county data are from the California Department of Finance, P-1B: Population Projections by Single Year of Age and P-2B: Population Projections by Individual Year of Age, 2010-2060 (2019 Baseline) updated July 19, 2021 using the latest historical population, birth, death, and migration data available as of July 1, 2020. United States data are from the United States Census Bureau, International Database (IDB) December 2021 Release based on 2017 National Projections.

Population Share by Race & Ethnicity
Data are from the United States Census Bureau, 2010 and 2020 Census Redistricting Data (P.L. 94-171) Summary File. (Note: the P.L. 94-171 data do not reflect the California Statewide Database reallocation of incarcerated persons that were enumerated in facilities under the control of the California Department of Corrections and Rehabilitation to their last residential address.) Silicon Valley data include Santa Clara and San Mateo counties plus the following four cities: Fremont, Newark, Union City, and Scotts Valley. Multiple & Other includes American Indian and Alaska Native alone, Native Hawaiian and Other Pacific Islander alone, Some Other Race alone, and Two or More Races. Asian, White, Black or African American, and Multiple & Other are not Hispanic or Latino. The Diversity Index calculation for Silicon Valley utilized the formula from the U.S. Census Bureau 2020 Census: Racial and Ethnic Diversity Index by State (August 12, 2021), originally from Phillip Meyer and Shawn McIntosh, "The USA Today Index of Ethnic Diversity,"

International Journal of Public Opinion Research (Volume 4, Issue 1), 1992. The index includes population estimates encompassing Joint Venture's city-defined region, and is calculated as: $DI = 1 - (H^2 + W^2 + B^2 + AIAN^2 + Asian^2 + NHPI^2 + SOR^2 + Multi^2)$ where H is % Hispanic or Latino, W is % White alone, B is % Black or African American alone, AIAN is % American Indian and Alaska Native alone, Asian is % Asian alone, NHPI is % Native Hawaiian and Other Pacific Islander alone, SOR is % Some Other Race alone, MULTI is % Two or More Races. Estimates for all races included in the calculation are not Hispanic or Latino. The Diversity Index (DI) indicates the probability that two people chosen at random will be from different racial and/or ethnic groups; a DI of zero indicates no diversity, whereas a DI of 1 indicates complete diversity (everyone is of a different race and/or ethnicity). The probabilities have been converted into percentages to make them easier to interpret. The Divergence Index is a measure of racial residential segregation and for this analysis, it compares the demographics of census tracts in Santa Clara and San Mateo counties to the demographics of the larger metro-regions (CBSAs) in which the tracts are located. The degree of difference is how much those demographics diverge, thus the divergence score. This methodology allows for the comparison of more than two groups at a time, which is especially useful in a region like the Bay Area which is both diverse and segregated. Rather than thresholds or cut offs for low, moderate and high divergence scores, the Othering & Belonging Institute recommends looking at the ranking of the score compared to all US census tracts since the scores of a region may change drastically over time, and single numbers may become incomparable to the larger U.S. The percentages indicate the share of Silicon Valley census tracts which are in the top third, middle third, and bottom third of US divergence scores per decade (i.e. the comparison to the U.S. is built into the high/mod/low/ classification).

Total Number of Births
Data are from the California Department of Finance E-2 and E-6 Population Estimates and Components of Change, and include San Mateo and Santa Clara Counties. Estimates for 2021 are preliminary. 2011 to 2021 data are from the December 2021 release. 2000-2010 data were updated with the revision released in December 2011; 1991-1999 data were updated with the revised historical data released February 2005.

Educational Attainment
Data for adult educational attainment are for Santa Clara and San Mateo counties and California and are from the United States Census Bureau, American Community Survey 5-Year Estimates. Data reflects the educational attainment of the population 25 years and over. Educational Attainment by Race/Ethnicity reflects adults 25 years and over whose highest degree received was either a bachelor's degree or a graduate degree. Multiple and Other includes Two or More Races, Some Other Race, Native Hawaiian and Other Pacific Islander, and American Indian and Alaska Native; White is not Hispanic or Latino. Bachelor's Degrees in Silicon Valley over time for people 25 years and over includes Decennial Census data from 1970, 1980, 1990 and 2000 and the United States Census Bureau, American Community Survey 5-year Estimates for 2010 and 2019. Data for 19- and 20-year-olds with a high school diploma or equivalent are for Santa Clara and San Mateo counties and California and are from the United States Census Bureau, American Community Survey 5-Year Estimates (2006-2010 and 2015-2019). Multiple and Other includes Two or More Races, Some Other Race, Native Hawaiian and Other Pacific Islander, and American Indian and Alaska Native; White is not Hispanic or Latino. Data was not available for Alaska Native in San Mateo and Santa Clara counties and American Indian in San Mateo County.

Science and Engineering Degrees
Data are from the National Center for Education Statistics. Regional data for the Silicon Valley includes the following post-secondary institutions: Menlo College, Cogswell Polytechnical College, University of San Francisco, University of California (Berkeley, Davis, Santa Cruz, San Francisco), Santa Clara University, San Jose State University, San Francisco State University, Stanford University, and Golden Gate University. Beginning with the 2015 data, California State University-East Bay, International Technological University, and Notre Dame de Namur University were added. The academic disciplines include: computer and information sciences, engineering, engineering-related technologies, biological sciences/life sciences, mathematics, physical sciences and science technologies. Data were analyzed based on first major and level of degree (bachelor's, master's, or doctorate). The year listed represents the end of the school year (e.g., 2020 represents the 2019-2020 school year). Data for race and ethnicity includes the share of degrees where data was available; other includes American Indian, Alaska Native, Native Hawaiian or Other Pacific Islander.

Foreign Born & Immigration Status
Data for the percentage of the total population who are foreign born are from the United States Census Bureau, 2019 American Community Survey, 1-Year Estimates. Silicon Valley includes Santa Clara and San Mateo Counties. Data for the Foreign Born Share of Employed Residents Over Age 16, by Occupational Category are from the United States Census Bureau, 2019 American Community Survey Public Use Microdata, and include Santa Clara and San Mateo Counties. Foreign born residents do not include those who were Born Abroad of American Parent(s). Estimates for the foreign born share include employed residents over age 16 who are at work only. Tech includes Computer & Mathematical, Architectural & Engineering occupations. Immigration Status is from the California Immigrant Data Portal (Data: IPUMS USA), a project of University of Southern California's Equity Research Institute (ERI), and includes the composition of the immigrant population by immigration status, race, ancestry and age group. Data represent a 2014-2018 average. Immigration status is estimated based on an approach developed by the Equity Research Institute.

Foreign Language
Data for Silicon Valley include Santa Clara and San Mateo Counties, and are from the United States Census Bureau, American Community Survey 5-Year Estimates. The population-based data is for the population five years and over. German includes other West Germanic Languages, French includes Haitian or Cajun, Tagalog includes Filipino, Slavic Languages include Russian, Polish, and other Slavic Languages, and Chinese includes Mandarin and Cantonese. The Limited English-Speaking data is based on households in Santa

APPENDIX A

PEOPLE *continued*

Clara and San Mateo Counties, California and the United States. The US Census defines a limited English-speaking household as one in which no member 14 years old and over (1) speaks only English or (2) speaks a non-English language and speaks English "very well."

Share of Female Employees and Employees by Race and Ethnicity at Silicon Valley's Largest Technology Companies
Analysis included the 20 largest tech companies by rank in the Silicon Valley Business Journal Book of Lists, 2019-2020, for which sex diversity data and race and equity data have been disclosed. Companies included are Apple, Google, Oracle, Lockheed Martin, Intel, Cisco, Tesla, Facebook, Vmware, Paypal, Applied Materials, Adobe, Linkedin, Nvidia, ServiceNow, Gilead Sciences, Ebay, NetApp, Intuit, and Juniper Networks. The share of female workers and workers by race and ethnicity are company-wide (or in some cases for

the U.S. workforce only), not Silicon Valley-specific. The overall regional workforce data by sex and by race and ethnicity are for Santa Clara and San Mateo Counties from the U.S. Census Bureau, 2020 American Community Survey 1-year Estimates using microdata with experimental weights.

Share of Residents in Technical Occupations with a Bachelor's Degree or Higher, by Place of Origin
Data are from the U.S. Census Bureau, American Community Survey 5-Year Estimates for 2015-2019, and include all civilian employed workers who reside in San Mateo or Santa Clara Counties, with a bachelor's degree or higher, who work in technical occupations (including Computer, Mathematical, Architectural, and Engineering occupations). Oceania includes At Sea.

ECONOMY

EMPLOYMENT

Total Number of Jobs and Percent Change over Prior Year
Data includes average annual employment estimates as of the second quarter for years 2001 through 2021 from the United States Bureau of Labor Statistics Quarterly Census of Employment and Wages, and includes the entire city-defined Silicon Valley region. Data for Q2 of 2021 was estimated at the industry level by BW Research using Q1 2021 QCEW data and updated based on Q2 2021 reported growth and totals, and modified slightly by JobsEQ, which removes suppressions and reorganizes public sector employment.

Relative Job Growth
Data is from the United States Bureau of Labor Statistics, Quarterly Census of Employment and Wages for Q2 2007, Q2 2010, Q2 2019, Q2 2020, and Q2 2021. The total number of jobs for Q2 of 2021 was estimated by BW Research using Q1 2021 data and Q2 reported growth, modified slightly by JobsEQ which removes suppressions and reorganizes public sector employment.

Total Employment, by Major Areas of Economic Activity; Innovation & Information Products and Services Jobs at the Region's Largest Tech Companies
Data includes average annual employment estimates as of the second quarter from the United States Bureau of Labor Statistics Quarterly Census of Employment and Wages, and includes the entire city-defined Silicon Valley region. Data for Q2 of 2021 was estimated at the industry level by BW Research using Q1 2021 QCEW data and updated based on Q2 2021 reported growth and totals, and modified slightly by JobsEQ, which removes suppressions and reorganizes public sector employment. Community Infrastructure & Services includes Healthcare & Social Services (including state and local government jobs); Retail; Accommodation & Food Services; Education (including state and local government jobs); Construction; Local Government Administration; Transportation; Banking & Financial Services; Arts, Entertainment & Recreation; Personal Services; Federal Government Administration; Nonprofits; Insurance Services; State Government Administration; Warehousing & Storage; and Utilities (including state and local government jobs). Innovation and Information Products & Services includes Computer Hardware Design & Manufacturing; Semiconductors & related Equipment Manufacturing; Internet & Information Services; Technical Research & Development (Include Life Sciences); Software; Telecommunications Manufacturing & Services; Instrument Manufacturing (Navigation, Measuring & Electromedical); Pharmaceuticals (Life Sciences); Other Media & Broadcasting, including Publishing; Medical Devices (Life Sciences); Biotechnology (Life Sciences); and I.T. Repair Services. Business Infrastructure & Services includes Wholesale Trade; Personnel & Accounting Services; Administrative Services; Technical & Management Consulting Services; Facilities; Management Offices; Design, Architecture & Engineering Services; Goods Movement; Legal; Investment & Employer Insurance Services; and Marketing, Advertising & Public Relations. Other Manufacturing includes Primary & Fabricated Metal Manufacturing; Machinery & Related Equipment Manufacturing; Other Manufacturing; Transportation Manufacturing including Aerospace & Defense; Food & Beverage Manufacturing; Textiles, Apparel, Wood & Furniture Manufacturing; and Petroleum and Chemical Manufacturing (Not in Life Sciences). The largest Silicon Valley tech employers are from the Silicon Valley Business Journal, "Largest technology employers in Silicon Valley" ranked by local employee headcount for 2019, 2020, and 2021 merged into one list of the largest 20. Employment numbers are estimates obtained from LinkedIn; Silicon Valley represents the city-defined region. Because LinkedIn is primarily a professional network, employment should be considered to primarily include business professionals (as opposed to retail and/or other employees). 2021 data are as of June. Largest 25 tech employers included in the analysis were Google, Apple, Facebook, Cisco, Amazon, Oracle, Tesla, Intel, Salesforce, LinkedIn, Nvidia, Applied Materials, Adobe, Lockheed Martin, VMware, PayPal, eBay, Gilead Sciences, Western Digital, Uber, Microsoft, Hewlett Packard Enterprise, SAP, Netflix, and HP Inc. Uber employment estimates exclude those who self-reported as a driver.

Employment by Major Areas of Economic Activity & Tier
Data includes average annual employment estimates as of the second quarter from the United States Bureau of Labor Statistics Quarterly Census of Employment and Wages, and includes the entire city-defined Silicon Valley region. Data for Q2 of 2021 was estimated at the industry level by BW Research using Q1 2021 QCEW data and updated based on Q2 2021 reported growth and totals, and modified slightly by JobsEQ, which removes suppressions and reorganizes public sector employment. Community Infrastructure & Services includes Healthcare & Social Services (including state and local government jobs); Retail; Accommodation & Food Services; Education (including state and local government jobs); Construction; Local Government Administration; Transportation; Banking & Financial Services; Arts, Entertainment & Recreation; Personal Services; Federal Government Administration; Nonprofits; Insurance Services; State Government Administration; Warehousing & Storage; and Utilities (including state and local government jobs). Innovation and Information Products & Services includes Computer Hardware Design & Manufacturing; Semiconductors & related Equipment Manufacturing; Internet & Information Services; Technical Research & Development (Include Life Sciences); Software; Telecommunications Manufacturing & Services; Instrument Manufacturing (Navigation, Measuring & Electromedical); Pharmaceuticals (Life Sciences); Other Media & Broadcasting, including Publishing; Medical Devices (Life Sciences); Biotechnology (Life Sciences); and I.T. Repair Services. Business Infrastructure & Services includes Wholesale Trade; Personnel & Accounting Services; Administrative Services; Technical & Management Consulting Services; Facilities; Management Offices; Design, Architecture & Engineering Services; Goods Movement; Legal; Investment & Employer Insurance Services; and Marketing, Advertising & Public Relations. Other Manufacturing includes Primary & Fabricated Metal Manufacturing; Machinery & Related Equipment Manufacturing; Other Manufacturing; Transportation Manufacturing including Aerospace & Defense; Food & Beverage Manufacturing; Textiles, Apparel, Wood & Furniture Manufacturing; and Petroleum and Chemical Manufacturing (Not in Life Sciences). The largest Silicon Valley tech employers are from the Silicon Valley Business Journal, "Largest technology employers in Silicon Valley" ranked by local employee headcount for 2019, 2020, and 2021 merged into one list of the largest 20. Employment numbers are estimates obtained from LinkedIn; Silicon Valley represents the city-defined region. Because LinkedIn is primarily a professional network, employment should be considered to primarily include business professionals (as opposed to retail and/or other employees). 2021 data are as of June. Largest 25 tech employers included in the analysis were Google, Apple, Facebook, Cisco, Amazon, Oracle, Tesla, Intel, Salesforce, LinkedIn, Nvidia, Applied Materials, Adobe, Lockheed Martin, VMware, PayPal, eBay, Gilead Sciences, Western Digital, Uber, Microsoft, Hewlett Packard Enterprise, SAP, Netflix, and HP Inc. Uber employment estimates exclude those who self-reported as a driver. Occupational segmentation into tiers has been recently adopted by the California Employment Development Department (EDD), and implemented over the last several years by BW Research for regional occupational analysis. Occupational segmentation allows for the in-depth examination of the quality and quantity of jobs in a given economy. This occupational segmentation technique delineates the majority of occupations into one of three tiers. Tier 1 Occupations include managers (Chief Executives, Financial Managers, and Sales Managers), professional positions (Lawyers, Accountants, and Physicians) and highly-skilled technical occupations, such as Scientists, Computer Programmers, and Engineers, and are typically the highest-paying, highest-skilled occupations in the economy. Tier 2 Occupations include sales positions (Sales Representatives), teachers, and librarians, office and administrative positions (Accounting Clerks and Secretaries), and manufacturing, operations, and production positions (Assemblers, Electricians, and Machinists). They have historically provided the majority of employment opportunities and may be referred to as middle-wage, middle-skill positions. Tier 3 Occupations include protective services (Security Guards), food service and retail positions (Waiters, Cooks, and Cashiers), building and grounds cleaning positions (Janitors), and personal care positions (Home Health Aides and Child Care Workers).

Monthly Unemployment Rate
Monthly unemployment rates are calculated using employment and labor force data from the Bureau of Labor Statistics, Current Population Statistics (CPS) and the Local Area Unemployment Statistics (LAUS). Rates are not seasonally adjusted. County-level and California data for November and December 2021 are preliminary, and county-level data for December are from the California Employment Development Department January 21, 2022 release.

Unemployment by Race & Ethnicity
Data is from the U.S. Census Bureau, American Community Survey 5-Year Estimates (2010, 2015, and 2019); 2020 data are from the American Community Survey 1-Year Public Use Microdata (PUMS) with experimental weights. Silicon Valley includes Santa Clara and San Mateo Counties. The data counts the number of unemployed civilian persons, as well as estimates the total civilian labor force in each racial/ethnic category for residents 16 years of age and older. White is not Hispanic or Latino. Data are limited to the household population and exclude the population living in institutions, college dormitories, and other group quarters. Data for Initial Unemployment Insurance (UI) Claims are from the California Employment Development Department, and include Santa Clara and San Mateo Counties. Estimates represent a weekly average for each month. Race is from optionally self-identified information at the time a claim is filed. County represents the mailing address given by the claimant at the time of filing; it is possible that an individual can reside in a different county than their mailing address. Initial claims represent the number of claims submitted for all UI programs in addition to federal extended benefit programs. Initial claims totals are not representative of the number of individuals filing as a claimant can have multiple initial claims. Employment data by race and ethnicity used to calculate UI claims filed per 10,000 employed is from the U.S. Census Bureau, 2019 and 2020 American Community Survey 1-Year Estimates, and includes all employed workers ages 16 and over.

Top U.S. Tech Talent Centers
Data are from the CBRE Research 2021 Scoring Tech Talent report. Scoring Tech Talent is a comprehensive analysis of labor market conditions, cost and quality in North America for highly skilled tech workers. The top 50 markets in the U.S. and Canada were ranked according to their competitive advantages and appeal to both employers and tech talent using data from the U.S. Bureau of Labor Statistics and other sources. Tech Talent includes the following occupation categories: software developers and programmers; computer support, database and systems; technology and engineering related; and computer and information system managers. Tech talent workers comprise 20 different occupations, which are highly concentrated within the high-tech services industry but are spread across all industry sectors. Using this definition, a software developer who works for a logistics or financial services company is included in the data.

Employment Growth at Largest Silicon Valley Tech Companies
Largest Bay Area tech employers are from the Silicon Valley Business Journal, "Largest technology employers in Silicon Valley" ranked by local employee headcount for 2019, 2020, and 2021 merged into one list of the largest 20. Employment numbers are estimates obtained from LinkedIn. Because LinkedIn is a professional network, employment should be considered to primarily include business professionals (as opposed to retail and/or other employees). Historical data for companies not previously listed among the top 15 was filled in using global workforce numbers from SEC filings and past Silicon Valley Business Journal overall employment counts; U.S. workforce numbers were filled in using EEO-1 reports, as available, or estimated using the nearest date for U.S. workforce numbers. 2019 data from January; 2020 data represents an average of December 2019 and January 2020; 2021 represents an average of December 2020 and June 2021; 2022 from December 2021. The largest Bay Area tech companies included in the analysis were Apple, Google, Cisco, Tesla, Facebook, Intel, Gilead Sciences, Oracle, Lockheed Martin, Nvidia, LinkedIn, Microsoft, Amazon, Salesforce, Uber, Adobe, VMware, Western Digital, Applied Materials, and HP Inc. Uber employment estimates exclude those who self-reported as a driver. The various U.S. regions are defined by LinkedIn as either metro areas or the "greater" region around a particular city; location is self-reported by LinkedIn users. Regions include Atlanta Georgia Metro, Austin Texas Metro, Denver Colorado Metro, Greater Sacramento California, Portland Oregon Metro, San Francisco Bay Area, and Greater Seattle Washington. January 2020 through December 2021 employment growth at top Silicon Valley Tech Companies exclude Adobe, VMware, Western Digital, and HP Inc. due to lack of data.

INCOME

Per Capita Personal Income
Per capita income is from the United States Department of Commerce, Bureau of Economic Analysis (BEA). Values are calculated using personal income data and population figures from the U.S. Census Bureau mid-year population estimates (county estimates available as of March 2021) released November 16, 2021 including new statistics for 2020 and revised statistics for 1998-2019. Silicon Valley data include Santa Clara and San Mateo Counties. All per capita income values have been inflation-adjusted and are reported in 2020 dollars using the Bay Area consumer price index for all urban consumers from the Bureau of Labor Statistics for Silicon Valley data, the California consumer price index for all urban consumers from the California Department of Finance May Revision Forecast (April 2021) for California data, and the U.S. city average consumer price index for all urban consumers from the U.S. Bureau of Labor Statistics. The personal per capita income for the United States is derived from state and regional data (as opposed to National Income and Product Accounts data), which include all persons who reside in a state, regardless of the duration of residence, except for foreign nationals employed by their home governments in the United States. State personal income includes the income of resident foreign nationals working in the United States—including migrant workers—regardless of length of residency. It excludes the portion of income earned abroad by U.S. citizens living abroad for less than a year. It also excludes the earnings of federal civilian and military personnel stationed abroad and the property income received by the federal pension plans of those workers.

Per Capita Income by Race & Ethnicity
Data for per Capita Income are from the United States Census Bureau American Community Survey 1-Year Estimates. All income values have been inflation-adjusted and are reported in 2019 dollars using the Bay Area consumer price index for all urban consumers from the Bureau of Labor Statistics for Silicon Valley and San Francisco data, the California consumer price index for all urban consumers from the California Department of Finance for California data, and the U.S. city average consumer price index for all urban consumers from the Bureau of Labor Statistics. Silicon Valley data includes Santa Clara and San Mateo Counties. Per capita income is the mean money income received computed for every man, woman, and child in a geographic area. It is derived by dividing the total income of all people 15 years old and over in a geographic area by the total population in that area. Income is not collected for people under 15 years old even though these people are included in the denominator of per capita income. This measure is rounded to the nearest whole dollar. Money income includes amounts reported separately for wage or salary income; net self-employment income; interest, dividends, or net rental or royalty income or income from estates and trusts; Social Security or Railroad Retirement income; Supplemental Security Income (SSI); public assistance or welfare payments; retirement, survivor, or disability pensions; and all other income. Population data used to compute per capita values are from the United States Census Bureau, American Community Survey 1-Year Estimates. Multiple & Other includes Native Hawaiian & Other Pacific Islander Alone, American Indian & Alaska Native Alone, Some Other Race Alone and Two or More Races; White is not Hispanic or Latino.

Average Wages by Race & Ethnicity
Data are from the United States Census Bureau, 1-Year and 5-Year American Community Survey Public Use Microdata (PUMS), and include all full-time (35 or more hours per week) workers over age 15 with earnings. Silicon Valley data includes Santa Clara and San Mateo Counties.

Individual Median Income, by Educational Attainment
Data for Median Income by Educational Attainment are from the U.S. Census Bureau American Community Survey, 1-Year Estimates, and include the population 25 years and over with earnings. All income values have been inflation-adjusted and are reported in 2019 dollars using the Bay Area consumer price index for all urban consumers from the Bureau of Labor Statistics for Silicon Valley data. Silicon Valley data includes Santa Clara and San Mateo Counties.

Average Annual Earnings
Data are from the California Employment Development Department and JobsEQ. Earnings include wages, salaries, profits, benefits, and other compensation, and are calculated by dividing total earnings by the number of jobs. Data for Silicon Valley include San Mateo and Santa Clara Counties, and the Cities of Fremont, Newark, Scotts Valley, and Union City. Earnings include wages and supplements.

Median Wages for Various Occupational Categories
Data are from the California Employment Development Department, Employment and Wages by Occupation, 2010-2021, for the San Jose-Sunnyvale-Santa Clara Metropolitan Statistical Area (MSA), including Santa Clara and San Benito Counties, and the San Francisco-San Mateo-Redwood City MSA, including Marin, San Francisco, and San Mateo Counties. The San Francisco-Redwood City-South San Francisco Metropolitan Division replaced the San Francisco-San Mateo-Redwood City MSA in 2017. Wages have been inflation-adjusted and are reported in 2021 dollars using the Bay Area consumer price index for all urban consumers from the Bureau of Labor Statistics for Bay Area data, and 2021 estimate based on January-August the California consumer price index for all urban consumers from the California Department of Finance May Revision Forecast (April 2021) for California data. Management, Business, Science and Arts Occupations include Management; Business and Financial Operations; Computer and Mathematical; Architecture and Engineering; Life, Physical, and Social Science; Community and Social Services; Legal; Education, Training, and Library; Arts, Design, Entertainment, Sports, and Media; and Healthcare Practitioners and Technical Occupations. Service Occupations include Healthcare Support; Protective Services; Food Preparation and Serving-Related; Building and Grounds Cleaning and Maintenance; and Personal Care and Service Occupations. Sales and Office Occupations include Sales and Related; and Office and Administrative Support Occupations. Natural Resources, Construction and Maintenance Occupations include Farming, Fishing and Forestry; Construction and Extraction; and Installation, Maintenance and Repair Occupations. Production, Transportation and Material Moving Occupations include Production; and Transportation and Material Moving Occupations.

Median Wages by Tier
Median Wages by Tier data are based on Occupational Employment Statistics from the U.S. Bureau of Labor Statistics, Quarterly Census of Employment and Wages (QCEW) and modified slightly by JobsEQ county-level earnings by industry. 2021 data are estimates based on QCEW 2021 Q1 data. Occupational segmentation into tiers has been recently adopted by the California Employment Development Department (EDD), and implemented over the last several years by BW Research for regional occupational analysis. Occupational segmentation technique delineates the majority of occupations into one of three tiers. Tier 1 Occupations include managers (Chief Executives, Financial Managers, and Sales Managers), professional positions (Lawyers, Accountants, and Physicians) and highly-skilled technical occupations, such as Scientists, Computer Programmers, and Engineers, and are typically the highest-paying, highest-skilled occupations in the economy. Tier 2 Occupations include sales positions (Sales Representatives), teachers, and librarians, office and

ECONOMY *continued*

administrative positions (Accounting Clerks and Secretaries), and manufacturing, operations, and production positions (Assemblers, Electricians, and Machinists). They have historically provided the majority of employment opportunities and may be referred to as middle-wage, middle-skill positions. Tier 3 Occupations include protective services (Security Guards), food service and retail positions (Waiters, Cooks, and Cashiers), building and grounds cleaning positions (Janitors), and personal care positions (Home Health Aides and Child Care Workers). These occupations typically represent lower-skilled service positions with lower wages that require little formal training and/or education.

Average Wages for Full-Time Workers, by Sex
Data is from the United States Census Bureau, American Community Survey Public Use Microdata (PUMS), and includes all full-time (35 or more hours per week) workers over age 15 with earnings. Silicon Valley data includes Santa Clara and San Mateo Counties.

Median Household Income
Data for Median Household Income are from the U.S. Census Bureau American Community Survey 1-Year Estimates. 2020 data are from the 2020 1-Year Public Use Microdata (PUMS) with experimental weights. Data for San Francisco for the year 2000 is from the Decennial Census. All income values have been inflation-adjusted and are reported in 2020 dollars using the Bay Area consumer price index for all urban consumers from the Bureau of Labor Statistics for Silicon Valley and San Francisco data, the California consumer price index for all urban consumers from the California Department of Finance May Revision Forecast (April 2021) for California data, and the U.S. city average consumer price index for all urban consumers from the Bureau of Labor Statistics. Silicon Valley data include Santa Clara and San Mateo Counties. Median household income for Silicon Valley from 2000 - 2005 was estimated using a weighted average based on the county population figures from the California Department of Finance E-4 Population Estimates for Cities, Counties, and the State.

Wealth
2020 and 2022 data are from Claritas, Claritas Income Producing Assets Indicators model based on the Survey of Consumer Finances. 2018 data are from Phoenix Global Wealth Monitor (which utilizes Claritas data). Silicon Valley includes Santa Clara and San Mateo Counties. Investable Assets include education/custodial accounts, individually-owned retirement accounts, stocks, options, bonds, mutual funds, managed accounts, hedge funds, structured products, ETFs, cash accounts, annuities, and cash value life insurance. Segment distributions are approximations. 2018 market sizing estimates were used to estimate 2020 and 2022 market sizes for $3-4.99 million, $5-9.99 million, and $10+ million. The distribution of wealth among households with less than $25,000 in investable assets was calculated by applying the national breakdown (U.S. Census Bureau, Survey of Income and Program Participation 2018 for 2018 data, and 2019 for 2020 and 2022 data). The Phoenix Wealth and Affluent Monitor (W&AM) U.S. Sizing Report is intended to provide estimates of the number of affluent and High Net Worth households in the country. Sizing estimates are provided at the state level as well as by Core-Based Statistical Areas (CBSAs), which is comprised of Metropolitan and Micropolitan Statistical Areas (933 in the country). The W&AM sizing estimates are developed using a combination of sources including the Survey of Consumer Finance, as well as Nielsen-Claritas. National data and closely linked variables are used to obtain estimates at the local level; thus, the county-level data are approximations only.

Income Inequality
Data are from the U.S. Census Bureau, American Community Survey Public Use Microdata (2005+) and the Decennial Census (1990 and 2000). Silicon Valley data include Santa Clara and San Mateo Counties. The Absolutely Gini Coefficient is determined by the product of the Relative Gini and the inflation-adjusted mean household income. The Relative Gini Coefficient indicates the degree to which incomes are concentrated. A Relative Gini of zero corresponds to no concentration, or incomes that are the same across all households. A Relative Gini of 100 indicates that all income is concentrated in a single household. Figures between 0 and 100 indicate proximity to either endpoint. Income data used to calculate the relative Gini Coefficient were inflation-adjusted to 2020 dollars using the Bay Area consumer price index for all urban consumers from the Bureau of Labor Statistics for Silicon Valley and Bay Area data, the California consumer price index for all urban consumers from the California Department of Finance May Revision Forecast (April 2021) for California data, and the U.S. city average consumer price index for all urban consumers from the Bureau of Labor Statistics. The Absolute Gini is scaled to equal the Relative Gini in 1990. The Intermediate Gini is the product of the Relative and Absolute Gini Coefficients. Data for 2020 are estimates from the 1-year American Community Survey microdata with experimental weights.

Poverty Status
Data for the percentage of the population living in poverty are from the U.S. Census Bureau, American Community Survey (ACS) 1-Year Estimates; 2020 data are from the 2020 1-Year Public Use Microdata (PUMS) with experimental weights. Data by race and ethnicity are from the ACS 5-Year Estimates for 2015-2019. Silicon Valley includes San Mateo and Santa Clara Counties. Following the Office of Management and Budget's (OMB's) Directive 14, the Census Bureau uses a set of money income thresholds that vary by family size and composition to determine who is in poverty. If the total income for a family or unrelated individual falls below the relevant poverty threshold (e.g., household income of $26,200 for a family of four in 2020 within the 48 contiguous states and the District of Columbia), then the family (and every individual in it) or unrelated individual is considered in poverty.

Self-Sufficiency
Data are from the Self-Sufficiency Standard for California, from the Center for Women's Welfare at the University of Washington School of Social Work. Silicon Valley data includes Santa Clara and San Mateo Counties; Bay Area includes the 9-county region; California is a statewide county average. Developed by Dr. Diana Pearce, the Self-Sufficiency Standard defines the amount of income necessary to meet basic needs (including taxes) without public subsidies (e.g., public housing, food stamps, Medicaid or child care) and without private/informal assistance (e.g., free babysitting by a relative or friend, food provided by churches or local food banks, or shared housing). The family types for which a Standard is calculated range from one adult with no children, to one adult with one infant, one adult with one preschooler, and so forth, up to three-adult households with six teenagers. Asian/Pacific Islander, Black, and White are non-Hispanic or Latino. 2021 data was based on the regional household compositions from the 2015-2019 ACS 5-Year Estimates using the 2021 Self Sufficiency Standard for California Counties. Self-Sufficiency wages are for 2021. Portland, Oregon data includes Multnomah County, and comes from Annie Kucklick & Lisa Manzer. "Overlooked and Undercounted 2021: Struggling to Make Ends Meet in Oregon," Center for Women's Welfare and Worksystems (September 2021). New York City data is from Annie Kucklick & Lisa Manzer. "Overlooked and Undercounted 2021: Struggling to Make Ends Meet in New York City," Center for Women's Welfare and the Women's Center for Education and Career Advancement (June 2021).

Number of Meals Provided by Food Assistance Programs; Millions of Meals Distributed
Data for food assistance provided was compiled by Silicon Valley Institute for Regional Studies' Senior Fellow, Drew Starbird (Santa Clara University's Leavey School of Business, Center for Food Innovation and Entrepreneurship) and Affiliated Researchers Isabelle Foster and Charlie Hoffs (unBox, and Institute Community Research Partner). Data include the largest sources of public and private food assistance in Santa Clara and San Mateo counties, including Senior Nutrition, Summer Meals, School Meals (Free and Reduced Price Breakfast and Lunch), WIC (Women, Infants, and Children), Supplemental Nutrition Assistance Program (CalFresh, formerly Food Stamps), Child and Adult Care Food Program (CACFP), Second Harvest of Silicon Valley (Food Bank), and other sources. Data was obtained via publicly available digital resources, or provided directly by staff at Second Harvest of Silicon Valley, the California Department of Education, the Health Trust, the Santa Clara Social Services Agency, and Sourcewise Community Resource Solutions. Beginning in the 2019-20 fiscal year, Pandemic EBT (a new federal program administered by the California Department of Social Services), CACFP snacks, and CACFP Day Care Home (DCH) program meals were included. Also, in FY 2019-20 the costs were adjusted using the Regional Price Parity Index computed by the Bureau of Economic Analysis at the U.S. Department of Commerce. Caution should be used when comparing FY 2019-20 and subsequent data to that of previous years. Numbers are rounded to the nearest 1,000. San Mateo County Senior Nutrition estimated for 2019-20 and 2020-21; WIC estimated for 2020-21. There are an unknown number of smaller private efforts to serve the food insecure members of the Silicon Valley community; therefore, the numbers reported represent a conservative estimate of the true availability of food assistance within the region.

Estimated Share of Households Experiencing Food Insecurity; Change in Food Prices
Household food insecurity estimates were created using data from the U.S. Census Bureau Household Pulse Survey, smoothed over a two survey-week period (approximately one month, although survey "weeks" varied in duration). The share of households that are food insecure include those who responded that, over the past seven days, they sometimes or often did not have enough food to eat, or they did not have the types of food they wanted; this number is divided by the total number of respondents who answered the food insufficiency questions. Silicon Valley includes Santa Clara and San Mateo Counties. Silicon Valley estimates are derived from the San Francisco-Oakland-Berkeley, CA Metro Area dataset, and adjusted using a static coefficient (the quotient of the share of households living below the Self-Sufficiency Standard in the metro area and the two-county region, using 2015-2019 data) and a variable coefficient (the quotient of the unemployment rate for the metro area and the two-county region, using the rate for the month corresponding to the start date of the survey period). Pre-Pandemic estimates are derived from survey responses during survey weeks 1-21 where respondents

were asked about their food sufficiency for the period prior to March 13, 2020. Other food insecurity estimates are not directly comparable as they differ in methodology and/or time period. Consumer price index data are from the Bureau of Labor Statistics, Consumer Price Index for All Urban Consumers. Bay Area is the San Francisco-Oakland-Hayward, CA series.

INNOVATION & ENTREPRENEURSHIP

Productivity
Value added per employee is calculated as gross domestic product (GDP) divided by the total employment. GDP estimates the market value of all final goods and services. Data are from Moody's Economy.com. The employment estimates use historical data through 2018 (counties) and 2020 (California and U.S.), and forecasts updated on 11/9/2021 (U.S. data), 10/19/2021 (California data), and 11/1/2021 (Silicon Valley and San Francisco); the GDP estimates use historical data through 2020 and forecasts updated on 11/9/2021 (U.S. data), 10/19/2021 (California data) and 11/03/2021 (Silicon Valley and San Francisco). All GDP values have been inflation-adjusted and are reported in 2021 dollars using the Bay Area consumer price index for all urban consumers from the Bureau of Labor Statistics for Silicon Valley and San Francisco data, 2021 estimate based on January-August, from the California consumer price index for all urban consumers from the California Department of Finance May Revision Forecast (April 2021) for California data, and the U.S. city average consumer price index for all urban consumers from the Bureau of Labor Statistics based on January through September data.

Patent Registrations
Patent data is provided by the United States Patent and Trademark Office and consists of Utility patents granted by inventor. Geographic designation is given by the location of the first inventor named on the patent application. Silicon Valley patents include only those filed by residents of the Silicon Valley city-defined region. Other Includes: Teaching & Amusement Devices, Transportation/Vehicles, Motors, Engines and Pumps, Dispensing & Material Handling, Food, Plant & Animal Husbandry, Furniture & Receptacles, Apparel, Textiles & Fastenings, Body Adornment, Nuclear Technology, Ammunition & Weapons, Earth Working and Agricultural Machinery, Machine Elements or Mechanisms, and Superconducting Technology. The technology area categorization method was slightly modified in 2012, resulting in minor changes to the proportion of patents in each technology area relative to previous years. Population estimates used to calculate the number of patents granted per 100,000 people were from the California Department of Finance, E-1: City/County Population Estimates with Annual Percent Change. Beginning in 2015, the USPTO stopped classifying patents in the United States Patent Classification (USPC) and began using the Cooperative Patent Classification (CPC), so some USPC codes were unavailable. In those cases, unofficial routing classifications were used in place of the missing UPSC classifications. This process may create some minor inconsistencies between the 2015 and previous years' data sorted by Technology Area. Data by technology area was not available for 2019-21 at the time of analysis. 2021 estimate based on data through September 21.

Venture Capital Investment; Top Venture Capital Deals; Megadeals
Venture Capital data for 2000-2016 are from the MoneyTree™ Report from PricewaterhouseCoopers and the National Venture Capital Association, using data from CB Insights (beginning with Q4 2015) and Thomson Reuters (prior to Q4 2015). Data for 2017 and subsequent years are from Thomson ONE as of January 12, 2022. Silicon Valley includes the city-defined region. All values have been inflation-adjusted and are reported in 2021 dollars using the Bay Area consumer price index for all urban consumers from the Bureau of Labor Statistics for Silicon Valley and San Francisco data, 2021 estimate based on January-August the California consumer price index for all urban consumers from the California Department of Finance May Revision Forecast (April 2021) for California data, and the U.S. city average consumer price index for all urban consumers from the Bureau of Labor Statistics based on January through September data. Megadeals include those over $100 million each. Top Venture Capital Deals were cross-referenced with CB Insights and Crunchbase.

Unicorns & Decacorns
Unicorn and Decacorn data are from CB Insights, as of December 31, 2021. Unicorns include private companies with valuations greater than $100 million; decacorns include private companies with valuations greater than $10 billion. The valuation of Discord was from CB Insights, accessed 1/6/22.

Venture Capital by Industry
Venture Capital by Industry Data are from the MoneyTree™ Report from PricewaterhouseCoopers and the National Venture Capital Association (with data from CB Insights). For the 2019 and 2020 data, Greater Silicon Valley includes a 50 mile radius around Palo Alto and data was obtained directly from CB Insights. For prior years and 2021, Greater Silicon Valley includes Santa Clara County; Fremont, Newark, and Union City in Alameda County; Atherton, Belmont, East Palo Alto, Foster City, Menlo Park, Portola Valley, Redwood City, San Carlos, San Mateo, and Woodside in San Mateo County; San Benito, Santa Cruz, and Monterey Counties; San Francisco, Alameda, Marin, Contra Costa, and San Mateo Counties. Industries included in the Moneytree report are defined as follows: Agriculture (all aspects of farming, including crop production and health, animal production and wellness, as well as machinery, products, and related activities), Automotive and Transportation (all elements of travel by air, automobile, train, trucking, and other forms of transportation; also addresses manufacturing, parts, and maintenance), Business Products and Services (All business needs and associated services: advertising, PR, HR, staffing, training records keeping, legal services, consulting, office supplies and furniture, information services, hardware, facilities, and more; also covers associated services like commercial printing, outsourcing, and packaging), Computer Hardware & Services (Physical computing devices and related services, though specifically not the software used on those machines; includes personal and business computers, networking equipment, leasing companies, peripherals, handhelds, servers, supercomputers, gaming devices, and IT services), Consumer Products and Services (all goods and services for personal use, not Business or Industrial, including but not limited to: appliances, automotive services, rentals, consumer electronics, clothes, home furnishings, jewelry, pet products, tobacco, toys and games), Electronics (Concerned mainly with electronic components like chips, semiconductors, switches, motors, testing equipment, and scientific instruments; also related manufacturing services), Energy and Utilities (energy production, distribution, and storage, including fossil fuels, renewables, electric power companies, companies focused on energy efficiency, as well as companies researching new energy sources or technologies), Environmental Services & Equipment (companies that deal with repairing damage after an environmental event has occurred or aim to help limit the negative ecological impact of an event or company; this includes environmental and energy consulting, hazardous waste services, recycling, cleanup, and solid waste), Financial (companies dealing with wealth in any form, including but not limited to: accounting, banking, credit and collections, investments, online payments companies, and lending), Food & Beverages (food and drink of all kinds: retail and wholesale, fresh ingredients, prepared and canned items, and foodservice, but not restaurants - see Leisure; also includes food safety, flavoring and condiments, alcoholic products, and distribution), Healthcare (all aspects of medical care and wellness: diagnosis, drug development and distribution, medical products and facilities, healthcare plans, and alternative treatments and elective procedures), Industrial (equipment and facilities that are neither commercial nor residential/consumer and all related applications; mainly concerned with materials, facilities, heavy machinery, and construction), Internet (online applications, but neither the hardware on which they are run nor the ISPs that make transactions possible; all ecommerce sites are included, as are webhosting services, browser software, online advertising, email, online communications platforms of all kinds, online learning, video, and more), Leisure (in-person entertainment like movie theaters, casinos, lodging, restaurants of all kinds, sporting events, gyms, and recreation facilities), Traditional Media (all forms of non-Internet entertainment that is also not in-person - see Leisure; includes film, video, music, publishing, radio, and television), Metals & Mining (companies involved with extracting raw materials from the earth and their processing; larger categories contained herein include aluminium, coal, copper, diamonds and precious stones, precious metals, and steel; additionally the brokering and distribution of these items), Mobile & Telecommunications (communications companies and associated technologies, from overarching categories like fiber optics, telecom equipment, infrastructure, towers, and RFID systems to applications like mobile software, mobile commerce, and the telecom companies that facilitate communication over their networks), Non-Internet/Mobile Retail (brick-and-mortar retail locations of all kinds: clothes, electronics, appliances, physical media, grocery, office supplies, and every other item purchased in person that is not a leisure activity - see Leisure), Risk & Security (Security services and products that operate primarily in the physical world and encompass personal protective equipment, security and surveillance equipment, security guard companies, consultants, and more), and Non-Internet/Mobile Software (Software not covered under "Mobile" or "Internet"; It can be hosted on a user's machine or accessed remotely and can be used for any application; in this category, the software itself is the user's primary concern, not the delivery method as in Internet and Mobile categories).

Angel Investment
Data are from CB Insights and include the entire city-defined Silicon Valley region, San Francisco, California, and the United States. The analysis includes disclosed financing data for Angel deals and Seed-stage deals involving at least one Angel investor (individual or Angel group). Angel Deals are typically pre-seed and are not necessarily tied to equity. Data were extracted January 30, 2022. Investment

APPENDIX A

ECONOMY *continued*

amounts have been inflation-adjusted and are reported in 2021 dollars using the Bay Area consumer price index for all urban consumers from the Bureau of Labor Statistics for Silicon Valley and San Francisco data, 2021 estimate based on January-August, the California consumer price index for all urban consumers from the California Department of Finance May Revision Forecast (April 2021) for California data, and the U.S. city average consumer price index for all urban consumers from the Bureau of Labor Statistics based on January through September data.

Startups
Data for the total number of startup companies is from CB Insights, accessed January 30, 2022, and companies less than three years old and receiving Angel, seed, or early-stage (Series A) funding in any particular year. Silicon Valley data include the city-defined region. Startup companies for 5-year periods include those founded and funded within that period (represents the number of unique startups). The share of startups founded by women is from Crunchbase, and include those with Headquarters location in the city-defined Silicon Valley region or in San Francisco. Share of Startup Companies Founded by Women includes companies where at least one founder identified as female, divided by the number of startups founded by male and/or female founders. Data as of January 2022.

Initial Public Offerings
Data is from Renaissance Capital. Locations are based on the corporate address provided to Renaissance Capital. Silicon Valley includes the city-defined region. Rest of California includes all of the state except Silicon Valley for 2007-2012, and all of the state except Silicon Valley and San Francisco for 2013 and subsequent years. Average IPO return rates are from the time of the IPO through the end of 2021 (12/23/21). Data include traditional IPOs and direct listings with a market cap of $50 million or more; exclude Special Purpose Acquisition Companies (SPACs) and closed-end funds.

Mergers & Acquisitions
Data are from FactSet Research Systems, Inc, and are based on M&A Activity in Joint Venture's zip code-defined Silicon Valley region. Transactions include full acquisitions, majority stakes, minority stakes, club-deals and spinoffs. Silicon Valley and San Francisco deals include those involving one or more Silicon Valley or San Francisco company. 2020 and 2021 data accessed January 3, 2021.

COMMERCIAL SPACE

Commercial Space, Leasing, Vacancy, Rents, and Occupancy
Data are from JLL. Commercial space includes Office, Industrial, R&D and Lab. The JLL statistical inventory and all related reports include Office, Flex/R&D, and Lab buildings above 30,000 square feet in Santa Clara County (plus Fremont and Newark) and 20,000 square feet in San Mateo County, and all industrial developments above 10,000 square feet; any attached retail space is not included in total square footage Silicon Valley data includes San Mateo County, Santa Clara County, and the Cities of Fremont and Newark. Bay Area data includes all San Francisco Bay Area Submarkets, including Silicon Valley, North Bay, Mid-Peninsula, Oakland, and East Bay

Suburbs. The vacancy rate is the amount of unoccupied space, and is calculated by dividing the direct and sublease vacant space by the building base. The vacancy rate does not include occupied spaces presently being offered on the market for sale or lease. Lease transactions include New to Market (tenant moves into a new market from another market), Relocation (tenant moves from one location to another in the same market), Renewal (tenant renews its existing lease at its current location), Expansion (when a tenant expands its current premises to include new premises outside of its currently leased premises), Blend-and-extend (tenant's remaining lease term, usually one to three years, is extended and the current rental rate is "blended" with a newly negotiated one), and New Lease (when it is unclear if the tenant is new to market, relocating, expanding, or renewing, to indicate that a new lease transaction has taken place). Average office space asking rents are "Full Service Gross" (FSG), which is the monthly rental rate and includes common area maintenance fees, utility fees, and taxes/insurance fees. Industrial, R&D, and Lab asking rents are quoted "triple net" (NNN), which is the monthly base rental rate in which common area maintenance fees, utility fees, and taxes/insurance fees are excluded. Average asking rents have been inflation-adjusted and are reported in 2021 dollars using the Bay Area consumer price index for all urban consumers from the Bureau of Labor Statistics for Silicon Valley and San Francisco data, 2021 estimate based on January-August. Near transit is defined as located within a 10-minute walk of a Caltrain, BART, or VTA station. In an effort to provide more accurate data and reporting, JLL Silicon Valley redefined inventory classifications for Office and Flex/R&D properties. Beginning with the Q3 2020 data, the definition of a property as Office or Flex/R&D was altered to focus more on the structure of the building rather than the use. Apart from downtown areas, the El Camino and Sand Hill Road Corridors, and other office-only pockets, Office is now defined as any building with at least four stories in Santa Clara County (plus Fremont and Newark) and at least three stories in San Mateo County. Flex/R&D properties are defined as buildings that have three or fewer stories in Santa Clara County (plus Fremont and Newark) and one to two stories in San Mateo County. Additionally, as of Q3 2020, owner-occupied buildings are included in the JLL statistical inventory and reports. As of Q4 2020, Lab buildings were included as a separate category from R&D.

Hotel Development
Data is from the Atlas Hospitality Group annual California Hotel Development Surveys. Data for 2009 was unavailable, as reports were not published due to lack of significant hotel development. New Hotels include those that opened within a given year. Rest of Silicon Valley includes Fremont, Newark, Union City, and Scotts Valley.

Amount of Commercial Space Occupied by Major Tech Tenants
Data are from Colliers International Silicon Valley, and represent the aggregate amount of space owned or leased by six major tech tenants, including Amazon, Apple, Meta (formerly Facebook), Google, LinkedIn, and Netflix in Silicon Valley (including Santa Clara County, Fremont, and Menlo Park). Not all space is currently occupied (some has been leased but involves redevelopment or was under construction at the time the leases were executed).

SOCIETY

PREPARING FOR ECONOMIC SUCCESS

Graduation and Dropout Rates; College Preparation
Students meeting UC/CSU requirements includes all 12th grade graduates completing all courses required for University and/or California State University entrance. Ethnicities were determined by the California Department of Education. Any student ethnicity pools containing 10 or fewer students were excluded in order to protect student privacy. Multi/None includes both students of two or more races, and those who did not report their race. All races/ethnicities other than Not-Hispanic or Latino are non-Hispanic. Silicon Valley includes all students attending public high school in San Mateo and Santa Clara Counties, as well as those in Scotts Valley Unified School District, New Haven School District, Fremont Unified School District, and Newark Unified School District. Dropout and graduation rates are four-year adjusted rates. The adjusted rates are derived from the number of cohort members who earned a regular high school diploma (or dropped out) by the end of year 4 in the cohort divided by the number of first-time grade 9 students in year 1 (starting cohort) plus students who transfer in, minus students who transfer out, emigrate, or die during school years 1, 2, 3, and 4. Years presented are the final year of a school year (e.g., 2011-2012 is shown as 2012). Dropout and graduation rates do not add up to 100% due to GED completions, those in the cohort who are still enrolled, and also due to suppressed data in some counties/districts for certain racial/ethnic groups. Due to the changes in the methodology for calculating the 2016–17 Adjusted Cohort Graduation Rate and subsequent years, the California Department of Education strongly discourages comparing the 2016–17 and subsequent years' Adjusted Cohort Graduation Rate with the cohort outcome data from prior years.

Math Proficiency
Data for 2015-2021 are from the California Department of Education, California Assessment of Student Performance and Progress (CAASPP). Data for 2020-21 include a lower share of enrolled students with scores than typical (39% in Santa Clara and San Mateo Counties combined, compared to 98% in 2018-19); 2019-20 school year data unavailable due to the suspension of CAASPP testing as a result of the COVID-19 pandemic. Data for American Indian or Alaska Native was not available in 2020-21 on the county level for privacy reasons (due to fewer than ten students receiving scores). Beginning with the 2013–14 school year, CAASPP became the new student assessment system in California, replacing the Standardized Testing and Reporting (STAR) system. 2019 CAASPP Test Results are from tests administered in 2019. The share of eighth-graders meeting or exceeding the standard includes students who have made progress and met or exceeded the grade standard, and who appear to be ready for future coursework. Data for 2006 through 2013 are from the California Department of Education, California Standards Tests (CST) Research Files for San Mateo and Santa Clara Counties, and California. In 2003, the CST replaced the Stanford Achievement Test, ninth edition (SAT/9). The CSTs in English–language arts, mathematics, science, and history–social science were administered only to students in California public schools. Except for a writing component that was administered as part of the grade four and grade seven English–language arts tests, all questions were multiple-choice. These tests were developed specifically to assess students' knowledge of the California content standards. The State Board of Education adopted these standards, which specify what all children in California are expected to know and be able to do in each grade or course. Through the 2012-13 school year, the Algebra I CSTs were required for students who were enrolled in the grade/course at the time of testing or who had completed a course during the school year, including during the previous summer. In order to protect student confidentiality, no scores were reported in the CST research files for any group of ten or fewer students. The following types of scores are reported by grade level and content area for each school, district, county, and the state: % Advanced, % Proficient, % Basic, % Below Basic, and % Far Below Basic, and are rounded to the nearest ones place.

Computer & Internet Access
Data for Silicon Valley include Santa Clara and San Mateo Counties, and are from the United States Census Bureau, American Community Survey 5-Year Estimates. For the Share of Households Without Internet Access at Home, by Income Range table, low-income includes households with an annual income of less than $35,000, and high-income households include those with an annual income of $75,000 or more. Children include residents ages 18 and under. For the Share of Households with Computer and Broadband Internet, by Race & Ethnicity, Multiple and Other includes American Indian and Native Alaskan, Native Hawaiian and Other Pacific Islander, Some Other Race, and Two or More Races. White is Not Hispanic or Latino.

Average Internet Speeds
Data is from Measurement Lab (M-Lab), an open source project with contributors from civil society organizations, educational institutions, and private sector companies led by teams based at Code for Science & Society, New America's Open Technology Institute, Google, and Princeton University's PlanetLab. Speeds are represented in Network Diagnostic Tool (NDT), and are in Megabits per second. NDT is a diagnostic test that measures using a single TCP stream. The single stream "speed" metric doesn't measure link capacity, but rather how well a single TCP stream can take advantage of that capacity. The Silicon Valley numbers are weighted averages based on the number of speed tests performed, by city. A total of 38 million speed tests were performed in Silicon Valley cities in 2020, and 31 million in 2021 through December 22.

EARLY EDUCATION & CARE

Preschool Enrollment
Data for preschool enrollment are for San Mateo and Santa Clara counties, San Francisco County, California, and the United States. Silicon Valley includes San Mateo and Santa Clara counties. The data are from the United States Census Bureau, American Community Survey 1-Year Estimates. 2020 data for the U.S. are from the United States Census Bureau, Current Population Survey. The 2020 data for Santa Clara, San Mateo and San Francisco counties are from the ACS 1-Year microdata with experimental weights. Percentages were calculated from the number of children ages three and four that are enrolled in either public or private school, and the number that are not enrolled in school. For race and ethnicity data, Multiple and Other include American Indian and Native Alaskan, Native Hawaiian and Other Pacific Islander, More than one race, and Some other race.

English Language Arts Proficiency
Data are from the California Department of Education, California Assessment of Student Performance and Progress (CAASPP). Data for the 2019-20 school year is unavailable due to the suspension of CAASPP testing in March, 2020, due to COVID-19. Beginning with the 2013–14 school year, CAASPP became the new student assessment system in California, replacing the Standardized Testing and Reporting system (STAR). The 2020-21 school year CAASPP Test Results are from tests administered in 2021; the 2018-19 school year test results are from tests administered in 2019. The share of third-graders meeting or exceeding the standard includes students who have made progress and met or exceeded the grade standard, and who appear to be ready for future coursework. Silicon Valley data for American Indian or Alaska Native was not available for 2020-21 and was not available in San Mateo County in 2018-19.

Average Monthly Cost of Childcare
Data are from the California Department of Education Regional Market Rate Surveys of California Child Care Providers (2009 data is via kidsdata.org); 2021 is estimated based on the 2018 market rate date and adjusted based on the estimated percent change in childcare subsidies throughout California from the Center for American Progress (Simon Workman, "The True Cost of High-Quality Child Care Across the United States" June 2021). The 2020 Regional Market Rate Survey was delayed in 2020 due to COVID; the 2021 survey will be published by July 2022. Child care centers are facilities that provide care for infants, toddlers, preschoolers, and/or school-age children during all or part of the day. Family Child Care Homes are child care centers located in the home of a licensed provider, and have no more than 14 children in total. Infants include children under age two. Preschoolers include children ages two to five. Silicon Valley is calculated as the average of Santa Clara and San Mateo County child care costs. 2010 costs have been estimated using 2009 market rate data, inflation-adjusted to 2010 using the Bay Area consumer price index for all urban consumers from the Bureau of Labor Statistics for Silicon Valley data, and the California consumer price index for all urban consumers from the California Department of Finance for California data. 2020 costs were estimated using 2018 market rate data, inflation-adjusted to 2020 dollars using the Bay Area consumer price index for all urban consumers from the Bureau of Labor Statistics for Silicon Valley data, 2020 estimate based on January-August, and the California consumer price index for all urban consumers from the California Department of Finance May Revision Forecast (April 2020) for California data, then adjusted to estimate for 2021. Data for an in-home childcare provider are from the Care.com Cost of Childcare Calculator, accessed January 2022; Silicon Valley represents an unweighted average of the city-defined region. Costs include care for one child, and are based on Care.com hourly rates offered in jobs posted by families seeking full-time child care. Percent change in inflation is based on data from the U.S. Bureau of Labor Statistics, Bay Area consumer price index for all urban consumers, 2021 estimate based on January-August. Percent change in median family income is based on the American Community Survey 1-Year estimates for 2010 and 2019 (with the latter inflation-adjusted to 2021 dollars using the Bay Area Consumer Price Index, 2021 estimate based on January-August data). Percent who think this is a good place to raise a family is from the 2021 Silicon Valley Poll, and include those who responded that the Bay Area is an "excellent" or "good" place to raise a family. The in-person workforce includes those who responded that their work responsibilities cannot be done from home.

Average Monthly In-Home Childcare Costs
Data for Silicon Valley, San Antonio, Phoenix, and Portland are from the Care.com Cost of Childcare Calculator, accessed January 2022; Silicon Valley represents an unweighted average of the city-defined region. Costs include care for one child, and are based on Care.com hourly rates offered in jobs posted by families seeking full-time child care. The national average is from the Care.com Cost of Childcare SUrvey: 2021 Report, and was inflation-adjusted and reported in 2021 dollars using the U.S. city average consumer price index for all urban consumers from the Bureau of Labor Statistics based on January through September data. Data for San Francisco and California are from nannylane.com, accessed December 2021. Monthly and annual cost estimates have been rounded to the nearest $10. In-Home Childcare Costs by city and census-designated place are by zip code. The cost for two children is based on the price of a "Nanny Share" multiplied by two (assuming both children live in the same household).

APPENDIX A

SOCIETY *continued*

ARTS & CULTURE

Nonprofit Arts Organizations
2012 data are from the National Center for Charitable Statistics (NCCS) at the Urban Institute, via the Americans for the Arts Local Index. Arts nonprofits are defined by 43 different categories of several major arts-related groups in the National Taxonomy of Exempt Entities (NTEE), and only include organizations that filed the IRS Form 990 in 2009. Arts Establishments include businesses and artists serving the community, and are defined by 44 North American Industrial Classification System (NAICS) codes representative of arts and culture. 2021 data are from the IRS Exempt Organizations Business Master File Extract (EO BMF), updated 9/13/2021. Field Service Organizations includes the variety of nonprofit organizations who support arts organizations, providing technical assistance, professional membership, research, and resource development. They include Management & Technical Assistance; Professional Societies & Associations; Research Institutes and/or Public Policy Analysis; Single Organization Support; Fundraising and/or Fund Distribution; Nonmonetary Support Not Elsewhere Classified; Arts Council/Agency; and Arts Service Activities/ Organizations. Media Arts Organizations includes Media, Communications Organizations; Film, Video; Television; Printing, Publishing; and Radio. Performing Arts Organizations includes Performing Arts Organizations; Performing Arts Centers; Dance; Ballet; Theater; Music; Symphony Orchestras; Opera; Singing Choral; Music Groups, Bands, Ensembles; Commemorative Events; and County/Street/Civic/ Multi-Arts Fairs and Festivals. Humanities & Heritage Organizations includes Cultural/Ethnic Awareness; Humanities Organizations; and Historical Societies and Related Activities. Collections-Based Organizations include Museum & Museum Activities; Art Museums; Children's Museums; History Museums; Natural History, Natural Science Museums; Science & Technology Museums; Libraries; Botanical Gardens and Arboreta; and Zoos and Aquariums. Arts Education Organizations include Arts Education/Schools; and Performing Arts Schools.

Arts & Culture Employment
Data include annual industry employment data for the city-defined Silicon Valley region from the United States Bureau of Labor Statistics Quarterly Census of Employment and Wages (QCEW) modified slightly by JobsEQ, which removes suppressions and reorganizes public sector employment. Data are for Q2 of each year. Q2 2021 was estimated at the industry level by BW Research using Q2 2021 reported growth and totals, and modified slightly by JobsEQ. Arts, Entertainment, and Recreation industry jobs include NAICS 71: Independent Artists, Writers, and Performers; Promoters of Performing Arts, Sports, and Similar; Museums, Arts Galleries, Historical Sites, and Similar; Spectator Sports; Bowling Centers; Other Amusement, Gambling, and Recreation Industries. Part-time is defined as working less than 30 hours per week. Data for average time worked per week in 2019 was from the United States Census Bureau, American Community Survey Public Use Microdata.

Consumer Spending on Arts & Culture Consumption
Data is derived from a panel of over 6.5 million U.S. consumers, normalized by the Earnest Consistent Shopper Methodology, and includes consumer spending on Arts & Entertainment, Home Entertainment, and Hobbies. 4-Week Trailing Average Year-Over-Year Spending. Events & Attractions include Booking Platforms, Casinos, Indoor Entertainment Centers, Movie Theaters, Outdoor Attractions, Stadiums & Arenas, and Theme Parks; Home Entertainment includes Book Retailers, E-Books, Education Resources, Gaming, Music Streaming & Audio, News & Print Media, Social Media, and Video Streaming; and Hobbies include Arts & Crafts and Music. Silicon Valley includes the city-defined region. Percent change in arts and culture spending 2020-21 is the average of weekly year-over-year percent change. 2021 data as of 9/15/21.

Cultural Diversity
Universe of Arts Nonprofits was manually coded by SV Creates to capture mission statement and target audience. Organizations with specifically noted cultural targets were coded as cultural organizations. Traditional western European performing arts (symphony, ballet, theatre) were coded as Western European.

Economic Impacts of Arts & Culture Industries
2020 estimates based on average of available data from 2019, Q2 2020, and Q3 2020. 2019 data was used to estimate Q1 2020; Q3 2020 data was used to estimate Q4. All amounts are in 2021 dollars in IMPLAN using the Bureau of Economic Analysis (BEA) historical industry-specific output deflators. Local Government Tax Revenues include County, Sub-County General, and Sub-County Special Districts, and the total includes Direct and Induced Revenues only (no Indirect).

Sporting Event Home Game Attendance
Data for Sporting Event Home Game Attendance is from multiple sources, including the National Collegiate Athletic Association (NCAA), ESPN, WorldFootball.net, and The Baseball Cube, StatsBroadcast, as well as from the sports team websites themselves. Teams include the San Jose Sharks, San Jose Earthquakes, San Francisco 49ers, San Francisco Giants, San Jose Giants, San Jose Barracuda, Stanford Football, Stanford Basketball, Santa Clara University Basketball, San Jose State Football, and San Jose State Basketball. The 2008 attendance estimate does not include San Jose Barracuda, as the franchise did not begin until 2015.

QUALITY OF HEALTH

Healthcare Coverage
Data for those with health insurance are from the U.S. Census Bureau, American Community Survey, 1-Year Estimates for the civilian non-institutionalized population. Silicon Valley data includes Santa Clara and San Mateo Counties. 2020 data are from the 2020 1-Year Public Use Microdata (PUMS) with experimental weights. California and United States share of the civilian non-institutionalized population covered by health insurance includes those ages 19-64, whereas San Francisco and Silicon Valley include ages 18-64. Data for June 2020, January 2021, and June 2021 are from the U.S. Census Bureau Household Pulse Survey (weeks 5-9, 22, and 32-33, respectively) and include individuals of all ages. The Household Pulse Survey is an experimental survey designed to quickly and efficiently deploy data collected on how people's lives have been impacted by the coronavirus pandemic. Data collection began on April 23, 2020 (Phase I through July 21; Phase 2 through August 19; Phase 3 October 28, 2020 through January 2022). Bay Area includes the San Francisco-Oakland-Berkeley Metro Area (San Francisco, Alameda, Marin, Contra Costa, and San Mateo Counties).

Physical Health
Silicon Valley data include Santa Clara and San Mateo Counties. The California Health Interview Survey (CHIS) is conducted via telephone survey of more than 20,000 Californians across 58 counties each year. The data includes adults 18 years of age and older. Calculated using reported height and weight, a Body Mass Index (BMI) value of 18.5 - 24.9 is categorized as Normal. Starting in 2011, CHIS transitioned from a biennial survey model to a continuous survey model, which enables a more frequent (annual) release of data.

Infant and Maternal Mortality Rates
Data for maternal mortality (1999-2020), infant mortality by race and ethnicity (2018-2020), and infant mortality rate (2007-2018) are from the United States Department of Health and Human Services (US DHHS), Centers of Disease Control and Prevention (CDC), National Center for Health Statistics (NCHS), Division of Vital Statistics (DVS), as compiled from data provided by the 57 vital statistics jurisdictions through the Vital Statistics Cooperative Program, on CDC WONDER online database. Data for infant mortality rate for 2019-2021 are from the California Department of Public Health, Center for Health Statistics and Informatics, California Vital Data database (Cal-ViDa). Silicon Valley data include San Mateo and Santa Clara Counties. Greater Silicon Valley includes Santa Clara and San Mateo Counties, Alameda County, and San Francisco. Infant mortality is the death of an infant before his or her first birthday. The infant mortality rate is the number of infant deaths per every 1,000 live births. Data by race and ethnicity indicate the infant's race/ethnicity (not the race/ethnicity of the mother). Maternal mortality includes deaths due to a variety of causes related to pregnancy, childbirth, and the puerperium, and the rate is expressed as the number of deaths per 100,000 live births. Unless specified as Hispanic or Latino, all sub-population categories are not Hispanic or Latino. Births and deaths are based on place of residence.

Cesarean Section Rate
Cesarean Section delivery data are from the United States Department of Health and Human Services (US DHHS), Centers of Disease Control and Prevention (CDC), National Center for Health Statistics (NCHS), Division of Vital Statistics (DVS) Natality public-use data on CDC WONDER Online Database. Silicon Valley data include San Mateo and Santa Clara Counties. Data by race and ethnicity is for Santa Clara and San Mateo Counties, 2016-2020, and only includes first birth, low-risk (excludes any births where one or more maternal or pregnancy risk factors were present), head-down fetal presentation, and births at term (gestational age was 37+ weeks). Asian, Black or African American, More than one race and White are all not Hispanic or Latino.

Kindergarten Immunization Rates
Data for kindergarten immunization rates come from the kindergarten assessment, which measures compliance with the school immunization law, conducted in all schools with kindergartens. Immunizations required by law for children entering kindergarten in California or transitional kindergarten include: Five doses of DTP/DTaP or any combination with DT (diphtheria and tetanus) vaccine (four doses meets the requirement if at least one was given on or after the fourth birthday); Four doses of polio vaccine (three doses meets the requirement if at least one was given on or after the fourth birthday); Two doses of MMR vaccine (may be given separately or combined, but both doses must be given on or after the first birthday); Three doses of hepatitis B vaccine; and one dose of varicella (chickenpox) vaccine (or physician documented varicella disease history or immunity). Starting in the 2019-20 school year, two doses of varicella (chickenpox) vaccine were required. In the fall, every school in California must provide information on the total enrollment, the number of students who have or have not received the immunizations required, and the number of exemptions to the California Department of Health. Smaller schools are excluded to help protect privacy. In the spring, local and state public health personnel visit a sample of licensed schools with kindergarten classes, to collect the same information for comparison. In the 2014-2015 and 2015-2016 school years, entrants were subject to Assembly Bill (AB) 2109, which added requirements for exemptions to required immunizations based on personal beliefs. Effective July 1, 2016, California Senate Bill (SB) 277 eliminated the exemption for required immunizations based on personal or religious beliefs. The year shown represents the end of the school year (e.g., 2016 represents the 2015-16 school year).

Mental Health
Data are from the U.S. Census Bureau Household Pulse Survey, smoothed over a four survey-week period (approximately one month, although survey "weeks" varied in duration). The Household Pulse Survey is an experimental survey designed to quickly and efficiently deploy data collected on how people's lives have been impacted by the coronavirus pandemic. Data collection began on April 23, 2020 (Phase I through July 21; Phase 2 through August 19; Phase 3 October 28, 2020 through January 2022). Bay Area includes the San Francisco-Oakland-Berkeley Metro Area (San Francisco, Alameda, Marin, Contra Costa, and San Mateo Counties). Share Experiencing Anxiety and/or Depression is calculated by dividing the survey responses to four questions (Frequency of feeling nervous, anxious, or on edge; Frequency of not being able to stop or control worrying; Frequency of having little interest or pleasure in doing things; and Frequency of feeling down, depressed, or hopeless) including "Nearly Every Day" or "More than half the days" over the last seven days by the total number who answered the questions. This definition is aligned with the usage of this data the CDC; however, the CDC uses microdata and a scoring criteria/composite methodology to combine responses to the four questions that is not possible using the public data file (so data are not directly comparable). The 2019 reference point represents national data from Terlizzi EP, Schiller JS. Estimates of mental health symptomatology, by month of interview: United States, 2019 (National Center for Health Statistics, March 2021).

Deaths, by Cause
Data are from the State of California, Department of Public Health, California Vital Data (Cal-ViDa), accessed February 5, 2022 (data last refreshed 1/10/2022). 2021 data is through November. Death counts less than 11 were suppressed to protect the privacy of decedents in accordance with the California Health and Human Services Data De-identification Guidelines. For death rate calculations, <11 was assumed to be 5. Deaths are by place of residence, not place of death. Leading causes of death include Accidents (unintentional injuries); Alzheimer's Disease; Assault (Homicide); Cerebrovascular diseases (Stroke); Chronic liver disease and cirrhosis (Liver Disease); Chronic Lower Respiratory Diseases; Diabetes mellitus (Diabetes); Diseases of heart (Heart Disease); Essential hypertension and hypertensive renal disease (Hypertension); Influenza & Pneumonia; Intentional self-harm (Suicide); Malignant neoplasms (Cancer); Nephritis, nephrotic syndrome and nephrosis (Nephritis); and Parkinson's Disease. COVID-19 deaths are from Santa Clara County's Open Data Portal and California Department of Public Health (for San Mateo County data).

SAFETY

Crimes
Data is from the California Department of Justice, Office of the Attorney General, Interactive Crime Statistics. Silicon Valley includes the city-defined Silicon Valley region.

Felony Offenses
Data is from the California Department of Justice, Office of the Attorney General, Interactive Crime Statistics. Data for Silicon Valley includes San Mateo and Santa Clara Counties. Population data is from the California Department of Finance, Mid-Year Annual Intercensal Population Estimates by Race/Ethnicity with Age and Gender Detail and Population Projections by Age. Juveniles are children ages 10-17, and adults include the at-risk population (ages 18-69). Felony offenses include Violent, Property Offenses, Drug Offenses, Sex Offenses, Weapons, Driving Under the Influence, Hit and Run, Escape, Bookmaking, Manslaughter Vehicular, and Other Felonies. In November 2014, California voters passed Proposition 47 which reduced numerous state statutes from felonies to misdemeanors. Caution should be used when comparing felony and misdemeanor arrest data to prior years. Additionally, in November 2016, California voters passed Proposition 64 which legalized the possession and use of marijuana for individuals 21 years of age and older and reduced the offense degree for numerous state statutes. Caution should be used when comparing drug offense arrests to prior years.

Children Feeling Safe
Data are from WestEd and the California Healthy Kids Survey, via kidsdata.org (2011-13 through 2015-17) and CalSCHLS for 2017-19 (Developed by WestEd for the California Department of Education). The California Healthy Kids Survey is a "comprehensive, youth risk behavior and resilience data collection service available to all California local education agencies, and is funded by the California Department of Education." County data represents an unweighted average share of 7th, 9th, and 11th grade students among school districts with available and unsuppressed data by race and ethnicity. Students who feel safe include those who reported feeling "Very Safe" or "Safe." Years presented comprise two school years (e.g., 2015-16 and 2016-17 school years are shown as 2015-2017). Periods presented include two school years (e.g., 2013-14 and 2014-15 combined are shown as 2013-15). Gender is self-identified on the survey as either "male" or "female;" starting in 2020-21, students could also select "nonbinary" or "something else."

Adults Feeling Safe
Data for feelings of safety are from the California Health Interview Survey (CHIS), which asked respondents "Do you feel safe in your neighborhood all of the time, most of the time, some of the time, or none of the time?" Breakdown by % Federal Poverty Level (FPL) includes <100%, 100-200%, 200-300%, and 400% or more (in 2020, the FPL for a family of four was $26,200; in 2011 it was $). Starting in 2011, CHIS transitioned from a biennial survey model to a continuous survey model, which enabled a more frequent (annual) release of data. 2007 & 2009 estimate for Black or African American, Native Hawaiian/Pacific Islander, and American Indian/Alaska Native combined was labeled in the CHIS as "statistically unstable," indicating a coefficient of variation greater than 30%. The share of Bay Area residents that think hate crimes are a serious problem are from the 2021 Silicon Valley Poll, and include those who responded that it is an "extremely serious" or "very serious" problem. Democrats and Republicans are defined by respondents' answer to "Generally speaking, do you think of yourself as" with response options Democrat, Republican, or Independent/Other.

Public Safety Officers
All data are from the California Commission on Peace Officer Standards and Training. The total number of Public Safety Officers accounts for all sworn full-time and reserve personnel, which may include (but is not limited to) Police Chiefs, Deputy Chiefs, Commanders, Corporals, Lieutenants, Sergeants, Police Officers, Detectives, Detention Officers/Supervisors, Sheriffs, Undersheriffs, Captains, and Assistant Sheriffs; it does not include Community Service Officers or other non-sworn (civilian) police department personnel. All city, county and school district departments in Silicon Valley are included. Data does not include California Highway Patrol officers. 2021 data were as of July 1, 2021. The San Mateo County Sheriff's Office share of Silicon Valley public safety officers includes those serving Half Moon Bay, Millbrae, Portola Valley, San Carlos, and Woodside; the Santa Clara County Sheriff's Department share of Silicon Valley public safety officers includes those serving Cupertino, Los Altos Hills, and Saratoga.

PHILANTHROPY

Individual Giving
Data are from the IRS SOI Tax Stats County Data. Charities receiving donations may be located anywhere. Individual donations to charity are grouped by tax return, so include both individual and joint filers. Data are limited to those who itemize deductions on their tax returns, which fell from 45% in 2017 to 24% in 2018 and 23% in 2019 for Santa Clara and San Mateo Counties, combined; however, while only 23% of 2019 returns were itemized, those returns represented 57% of the regional adjusted gross income, and 86% of Santa Clara and San Mateo County itemizers with an adjusted gross income of $200,000+ deducted some amount of charitable contributions.

Silicon Valley Community Foundation Donor-Advised Grants
Data are from the Silicon Valley Community Foundation website, Community Impact "Grants: Where the Giving Goes" and include donor-advised grants from 2015 through 2018 as of November 2018, and 2019 grants as of January 2021, and 2020 grants as of January 2022. Data includes all donor-advised grants through the Silicon Valley Community Foundation, with the exception of a $550 million grant in 2016 to the Chan Zuckerberg Biohub, Inc. Annual totals also exclude grants to Stanford University of $21 million in 2015, $8.4 million in 2016, $24.1 million in 2019, and $9.9 million in 2020, as well as to Santa Clara College ($25 million in 2019 and $1.6 million in 2020), $3.7 million to the Los Altos Community Foundation in 2019, and $1.6 million to various local Community Foundations in 2020.

Local Giving by Top Corporate Philanthropists
Amounts include the total of the top 50 corporate philanthropists in Silicon Valley to local organizations, as self-reported to the Silicon Valley Business Journal and only including companies which chose to participate. Data are for the fiscal year. Amounts may include donations of products or services. Two notable companies that did not participate/self-report are Facebook and Kaiser Permanente.

Corporate-Advised Grants
Data are from the Silicon Valley Community Foundation website, Community Impact "Grants: Where the Giving Goes" and include corporate-advised grants from 2015 through 2020 (accessed November 24, 2021). Silicon Valley includes Santa Clara & San Mateo Counties; Rest of Bay Area includes Alameda, Contra Costa, Marin, Napa, San Francisco, Solano, and Sonoma Counties.

Foundation Grants
Data for active grantmaking foundations are from Foundation Directory Online as of February 5, 2022. Grants to academic institutions and hospitals were excluded, to the extent possible. Foundations that have participated in grantmaking between 2019 and 2022 were included in the inventory of active grantmaking foundations and total assets; share of foundation grant dollars by foundation and recipient location includes grants made in 2019 only. Note that some of the foundation grants may have been donor-advised, but they are not excluded from the analysis. For Silicon Valley Community Foundation (SVCF) discretionary grants are from the SVCF website, Community Impact "Grants: Where the Giving Goes" and include discretionary grants from 2015 through 2019 (accessed January 14, 2021) and 2020 (accessed February 5, 2022). Bay Area includes the 9-county region. Silicon Valley includes Santa Clara & San Mateo Counties.

Silicon Valley Community Foundation Discretionary Grants
Data are from the Silicon Valley Community Foundation website, Community Impact "Grants: Where the Giving Goes" and include discretionary grants from 2015 through 2019 (accessed January 14, 2021) and 2020 (accessed February 5, 2022). Bay Area includes the 9-county region. Silicon Valley includes Santa Clara & San Mateo Counties.

APPENDIX A

HOUSING

Median Home Sale Prices; Number of Homes Sold
Data are from CoreLogic, provided by DQ News. Silicon Valley includes San Mateo and Santa Clara Counties. Median sale prices have been inflation-adjusted and are reported in 2021 dollars using the Bay Area consumer price index for all urban consumers from the Bureau of Labor Statistics for Silicon Valley and San Francisco data, 2021 estimate based on January-August the California consumer price index for all urban consumers from the California Department of Finance May Revision Forecast (April 2021) for California data, and the U.S. city average consumer price index for all urban consumers from the Bureau of Labor Statistics based on January through September data. Based on public property records, for transactions recorded in each period. Data reflect sales of all new and resale single-family detached houses and condos combined. 2021 estimates are based on data through October.

Weekly For-Sale Inventory
Data include the San Jose and San Francisco Metropolitan Statistical Areas, and the United States, and are from Zillow Real Estate Research through December 2021.

Residential Building
Data is from the Construction Industry Research Board and California Homebuilding Foundation, and includes Santa Clara and San Mateo Counties. Data includes the number of single family and multi-family units included in building permits issued. Single-Family housing units include detached, semi-detached, row house and townhouse units. Multi-family housing includes duplexes, 3-4 unit structures and apartment type structures with five units or more. 2021 estimate based on data through November.

Regional Housing Need Allocation (RHNA)
Data are from the California Department of Housing & Community Development, Annual Progress Report Data (updated 7/8/2021 based on prior year progress reports submitted by jurisdictions in April), and include the number of new housing units for which Silicon Valley and Bay Area jurisdictions issued permits in calendar years 2015 through 2020. In some cases, 2014 permits are included in the case where Bay Area jurisdictions opted to apply them toward the current RHNA cycle. The Regional Housing Need Allocation (RHNA) is the state-mandated process to identify the total number of housing units (by affordability level) that each jurisdiction must accommodate in its Housing Element. AMI stands for Area Median Income. Silicon Valley data include Santa Clara and San Mateo Counties, and the cities of Fremont, Union City, and Newark. Bay Area includes the 9-county region. Affordability levels indicated on the chart include Very Low Income (0-50% of the Area Median Income, AMI), Low Income (50-80% AMI), Moderate Income (80-120% AMI), and Above Moderate Income (120%+ AMI).

Affordable Share of Newly Approved Residential Units
Data are from Joint Venture Silicon Valley's annual land-use survey of all cities within Silicon Valley. The 38 cities/counties included in the FY 2020-21 Building Affordable Housing analysis included Atherton, Belmont, Brisbane, Burlingame, Campbell, Colma, Cupertino, Daly City, East Palo Alto, Foster City, Fremont, Gilroy, Half Moon Bay, Hillsborough, Los Altos, Los Altos Hills, Los Gatos, Millbrae, Milpitas, Monte Sereno, Mountain View, Newark, Pacifica, Palo Alto, Redwood City, San Bruno, San Carlos, San Jose, San Mateo, San Mateo County, Santa Clara, Santa Clara County, Saratoga, South San Francisco, Sunnyvale, Union City, and Woodside. Most recent data are for fiscal year 2020-21 (July 2020 through June 2021). Affordable units are those units that are affordable for a four-person family earning up to 80% of the median income for a county. Cities use the U.S. Department of Housing and Urban Development's (HUD) estimates of median income to calculate the number of units affordable to low-income households in their jurisdiction. Beginning in 2019, the total number of newly approved units included accessory dwelling units (ADUs) issued a permit in lieu of a planning approval.

Average Multifamily Rental Rates
Data are from CBRE, and include average rental rates for multifamily housing (residential structures with more than one dwelling unit in the same building). Silicon Valley includes the city-defined region, excluding Union City. Rental rates are rounded to the nearest $10. They have been inflation-adjusted and are reported in 2021 dollars using the Bay Area consumer price index for all urban consumers from the Bureau of Labor Statistics for Silicon Valley and San Francisco data, 2021 estimate based on January-August the California consumer price index for all urban consumers from the California Department of Finance May Revision Forecast (April 2021) for California data, and the U.S. city average consumer price index for all urban consumers from the Bureau of Labor Statistics based on January through September data. Silicon Valley average rental rates represent an unweighted average of Santa Clara and San Mateo County sub-markets; California rental rates are an average of all available CBRE California submarkets (San Jose, Los Angeles, Oakland, Orange County, Riverside, Sacramento, San Diego, San Francisco, and Ventura).

Housing Burden
Data for owners' and renters' housing costs are from United States Census Bureau, American Community Survey 5-Year Estimates. This indicator measures the share of owners and renters spending 30% or more of their monthly household income on housing costs. Renter data are calculated percentages of gross rent to household income in the past 12 months. Owner data are calculated percentages of selected monthly owner costs to household income in the past 12 months. Owners data are solely based on housing units with a mortgage. According to the U.S. Department of Housing and Urban Development, housing costs greater than 30% of household income pose moderate to severe financial burdens. Data for housing burden by industry of employment was from the American Community Survey 1-year estimates for 2019. Tech workers include Software, Computer Hardware Design & Manufacturing, and Internet & Information Services.

Percentage of Potential First-Time Homebuyers That Can Afford to Purchase a Median-Priced Home
Data are from the California Association of Realtors' (CAR) First-time Buyer Housing Affordability Index, which measures the percentage of households that can afford to purchase an entry-level home in California based on the median price of existing single family homes sold from CAR's monthly existing home sales survey. Beginning in the first quarter of 2009, the Housing Affordability Index incorporates an effective interest rate that is based on the one-year, adjustable-rate mortgage from Freddie Mac's Primary Mortgage Market Survey. 2021 averages include Q1-3.

Multigenerational Households
Data are from the United States Census Bureau, American Community Survey 1-Year Estimates, using the University of Minnesota Population Center IPUMS for Silicon Valley, San Francisco, and California. Data for the United States are from the Pew Research Center report by Fry & Passel (July 2014) for 2007-2012, the Pew Research Center report by Cohn & Passel (August 2016) for 2014, unpublished estimates from the Pew Research Center for 2013 and 2015, and an updated Pew Research Center report by Cohn & Passel (April 2018) for 2016 data. Silicon Valley data include Santa Clara and San Mateo Counties. The definition of multigenerational households used for this analysis goes beyond the Census Bureau's traditional definition, and includes all households with two or more adult generations, where an adult is defined as age 25 and over. The definition is modeled after the methodology developed by the Pew Research Center, published in a report entitled "In Post-Recession Era, Young Adults Drive Continuing Rise in Multi-Generational Living" by Richard Fry and Jeffrey Passel, July 2014. In the definition used, a multigenerational household includes those with two adult generations (a parent or parent-in-law and adult child/children, where either generation is the head of household), three generations (parent or parent-in-law, adult child/children, grandchildren), skipped generations (grandparents living with grandchildren where no parent is present), and more than three generations. Due to possible slight differences between the methodology used by the Pew Research Center and the Silicon Valley Institute for Regional Studies, caution should be used in comparing the Silicon Valley, San Francisco, and California estimates to those for the United States as a whole. Data for Share of Households with Grandparents & Grandchildren are from the Decennial Census (2000) and American Community Survey 1-year estimates (2010 and 2019). 2020 data are from the 2020 1-Year Public Use Microdata (PUMS) with experimental weights.

Young Adults Living With a Parent
Data are from the United States Census Bureau, American Community Survey 1-Year Estimates, using the University of Minnesota Population Center IPUMS. Silicon Valley data include Santa Clara and San Mateo Counties. Young Adults include residents ages 18 to 34, and only those who live with a parent who is the householder (not including parents who live with their young adult children, where the child is the householder). 2020 estimates are based on the reported national percent change for January-July 2019 and January-July 2020 for young adults ages 18-29 in "A majority of young adults in the U.S. live with their parents for the first time since the Great Depression," Pew Research Center (September 4, 2020) by Richard Fry, Jeffrey S. Passel, and D'Vera Cohn.

Multifamily Households
Data are from the United States Census Bureau, American Community Survey 1-Year Estimates, using the University of Minnesota Population Center IPUMS for Silicon Valley, San Francisco, and California. Silicon Valley includes Santa Clara and San Mateo Counties. Multifamily households include all households with at least two unrelated families, including roommates and unmarried couples.

Housing Insecurity
Housing insecurity represents the share of owner or renter households that are either behind on their rent/mortgage or are not confident in paying the next month's rent/mortgage. Silicon Valley includes Santa Clara and San Mateo Counties. Estimates are based on data from the U.S. Census Bureau Household Pulse Survey for the San Francisco-Oakland-Berkeley Metro Area, smoothed over a four survey-week period (approximately one month, although survey "weeks" varied in duration). Housing insecure households include those with "no confidence" or "slight confidence" that they will be able to pay next month's rent/mortgage on time (plus those who indicated "payment is/will be deferred), and/or those who indicated "payment is/will be deferred" or "no" to being caught up on rent/mortgage, divided by the total number of respondents (who pay rent or a mortgage and provided both tenure and confidence and/or payment status). Silicon Valley housing insecure households are estimated using ratios of community risks from the U.S. Census Bureau Community Resilience Estimates (CRE) by county to housing insecurity estimates from the Household Pulse Survey data by MSA. CRE data include the share of individuals with three or more CRE risk factors. Community Resilience is defined as the capacity of individuals and households to absorb, endure, and recover from the health, social, and economic impacts of a disaster such as a hurricane or pandemic. When disasters occur, recovery depends on the community's ability to withstand the effects of the event. In order to facilitate disaster preparedness, the Census Bureau has developed new small area estimates, identifying communities where resources and information may effectively mitigate the impact of disasters. The estimates were developed by modeling individual and household

characteristics from the 2018 American Community Survey (ACS), in combination with publicly-available data from the 2018 National Health Interview Survey (NHIS), to provide tract and county level estimates. Risk factors include 1) household income-to-poverty ratio of less than 130%; 2) single or zero caregiver household, where only one or no individuals in the household who are ages 18-64; 3) household crowding defined as either unit-level crowding of >0.75 persons per room, or household residing in a high-density tract with 75% of the population living in blocks with greater than 4,000 people; 4) communication barrier defined as either linguistically isolated, or having no one in the household over the age of 16 with a high school diploma; 5) no employed persons; 6) disability posing constraint to significant life activity, including persons who report having any one of the six disability types: hearing difficulty, vision difficulty, cognitive difficulty, ambulatory difficulty, self-care difficulty, or independent living difficulty; 7) no health insurance coverage; 8) age equal to or greater than 65; 9) serious heart condition; 10) diabetes; or 11) emphysema or current asthma.

Homelessness
The Santa Clara County data are from the 2019 Homeless Census & Survey, conducted during the last ten days of January; the point-in-time count was a community-wide effort conducted on January 29 and 30, 2019. In the weeks following the street count, a survey was administered to 1,335 unsheltered and sheltered individuals experiencing homelessness in order to profile their experience and characteristics. The San Mateo County data are from the 2019 One Day Homeless County and Survey, which was conducted in the early morning hours of January 31, 2019. The population share was calculated using January 1 population estimates from the California Department of Finance, E-4 Historical Population Estimates for Cities, Counties, and the State. Data for the Estimated Number of Homeless Individuals in the San Jose/Santa Clara City & County Continuum of Care, 2019-20, are from the U.S. Department of Housing and Urban Development. Number of Units Funded through Project Homekey are from the State of California Department of Housing & Community Development, Project Homekey 2021 Legislative Report (April 2021)

Evictions
Data are from the Judicial Council of California, Public Access to Judicial Administrative Records (PAJAR), and include unlawful detainer filings by fiscal year. An eviction happens when a landlord expels people from property he or she owns. Evictions are landlord-initiated involuntary moves that happen to renters. Per the Superior Court of California, County of Santa Clara, "An Unlawful Detainer action is a special court proceeding. It's a legal way to evict someone from the place where they live or work. This usually happens when a tenant stays after the lease is up, the lease is canceled, or the landlord thinks the tenant hasn't paid their rent."

TRANSPORTATION

Vehicle Miles Traveled
Freeway Vehicle Miles Traveled (VMT) data are from Caltrans PeMS (Performance Measurement System) which collects, filters, processes, aggregates and examines traffic data from the Caltrans network of roadway traffic sensors. Data include California State Freeways only (not all state highways). Silicon Valley includes Santa Clara & San Mateo Counties. The Bay Area includes the 9-County San Francisco Bay Area. Data for 2012 through 2021 downloaded on December 27, 2021; 2021 data are through 12/26. Data include California State Freeways only (not all state highways). California Department of Finance's E-4 Population Estimates were used to compute per-capita values. Total Road VMT is from the California Department of Transportation Highway Performance Monitoring System (HPMS), a national level highway information system that includes data on the extent, condition, performance, use and operating characteristics of the nation's highways. Various roadway types are used to calculate VMT. The HPMS contains administrative and extent of system information on all public roads, while information on other characteristics is represented in HPMS as a mix of universe and sample data for arterial and collector functional systems.

Transportation-Related Injury Crashes; Speeding-Related Fatalities & Injuries
Data are from the California Highway Patrol, Statewide Integrated Traffic Reporting System (SWITRS) via the U.C. Berkeley Transportation Injury Mapping System (TIMS), accessed January 21, 2022. Data include injury crashes involving a vehicle only, and only those occurring on state roads. Vehicle miles traveled are considered a measure of exposure to transportation-related vehicle crashes. Bay Area data include Alameda, Contra Costa, Marin, Santa Clara, San Francisco, and San Mateo Counties. 2019 and 2020 data are provisional and subject to change; 2021 data are estimated using state highway provisional crash data and Statewide Integrated Traffic Records System (SWITRS) Summary Data.

Autonomous Vehicle Mileage & Collisions
Data are from the California Department of Motor Vehicles (DMV), Autonomous Vehicle Deployment and Collision Statistics (accessed 12/17/2021). Silicon Valley includes the city-defined region. As of December 14, 2021, there were 52 Autonomous Vehicle Testing Permit holders within the state. Injuries include those reported to the DMV, and include passengers, drivers, and bicyclists.

Transportation Costs
Costs of transportation needs are estimated using the Self-Sufficiency Standard for California from the Center for Women's Welfare at the University of Washington School of Social Work. Silicon Valley is an average of Santa Clara and San Mateo Counties except for 2011; because the 2014 California Standard assumed public transit for San Mateo county, Silicon Valley estimates for 2011 and 2014 used Santa Clara County data only). Bay Area includes the 9-County region. California Self-Sufficiency data is an unweighted California county average. Developed by Dr. Diana Pearce, the Self-Sufficiency Standard defines the amount of income necessary to meet basic needs (including taxes) without public subsidies (e.g., public housing, food stamps, Medicaid or child care) and without private/informal assistance (e.g., free babysitting by a relative or friend, food provided by churches or local food banks, or shared housing). The Standard assumes private transportation (a car) in counties where less than 7% of workers commute within the county by public transportation. Only Alameda County and San Francisco are calculated using public transportation costs in the 2021 Standard. Private transportation costs are based on the average costs of owning and operating a car. It is understood that the car(s) will be used for commuting five days per week, plus one trip per week for shopping and errands. In addition, one parent in each household with young children is assumed to have a slightly longer weekday trip to allow for "linking" trips to a daycare site. Costs are described as transportation "needs" because they do not represent the average amount of money spent on transportation, but rather the cost of basic transportation needs based on family type and county of residence. 2011 costs were estimated by adjusting the 2014 Standard to 2011 dollars using the change in transportation costs in the Bay Area and California (Bay Area and Los Angeles region average) from the Bureau of Labor Statistics, then adjusting for inflation to 2021 dollars using the Bay Area consumer price index for all urban consumers for Silicon Valley and Bay Area data, and the California consumer price index for all urban consumers from the California Department of Finance for California data (January through September). Costs reported for a family of four are based on a two-adult household. 2021 costs represent an estimate from the 2021 Self-Sufficiency Standard, adjusted based on the 2021 annual increase in Transportation costs in the Bay Area from the Bureau of Labor Statistics, San Francisco-Oakland-Hayward, CA series and California consumer price index for Transportation; the change in the costs of transportation needs between 2020 and 2021 are calculated using the Transportation expenditure item from the Consumer Price Index.

Means of Commute; Mean Travel Time to Work
Data are from the United States Census Bureau, American Community Surveys, 5-Year Estimates for 2010, 2011, 2015 and 2019; 2020 data are from the 2020 1-Year Public Use Microdata (PUMS) with experimental weights. Data are for workers 16 years old and over residing in Santa Clara and San Mateo Counties commuting to the geographic location at which workers carried out their occupational activities during the reference week whether or not the location was inside or outside the county limits. The data on employment status and journey to work relate to the reference week; that is, the calendar week preceding the date on which the respondents completed their questionnaires or were interviewed. This week is not the same for all respondents since the interviewing was conducted over a 12-month period. The occurrence of holidays during the relative reference week could affect the data on actual hours worked during the reference week, but probably had no effect on overall measurement of employment status. People who used different means of transportation on different days of the week were asked to specify the one they used most often, that is, the greatest number of days. People who used more than one means of transportation to get to work each day were asked to report the one used for the longest distance during the work trip. The categories, "Drove Alone" and "Carpool" include workers using a car (including company cars but excluding taxicabs), a truck of one-ton capacity or less, or a van. The category "Public Transportation," includes workers who used a bus or trolley bus, streetcar or trolley car, subway or elevated, railroad, or ferryboat, even if each mode is not shown separately in the tabulation. The category "Other Means" includes taxicab, motorcycle, and other means that are not identified separately within the data distribution. Percentages may not add up to 100% due to rounding.

Megacommuters
Data are from the United States Census Bureau, American Community Survey 1-Year Estimates, Public Use Microdata (PUMS). Silicon Valley data include commuters who work in San Mateo or Santa Clara Counties. The Bay Area includes workers in Alameda, Contra Costa, Marin, Napa, San Francisco, San Mateo, Santa Clara, Solano, and Sonoma Counties. Megacommuters include workers ages 16 or older with one way commutes of more than 90 minutes; analysis excludes those working from home. California megacommuters are based on place of residence, and thus may include those who are commuting out of state. 2020 data are from the 2020 1-Year Public Use Microdata (PUMS) with experimental weights.

Commute Patterns
Data for Commute Patterns are from the United States Census Bureau, American Community Survey, 1-Year Public Use Microdata Samples (PUMS) using the Place of Work PUMA for San Francisco, San Mateo, Santa Clara and Alameda Counties. Workers include civilian residents over age 16 who were employed and at work. 2020 data represent estimates from the 1-year PUMS with experimental weights.

Bicycle Commuters
Data are from the United States Census Bureau, American Community Survey 1-Year Estimates, and include workers 16 years old and over residing in Santa Clara and San Mateo Counties commuting to the geographic location at which workers carried out their occupational activities during the reference week whether or not the location was inside or outside the county limits. 2020 data are from the American Community Survey 1-Year Public Use Microdata (PUMS) with experimental weights. The data on employment status and journey to work relate to the reference week; that is, the calendar week preceding the date on which the respondents completed their questionnaires or were interviewed. This week is not the same for all respondents since the interviewing was conducted over a

PLACE *continued*

12-month period. The occurrence of holidays during the relative reference week could affect the data on actual hours worked during the reference week, but probably had no effect on overall measurement of employment status. Bicyclists include people who biked to work as their most common means of commute (the greatest number of days per week) and/or for the longest distance during the work trip (if they used more than one means of transportation to get to work each day). The number of commute trips is estimated as the number of commuters multiplied by two (assuming each commuter has one two-way commute). Data for the Share of Residents Who Ride a Bike in Santa Clara County (early 2020) is for an average week, and is from a survey of 1,009 Santa Clara County residents, conducted pre-pandemic by Change Research on behalf of the Silicon Valley Bicycle Coalition, in partnership with the County of Santa Clara and the Mineta Transportation Institute at San Jose State University (Surveying Silicon Valley on Cycling, Travel Behavior, and Travel Attitudes).

Bicycle Collisions
Data are from the Statewide Integrated Traffic Records System (SWITRS) via the Transportation Injury Mapping System (TIMS), and only include those collisions in which an injury or fatality occurred.

Bicycle Facilities
Data for 2021 are from the Santa Clara Valley Transportation Authority, and from San Mateo city and town engineering and public works departments (Atherton, Half Moon Bay, Menlo Park and San Mateo are not included due to lack of data). Data does not include bicycle facilities in unincorporated areas of San Mateo County. Data for 2018 were compiled from MTC, VTA, and Google Streets, and include Santa Clara and San Mateo Counties. Bicycle facility classes have been defined by Caltrans and include Class 1 (Shared Use Path), Class II (Bikeway), Class III (Bike Route/Boulevard), and Class IV (Protected Bikeway). Beginning in 2017, the data for Class 1 (Shared Use Path) included pathway networks in parks, as well as parallel measurements for pathways that run along both sides of water-ways (the metric does not include unpaved paths in mountainous state park areas that are mostly used for mountain bike recreation); the data for Class 2 (Bikeway) included parallel lane measurements for bike lanes that occur on roadways with medians that restrict passage from one side of the road to the other, as well as roadway that have shoulders that are treated as bike lanes but may not have stenciling; the data for Class 3 (Bike Route/Boulevard) included additional bike routes that were not included in the 2016 data.

Jurisdictions with a Bicycle or Pedestrian Master Plan
Data includes cities within the city-defined Silicon Valley region, and the Counties of Santa Clara and San Mateo. Data include all bicycle and pedestrian master plans that were created since 2011, and were approved, planned or in-progress as of December 2021.

Daily Vehicle Hours of Delay Due To Congestion
Data are from Caltrans PeMS (Performance Measurement System) which collects, filters, processes, aggregates and examines traffic data from the Caltrans network of roadway traffic sensors. Data include California State Freeways only (not all state highways). Silicon Valley includes Santa Clara & San Mateo Counties. Bay Area includes the 9-County San Francisco Bay Area. The reported traffic delays data are based on the detector coverage and health at the time that the data was collected by PeMS. Accordingly, actual traffic delays experienced in each county may be higher than those reported. One vehicle hour of delay reflects one vehicle stuck in traffic for one hour. Delay refers to speeds less than 60 miles per hour. Data for 2012 through 2021 downloaded on December 27, 2021; 2021 data are through 12/26. The share of Bay Area residents that think traffic congestion is a serious problem is from the 2021 Silicon Valley Poll, and include those who responded that it is an "extremely serious" or "very serious" problem. Tech employees include current/former; In-Person Workers includes those who rarely or never work remotely; Exclusively Remote Workers include those who work remotely all of the time; Republicans and Democrats include *"leaners."*

Per Capita Transit Use
Estimates are the sum of annual ridership on the light rail and bus systems in Santa Clara and San Mateo Counties (from SamTrans and Santa Clara Valley Transportation Authority), and rides on Caltrain and Altamont Corridor Express (ACE). Data does not include paratransit, such as SamTrans' Redi-Wheels program. The California Department of Finance E-4 Population Estimates were used to compute per-capita values. FY 2021-22 ridership estimated using FY 2021-22 year-to-date ridership numbers. FY 2021-22 per capita ridership calculated using 2021 population estimates.

Caltrain Ridership
Caltrain data through FY 2019 are from the Annual Passenger Counts report, and include average weekday daily ridership (through FY 2016) and average mid-weekday daily ridership (FY 2017+). Data for FY 2020 and subsequent years are from board meeting agendas. Years indicate the end of the fiscal year (e.g., 2018 includes data for FY 2017-18). FY 2021-22 ridership based on data through November 2021.

Shuttles
Transit ridership data are from Bay Area transit agencies and the American Public Transportation Association (APTA). Shuttle data are from the Bay Area Council and Metropolitan Transportation Commission, preliminary 2019 Bay Area Shuttle Census results and include the number of private shuttles traveling between Bay Area and adjacent counties each day. Data were collected by the Bay Area Council in 2019 via a web portal where shuttle sponsors and operators self-submitted their information. Data entry was voluntary and anonymized. Shuttle sponsors included Bay Area companies and academic institutions; shuttle operators included companies that operate shuttle services for numerous individual sponsoring organizations. Responses were received from most (but not all) major sponsors and operators. The Shuttle Census focused on commuter and "last mile" services only and did not include airport or charter transportation services. Daily Shuttles on the Road assumes that shuttles operating between San Francisco and Santa Clara County must travel through San Mateo County; likewise, shuttles operating between Marin and San Mateo County are assumed to pass through San Francisco. Shuttles operating between Marin and Santa Clara County were not assumed to travel through San Francisco or San Mateo County, although it is possible that they do.

Cumulative Count of Shuttle-Type Buses Registered
Vehicle registration data include common shuttle bus manufacturers (Van Hool, Motor Coach Industries, Novabus, Evobus, Man Truck and Bus Corporation), and are as of January 2020. Silicon Valley includes the city-defined region. Data only include vehicles that were registered as of January 2020, regardless of the model year.

LAND USE

Residential Density
Data are from Joint Venture Silicon Valley's annual land-use survey of all cities within Silicon Valley. The 35 cities/counties included in the FY 2019-20 Residential Density analysis were Atherton, Belmont, Brisbane, Burlingame, Campbell, Colma, Daly City, East Palo Alto, Foster City, Fremont, Gilroy, Half Moon Bay, Hillsborough, Los Altos Hills, Los Gatos, Millbrae, Monte Sereno, Morgan Hill, Mountain View, Newark, Pacifica, Palo Alto, Redwood City, San Bruno, San Carlos, San Jose, San Mateo, San Mateo County, Santa Clara, Saratoga, South San Francisco, Sunnyvale, Union City, and Woodside. Other cities/counties were not included because they either did not respond to the survey or they left the acreage question blank. Most recent data are for fiscal year 2021 (July 2020 through June 2021). Residential density was calculated as the average residential density of the participating cities/counties for each year. Beginning in 2014, the residential density analysis began to exclude secondary units that were approved with the primary unit. Beginning in 2020, the residential density calculation included accessory dwelling units (ADUs) that were issued a building permit in lieu of a planning approval.

Housing Near Transit
Data are from Joint Venture Silicon Valley's annual land-use survey of all cities within Silicon Valley. The 30 cities/counties included in the FY 2020-21 Housing Near Transit analysis were Atherton, Belmont, Burlingame, Campbell, Colma, Cupertino, Daly City, East Palo Alto, Foster City, Fremont, Gilroy, Hillsborough, Los Altos, Millbrae, Milpitas, Morgan Hill, Mountain View, Newark, Palo Alto, Redwood City, San Bruno, San Carlos, San Jose, San Mateo, Santa Clara, Santa Clara County, South San Francisco, Sunnyvale, and Union City. Only cities containing rail stations or major bus corridors were included in the analysis for the share of housing near transit. Most recent data are for fiscal year 2021 (July 2020 through June 2021). The number of new housing units within one-third mile of transit are reported directly for each of the cities and counties participating in the survey. Places with one-third of a mile of transit are reported as "walkable" (i.e., within a 5- to 10-minute walk for the average person). Transit oriented data prior to 2012 is reported within one-quarter mile of transit.

Non-Residential Development
Data are from Joint Venture Silicon Valley's annual land-use survey of all cities within Silicon Valley. Most recent data are for fiscal year 2021 (July 2020 through June 2021). The amount of commercial development within one-third of a mile of transit are reported directly for each of the cities and counties participating in the survey. Places with one-third of a mile of transit are considered "walkable" (i.e., within a 5- to 10-minute walk for the average person). Transit oriented data prior to 2012 is reported within one-quarter mile of transit. The 36 cities/counties included in the FY 2020-21 Non-Residential Development Approvals analysis were Atherton, Belmont, Brisbane, Burlingame, Campbell, Colma, County of San Mateo, County of Santa Clara, Cupertino, East Palo Alto, Foster City, Fremont, Gilroy, Half Moon Bay, Hillsborough, Los Altos, Los Altos Hills, Los Gatos, Millbrae, Milpitas, Morgan Hill, Mountain View, Newark, Pacifica, Palo Alto, Redwood City, San Bruno, San Carlos, San Mateo, San Jose, Santa Clara, Saratoga, South San Francisco, Sunnyvale, Union City, and Woodside.

Planned Hotel Development
Data is from the Atlas Hospitality Group annual California Hotel Development Surveys. Planned hotels are in various stages, and have not necessarily received planning approvals. 2021 data as of June. Silicon Valley includes the city-defined region.

ENVIRONMENT

Water Resources
Data for Santa Clara County was provided by Santa Clara Valley Water District (SCVWD). Scotts Valley Water District (SVWD) provided Scotts Valley data. Bay Area Water Supply & Conservation Agency (BAWSCA) provided data for member agencies servicing San Mateo County and for Alameda County Water District, which services the Cities of Fremont, Union City and Newark. These agencies include Brisbane/GVMID, Estero, Burlingame, Hillsborough, CWS - Bear Gulch, Menlo Park, CWS - Mid Peninsula, Mid-Peninsula, CWS - South SF, Millbrae, Coastside, North Coast, Redwood City, Daly City, San Bruno, East Palo Alto, and Westborough. Cordilleras serves residents in San Mateo County, but is not a BAWSCA member and therefore was not included in this analysis. Data for FY 2019-20 is preliminary. Population figures used to calculate per capita values include the population served by each water agency, and are provided by the agencies directly. Total water consumption figures are the sum of all retailer numbers, and do not include consumption by private well-owners in the service area; some consumption for urban agriculture may be included, but the amount is negligible. In the BAWSCA data, the small number of agricultural users in the service area are treated as a class of commercial user and so are included in the consumption figures. Scotts Valley Water District does not serve agricultural customers, so total water consumption figures used to compute both the per capita consumption and the recycled percentage of total water used are the same. The year listed represents the fiscal year (e.g., 2019 represents the 2018-2019 fiscal year).

Per Capita Waste Production
Data are from the CalRecycle Multi-year Countywide Origin Summary, which indicates the amount of waste that was produced (not disposed) within the region. Silicon Valley includes the city-defined region. Total waste disposal includes the total amount of waste disposed at a landfill and the total amount of waste exported out of state to landfills or transformation facilities. Population data used to calculate per capita values are from the California Department of Finance, E-4 Estimates.As of January 1, 2020, green material used as ADC no longer constitutes diversion through recycling and is considered disposal (AB 1594).

Wildfires
Data are from the California Department of Forestry and Fire Protection (CAL FIRE) wildfire activity statistics and events data. Silicon Valley includes San Mateo and Santa Clara Counties; Rest of Bay Area includes Alameda, Contra Costa, Marin, Napa, San Francisco (although there is no State Responsibility Area located within San Francisco), Solano, and Sonoma Counties; Northern California includes Amador, El Dorado, Butte, Humboldt, Del Norte, Lassen, Modoc, Mendocino, Nevada, Yuba, Placer, Santa Cruz, Shasta, Trinity, Siskiyou, Lake, Tehama, and Glenn Counties. California data include those managed by CAL FIRE and other partner agencies. 2021 fire data for Northern California is from the 2021 fire season all incident data. 2020 and 2021 totals are preliminary. Bay Area 2021 data include the North Butano Fire (started 1/18/21), Paseo Fire (started 6/25/21), Silicon Fire (started 7/11/21), Diablo Fire (started 7/11/21), Dolicini Fire (started 7/14/21), Middle Fire (started 8/13/21), Lassen Fire (started 9/1/21), Fremont Fire (started 9/22/21), and Newell Fire (started 10/11/21); 2020 data include the Pope Fire (started 10/23/20), Irvine Fire (started 10/11/20), Glass Fire (started 9/27/20), Coyote Fire (started 8/21/20), SCU Lightning Complex (started 8/18/20), LNU Lightning Complex (started 8/17/20), Woodward Fire (started 8/18/20), CZU August Lightning Complex (started 8/16/20), Holland Fire (started 7/20/20), Hollow Fire (started 7/16/20), Alum Fire (started 7/11/20), California Fire (started 7/6/20), Mountain Meadow Fire (started 7/6/20), Park Fire (started 7/5/20), Crews Fire (started 7/5/20), Sheridan Fire (started 7/4/20), Gulch Fire (started 6/6/20), Quail Fire (started 6/6/20), Willow Fire (started 6/6/20), Lakeville Fire (started 6/5/20), McGary Fire (started 6/5/20), Colleen Fire (started 6/4/20), Silver Fire (started 6/4/20), Wildlife Fire (started 6/3/20), Creek Fire (started 5/30/20), Spanish Fire (started 5/22/20), and Byron Fire (started 4/27/20). Northern California (2020 data) includes the largest fire in California since (at least) 1932, the August Complex (started 8/16/20), as well as the Laura Fire (started 11/17/20), Zogg Fire (started 9/27/20), Willow Fire (started 9/9/20), Slater Fire (started 9/8/20), Fork Fire (started 9/8/20), Oak Fire (started 9/7/20), W-5 Cold Springs Fire (started 8/18/20) Jones Fire (started 8/17/20), Butte/Tehama/Glenn Lightning Complex (started 8/17/20), North Complex Fire (started 8/17/20), Red Salmon Complex Fire (started 7/27/20), July Complex Fire (started 7/24/20), Gold Fire (started 7/20/20), and Hog Fire (started 7/19/20). The share of Bay Area residents that think the increasing frequency of wildfires and/or the impacts of climate change are serious problems are from the 2021 Silicon Valley Poll, and include those who responded that it is an "extremely serious" or "very serious" problem. Remote workers include those who work remotely all, most, or some of the time. Democrats and Republicans include *"leaners."*

Air Quality
Data are from the United States Environmental Protection Agency, Outdoor Air Quality Data, and include Santa Clara and San Mateo Counties. Unhealthy days are based on an Air Quality Index (AQI) of >100 for sensitive groups, and >150 for the general population in one or both of the two counties. The AQI includes Air Quality Index (AQI) for all AQI pollutants including carbon monoxide, ozone, particulate matter, nitrogen dioxide, sulfur dioxide, and lead. The PM2.5 monitoring network was phased in between 1999 and 2001 in most areas, so earlier years do not include PM2.5 (a type of particulate matter). 2021 data are through December 7.

Electricity Consumption & Productivity
Electricity Consumption data is from the California Energy Commission. Gross Domestic Product (GDP) data is from Moody's Economy.com. GDP values have been inflation-adjusted and are reported in 2020 dollars using the Bay Area consumer price index for all urban consumers from the Bureau of Labor Statistics for Silicon Valley and San Francisco data, and the California consumer price index for all urban consumers from the California Department of Finance May Revision Forecast (April 2021) for California data. Silicon Valley data includes Santa Clara and San Mateo Counties. Per capita values were computed from the California Department of Finance's E-4 Population Estimates.

Emissions Intensity for Power Providers; Share of Electricity Customers Served, by Provider; Share of Electricity, by Generation Sources
In Silicon Valley, all electricity consumers receive power sourced by either PG&E (an investor-owned utility), one of the two municipal utilities (Silicon Valley Power in the City of Santa Clara, or Palo Alto Utilities), or one of the locally-controlled public agencies sourcing clean electricity. These community choice energy options are relatively new to the region, and include Silicon Valley Clean Energy which serves 13 communities in Santa Clara County; Peninsula Clean Energy which serves 20 San Mateo County cities and the unincorporated portion of the county; and San Jose Clean Energy, the newest of the three, serving residents and businesses in San Jose since February 2019. The remaining Silicon Valley communities outside of the two counties are served by Monterey Bay Community Power (Scotts Valley) and East Bay Community Energy (Fremont and Union City); Newark opted out of joining the community choice energy program and thus remains served by PG&E. Neither Monterey Bay Community Power or East Bay Community Energy are included in this analysis, although bundled PG&E customers are. The three locally-controlled public-agency electricity providers in Santa Clara and San Mateo Counties have served customers since October 2016 (Peninsula Clean Energy), April 2017 (Silicon Valley Clean Energy), and February 2019 (San Jose Clean Energy). Palo Alto Utilities has provided 100% carbon-neutral electricity since 2013. PG&E's emissions factor is from The Climate Registry, and customer counts were from publicly available data on PG&E's website (including bundled customers only); Other emissions intensities and customer counts were provided directly by Silicon Valley's energy providers. Data are for 2020 except California and the U.S. Average (2018). The analysis does not include Direct Access (DA) electricity customers. Green-e® Energy is the leading certification program for voluntary renewable energy in North America. The 2020 Green-e® Residual Mix Emissions Rates are "greenhouse gas (GHG) emissions associated with untracked and unclaimed U.S.-based sources of electricity, based on location of consumption." The "residual mix" is what is leftover once all the Green-e® certified renewable energy credits that have been purchased – either alone or bundled with the power itself – are removed. These emissions rates are used to calculate the carbon dioxide (CO2) equivalent emissions associated with unspecified purchased or acquired electricity, classified as "Scope 2" emissions for carbon accounting purposes. Data for the share of electricity by generation sources are from the 2019 Power Content Labels, through the California Energy Commission's Power Source Disclosure Program for Silicon Valley providers. California and U.S. generation by sources are from the U.S. Environmental Protection Agency (EPA) Emissions & Generation Resource Integrated Database (eGRID) fuel mix for 2019. The Silicon Valley average shares of electricity by generation source are approximations for illustrative purposes only, calculated as un-weighted averages of all power plans available to residential and non-residential customers.

Solar and Storage Installations
Data are from Palo Alto Municipal Utilities, Silicon Valley Power, and Pacific Gas & Electric, and include the entire city-defined Silicon Valley region. Years listed correspond to when the systems were interconnected. The category Non-Residential includes Commercial, Non-Profit, Government, Industrial, Utility, Military, and Educational. Cumulative installed solar capacity does not include installations prior to 1999. All systems included in the analysis are Net Energy Metered (including RES-BCT and virtual Net Energy Metering) and Non-Export PV. PG&E data are from the California Solar Statistics, which publishes all IOU solar PV net energy metering (NEM) interconnection data per CPUC Decision (D.)14-11-001. Energy storage data for PG&E includes net-energy metered systems only. 2021 data are through June for Palo Alto Utilities, and through September for Silicon Valley Power and PG&E. Silicon Valley Power energy storage data prior to 2019 is unavailable.

Electric Vehicle Infrastructure
Data for public electric vehicle stations and outlets are from the U.S. Department of Energy, and include the city-defined Silicon Valley region. Annual data are for 11/22/2021; 11/19/2020; 12/6/2019; 11/13/2018; 12/18/2017; 12/6/2016; 11/2/2015; and 11/14/2014. Private electric vehicle charging infrastructure data are from the California Energy Commission Zero Emission Vehicle and Charger Statistics for 2021 (last updated October 1, 2021; retrieved November 23, 2021) and 2020 (last updated October 30, 2020; retrieved December 7, 2020), and include Santa Clara and San Mateo Counties.

Electric Vehicle Adoption
Vehicle population data are from the California Energy Commission Zero Emission Vehicle and Charger Statistics (last updated April 1, 2021; retrieved December 20, 2021). Vehicle population counts vehicles whose registration is either current or less than 35 days expired. Electric vehicles include Battery Electric, Fuel Cell Electric, and Plug-In Hybrid Electric Vehicles. Silicon Valley includes the city-defined region. Share of registered light-duty electric vehicles, by make, are from the California Department of Motor Vehicles registration data including registered light-duty vehicles only, as of January 2020 (regardless of model year). Palo Alto includes East Palo Alto. City data are by zip code, so do not represent exact city-boundaries.

APPENDIX A

LOCAL GOVERNMENT ADMINISTRATION

Local Government Finances
Data were obtained from the audited annual financial reports from the Counties of Santa Clara and San Mateo, and cities within the Silicon Valley city-defined region. Reports included Annual Comprehensive Financial Reports, Comprehensive Annual Financial Reports, Annual Financial Statements for the Year End, Annual Financial Reports, Basic Financial Statements Reports, and Annual Basic Financial Statements Reports, as well as the State of California annual year-end financial report from the California State Auditor. FY 2019-20 totals include estimates for Atherton and Portola Valley; 2021 represent estimates using audited annual financial reports for the Counties of Santa Clara and San Mateo and 22 cities, and budgeted amounts for the rest. Data for City Finances include both Government and Business-Type Activities (where applicable). Whenever possible, data were obtained from the following year report (e.g., the 2010 report for 2009 figures) because following year reports sometimes reflect revisions/corrections. Years represent the end of the Fiscal Year (e.g., 2019 data are for FY 2018-19). All amounts have been inflation-adjusted and are reported in 2021 dollars using the Bay Area consumer price index for all urban consumers from the Bureau of Labor Statistics for Silicon Valley data, 2021 estimate based on January-August the California consumer price index for all urban consumers from the California Department of Finance May Revision Forecast (April 2021) for California data. Values are significant to the nearest $1 million due to rounding in the city and state reports. Revenues Minus Expenses is reported before Transfers or Extraordinary Items. Other Revenues include any revenue other than Property Tax, Sales Tax, Investment Earnings, or Charges for Services. Other Revenues includes the following (as categorized by the various cities in Silicon Valley): Incremental Property Taxes; Public Safety Sales Tax; Business tax; Municipal Water System Revenue; Waste Water Treatment Revenue; Storm Drain Revenue; Transient occupancy tax Business, Hotel & Other Taxes; Property transfer tax; Property Taxes In-Lieu; Vehicle license in-lieu fees or Motor Vehicle In-Lieu; Licenses & Permits; Utility Users Tax; Development impact fees; Franchise fees; Franchise Taxes Franchise & Business Taxes; Rents & Royalties; Net Increase (decrease) in Fair Value of Investments; Equity in Income (losses) of Joint Ventures; Miscellaneous or Other Revenues; Cardroom Taxes; Fines and Forfeitures; Other Taxes; Agency Revenues; Interest Accrued from Advances to Business-Type Activities; Use of Money and Property; Property Transfer Taxes; Documentary Transfer Tax; Unrestricted/Intergovernmental Contributions in Lieu of Taxes; Gain (loss) of disposal of assets.

Public Capital
Aggregate City Net Position is for cities in Santa Clara & San Mateo Counties, and is the sum of amounts in each city's Comprehensive Annual Financial Reports. Net Position includes the sum of assets, minus liabilities. Total Household Wealth is estimated from market sizing data provided by Phoenix Global Wealth Monitor (2018) and Claritas (2020 and 2021). Investable Assets include education/custodial accounts, individually-owned retirement accounts, stocks, options, bonds, mutual funds, managed accounts, hedge funds, structured products, ETFs, cash accounts, annuities, and cash value life insurance. Segment distributions are approximations; 2018 and 2020 data were adjusted to account for the average estimated wealth of households with $10+ in net assets in 2022. Analysis for 2021 includes wealth estimates as of January 2022 and estimated aggregate city net position was estimated using audited annual comprehensive financial reports (ACFRs) where available, plus latest available year ACFRs adjusted based on budgeted change in net position by each city 2020 analysis includes estimated net position for Atherton and Portola Valley.

City/County Manager Turnover
Annual count of city/county managers are a snapshot in time, taken in August of each year since 2013 from individual city and county websites. Data include Silicon Valley Cities, as well as the Counties of Santa Clara and San Mateo. The 2021 snapshot includes one September (Scotts Valley) and two October (Foster City and Fremont) appointments. In 2021, Foster City had a new City Manager, an Acting City Manager in August, and an Interim City Manager in October; this analysis includes Foster City as having an Interim City Manager. The 2021 snapshot also includes the City of Scotts Valley's Interim City Manager, Brian Haddix, and the City of Fremont's new City Manager, Karena Shackelford, even though they were not appointed until September and October, respectively.

CIVIC ENGAGEMENT

Partisan Affiliation
Data are from the California Secretary of State, Elections Division. Silicon Valley data are for Santa Clara and San Mateo counties. Other includes Green, Libertarian, Natural Law, Peace & Freedom/Reform, and Other. No Party Preference was formerly called Declined to State.

Eligible Voter Turnout and Absentee Voting
Registration and turnout data are from the California Secretary of State, Elections Division. The eligible population is determined by the Secretary of State using Census population data provided by the California Department of Finance. Eligible Voter Turnout and Absentee Voting includes data for the even-year November General Elections.

Eligible Voter Turnout, by Age
Eligible Voter Turnout by Age data are from the Center for Inclusive Democracy at the USC Sol Price School of Public Policy, using data from the Statewide Database (the Redistricting Database for the State of California) and California Department of Finance (for voting age population estimates). Silicon Valley includes Santa Clara and San Mateo Counties. Eligible voter turnout is defined as the percentage of adult citizens who voted. 2016 General Election turnout for California does not include Yuba County. The eligible turnout rate in San Francisco increased significantly in 2020 due to an estimated decline in the citizen voting age population ages 25-34.

REPRESENTATION

Local Elected Officials
Data is from the GrassrootsLab Grassfire Directory (www.grassrootslab.com), a unique and comprehensive database that closely tracks, updates and categorizes local jurisdictions, elected officials and key staff members in California cities, counties, and school districts. Silicon Valley includes the city-defined region. Local elected officials include any person elected through a city-wide or county-wide election to represent at either the Municipal, Mayoral or Supervisorial level. Race/ethnicity of elected officials are based on publicly available documentation that those officials self-identify with a particular racial/ethnic group. Other party affiliation includes American Independent, Green, Libertarian, Natural Law, Peace & Freedom/Reform, and Other. Data for Share of Local Elected Officials by Gender, Partisan Affiliation, Race and Ethnicity, and Professional Background in 2021 are through the end of the year. Local elected officials included 229 Councilmembers, Mayors, and County Supervisors in 2021 (Councilmembers in all 39 Silicon Valley cities across Santa Clara, San Mateo, Alameda and Santa Cruz Counties, the 10 County Supervisors for Santa Clara and San Mateo Counties, the District 2 Supervisor for Alameda County, and the District 5 Supervisor for Santa Cruz County).

Trial Court Justices and Judges
Data reflect responses from justices and judges that were active and serving on the bench as of December 31 of the data year (2010, 2015 and 2020). The tables do not include demographic information for justices that were appointed but not yet confirmed, nor for judges that were appointed but had not yet taken their oaths of office as of December 31 of the data year. Race and ethnicity sub-population descriptions were adapted from the definitions used by the U.S. Census Bureau in the 2000 and 2010 Decennial Census. Multiple and Other includes American Indian and Native Alaskan, Native Hawaiian and Other Pacific Islander, Some Other Race and More than One Race. Information not provided includes non-responses by active justices and judges.

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	EMPLOYMENT Q2 2021	PERCENT OF TOTAL SILICON VALLEY EMPLOYMENT	PERCENT CHANGE		
			2010-2021	2019-2021	2020-2021
TOTAL EMPLOYMENT	**1,630,346**	**100.0%**	**26.0%**	**-4.3%**	**5.1%**
COMMUNITY INFRASTRUCTURE & SERVICES	**774,478**	**47.5%**	**17.9%**	**-8.4%**	**8.2%**
HEALTHCARE & SOCIAL SERVICES[1]	184,846	11.3%	48.4%	4.1%	5.9%
RETAIL	122,311	7.5%	-0.4%	-9.4%	8.0%
ACCOMMODATION & FOOD SERVICES	103,473	6.3%	3.9%	-25.0%	26.3%
EDUCATION[1]	122,619	7.5%	27.9%	-7.0%	3.2%
CONSTRUCTION	79,030	4.8%	60.7%	-3.8%	0.7%
LOCAL GOVERNMENT ADMINISTRATION[2]	45,232	2.8%	2.9%	-4.4%	3.9%
TRANSPORTATION	32,517	2.0%	1.0%	-17.7%	1.1%
BANKING & FINANCIAL SERVICES	22,428	1.4%	34.0%	12.1%	4.9%
ARTS, ENTERTAINMENT & RECREATION	14,367	0.9%	-20.0%	-28.1%	55.0%
PERSONAL SERVICES	12,937	0.8%	4.2%	-26.7%	58.2%
FEDERAL GOVT. ADMINISTRATION	11,310	0.7%	-30.9%	4.6%	-0.8%
NONPROFITS	8,429	0.5%	-15.9%	-16.0%	10.9%
INSURANCE SERVICES	7,968	0.5%	3.7%	-8.4%	-5.4%
STATE GOVERNMENT ADMINISTRATION[2]	2,776	0.2%	5.4%	-0.7%	1.5%
WAREHOUSING & STORAGE	2,161	0.1%	-6.5%	-23.6%	2.1%
UTILITIES[1]	2,072	0.1%	-23.9%	3.1%	1.0%
INNOVATION AND INFORMATION PRODUCTS & SERVICES	**469,414**	**28.8%**	**50.6%**	**4.1%**	**2.3%**
COMPUTER HARDWARE DESIGN & MANUFACTURING	182,381	11.2%	65.9%	0.1%	-0.5%
SEMICONDUCTORS & RELATED EQUIPMENT MANUFACTURING	41,385	2.5%	-13.2%	-3.4%	-1.5%
INTERNET & INFORMATION SERVICES	83,819	5.1%	238.7%	6.5%	1.1%
TECHNICAL RESEARCH & DEVELOPMENT (INCLUDES LIFE SCIENCES)	46,513	2.9%	40.8%	17.1%	7.1%
SOFTWARE	34,797	2.1%	58.6%	7.3%	-1.3%
TELECOMMUNICATIONS MANUFACTURING & SERVICES	14,425	0.9%	-25.2%	-5.4%	2.4%
INSTRUMENT MANUFACTURING (NAVIGATION, MEASURING & ELECTROMEDICAL)	17,658	1.1%	-5.6%	3.3%	0.3%
PHARMACEUTICALS (LIFE SCIENCES)	18,354	1.1%	44.4%	24.9%	23.9%
OTHER MEDIA & BROADCASTING, INCLUDING PUBLISHING	5,522	0.3%	-36.7%	-29.9%	7.9%
MEDICAL DEVICES (LIFE SCIENCES)	8,095	0.5%	28.2%	15.7%	9.8%
BIOTECHNOLOGY (LIFE SCIENCES)	15,823	1.0%	162.2%	34.5%	30.0%
I.T. REPAIR SERVICES	641	0.0%	-76.1%	-52.4%	-21.7%
BUSINESS INFRASTRUCTURE & SERVICES	**257,542**	**15.8%**	**17.6%**	**-5.7%**	**1.1%**
WHOLESALE TRADE	54,281	3.3%	-5.2%	-9.3%	-2.0%
PERSONNEL & ACCOUNTING SERVICES	33,462	2.1%	-2.0%	-4.2%	14.8%
ADMINISTRATIVE SERVICES	27,854	1.7%	39.2%	-13.9%	-2.4%
FACILITIES	28,832	1.8%	22.2%	0.0%	2.1%
TECHNICAL & MANAGEMENT CONSULTING SERVICES	23,470	1.4%	17.6%	-3.2%	2.6%
MANAGEMENT OFFICES	25,656	1.6%	63.1%	-10.0%	-6.5%
DESIGN, ARCHITECTURE & ENGINEERING SERVICES	21,541	1.3%	29.9%	-0.2%	-0.2%
GOODS MOVEMENT	15,352	0.9%	54.3%	13.4%	7.0%
LEGAL	10,654	0.7%	9.0%	-5.2%	-0.7%
INVESTMENT & EMPLOYER INSURANCE SERVICES	14,429	0.9%	53.4%	-0.9%	-0.3%
MARKETING, ADVERTISING & PUBLIC RELATIONS	2,011	0.1%	-19.8%	-39.6%	4.1%
OTHER MANUFACTURING	**55,513**	**3.4%**	**-4.5%**	**-8.3%**	**-0.7%**
PRIMARY & FABRICATED METAL MANUFACTURING	14,405	0.9%	-0.5%	-4.2%	2.9%
MACHINERY & RELATED EQUIPMENT MANUFACTURING	13,904	0.9%	26.8%	3.7%	4.0%
OTHER MANUFACTURING	10,251	0.6%	16.6%	-4.5%	0.4%
TRANSPORTATION MANUFACTURING INCLUDING AEROSPACE & DEFENSE	7,285	0.4%	-36.9%	-20.8%	-17.0%
FOOD & BEVERAGE MANUFACTURING	6,515	0.4%	-23.3%	-22.3%	3.2%
TEXTILES, APPAREL, WOOD & FURNITURE MANUFACTURING	3,007	0.2%	3.4%	-12.5%	4.8%
PETROLEUM AND CHEMICAL MANUFACTURING (NOT IN LIFE SCIENCES)	146	0.0%	-84.6%	-59.2%	-58.1%
OTHER	**73,400**	**4.5%**	**51.4%**	**0.8%**	**10.5%**

1. Includes government jobs (state and local).
2. Excludes government jobs in Healthcare & Social Services, Education, and Utilities.
Note: Table includes annual industry employment data for Silicon Valley from the United States Bureau of Labor Statistics Quarterly Census of Employment and Wages (QCEW) for 2007, 2010, 2020 and 2021, modified slightly by JobsEQ, which removes suppressions and reorganizes public sector employment. Data for Q2 of 2021 was estimated at the industry level by BW Research using Q2 2021 reported growth and totals, and modified slightly by JobsEQ. Due to rounding, individual industry employment may not sum to industry group or overall job total. Due to rounding, individual industry employment totals may not sum to industry group or overall total. | Data Sources: U.S. Bureau of Labor Statistics Quarterly Census of Employment and Wages; JobsEQ | Analysis: BW Research

APPENDIX B - San Francisco

	EMPLOYMENT Q2 2021	PERCENT OF TOTAL SAN FRANCISCO EMPLOYMENT	PERCENT CHANGE		
			2010-2021	2019-2021	2020-2021
TOTAL EMPLOYMENT	**681,239**	**100.0%**	**24.8%**	**-10.5%**	**2.7%**
COMMUNITY INFRASTRUCTURE & SERVICES	**370,469**	**54.4%**	**14.7%**	**-14.0%**	**6.4%**
HEALTHCARE & SOCIAL SERVICES[1]	97,133	14.3%	100.3%	5.8%	6.9%
RETAIL	38,061	5.6%	-0.8%	-16.1%	3.1%
ACCOMMODATION & FOOD SERVICES	48,765	7.2%	-25.9%	-43.3%	25.1%
EDUCATION[1]	43,104	6.3%	-4.3%	-13.2%	0.0%
CONSTRUCTION	19,527	2.9%	45.2%	-8.9%	-7.2%
LOCAL GOVERNMENT ADMINISTRATION[2]	27,813	4.1%	14.5%	-2.1%	1.1%
TRANSPORTATION	14,152	2.1%	76.3%	-20.6%	-6.9%
BANKING & FINANCIAL SERVICES	19,498	2.9%	29.5%	6.7%	6.3%
ARTS, ENTERTAINMENT & RECREATION	11,039	1.6%	-19.2%	-34.4%	18.6%
PERSONAL SERVICES	6,962	1.0%	5.7%	-31.9%	51.5%
FEDERAL GOVT. ADMINISTRATION	9,496	1.4%	-11.8%	-0.6%	-1.5%
NONPROFITS	11,944	1.8%	11.2%	-14.4%	6.3%
INSURANCE SERVICES	8,416	1.2%	-16.5%	-5.4%	-3.2%
STATE GOVERNMENT ADMINISTRATION[2]	8,400	1.2%	5.2%	9.3%	8.4%
WAREHOUSING & STORAGE	1,014	0.1%	236.0%	427.0%	250.4%
UTILITIES[1]	5,143	0.8%	16.1%	11.3%	9.3%
INNOVATION AND INFORMATION PRODUCTS & SERVICES	**113,930**	**16.7%**	**190.7%**	**3.6%**	**0.0%**
COMPUTER HARDWARE DESIGN & MANUFACTURING	58,803	8.6%	253.4%	3.1%	-0.4%
SEMICONDUCTORS & RELATED EQUIPMENT MANUFACTURING	68	0.0%	-12.4%	10.9%	-6.3%
INTERNET & INFORMATION SERVICES	33,200	4.9%	743.5%	10.5%	1.4%
TECHNICAL RESEARCH & DEVELOPMENT (INCLUDES LIFE SCIENCES)	2,949	0.4%	172.3%	9.0%	4.1%
SOFTWARE	5,642	0.8%	154.0%	16.5%	4.9%
TELECOMMUNICATIONS MANUFACTURING & SERVICES	2,610	0.4%	-33.3%	-17.2%	2.0%
INSTRUMENT MANUFACTURING (NAVIGATION, MEASURING & ELECTROMEDICAL)	1,462	0.2%	2302.7%	-23.9%	-25.9%
PHARMACEUTICALS (LIFE SCIENCES)	336	0.0%	48.2%	-21.7%	-21.8%
OTHER MEDIA & BROADCASTING, INCLUDING PUBLISHING	6,729	1.0%	-26.2%	-12.4%	-0.5%
MEDICAL DEVICES (LIFE SCIENCES)	170	0.0%	53.2%	13.9%	25.7%
BIOTECHNOLOGY (LIFE SCIENCES)	1,855	0.3%	8.1%	2.9%	0.0%
I.T. REPAIR SERVICES	105	0.0%	9.9%	-21.2%	-14.1%
BUSINESS INFRASTRUCTURE & SERVICES	**154,455**	**22.7%**	**22.7%**	**-12.2%**	**-3.5%**
WHOLESALE TRADE	12,222	1.8%	28.6%	-22.2%	-5.6%
PERSONNEL & ACCOUNTING SERVICES	17,802	2.6%	12.8%	-11.9%	1.9%
ADMINISTRATIVE SERVICES	12,984	1.9%	6.3%	-17.3%	-1.9%
FACILITIES	12,916	1.9%	13.9%	-21.3%	-9.3%
TECHNICAL & MANAGEMENT CONSULTING SERVICES	21,375	3.1%	76.1%	-6.8%	-8.8%
MANAGEMENT OFFICES	18,285	2.7%	24.8%	-22.5%	-7.1%
DESIGN, ARCHITECTURE & ENGINEERING SERVICES	13,963	2.0%	34.4%	-5.7%	-2.7%
GOODS MOVEMENT	7,277	1.1%	89.7%	8.0%	14.8%
LEGAL	13,818	2.0%	2.0%	-2.7%	-0.8%
INVESTMENT & EMPLOYER INSURANCE SERVICES	15,636	2.3%	-0.9%	-2.9%	-0.9%
MARKETING, ADVERTISING & PUBLIC RELATIONS	8,179	1.2%	22.4%	-14.7%	-5.5%
OTHER MANUFACTURING	**6,004**	**0.9%**	**-3.9%**	**-13.9%**	**7.4%**
PRIMARY & FABRICATED METAL MANUFACTURING	591	0.1%	0.3%	6.2%	-0.2%
MACHINERY & RELATED EQUIPMENT MANUFACTURING	282	0.0%	413.9%	14.2%	20.3%
OTHER MANUFACTURING	825	0.1%	16.6%	-14.6%	0.0%
TRANSPORTATION MANUFACTURING INCLUDING AEROSPACE & DEFENSE	365	0.1%	-37.3%	2.2%	2.1%
FOOD & BEVERAGE MANUFACTURING	2,533	0.4%	38.4%	-20.2%	12.2%
TEXTILES, APPAREL, WOOD & FURNITURE MANUFACTURING	1,350	0.2%	-43.8%	-18.4%	4.5%
PETROLEUM AND CHEMICAL MANUFACTURING (NOT IN LIFE SCIENCES)	57	0.0%	-27.0%	236.0%	87.5%
OTHER	**36,382**	**5.3%**	**-29.6%**	**-2.7%**	**1.7%**

ACKNOWLEDGMENTS

Joint Venture Silicon Valley

Established in 1993, Joint Venture Silicon Valley provides analysis and action on issues affecting our region's economy and quality of life. The organization brings together established and emerging leaders – from business, government, academia, labor and the broader community – to spotlight issues, launch projects, and work toward innovative solutions.

Silicon Valley Institute for Regional Studies

Housed within Joint Venture Silicon Valley, the Silicon Valley Institute for Regional Studies provides research and analysis on Silicon Valley's economy and society.