

# **Community Economic Resilience Fund (CERF)**

## **Orange County Regional Plan, Part 1**

December 2023

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## Orange County CERF Regional Plan: Glossary of Terms

AAPI: Asian-American and Pacific Islander.

ACS: American Community Survey, an annual US Census Bureau demographic survey.

CBO: Community-Based Organization.

CBRE: Coldwell Banker Richard Ellis, one of the largest commercial real estate and investment firms.

CEDS: Community Economic Development Strategy.

CEII: County Economic Impact Index.

CERF: Community Economic Resilience Fund.

CHOC: Children's Hospital of Orange County.

COE: Orange County Center of Excellence, a research organization based in the Rancho Santiago Community College District.

CPA: Certified Public Accountant.

CPS: Bureau of Labor Statistics Current Population Survey.

EPA: United States Environmental Protection Agency.

ER: Emergency Room.

FMR: Fair Market Rent.

GDP: Gross Domestic Product.

GHG: Greenhouse Gases.

GRP: Gross Regional Product, a state- or regional-level equivalent of Gross Domestic Product.

GTFS: General Transit Feed System.

HRTC: High Road Transition Collaboratives, 13 regional economic development entities that supervise – and convene stakeholders for – the CERF process.

HUD: United States Department of Housing and Urban Development.

ICT: Information and Computer Technology.

IOM/NAS: Institute of Medicine of the National Academies of Science.

LEA: Leading Educational Attainment for Families, an OCBC-led initiative dedicated to empowering parents to support their children's education.

LQ: Location Quotient, a measurement of an industry's concentration in a particular area.

MWDOC: Municipal Water District of Orange County. NLIHC: National Low-Income Housing Coalition.

OCBC: Orange County Business Council.

OCBX: Orange County Business Expectations Index. OCDE: Orange

County Department of Education.

O\*NET: Occupational Information Network, a free online job database originally developed by the US Department of Labor in the 1990s.

PM2.5: Particulate Matter of less than 2.5 micrometers, a major component of air pollution with significant negative health impacts.

SB535: California Senate Bill 535, which was passed in 2012 and introduced a cap-and-trade system intended to reduce greenhouse gas emissions. 25% of cap-and-trade revenue must be spent on projects benefitting the state's disadvantaged communities.

SCAG: Southern California Association of Governments, which represents Imperial, Los Angeles, Orange, Riverside, San Bernardino and Ventura counties.

SEIU-UHW: Service Employees International Union-United Healthcare Workers West. SOC: US Bureau of Labor Statistics Standard Occupational Classification.

SWOT: Strengths, Weaknesses, Opportunities and Threats analysis.

UFCW 324: A branch of the United Food and Commercial Workers Union based in Buena Park.

WEF: World Economic Forum.

# Orange County CERF Executive Summary

The California Jobs First Initiative is a statewide regional planning effort to promote a sustainable and equitable post-pandemic recovery that diversifies local economies, develops sustainability industries, and creates high-quality jobs accessible to all Californians. As most of this report was developed while the initiative was called Community Economic Resilience Fund (CERF), this executive summary and the body of the report uses that title.

As the third largest county in the state and the sixth largest in the nation, with a population larger than that of seventeen states, Orange County is a regional, nationwide and global economic powerhouse, home to both Fortune 500 companies and thriving, resilient small businesses. Unlike many regions, Orange County has a diverse, well-rounded economy that has enabled it to weather downturns such as the COVID-19 pandemic, which completely disrupted its Hospital and Tourism sector; other strong sectors such as Healthcare, Professional and Business Services and Education, combined with a post-pandemic rebound in Hospitality and Tourism, allowed Orange County to not only bounce back but surpass pre-pandemic highs.

This economy growth and prosperity, however, has not been evenly distributed within the county. The county's disinvested communities face several challenges and barriers to advancement, including but not exclusively reduced access to high-quality jobs, reduced access to education, workforce, and entrepreneurial support programs, and other barriers to wealth generation. As a result, these communities have fallen behind on a number of economic and social metrics. The starkest illustration of this gap is the fact that affluent coastal communities have life expectancies seven years higher than disinvested inland communities.

The challenges facing disadvantaged communities have been exacerbated by both a chronic lack of affordable housing, which continues to drive up home and rental prices and encourage county residents – especially young families – to relocate to more affordable areas, and a more recent cost-of-living crisis driven by the pandemic, supply chain issues, and inflation. As of 2023, Orange County's median existing single family home price is approximately \$1.25 million, compared to only \$656,000 in 2013; while fair market rent for a two-bedroom reached \$2,539 compared to just \$1,621 over the same period. It should come as no surprise that both Orange County and California have lost population to more affordable areas over the past three years.

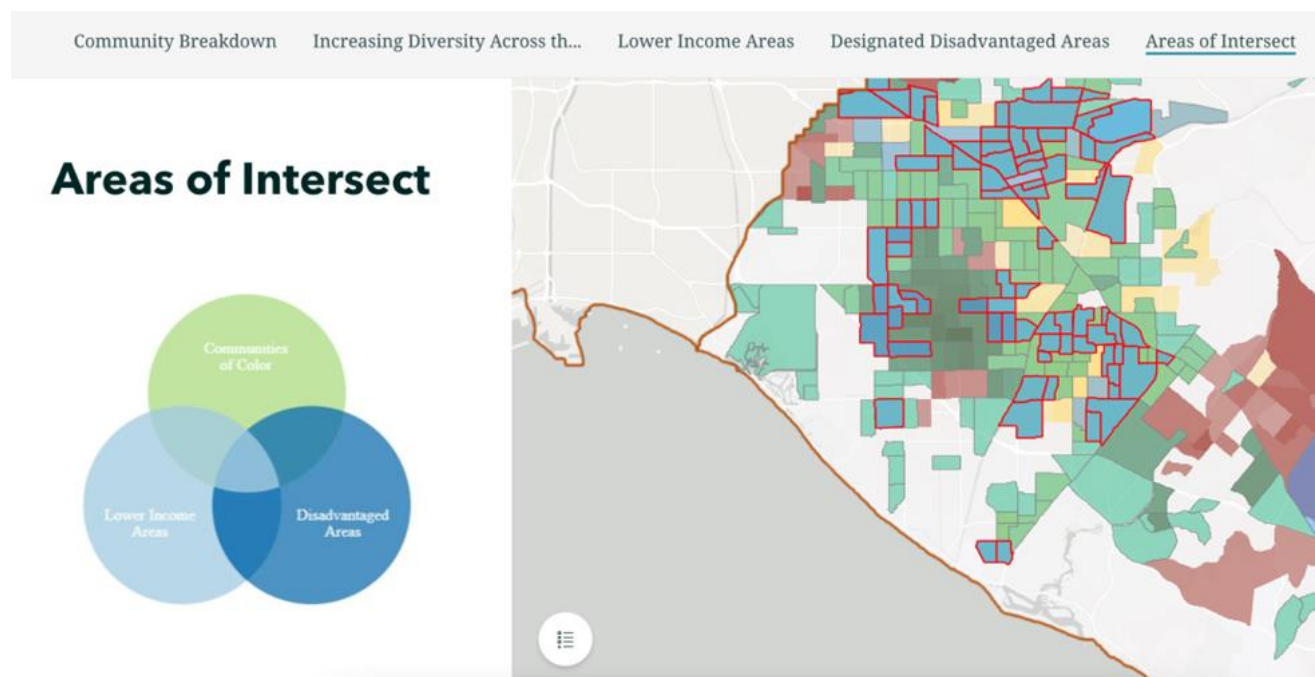
The Orange County HRTC includes representatives from local business organizations, California Native American tribes, community and non-profit organizations, community members, economic development and local government, education and workforce training providers, environmental justice organizations, government agencies, labor organizations, and philanthropic organizations. Orange County's CERF initiative has taken guidance and feedback from these individuals and organizations in a variety of ways, including regular Zoom HRTC meetings, in person gatherings, community surveys, significant outreach and engagement efforts, and in-person community events. Additionally, many stakeholder groups have convened to discuss the OC CERF

process, research, strategies, and industry prioritization. In all, a total of more than 5,000 individuals and organizations have been contacted during the CERF process.

**Foundational Objectives:** Foundational objectives for Orange County CERF are:

1. A focus on uplifting Orange County's disinvested communities;
2. Equitable and inclusive economic growth, sustainability and environmental justice; and
3. Economic resilience, especially recovery from COVID.

Orange County CERF uses an expanded definition of "disinvested community" that includes a combination of a below-average median income, higher unemployment, high percentages of communities of color and disproportionate exposure to pollution. The CERF Regional Plan, Part 1 uses ESRI ArcGIS technology to identify and display these areas, as illustrated below.



Using the expanded definition, the county's largest concentrations of disinvested communities are in Santa Ana (32 census tracts), Anaheim (31), Garden Grove (16) and Huntington Beach (11).

**Orange County CERF Open Data Portal:** With one of our major research and data partners – Esri – the OC CERF research team developed and updated and refined on an ongoing basis the Orange Count CERF [HRTC Open Data Hub](#). The above graphic is a good example of the kind of key data available at the portal. The Open Data Hub is a designed to be a living atlas that meets the needs of HRTC members, CERF stakeholders, and the public. As such, additional data layers may be added at any time. The list below represents a snapshot of currently available data.

OC CERF Open Data Hub -- Data Layers by Category

Category	~ Count
Climate & Environmental Impact	17
COVID Recovery	4
Demographics	26
Economic and Economic Development	21
Environmental Justice	11
Labor Market	26
Public Health	29
Sustainability	15
<b>Total</b>	<b>149*</b>

*\*Datasets can reference multiple categories*

**Regional Summary:** Once a rural community, Orange County saw tremendous growth during and after World War II, with Disneyland, the University of California, Irvine, shopping centers and other midcentury developments fueling this growth. In 1960, Orange County had a population of 719,500 residents which has since ballooned to 3,137,164, an increase of over 2.4 million residents or an increase of nearly 350 percent.<sup>1</sup> The county also became a destination for immigrants from around the world, notably Vietnamese refugees in the aftermath of the Vietnam War as well as large Mexican, Korean, Filipino and Iranian immigrant communities. Orange County has a long history of innovation and entrepreneurship, from aerospace and Fender electric guitars to Disney animatronics, Skylab and UCI Nobel laureates. Companies founded or based in Orange County include Fender, the Glenn L. Martin Company (later part of Lockheed Martin), 99 Ranch Market, Linksys, Blizzard Entertainment, Vans, Massimo, and Yogurtland.

Orange County, which encompasses approximately 800 square miles, had a population of 3.162 million in 2022. The county's median age has increased from 36.1 years in 2010 to 39.2 in 2022, a faster rate of growth than at the state level. The county's population has also become more diverse; as of 2021, Orange County's population was 37.6 percent White, 34.1 percent Hispanic or Latino and 21.9 percent Asian. The county's 2021 median household income was \$100,559, significantly higher than the state median of approximately \$85,000. Orange County had a poverty rate of 9.9 percent in 2021, significantly lower than the state average of more than 12 percent. Looking at Orange County's Real Cost Measure, a measure which takes into account not only the official poverty rate, but also the cost of housing, food, health care, childcare, transportation and of other basic needs; approximately 302,844 households or 33 percent of all households in Orange County fall below the Real Cost Measure of \$93,633.<sup>2</sup>

**Climate and Sustainability:** Orange County faces a number of climate change risks,

<sup>1</sup> <https://dof.ca.gov/forecasting/demographics/estimates/>

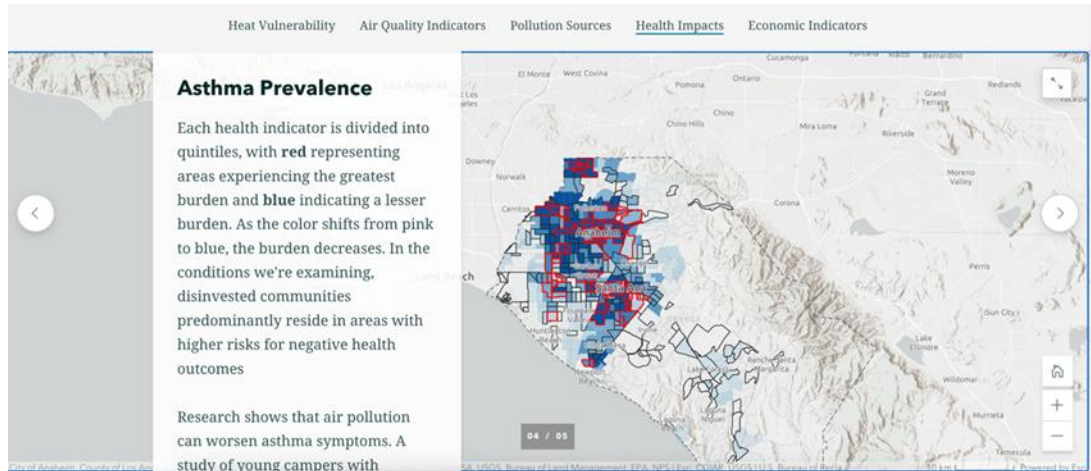
<sup>2</sup> <https://public.tableau.com/app/profile/hgascon/viz/TheRealCostMeasureinCalifornia2023/RealCostDashboard?publish=yes>

from coastal erosion to air pollution and an increased number of inland heat islands. The county's disinvested communities in particular face disproportionate climate impacts. There are a number of reasons for this: disinvested communities are generally in closer proximity to freeways, with fewer trees and a larger proportion of heat-retaining surfaces such as asphalt.

Orange County CERF focuses on expanding transportation access as a strategy for both mitigating and adapting to climate change effects. Transportation, responsible for almost 40 percent of all California greenhouse gas emissions, offers four main ways forward, as identified in the Orange County Transportation Authority Long Range Transportation Plan:

- Delivering on previous commitments;
- Improving overall system performance;
- Expanding choice and access to reduce the number of single-rider trips; and
- Improving system sustainability.

**Public Health Analysis:** Despite disinvested communities' close physical proximity to hospitals and other Healthcare facilities in Orange County, these communities often lack Healthcare access and face disproportionately poor Healthcare outcomes, such as lower average life expectancies, higher exposure to pollutants, and a greater incidence of heat islands. The GIS Storymap below illustrates one of these discrepancies, the higher asthma rate in disadvantaged communities:



**Labor Market Analysis:** As of February 2023, Orange County had a total civilian labor force of 1,606,500 with an unemployment rate of 3.4 percent. The county's largest industries were Healthcare and Social Assistance (217,300), Accommodation and Food Services (169,500), Government (165,500) and Manufacturing (156,000). Industries with the highest average wages included Finance and Insurance (almost \$145,000), Utilities (\$144,335) and Management of Companies (\$143,040).

The county's largest occupational groups included Office and Administrative Support (219,294 jobs, or 12 percent of total county employment), Sales and Related Occupations (9.0 percent) and Food Preparation and Serving Related Occupations

(8.0) percent.

Orange County's most in-demand jobs, as illustrated by total job postings between April 2022 and April 2023, include:

- Registered Nurses (31,872)
- Retail Salespersons (17,890)
- Sales Representatives, Whole (16,007)
- Software Developers (15,973)
- Customer Service Representative (14,740)

## **SWOT Analysis**

Orange County's **key strengths** include:

- Its diverse population, which continues to attract businesses, entrepreneurs and investment from around the world;
- Its highly educated population, which provides a deep talent pool for employers and potential employers;
- Its central location and highly developed infrastructure;
- Its high quality of life and world-famous tourist destinations, which attract visitors from around the world and fuel a Hospitality and Tourism industry that serves as a consistent generator of entry-level jobs;
- A diverse, well-rounded economy with thriving industry clusters in several fields, a strength that makes the county more resilient to future economic shocks;
- An effective groundwater replenishment system and a significant decline in daily water usage in recent years; and
- A history of innovation that continues to this day, as illustrated by universities and startup incubators.

**Weaknesses** include:

- A chronic undersupply of affordable housing, which continues to drive up home and rental prices and has fueled outmigration from the county;
- An increasingly high cost of living, driven by supply chain issues, inflation, and other challenges;
- A lack of affordable childcare;
- A skills gap that can make it difficult for employers to fill open positions;
- A decrease in land available for new construction;
- Outdated perceptions of Orange County as exemplifying suburban homogeneity; and
- Uneven educational, Healthcare and economic outcomes, with disadvantaged communities facing disproportionate challenges.



**Opportunities** include:

- Investing in disadvantaged communities and, by doing so, expanding the county's talent pipelines;
- Developing an overall regional economic development strategy, as emphasized by CEDS and CERF;
- Further promoting innovation and entrepreneurship via incubators such as UCI's The Cove and OCTANe;
- Leveraging established and emerging industry clusters, such as the county's world-leading Medical Device cluster;
- Building a strong, inclusive economy through expanded talent pipelines and non-degree career pathways such as apprenticeship programs;
- Attracting and retaining world-class employers in a variety of industries;
- Aligning and accelerating infrastructure investments such as transportation and high-speed internet; and
- Implementing a reindustrialization strategy that creates accessible jobs and further increases the county's economic resilience.

**Threats** include:

- Future natural disasters such as fires, droughts, landslides and earthquakes;
- The county's declining population, primarily the result of extremely high home prices;
- An aging population and a corresponding decline in the relative size of the county's working-age population;
- A stringent (state-level) regulatory environment that often limits entrepreneurship and innovation;
- Potential automation impacts on career ladders and talent pipelines, especially via the automation of entry-level jobs;
- Further increases in the county's cost of living, which will have a knock-on effect on economic and population growth; and
- A pandemic-era and post-pandemic mental health crisis, especially among younger residents.

**OC CERF's HRTC: Collective, Intentional, Inclusive Research Process**

The CERF collaboration process ensured input from all stakeholders by presenting overviews of each section of the report for the collaborative members to provide input for the researchers to include before a narrative was drafted. Once a narrative was drafted, the members were then able to request further edits and inclusions in the draft. Lastly, the research team held "office hours" for any interested collaborative members to make final recommendations for the report. This process allowed for the following content and informed the entire report:

- UCI Labor Center Orange County Worker Profile. The union density and wage differential data was requested by the labor representatives to be included. Originally, UCI Labor Center was not part of the original research team as the Center did not exist when the grant proposal was due.
- Small Business Breakdown. A request from the California Indian American Chamber of Commerce to better understand the impact of small business on Orange County's economy.
- Demographic data. Several collaborative members wanted further disaggregated data beyond the high-level race/ethnicity categories provided by census data. You will see in the report granular race/ethnicity in the "Additional Mapping Requests" section.
- Occupational groups in disinvested communities. Several collaborative members wanted to know which occupational groups/industries do residents of disinvested communities already work as a guide to determine where possible strategies and funding should be directed to support these residents.
- Water. A collaborative member representing the environmental community urged for more content about the state of water in Orange County, which is seen as an asset when compared to other regions. Content on water was added via the "Orange County Water and Coastal Landscape" section.
- Participatory Action Research. Several collaborative members were very familiar with Participatory Action Research and recommended it as a form of research and community outreach. Three collaborative members joined forces to conduct PAR in disinvested communities in Santa Ana, the city with the most disinvested census tracts in Orange County.

# Foundational Objectives

Candice Mays, Project Director  
Mapping Black California

# Orange County's Disinvested Communities

## Map Link:

<https://bvnews.maps.arcgis.com/apps/instant/exhibit/index.html?appid=23a2301e3647459ebd04e11d97a6c489&locale=en>

## Summary:

The Orange County Business Council as CERF regional convener, in tandem with the OC CERF HRTC, defines “disinvested communities” as communities considered disadvantaged by CERF’s definition alongside communities with only one of the disadvantaged qualifiers, specifically those whose residents earn less than Orange County’s median income.

## Extended Explanation:

CERF’s definition of “disinvested communities” includes a variety of overlapping factors prioritizing specific Census tracts in need of immediate investment. While the challenges CERF-qualifying “disinvested communities” face are intersectional, this map also highlights areas of Orange County in which a single factor such as making below Orange County’s annual median income of \$95,280 is a signifier of a Census tract at risk for becoming disadvantaged. For this reason, this map takes into consideration and identifies both Census tract communities that meet all of the criteria for qualifying as “disinvested communities” alongside Census tracts with only medium income as disadvantaged and thus, a warning signifier for risk of becoming a “disinvested community.”

## 3 Key Points:

1. At-risk communities in the OC area are centralized around Asian and Hispanic Communities in the Anaheim, Garden Grove, and Santa Ana sphere of influence.
2. These communities on average make well below the median income of \$95,280, in most areas the combined income of people of color is still significantly less than their white neighbors, even when they make up the majority of the population.
3. Disadvantaged areas are also marked as being in the top 25 percent in CalEnviroScreen 3.0 census tracts, with high amounts of pollution and exposure to elements with high correlation to adverse health effects.

### Map Detail:

- The predominant racial category for each census tract with color by race and transparency by predominance. In Orange County the majority of Disadvantaged Tracts are densely populated by Hispanic/Latino and Asian ethnic groups.
- Shown in green are Census tracts with median household incomes at or below 80% of the statewide median income (\$84,097), or with the median household incomes at or below the threshold designated for Orange County as low-income by the Department of Housing and Community Development (\$95,280). People of color have higher unemployment rates across the board and are also highly represented in Low-Wage jobs.
- Shown in blue are Census tracts identified as 'Disadvantaged' by the California Environmental Protection Agency - California Office of Environmental Health Hazard Assessment (OEHHA). In May 2022, CalEPA released its updated designation of disadvantaged communities for the purpose of SB 535. In this designation, CalEPA formally designated four categories of geographic areas as disadvantaged:
  - Census tracts receiving the highest 25 percent of overall scores in CalEnviroScreen 4.0 (1,984 tracts).
  - Census tracts lacking overall scores in CalEnviroScreen 4.0 due to data gaps, but receiving the highest 5 percent of CalEnviroScreen 4.0 cumulative pollution burden scores (19 tracts).
  - Census tracts identified in the 2017 DAC designation as disadvantaged, regardless of their scores in CalEnviroScreen 4.0 (307 tracts).
  - Lands under the control of federally recognized Tribes.
- Outlined in red are the combined areas defined as 'Disadvantaged' census tracts and census tracts with incomes below the medians described below. We have defined these areas as "High Need".

## Disinvested Communities – Community Breakdown; Lower Income Areas

[Community Breakdown](#)

[Increasing Diversity Across th...](#)

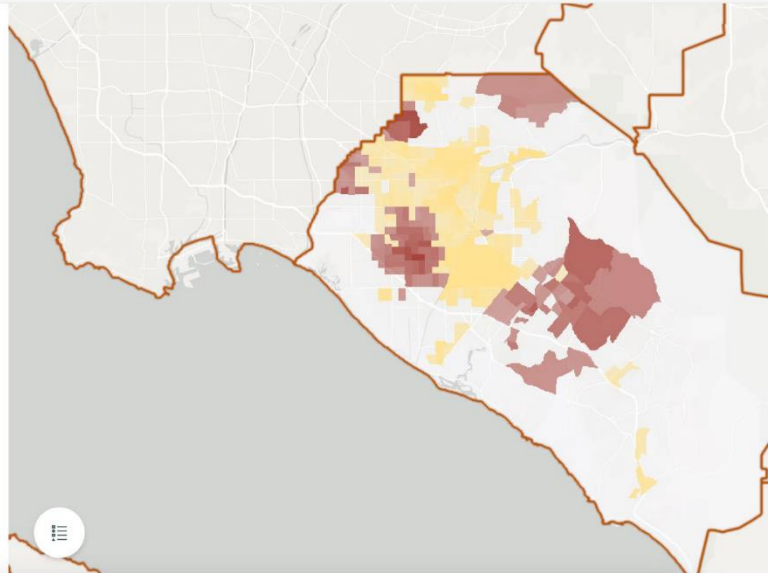
[Lower Income Areas](#)

[Designated Disadvantaged Areas](#)

[Areas of Interest](#)

### Community Breakdown

Diverse populations are increasing across nearly all communities of color.



[Community Breakdown](#)

[Increasing Diversity Across th...](#)

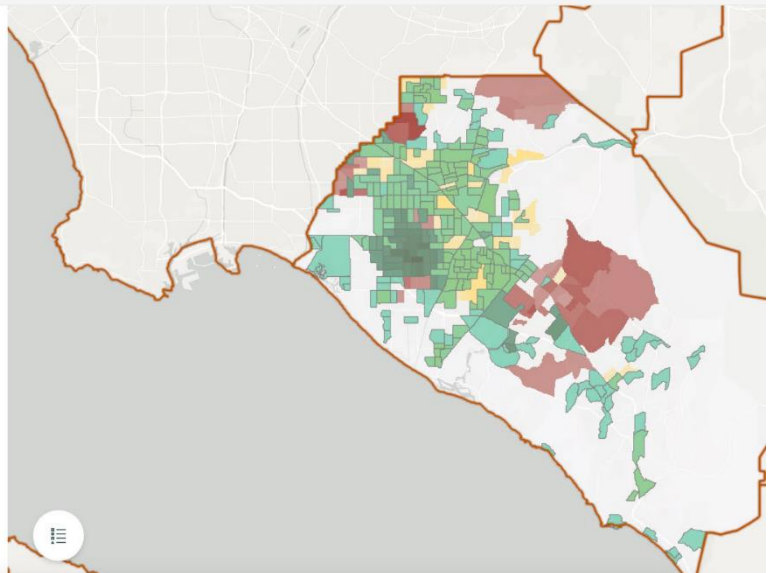
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[Designated Disadvantaged Areas](#)

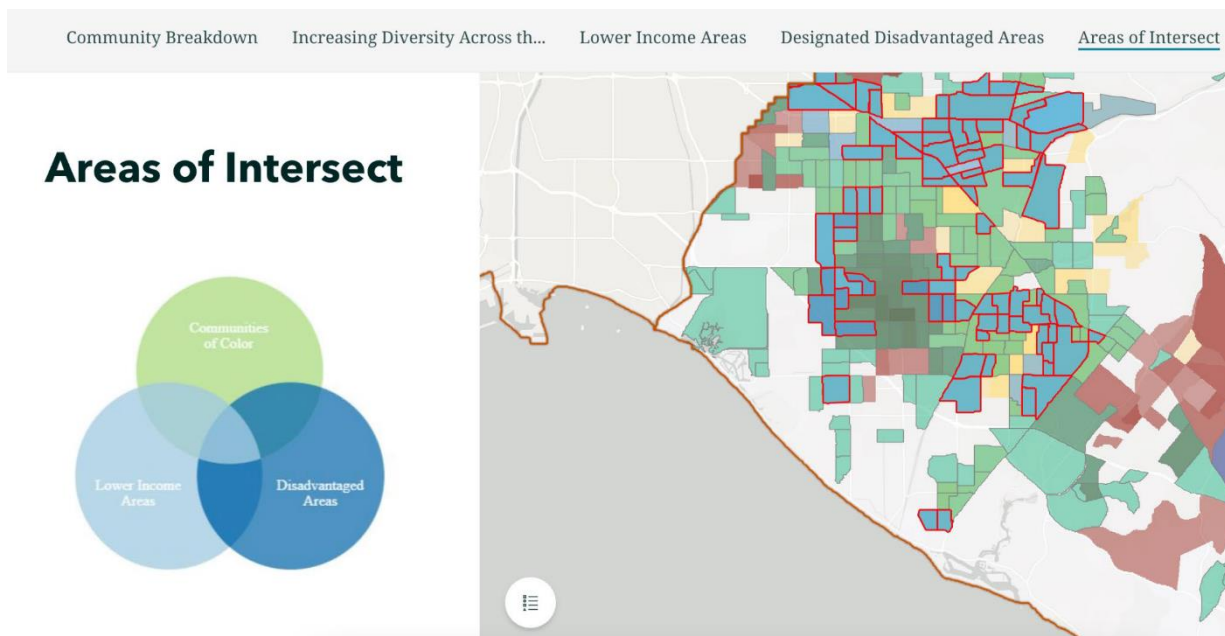
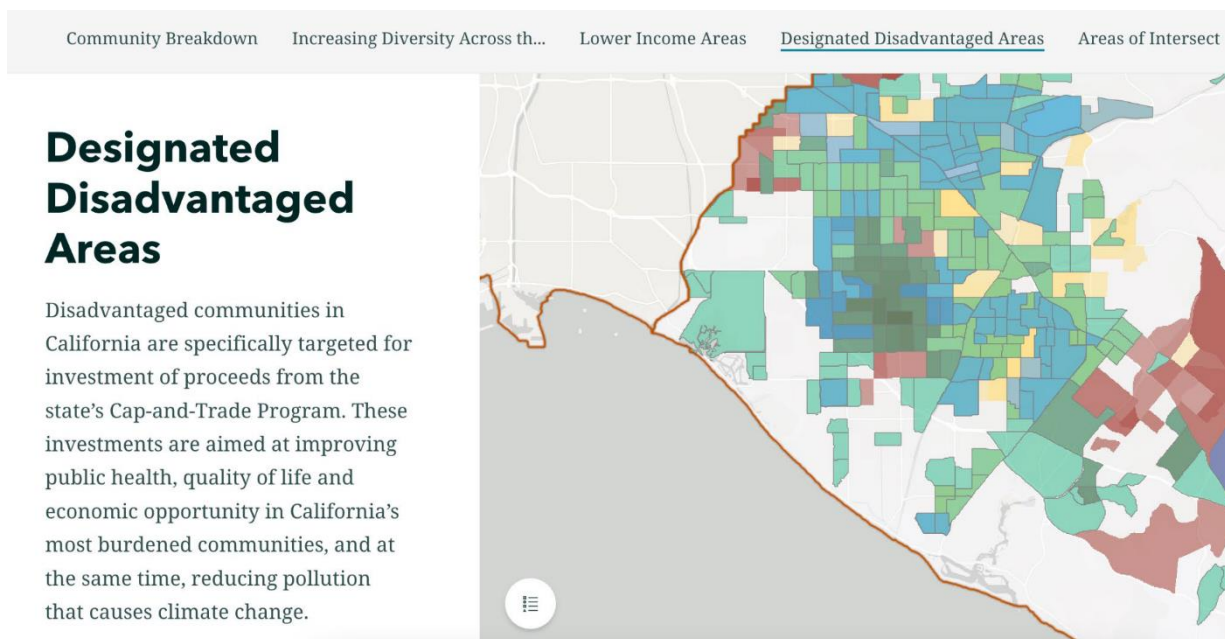
[Areas of Interest](#)

### Lower Income Areas

People of color have higher unemployment rates across the board.



## Disinvested Communities – Designated Disadvantaged Areas; Areas of Interest



Sources: [SB 535 List of Disadvantaged Communities](#), American Community Survey: Table B19013 (2017-2021), American Community Survey: Table B03002 (2017-2021)

# Equity & Inclusiveness in Orange County

## Map Link:

<https://storymaps.arcgis.com/stories/bbc1ad85e3bb4be8bb8938e6860d9b70>

## Summary:

A comparative assessment of the economic, educational, and community resource access OC communities of color have in comparison to each other and their white counterparts.

## Extended Explanation:

While the OC CERF's extended definition of "Disinvested Communities," layer spatially orients the "Equity and Inclusiveness" map outlining where communities of color reside, additional layers in this map more closely examines not only where communities of color are suffering, surviving, and thriving, but also who. While AAPI resident attainment levels are often near white resident attainment, Latino & Black populations face gross inequity-based exclusions across the board. Low wages and pay gaps negatively impact homeownership rates and are compounded by lower average home values in these communities. Additionally, although AAPI residents and whites reach similar educational levels, gender-based inconsistencies remain.

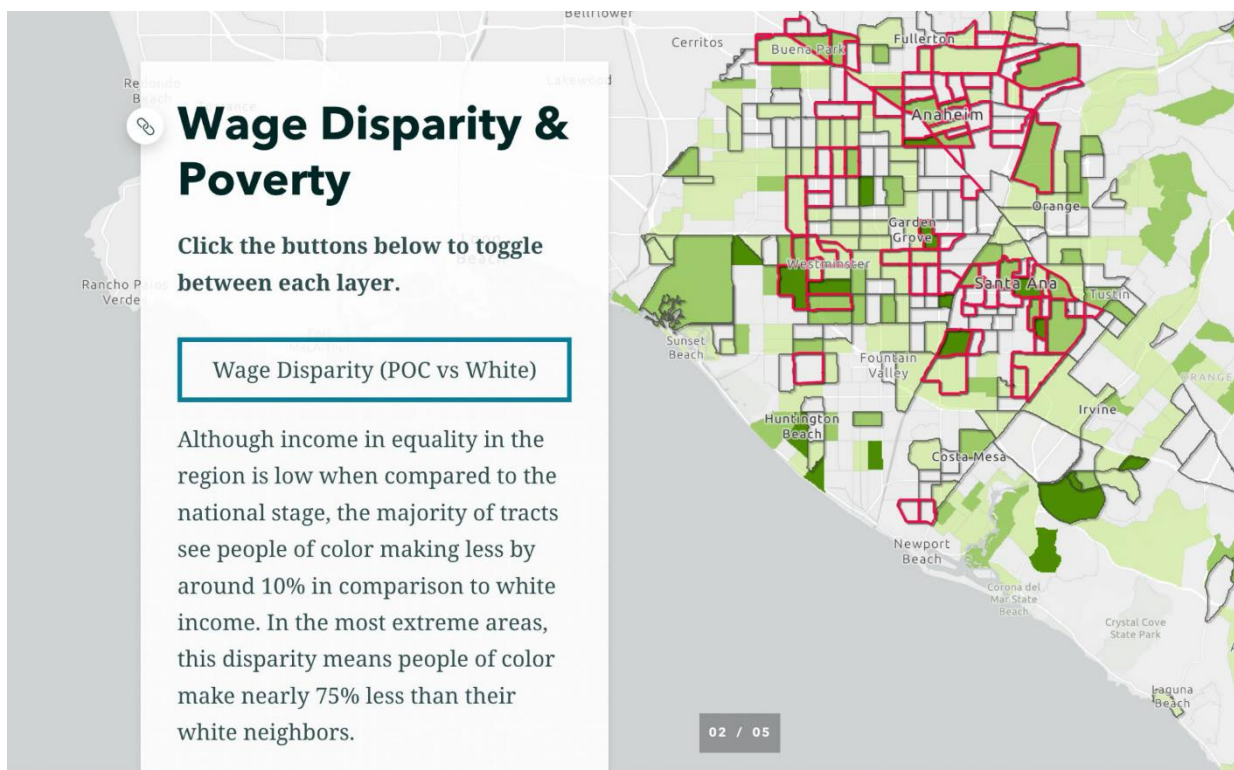
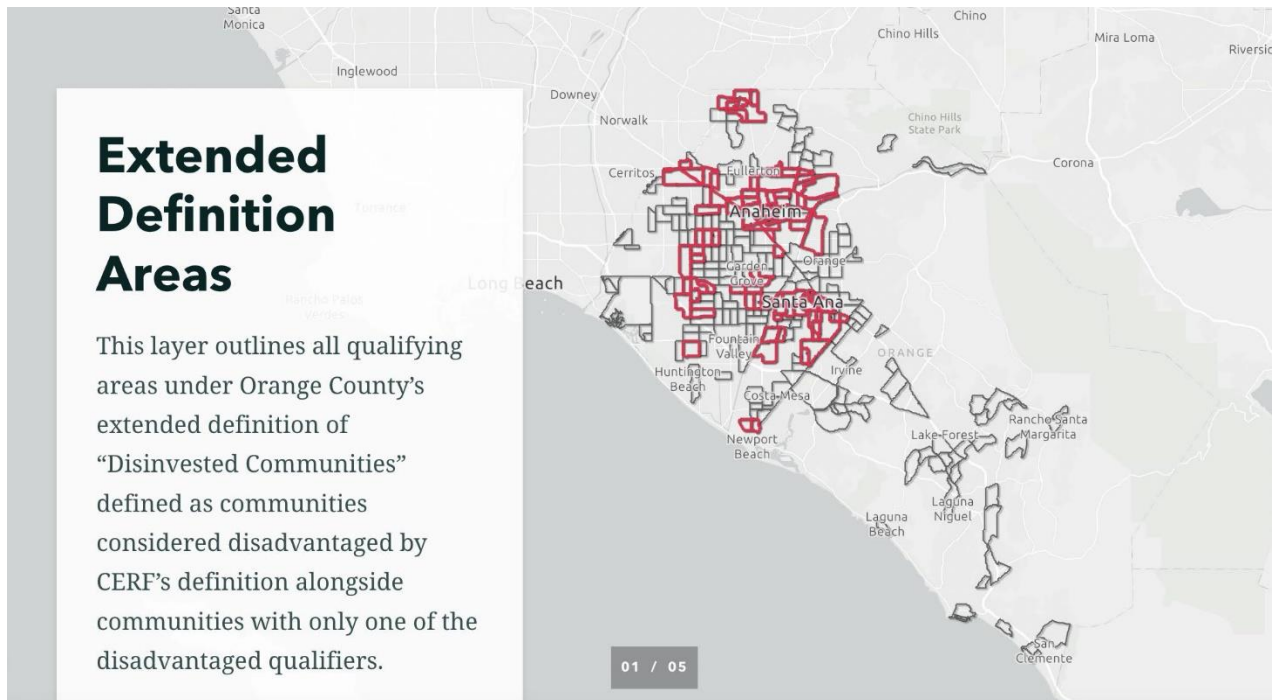
## 4 Key Points:

1. 1 in 10 Orange County residents reside in poverty, with the highest rates centered around high minority population zones. A third of the region's children live in homes that report income below the federal poverty line with high concentrations in high minority areas. Residents living in poverty face significantly limited opportunities for upward mobility, economically stunting a region whose population skews more and more majority minority.
2. Countywide homeownership barely out paces renting at 57 percent. Most low-wage workers in the region are not likely to find affordable rental housing. Increasing rental cost burdens matched with low wage job growth inhibits renters from purchasing and keeping homes.
3. Orange County has many adult residents with less than a high school degree. Attainment varies widely by ethnicity; only 9 percent of Latino immigrants have a bachelor's degree or higher, while 53 percent have less than a high school degree. African Americans, Native Americans, and Pacific Islanders lag far behind in educational attainment as well. This is heavily influenced by high rates of "Disconnected Youth" among African Americans (17 percent) and Latinos (12 percent).
4. Public transportation is robust in coverage and service. Access is largely determined by topography, central areas have better areas to bus lines whereas



less densely populated communities have more extensive bike coverage. This wanes in town where more of the population lives. Food access is heavily connected to economic advantage, in more affordable areas there is a decline in availability of fresh and affordable food options.

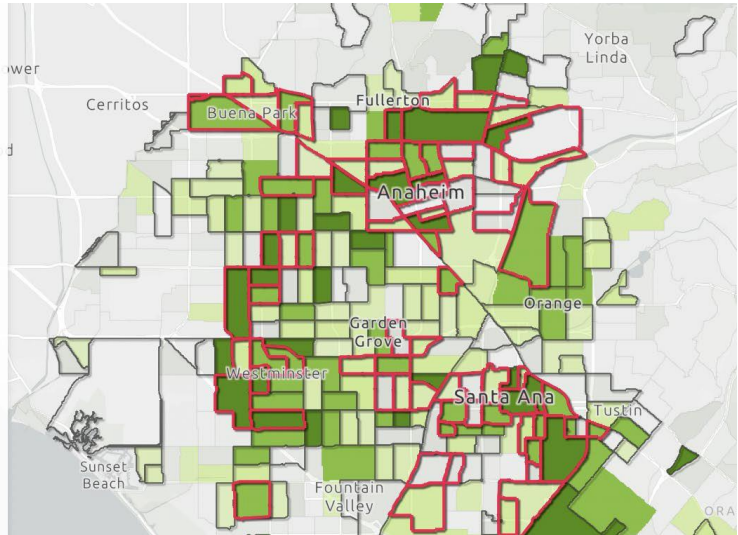
## Equity and Inclusiveness - Extended Definition Areas; Wage Disparity & Poverty



## Equity and Inclusiveness - Wage Disparity & Poverty: Overall Poverty & Child Poverty

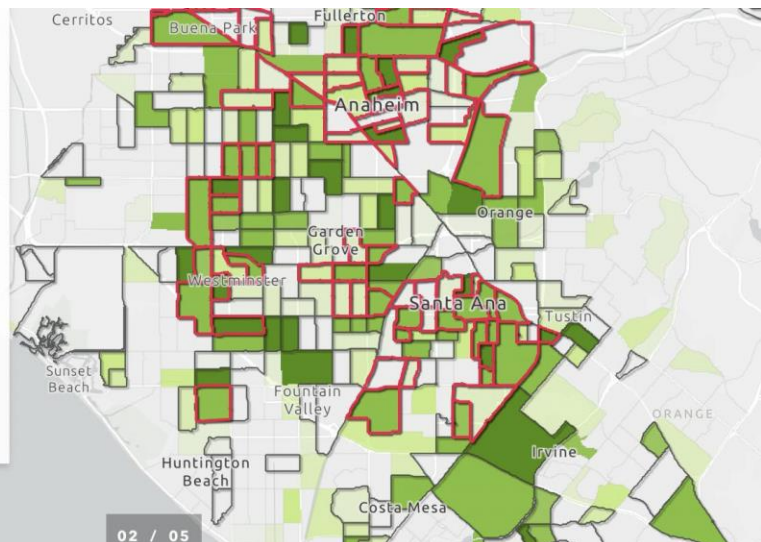
### Overall Poverty

1 in 10 Orange County residents reside in poverty with the highest rates centered around high minority population zones. In some tracts, that share is doubled with the income of 1 in 5 residents' below the federal poverty line.

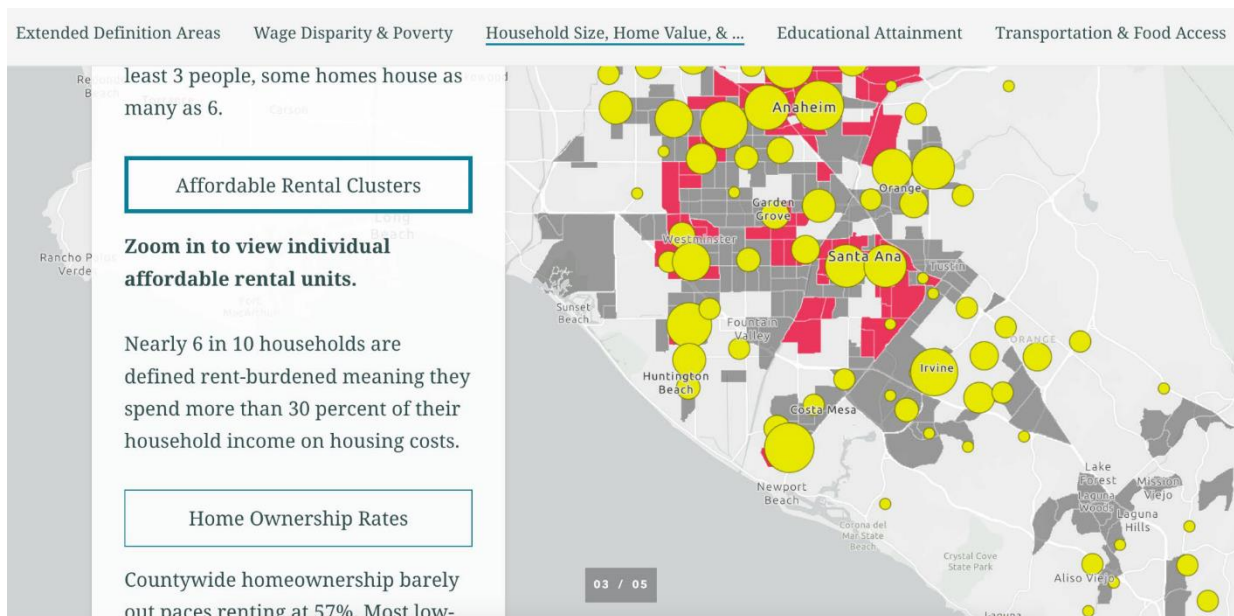
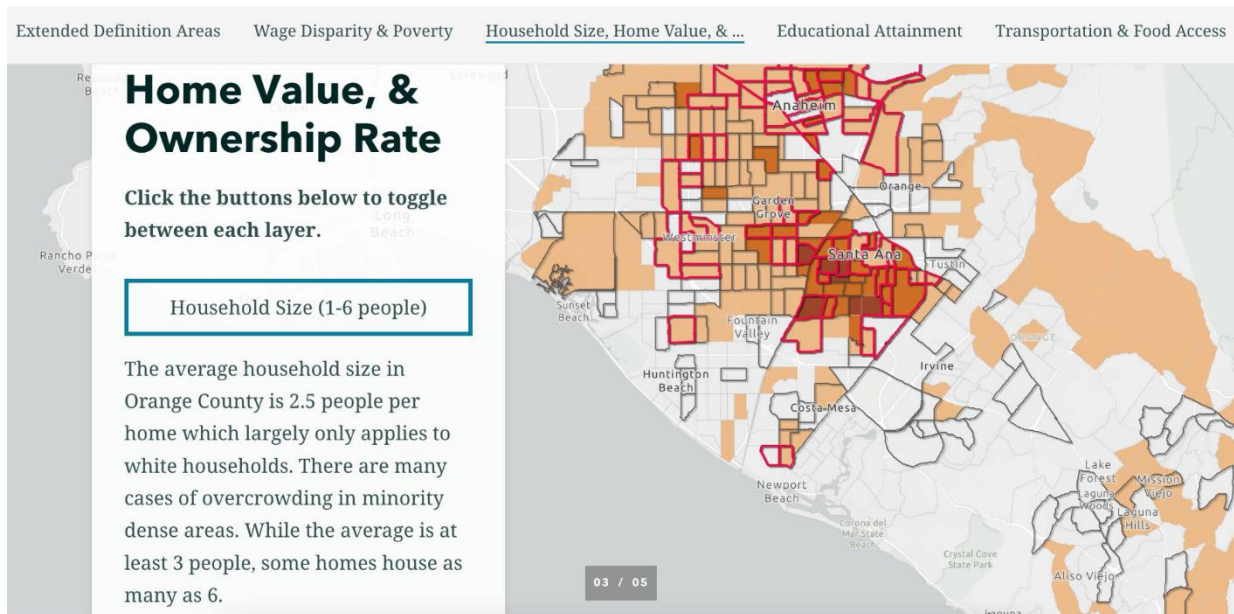


### Child Poverty

Children make up a large part of the "in poverty" population. A third of the region's children live in homes that report income below the federal poverty line with high concentrations in high minority areas.

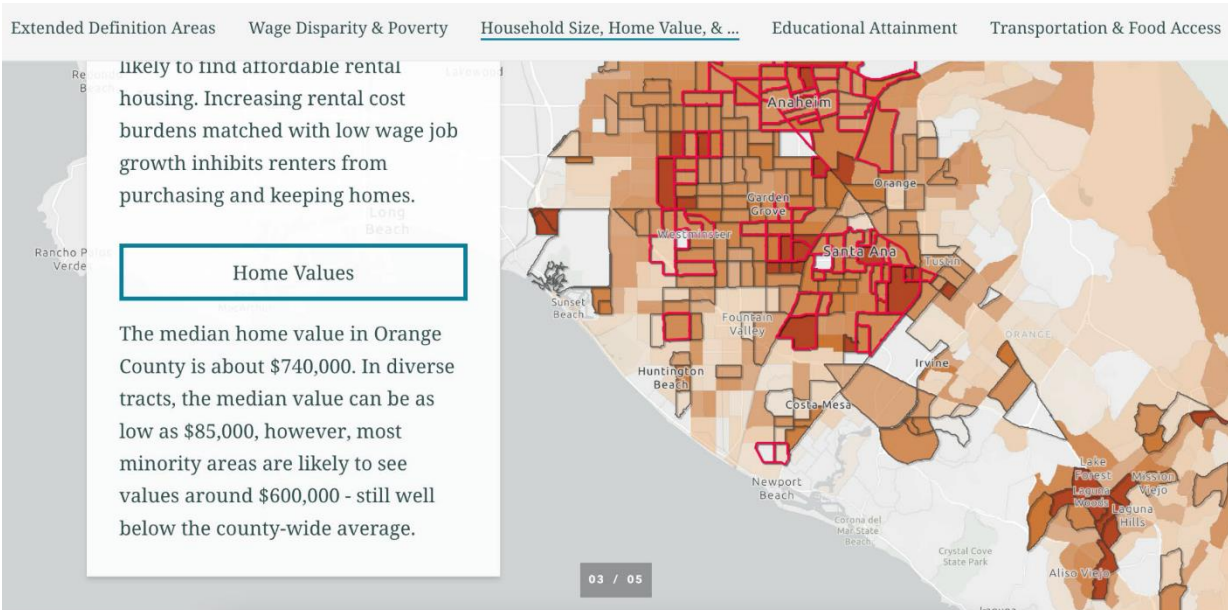
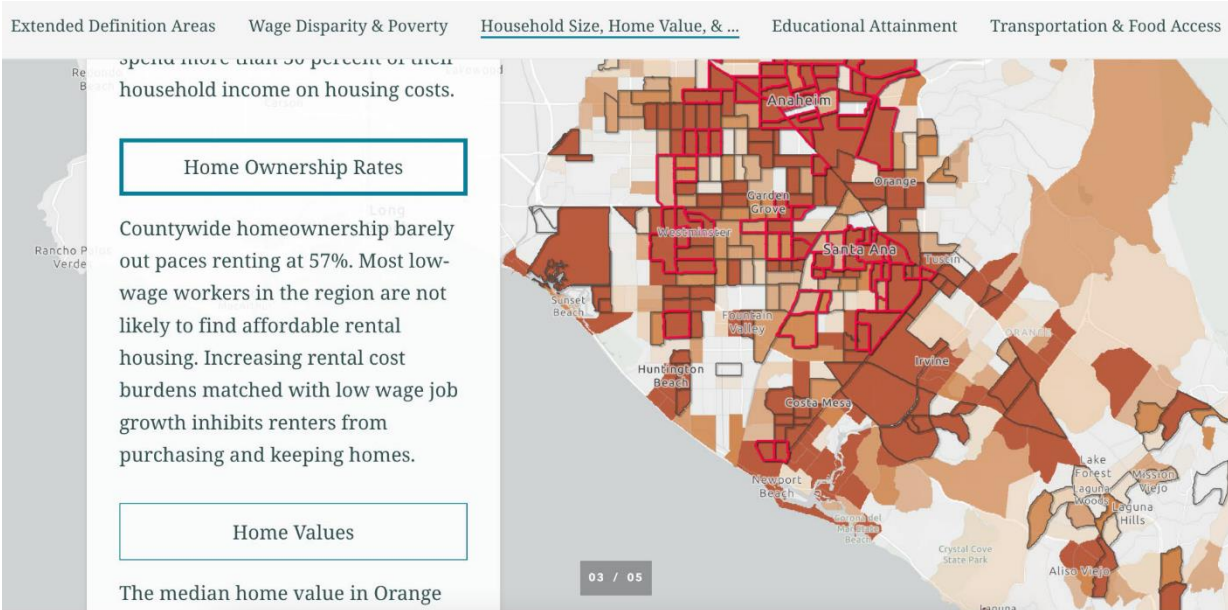


# Equity and Inclusiveness - Wage Disparity & Poverty: Household Size; Affordable Rental Clusters

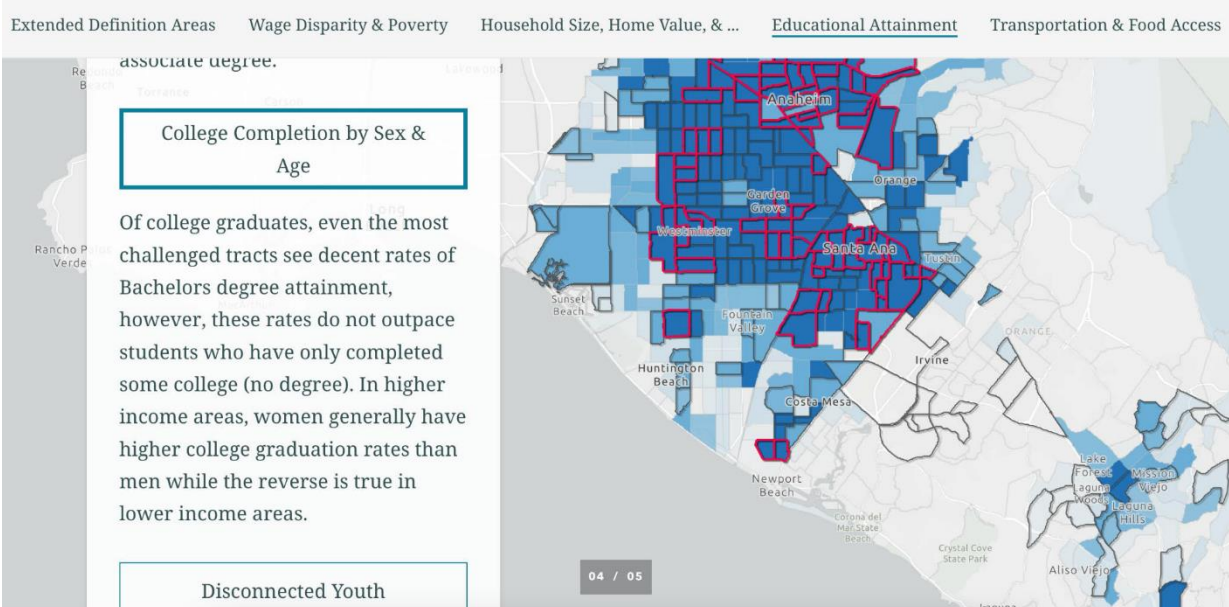
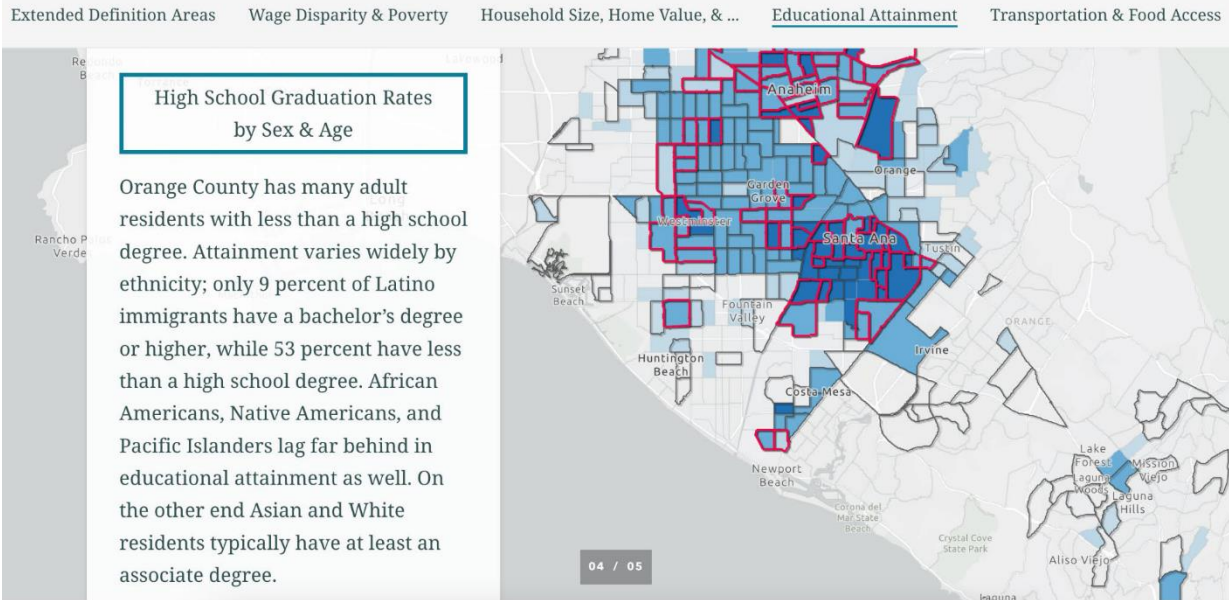




## Equity and Inclusiveness - Wage Disparity & Poverty: Home Ownership Rates & Home Values



## Equity and Inclusiveness - Educational Attainment: High School Graduation Rates by Sex & Age; College Completion by Sex and Age



## Equity and Inclusiveness - Educational Attainment: Disconnected Youth

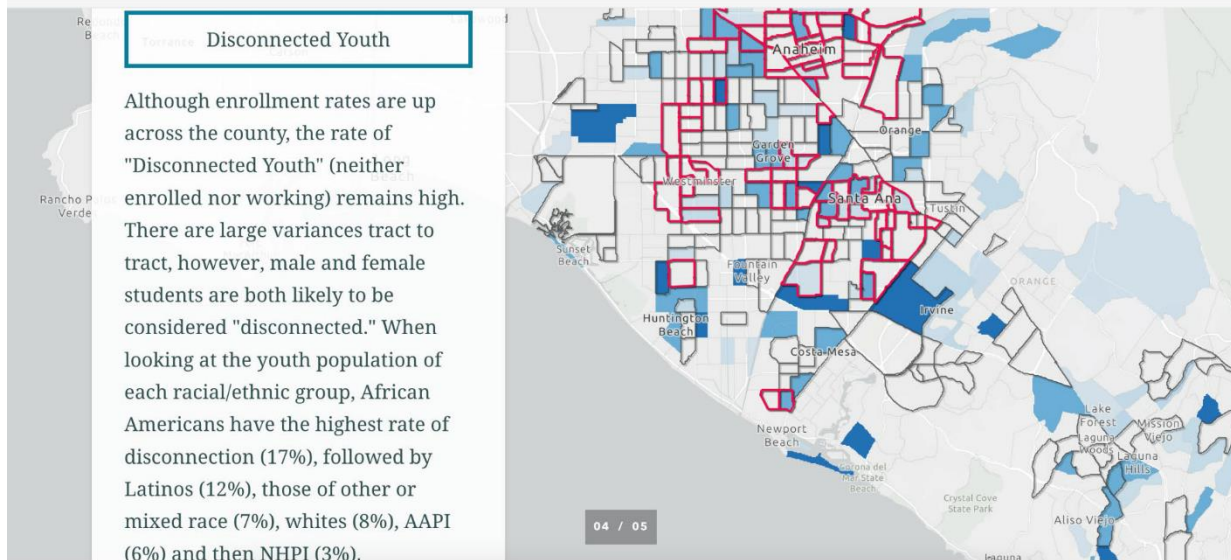
Extended Definition Areas

Wage Disparity & Poverty

Household Size, Home Value, & ...

Educational Attainment

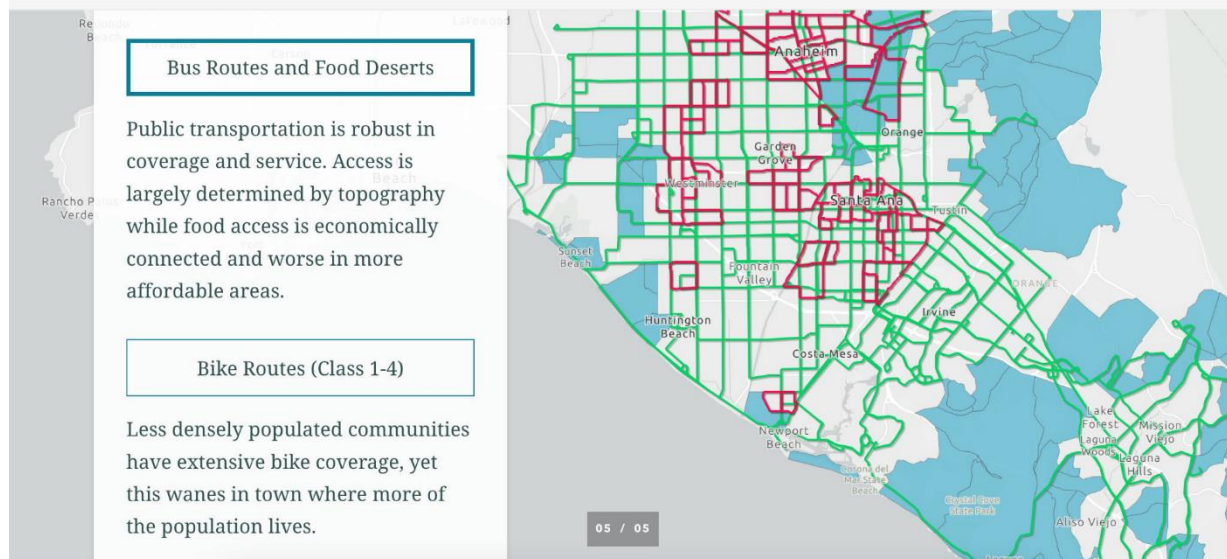
Transportation & Food Access



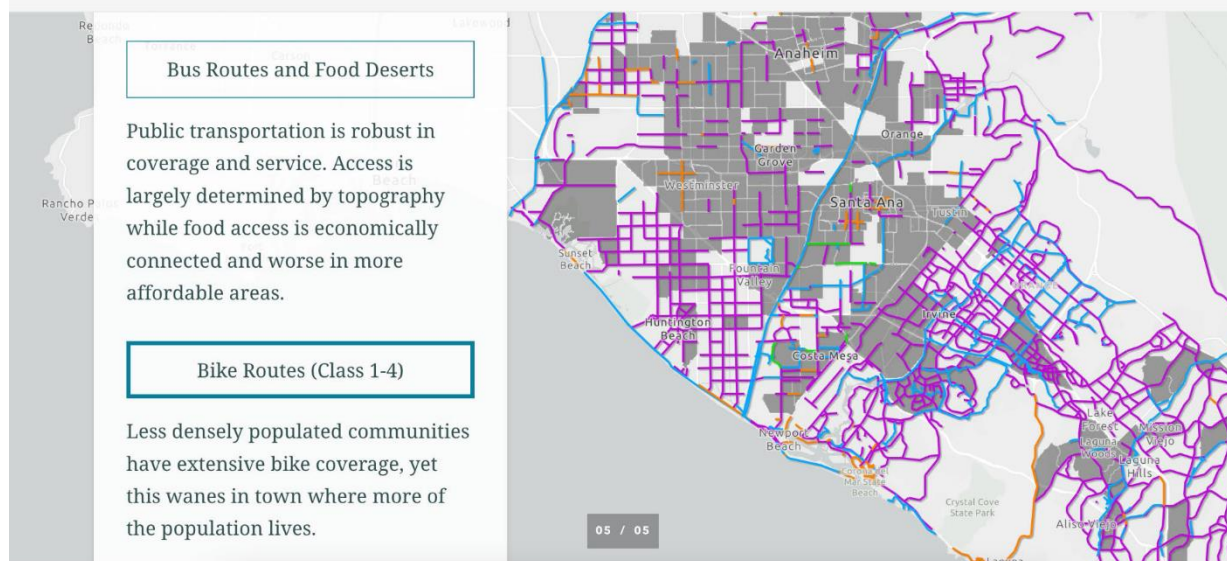


## Equity and Inclusiveness - Transportation and Food Access: Bus Routes & Food Deserts; Bike Routes

Extended Definition Areas   Wage Disparity & Poverty   Household Size, Home Value, & ...   Educational Attainment   Transportation & Food Access



Extended Definition Areas   Wage Disparity & Poverty   Household Size, Home Value, & ...   Educational Attainment   Transportation & Food Access





# **Sustainability and Environmental Justice**

## **Unequal Pollution: Unraveling the Connections Between Environmental Justice, Public Health, and Sustainability**

### **Map Link:**

<https://storymaps.arcgis.com/stories/4e43b627492d4841918330a89780a3ae>

### **Summary:**

A comprehensive and detailed exploration regarding how environmental justice and public health are inextricably linked in Orange County, shedding light on the complexities while emphasizing the need for proactive measures to promote a healthy and equitable environment for all residents.

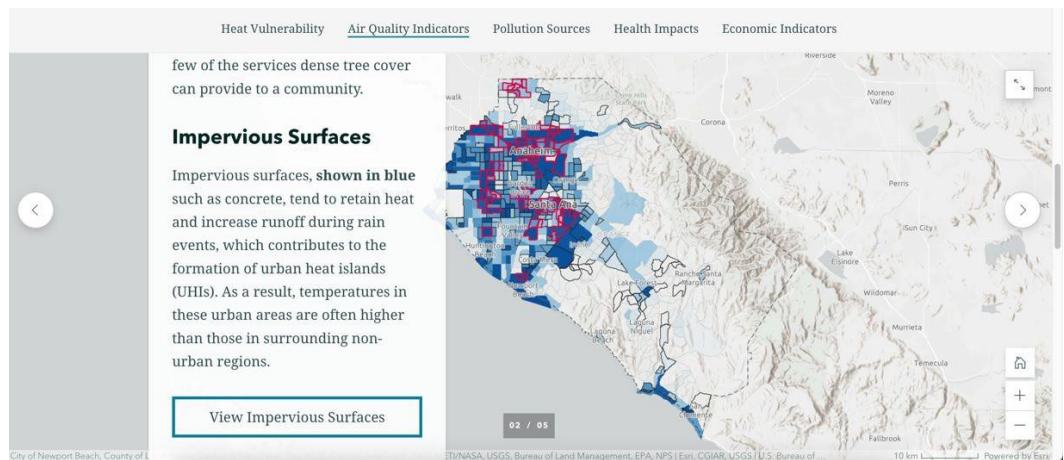
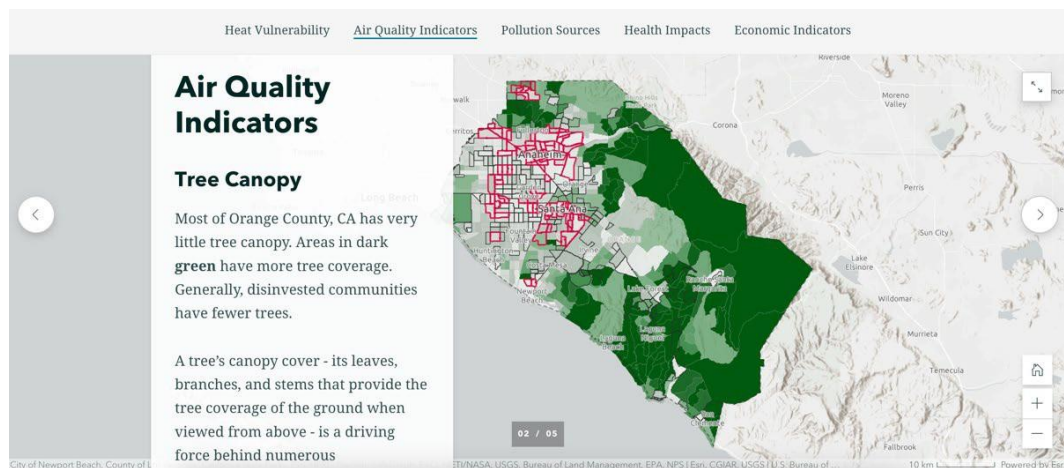
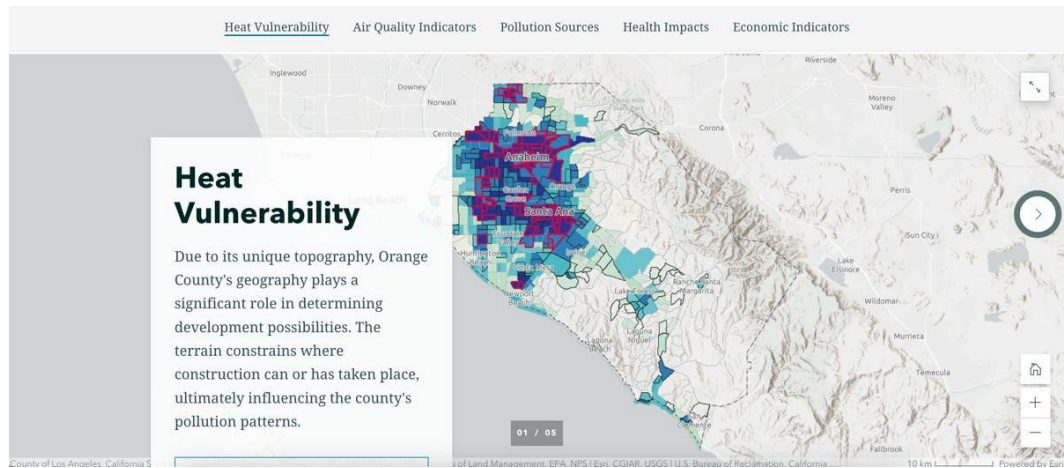
### **Extended Explanation:**

By examining the connections between environmental justice and public health in Orange County, California, this StoryMap provides a comprehensive view of environmental justice issues related to pollution and health, focusing on climate change indicators and health outcomes at the local level. The maps explore topics such as heat vulnerability, air quality indicators like tree canopy, impervious surfaces, and particulate matter pollution. Communities with higher concentrations of low-income families and people of color face greater exposure to environmental hazards, leading to increased risks of chronic diseases and premature death. The economic implications and projected changes in development emphasize the importance of prioritizing sustainability and equity for the well-being of all communities.

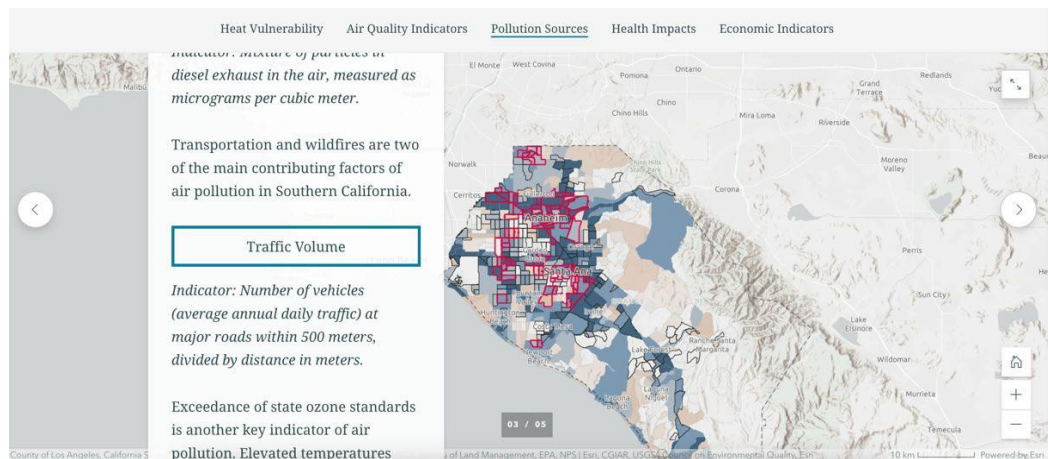
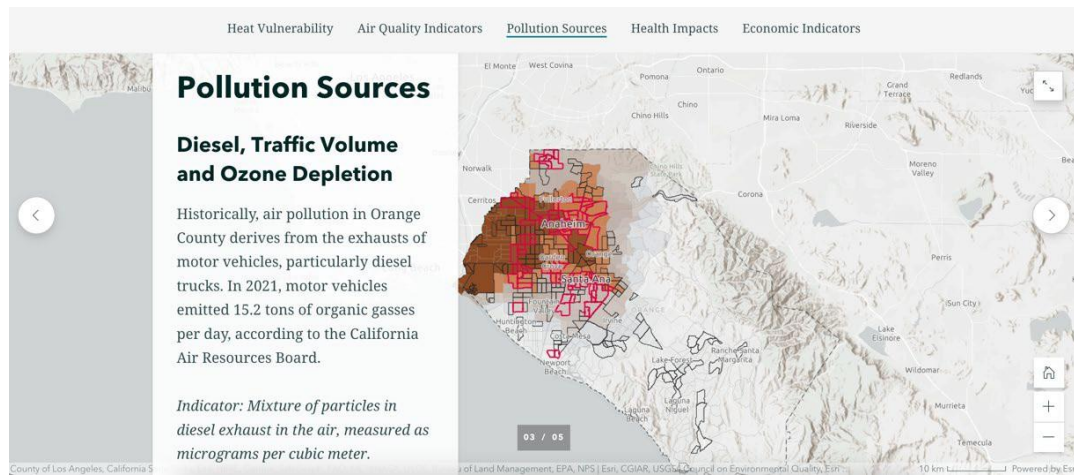
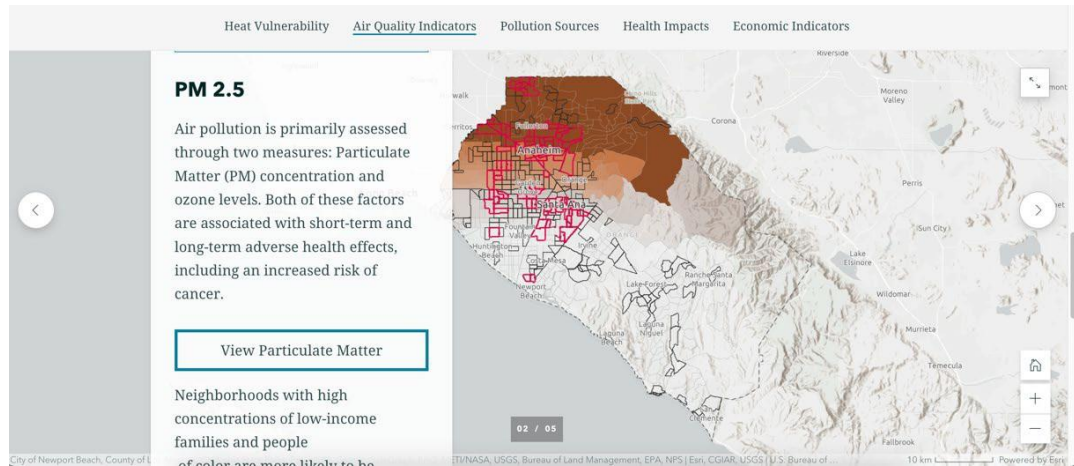
### **3 Key Points:**

1. Disproportionate exposure - the goal of environmental justice is to address the distribution of environmental hazards and benefits, but disinvested communities often face higher levels of pollutants and toxins. This results in higher risks of negative health outcomes like asthma, cancer, and babies being born with low birth weights.
2. Access to resources - access to clean air and safe drinking water are essential services and limited access can exacerbate health disparities.
3. Community empowerment and engagement - both environmental justice and public health have an emphasis on involving the community in the decision-making process. This will foster a collaborative approach to a sustainable and just future.

# Unequal Pollution – Heat Vulnerability; Air Quality Indicators; & Impervious Surfaces

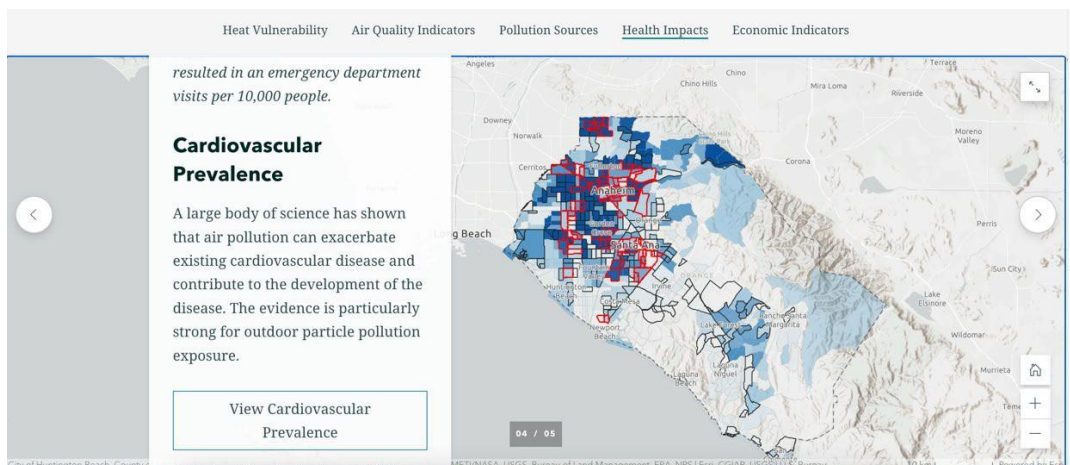
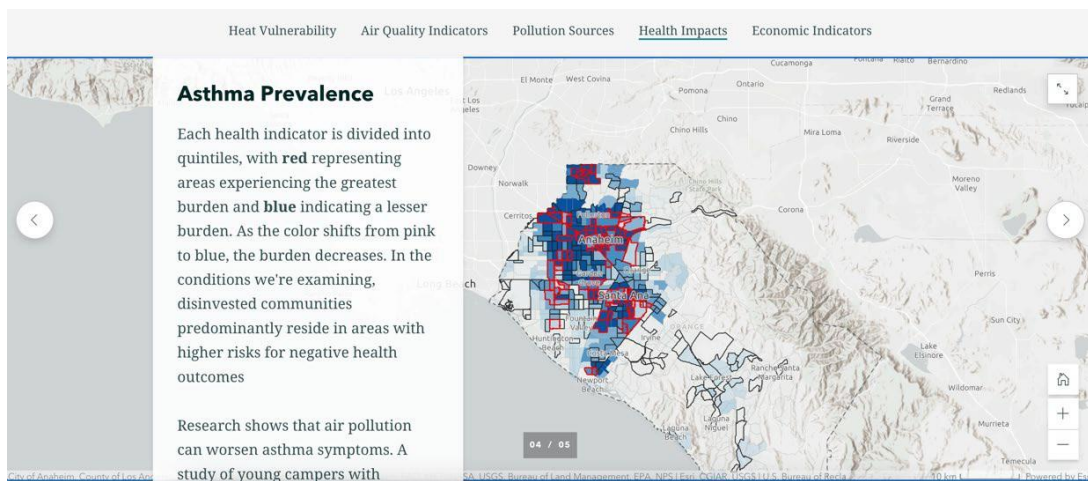
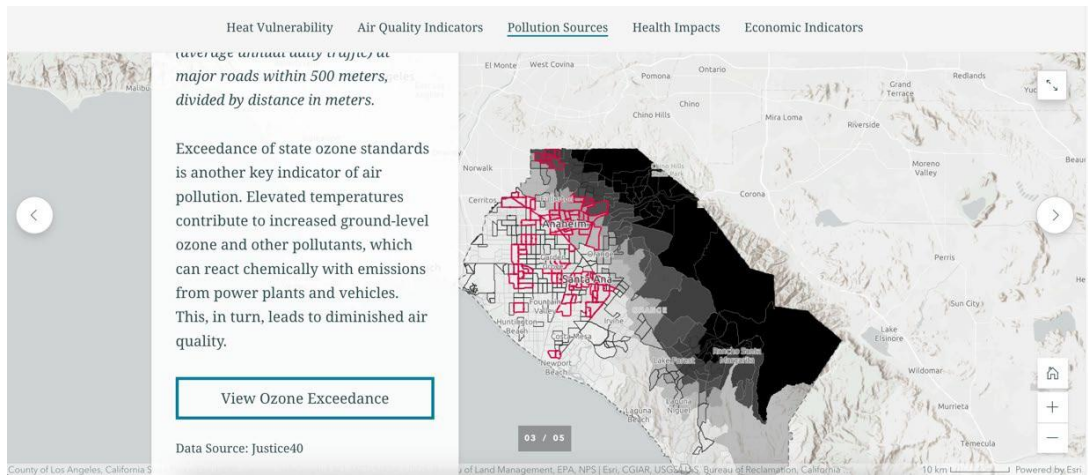


## Unequal Pollution – Particulate Matter; Pollution Sources; & Traffic Volume

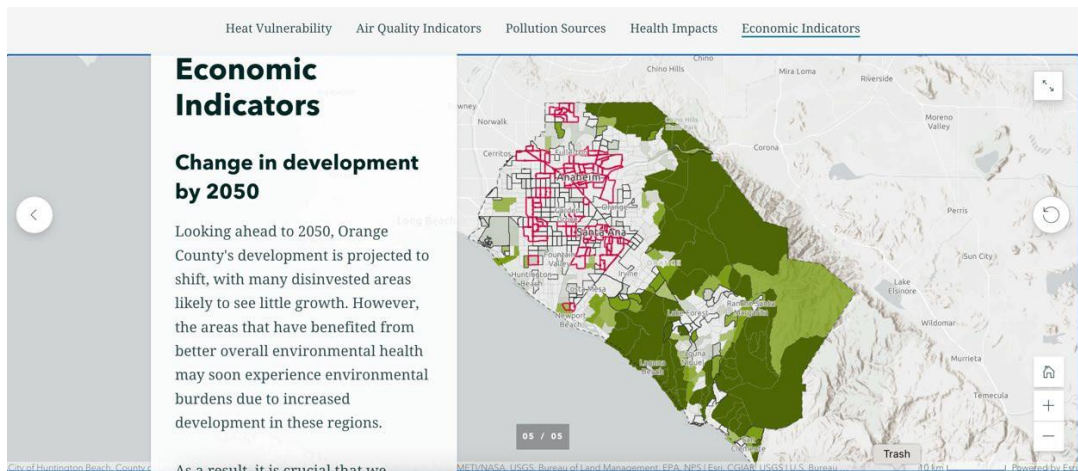
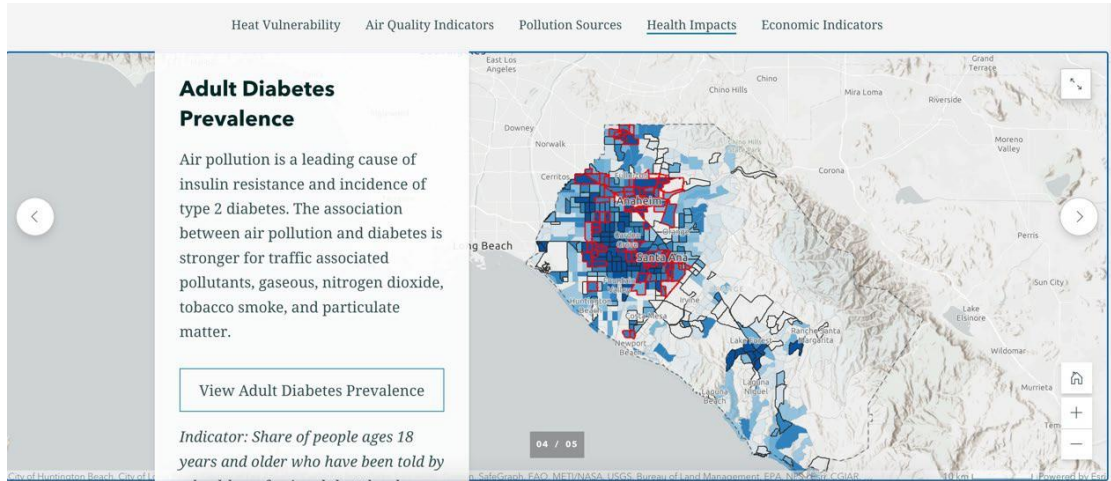
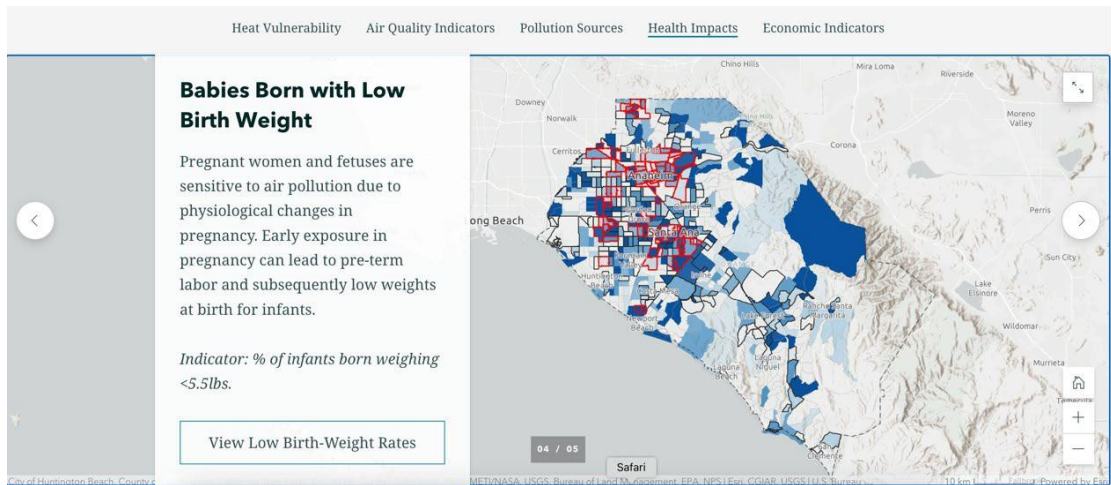




# Unequal Pollution – Ozone Exceedance; Asthma Prevalence; & Cardiovascular Prevalence



# Unequal Pollution – Babies Born with Low Birth Weight; Adult Diabetes Prevalence; & Economic Indicators



# Economic Competitiveness and COVID-19 Recovery

## OC County COVID-19 Cases and Vital Conditions

### Map Link:

<https://www.arcgis.com/apps/dashboards/048fb9c488ab428888bfd01b4e58465>

### Summary:

This dashboard provides a landscape of COVID-19's impact on the region in two maps. The first map of "Orange County COVID-19 Totals" spatially visualizes COVID-19 cases and deaths at the zip code level. The second map, "Orange County COVID-19 Vulnerability Index," depicts communities' vital conditions at the Census tract level and includes ranks for several key indicator categories.

### Extended Explanation:

#### Orange County COVID-19 Totals

Toggle between a spatialized view of COVID-19 cases and deaths by clicking on the tabs at the bottom of the map. To view the overall number of COVID-19 cases and deaths at the zip code level, click on the square select button in the map's upper left-hand corner. The numbers for both cases and deaths will change in the left-hand column as varying zip codes are selected.

#### Orange County COVID-19 Vulnerability Index

Key indicators reflect vital conditions in communities' facing the lasting impacts of COVID-19. Indicator categories include: Economic Quality Rank; Education Quality Rank; Housing Quality Rank; Environment Quality Rank; Neighborhood Quality Rank. Individual ranks have been assigned to each indicator based on pre-COVID-19 socio-economic indicators and can be viewed at the Census tract level by clicking the square select button in the upper left-hand corner of the map's window. Once a tract has been selected, the information in the Data Detail pane, quintile and category ranks, on the bottom will change reflecting the key indicator data specific to that tract.

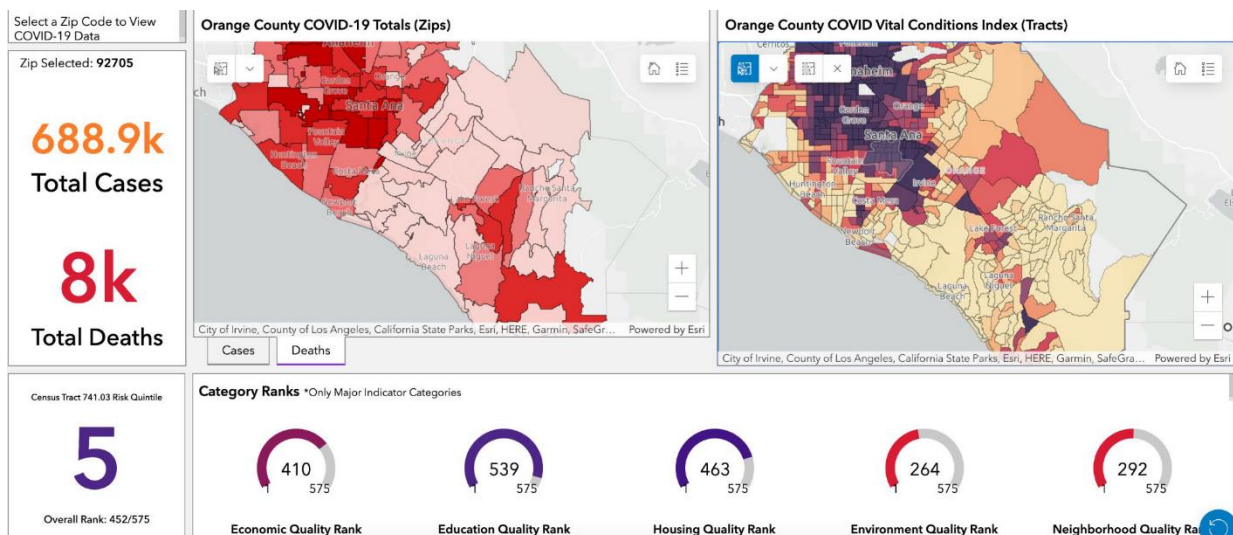
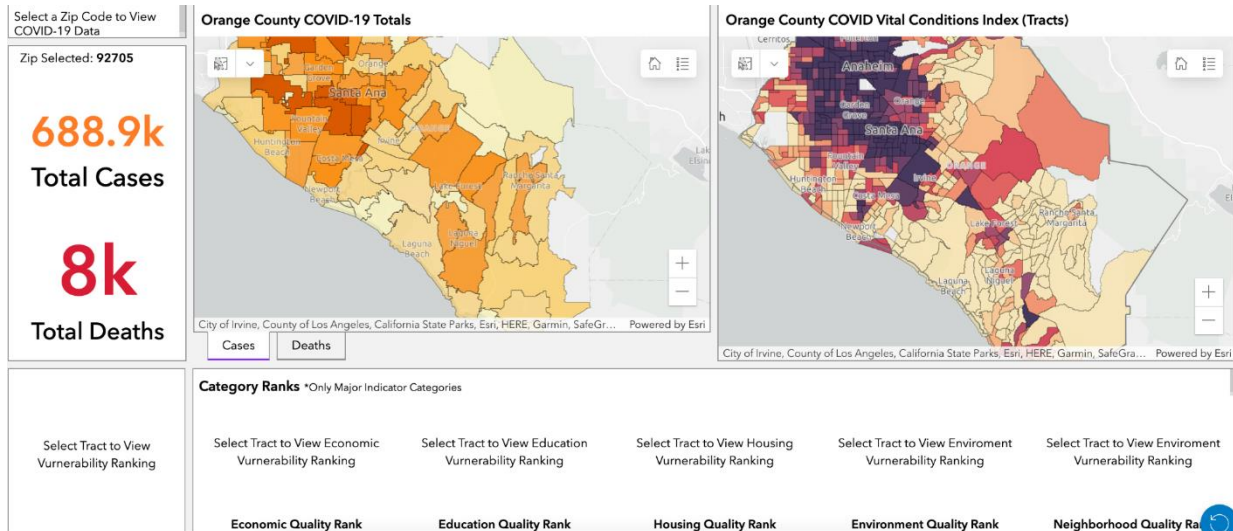
\*Please note, this map layer displays potential for community impact; outcomes are highly dependent on external factors such as intervention by governing bodies, nonprofits, community organizers, etc.

### 3 Key Points:

1. Over the course of the COVID-19 pandemic, cases and deaths were concentrated in the northern half of the county, in areas more densely populated with Asian and Latino residents and, generally speaking, in areas where residents live and work in a small area, sometimes overcrowded homes. Economically, prevalence of low-wage yet "essential" jobs, pre-existing financial burdens caused by lacking homeownership and inflated rental costs, as well as exposure to comorbidity causing pollutants set a harsh baseline for post pandemic recovery.
2. Native Hawaiians and Pacific Islanders were four times more likely to contract COVID-19 than the groups with the lowest rates. Latinx and American Indians and Alaska Natives were twice as likely to contract COVID-19 than the groups with the lowest rates.
3. Low scoring, low ranking Vital Conditions areas are also centered around the previously outlined disinvested areas; poor pre-COVID-19 vitality indicators directly aligned with areas that struggle to be economically self-sustaining. The Index shows how economic relief allocations can account for race and place by individual impact area. It identifies communities most at risk of being disproportionately impacted by the long-term economic risks associated with COVID-19.



## OC County COVID-19 Cases and Vital Conditions - OC Cases, Deaths, & Vital Conditions Index





## **Summary of Analyses:**

The provided maps and layer explorations outline a comprehensive overview of various challenges and disparities faced by communities in Orange County, California, particularly focusing on disinvested areas. The analysis employs an equity-based framework and SB535's guidelines for identifying Disadvantaged Communities to address the needs of these communities. Here are the key points of our analysis:

### **Disinvested Communities Definition:**

- MBC defines "disinvested communities" based on the set of criteria in SB535, and further delineates "High Need" areas by including factors such as income levels, with an emphasis on Census tracts requiring immediate investment.
- The challenges faced by these communities are intersectional across the topics of wage disparity, housing access and affordability and environment impact. Each layer of the provided maps specifically identifies areas where a single factor, like income below the county's median, signals a tracts risk of worsening disadvantage.

### **Demographic and Economic Disparities:**

- The maps emphasize racial demographics, indicating that the majority of disadvantaged tracts in Orange County are densely populated by Hispanic/Latino and Asian ethnic groups.
- Southern Orange County is experiencing shifts in diverse populations and migration patterns, with a notable expansion of communities with preexisting populations of color.
- People of color face higher unemployment rates and are overrepresented in low-wage jobs, contributing to income disparities.

### **Poverty and Housing:**

- Approximately 1 in 10 Orange County residents live in poverty, with higher rates in areas with high minority populations.
- A significant portion of households, nearly 6 in 10, are considered rent-burdened, spending over 30% of their income on housing.
- Homeownership rates are slightly higher than renting at 57% but rising rental costs and low-wage job growth hinder affordable housing options.

**Education Disparities:**

- Disparities in educational attainment less delineate along lines of color, with AAPI residents often reaching similar levels as white residents, while Latino and Black populations face exclusions and inequities across the board.

**Environmental Justice and Health:**

- Environmental factors contribute to health issues, including asthma, cardiovascular disease, low birth weight, and cancer. In Orange County, all of elevated rates of these health problems are centralized around low-income communities and communities of color.
- Orange County faces challenges related to air pollution, with high PM concentration centered around arterial roads, which pass mostly through low-income communities and communities of color. Highly impervious ground and an extreme lack of tree canopy in densely populated areas are also contributing to increased temperatures and the heat health impacts that follow.

**Future Projections:**

- Future development in Orange County is projected to shift, with disinvested areas possibly experiencing limited growth, while areas with better environmental health may face increased development.
- High concentrations of low-income families and people of color are at a higher risk of exposure to environmental hazards, emphasizing the need for sustainability, equity, and prioritizing community well-being.

This comprehensive analysis underscores the importance of addressing socioeconomic, racial, and environmental disparities in Orange County to create a more equitable and sustainable future for all residents.



## **Additional Mapping Requests by HRTC Members**

## Orange County Disaggregated Races - Map Link; Hispanic or Latino Population: Overall; Isolate Cuban Population

Map Link:

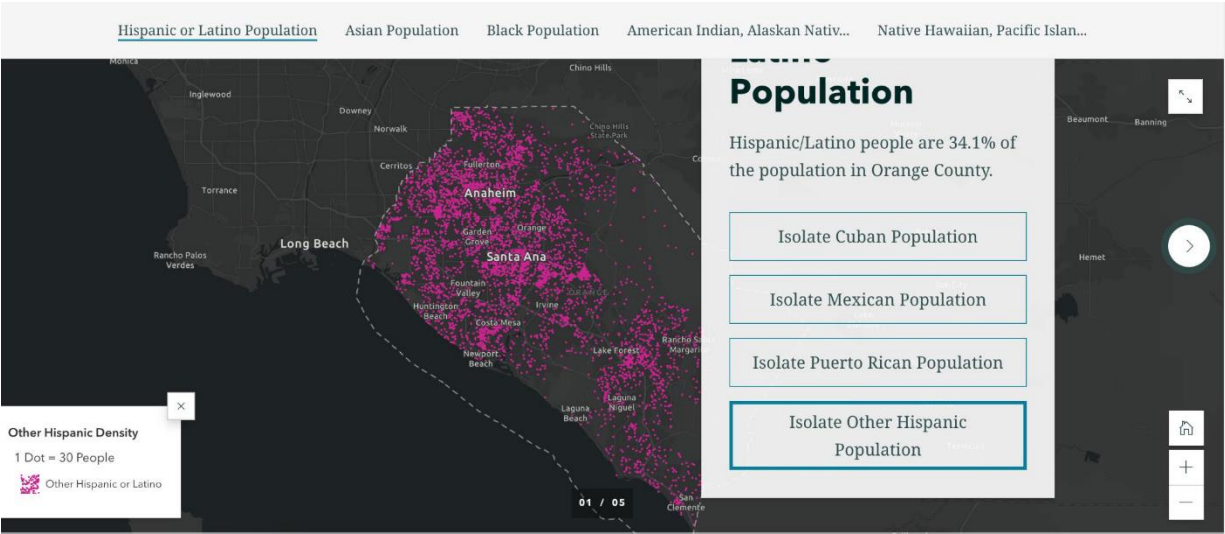
<https://storymaps.arcgis.com/stories/5fe5b76be73c440389e55308ac4246ed>



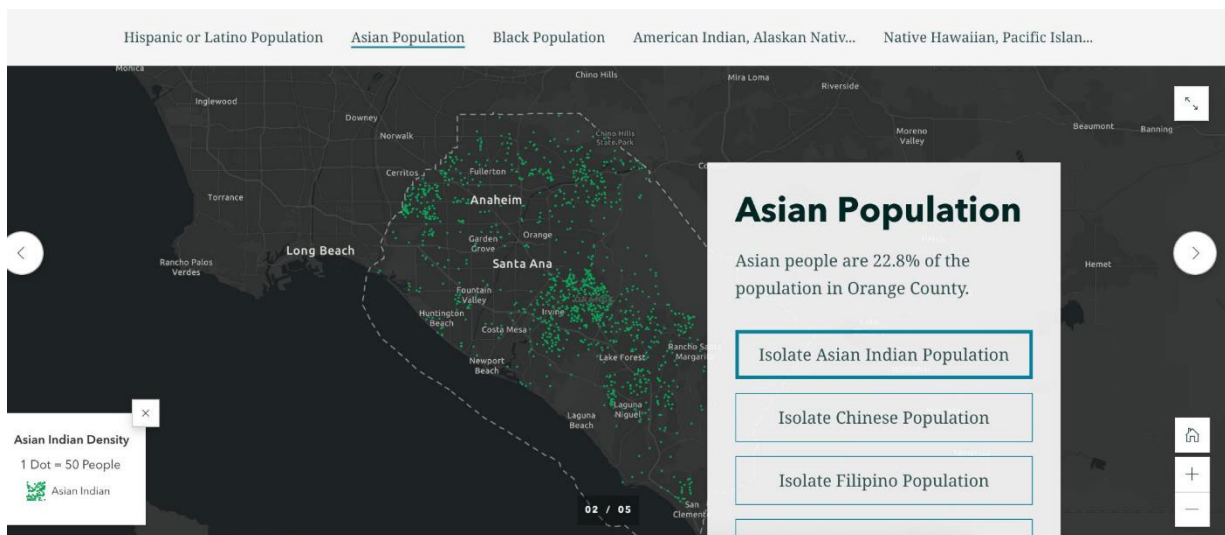
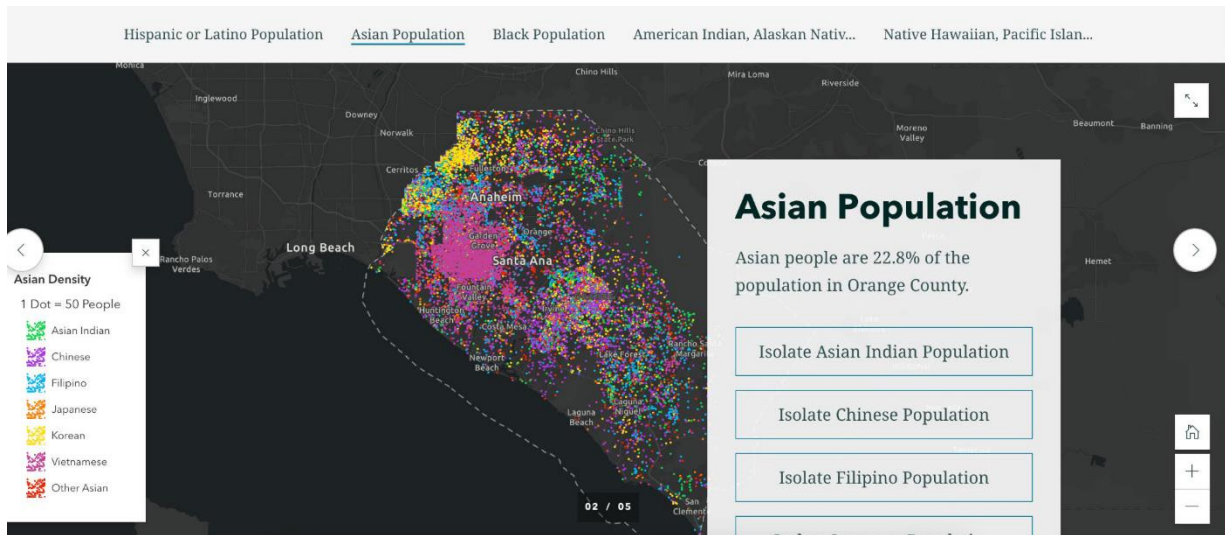
Orange County Disaggregated Races - Hispanic or Latino Population: Isolate Mexican; Isolate Puerto Rican



Orange County Disaggregated Races - Hispanic or Latino Population: Isolate  
Other Hispanic Population

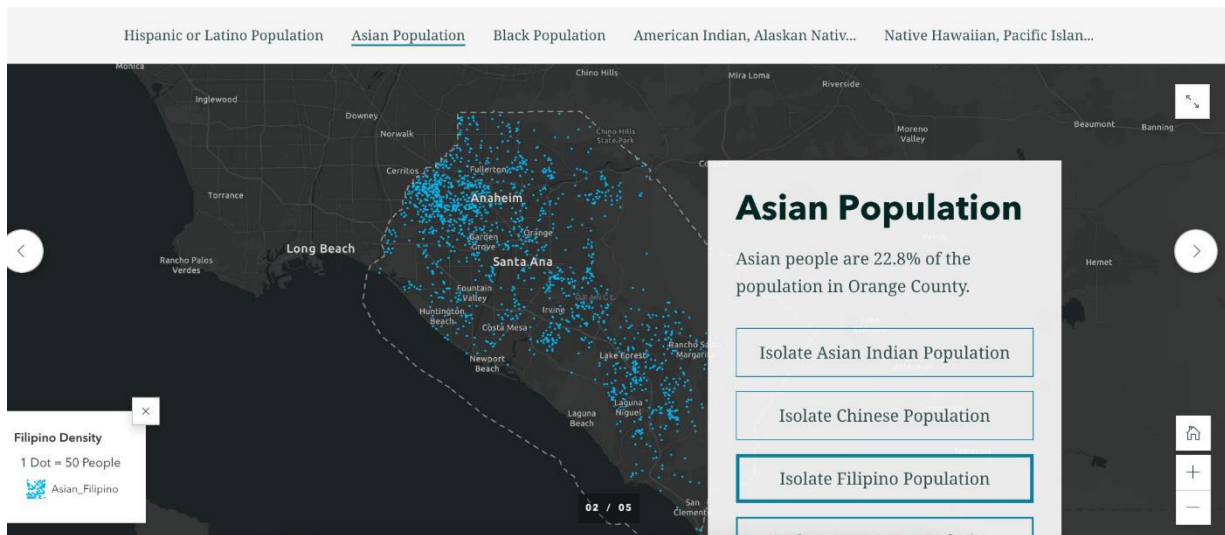
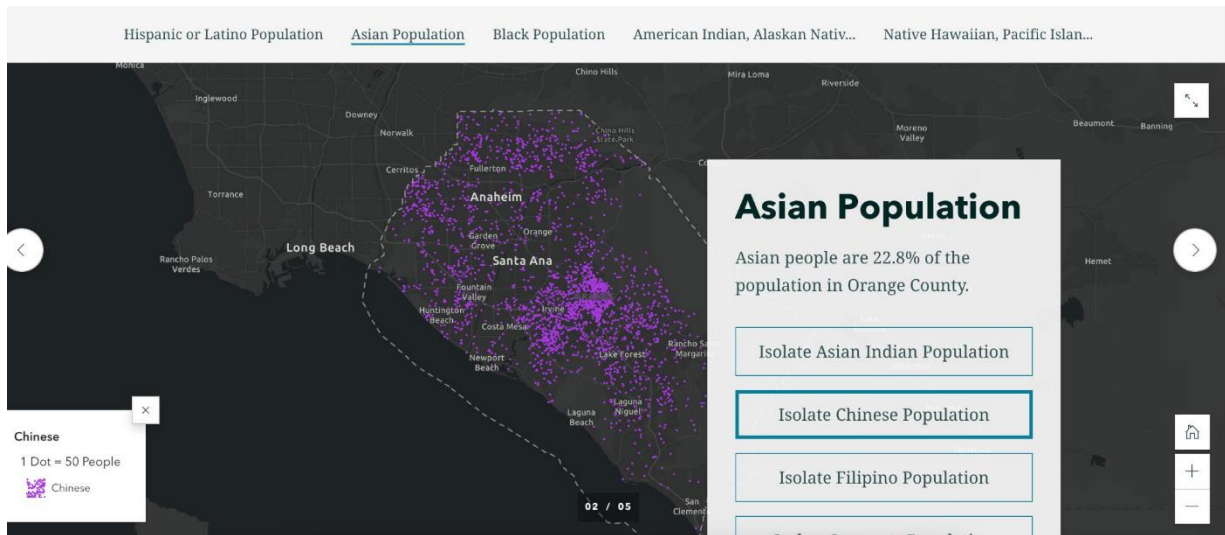


## Orange County Disaggregated Races - Asian Population: Overall & Isolate Asian Indian Population





## Orange County Disaggregated Races - Asian Population: Isolate Chinese Population; Isolate Filipino Population

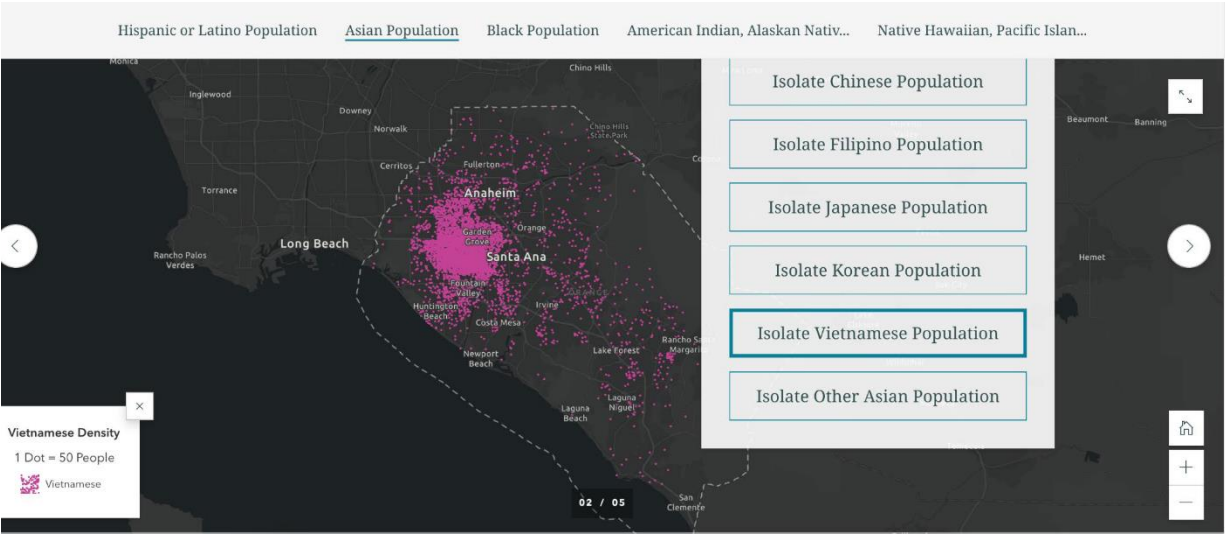




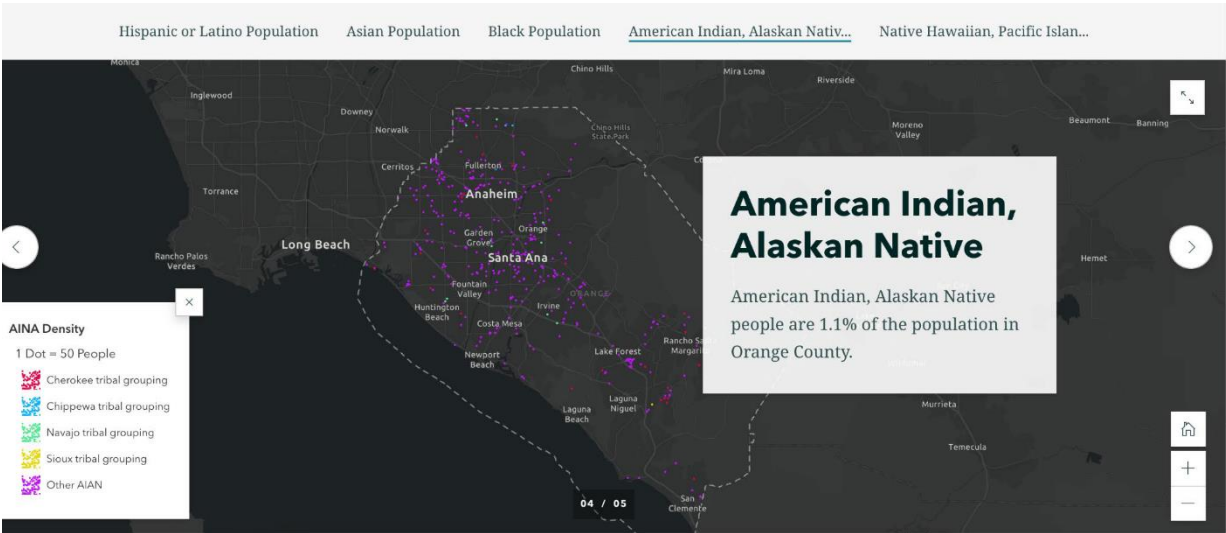
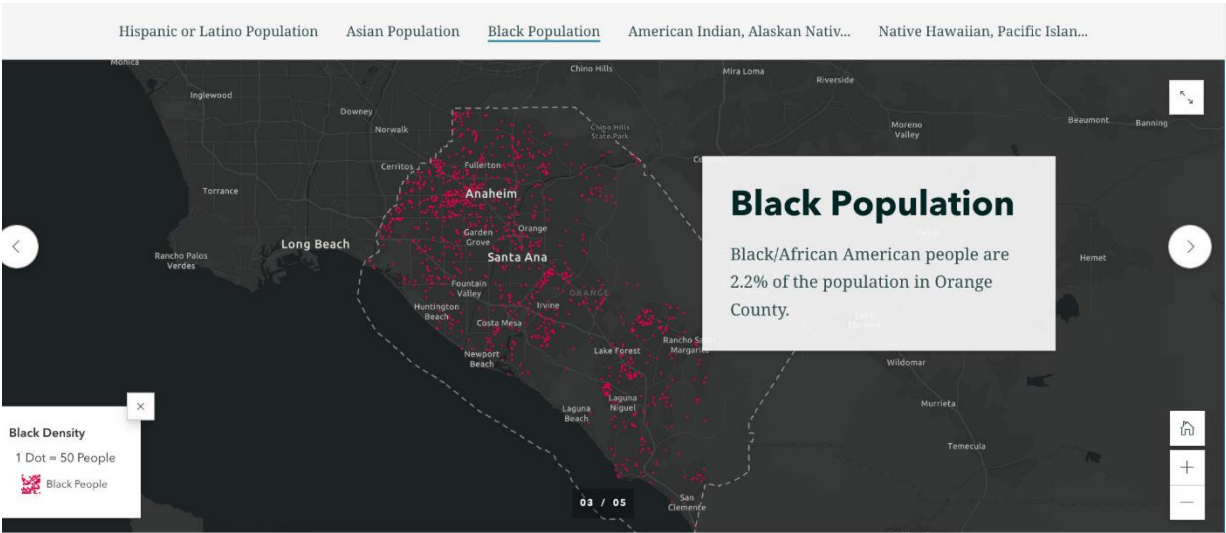
Orange County Disaggregated Races - Asian Population: Isolate Japanese Population; Isolate Korean Population



# Orange County Disaggregated Races - Asian Population: Isolate Japanese Population; Isolate Korean Population



# Orange County Disaggregated Races - Black Population; American Indian, Alaskan Native



## Orange County Disaggregated Races - Native Hawaiian, Pacific Islander Population



### List of Cities Containing Disinvested Communities

City	Count of SB 535 Tracts
Anaheim	27
Santa Ana	26
La Habra	7
Fullerton	6
Garden Grove	6
Buena Park	5
Stanton	4
Costa Mesa	2
Irvine	2
Placentia	2
Huntington Beach	1
Midway City	1

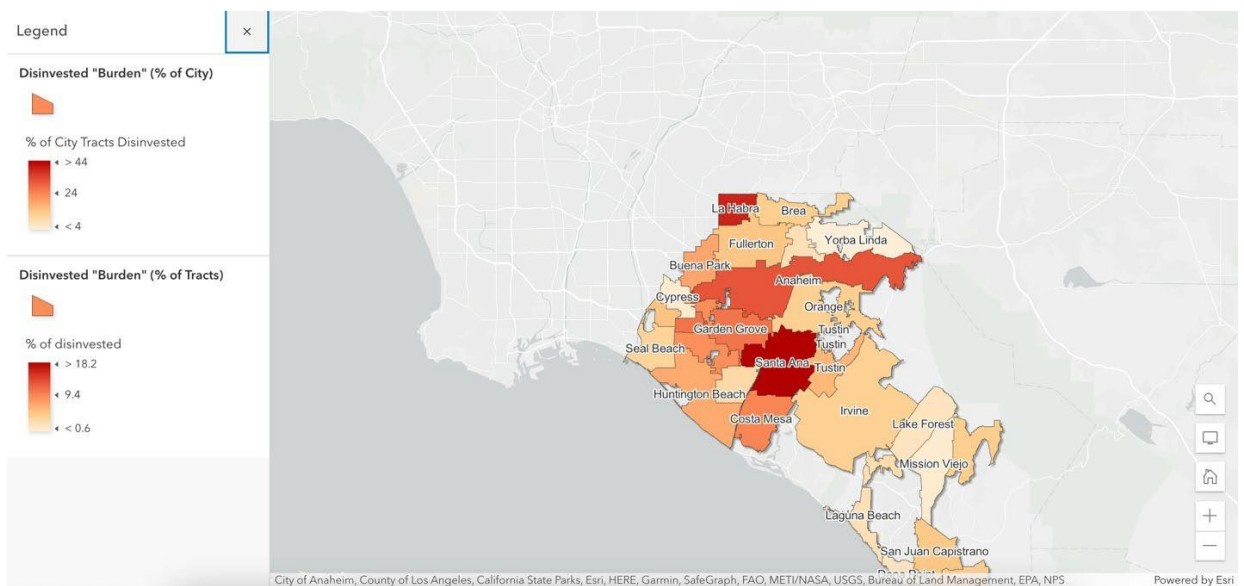
Orange	1
Tustin	1

**List of Cities Containing Extended Definition Disinvested Communities**

<b>Cities</b>	<b>Count of Extended Tracts</b>
Santa Ana	32
Anaheim	31
Garden Grove	16
Huntington Beach	11
Costa Mesa	10
Irvine	8
Westminster	8
Fullerton	7
La Habra	7
Orange	6
Tustin	5
Buena Park	5
Stanton	4
Brea	2
Fountain Valley	2
Lake Forest	2
Los Alamitos	2
Mission Viejo	2
Rancho Santa Margarita	2
San Clemente	2
San Juan Capistrano	2

Seal Beach	2
Placentia	2
Cypress	1
Dana Point	1
Laguna Beach	1
Laguna Woods	1
Yorba Linda	1
Midway City	1

### Disinvested Tracts by City in Orange County





# Orange County Stakeholder Mapping

## *Report of Findings*

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July 2023





## Introduction

The stakeholder mapping outlined in this report was conducted as part of the planning phase for the Community Economic Resilience Fund (CERF) process in Orange County, California. Orange County is one of 13 regions throughout the state that received a planning grant and are embarking on a process to promote a sustainable and equitable recovery by supporting new plans and strategies to diversify local economies and develop sustainable industries that create good paying, broadly accessible jobs for all Californians. The stakeholder mapping process supports these efforts by identifying the potential stakeholders (organizations and entities) that could be involved in CERF planning and/or implementation. There are a variety of reasons stakeholders may be involved, including if they can play a role in:

- Connecting to communities, with an emphasis on ‘Disinvested’ communities
- Helping people prepare for and access good paying jobs
- Strengthening Orange County’s economy and environment
- Providing good paying jobs in sustainable industries

### **Specifically, the purpose of stakeholder mapping is to:**

1. Provide a list of organizations and entities and discuss their potential role in developing the plan and engaging in the implementation phase
2. Engage disinvested communities
3. Clarify opportunities for collaborations and partnerships

Stakeholder mapping is meant to be a **grasstops**, as opposed to a **grassroots**, effort. In other words, the goal was not to map every organization and entity that exists in Orange County; but rather to identify organizations and stakeholders that can connect with and represent the perspectives of their sector(s). For example, when identifying business and employers, the grasstops organizations include chambers of commerce, industry associations, and a sample of businesses that can connect to businesses and employers, as opposed to listing all the businesses and employers in Orange County that could be involved in creating a ‘High Road’ economy.

## Methodology

### **Stakeholder Mapping Survey**

The primary method used in the stakeholder mapping process was a Stakeholder Mapping Survey. The survey was administered online via SurveyMonkey, and was available in English, Spanish and Vietnamese. It gathered information on the



organization/entity, contact information, self-identified sector(s)<sup>1</sup>, focus of their work, geographic areas served, community/communities or groups served, and their potential role in the CERF process.<sup>2</sup> The survey was used to gather information about two groups:

1. **HRTC Members (n=65):** The first approach was to gather information from members of Orange County's High Road Transition Collaborative (HRTC). These members represent 10 sectors and are engaged in the CERF process in Orange County. There was a 91% completion rate among HRTC members.
2. **Other Organizations/Entities Across All CERF Sectors (n=121 additional organizations):** In addition to input from HRTC members, the research team developed and conducted a community-wide survey. The survey link was shared widely by Sector Leads and CERF partner organizations, and we received 121 responses in addition to the HRTC members.

The resulting stakeholder map is an Excel database of all organizations/entities identified through the methods outlined above. The database can be utilized to not only provide a list of the organizations and entities that could be involved in CERF planning and implementation, but also to understand the role(s) they can play in CERF, what they do, and who they serve. This report is meant to accompany the database, which is the primary tool that will be utilized in stakeholder mapping.

**Figure 1: Sample of Stakeholder Map Database**

ORGANIZATION, PRIMARY SECTOR & CONTACT INFORMATION					
Sector that BEST describes you	Name of organization/entity you represent.	HRTC Member	Link to organization/entity's website	Full Name	Email Address
Community-based Organization	Trellis		<a href="https://wearretrellis.com/">https://wearretrellis.com/</a>	Ian Stevenson	ian@wearretrellis.com
Community-based Organization	FAM	Yes	<a href="http://www.lovefam.org">www.lovefam.org</a>	elizabeth andrade	elizabetha@lovefam.org
Community-based Organization	Vital Link	Yes	<a href="http://www.vitalink.org">www.vitalink.org</a>	April Barnes	april@vitalink.org
Community-based Organization	Charitable Ventures OC	Yes	<a href="https://charitableventuresoc.org/">https://charitableventuresoc.org/</a>	Joseph Ball	joe.ball@charitableventu
Community-based Organization	ORANGE COUNTY COASTKEEPER	Yes	<a href="http://www.coastkeeper.org">www.coastkeeper.org</a>	GARRY BROWN	GARRY@COASTKEEPER.OC
<div> Master HRTC &amp; Survey California Native American Community Based Organizations Disinvested Community Gov't &amp; Economic Development Workforce Orgs Ei </div>					

<sup>1</sup> Sectors are consistent with those outlined in the CERF Request for Proposals and include: 1) California Native America Tribe; 2) Community-based Organization; 3) Disinvested or Underserved Community; 4) Economic Development Organization and/or Government Agency; 5) Education & Training Organization; 6) Employer, Business or Business Association; 7) Environmental Organization; 8) Labor Organization; 9) Philanthropic Organization; 10) and Workforce Organization or Worker Center

<sup>2</sup> See Appendix A for the questions included in the Stakeholder Mapping Survey

## Identifying Other Organizations/Entities

In addition to the survey, lists of potential organizations/entities were identified through additional means. These organizations are not included in the CERF Stakeholder Mapping database, but can be leveraged for outreach efforts and/or during the implementation phase. Additional lists include:

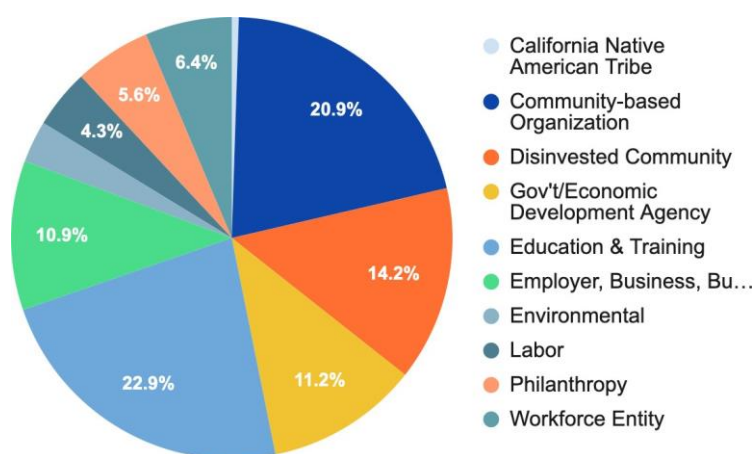
- Lists provided by Sector Leads: The Sector Leads developed lists of colleagues and organizations in their respective sectors. These lists were utilized to push out the Stakeholder Mapping Survey, and are also available to identify other potential organizations within each sector.
- Responses to the Outreach and Engagement RFP: In parallel with the Stakeholder Mapping process, the CERF research team issued a Request for Proposals (RFP) to identify partners that will conduct Outreach and Engagement with communities throughout Orange County. The respondents should also be considered as stakeholders in the CERF process. Most of the respondents also completed the Stakeholder Mapping Survey and are already included in the database.
- Connection to other efforts undertaken as part of the CERF process in Orange County: It should be noted that the Stakeholder Mapping process and resulting report does not exist in a vacuum. Stakeholder mapping along with efforts such as the Participatory Action Research (PAR) outlined in the next section together provide a more complete picture of Orange County.
- Other Community Initiatives: Finally, there are other existing community initiatives in Orange County that were (and can continue to be) leveraged to identify and connect with potential CERF partners. The list of community-based organizations that were involved in outreach for the 2020 census efforts was utilized to promote the Stakeholder Mapping Survey. In addition, MapMyCBO (<http://map-my-cbo.herokuapp.com/orange-county>), is a free public search tool available through Charitable Ventures, one of the Orange County CERF HRTC members. It is an excellent resource that can be leveraged to identify organizations with specific expertise or reach that may not have completed the Stakeholder Mapping Survey.

The remainder of this report outlines findings from stakeholder mapping, starting with an overview of Orange County Stakeholders based on an analysis of survey results and including the process for involving disinvested community members in the Orange County CERF process.

## Overview of Orange County Stakeholders

The stakeholders identified are distributed across the 10 sectors outlined in the CERF process, with more than half (58%) coming from three sectors: Community-based Organizations, Disinvested Communities, and Education and Training. These results are based on organizations' self-reporting. Survey respondents were asked to select the sector that BEST describes them, as well as other sectors that described their work. The vast majority of respondents identified with more than one sector. For example, an Environmental Organization may also identify as a Community-based Organization and one that works with Disinvested Communities. An overview over stakeholders by self-identified sector(s) is included below.

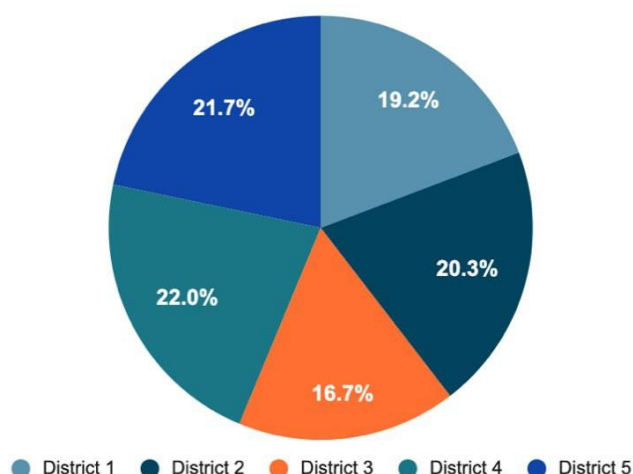
**Figure 2: Stakeholders Based on Self-identified Sector (all sectors)**



In terms of geographic representation, over 60% of the stakeholders reported that they work county-wide and 50% do some work outside of Orange County in addition to their Orange County focus. Among those that work outside of Orange County, the majority are in Los Angeles County and the Inland Empire (Riverside and San Bernardino Counties). A smaller number also work in San Diego County. A breakdown of stakeholders by supervisorial district reveals that stakeholders are spread relatively evenly across Orange County's 5 supervisorial districts.<sup>3</sup>

<sup>3</sup> See Appendix B for a Map of Orange County's Supervisorial Districts

**Figure 3: Stakeholders by Regions Served (Based on Supervisorial Districts)**



### **Organizations Working with Disinvested Communities**

Overall, 14.2% (n=56) organizations selected 'Disinvested Communities' as a sector that describes their organization. Sixty percent of those respondents were Community-based organizations. The others primarily included: Education & Training Organizations, Business Associations (e.g., Chambers of Commerce), and Workforce Development Organizations. The following section outlines how representatives from disinvested communities are involved in the CERF process.

### **Engagement of Disinvested Communities**

As part of the CERF planning phase, a process was put in place to identify and engage members from disinvested communities to serve as part of the HRTC decision-making body in Orange County. The original plan included 5 disinvested community members on the HRTC, but based on advising from a team of organizations that work in disinvested communities, the budget was re-worked so that more disinvested community members could be added to the HRTC. Eight disinvested community members (with one alternate) were voted onto the HRTC, including:

- 2 Asian or Pacific Islander (API)
- 2 Black
- 3 Latino
- 1 Middle Eastern or North African (MENA)

The process utilized to engage disinvested community members is outlined below.

## **Outreach Process**

Beginning as early as December 2022, members of the Orange County CERF team started meeting with a group of Community-based Organizations to begin the conversation around inviting disinvested community members to join the HRTC. A small group of 6 organizations agreed to be part of a ‘disinvested community brain trust’ to help develop a disinvested community member application and to be involved in the selection process. Each of the organizations in the ‘brain trust’ work in disinvested communities in different parts of Orange County and have deep connections and understanding of those communities. Organizations involved included:

- Cooperación Santa Ana
- Family Assistance Ministries (FAM)
- Orange County United Way
- The Cambodian Family
- The Kennedy Commission
- THRIVE Santa Ana

The outreach and identification of engaged disinvested community members that each bring unique perspectives and experience to the HRTC would not have been possible without these organizations’ support.

## **Application and Selection**

The small group outlined above worked together to draft and refine a Disinvested Community Member Application<sup>4</sup> to be administered online via a Google Form. The application was translated and available in English, Spanish and Vietnamese. It was posted on the Orange County CERF website and shared out via partner organizations. The application was finalized by mid-April 2023 and was launched in May 2023.

Fifty-nine applications were received. Not all applicants were affiliated with a nonprofit organization. To select the members to invite to the HRTC, the following criteria were considered:

- |                                                                               |
|-------------------------------------------------------------------------------|
| 1. Applicant lives in a disinvested community                                 |
| 2. Applicant’s household income reflects very and extremely low-income levels |

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<sup>4</sup> See Appendix C for a copy of the Application for Disinvested Community Members (English Version)

3. Applicant's racial/ethnic identity reflects disinvested communities
4. Applicant's preferred language reflects disinvested communities
5. Applicant's workforce experience is of relevance to CERF mission and goals
6. Applicant's lived experience of historically marginalized identities provides an irreplaceable understanding and appreciation of the challenges disinvested communities face
7. Applicant has had previous experience with outreach initiatives
8. If voted onto the HRTC, applicant would fill identified gaps in representation of the current HRTC (think home city, age, work status, income, racial/ethnic identity, language, experience)
9. Evidence of interest and availability

The applications were scored based on the criteria outlined above. While applicants were sorted by scores (highest to lowest), the reviewers did not automatically invite the top scoring applicants. Instead, they had a discussion around diversity (race/ethnicity, city, gender, household income, job status, preferred language, and experience, etc.). This ensured that the disinvested community members serving on the HRTC would not only meet the criteria, but would bring varied perspectives to the table.

### **Disinvested Community Members on the HRTC**

Eight disinvested community members (and one alternate) were voted onto the HRTC at the June 30, 2023 meeting. These members include:

- 2 Asian or Pacific Islander (API)
- 2 Black
- 3 Latino
- 1 Middle Eastern or North African (MENA)

They reside in the following cities:

- Anaheim (3)
- Fountain Valley
- Garden Grove (2)
- San Juan Capistrano
- Santa Ana (2)



## **Support for Disinvested Community Members**

Disinvested community members will receive \$25,000 in compensation. Since there are tax implications associated with this amount, a plan was developed to compensate the members via a spending plan and Community-based Organizations that serve as ‘sponsoring organizations’.

HRTC members from disinvested communities may need ongoing support to feel comfortable in the HRTC setting. For Spanish-speaking applicants who are invited to join the HRTC, CA Forward will support them (can prep them for meetings, make sure they feel comfortable, assist with Zoom, etc.). For applicants who speak other languages, and come to the HRTC through a Community-based Organization partner (the ‘sponsoring’ organization), the disinvested community member will be supported by them, and their organization will receive compensation to provide this support.

## **Utilizing Stakeholder Mapping**

The primary tool developed in the stakeholder mapping process is the stakeholder mapping database.<sup>5</sup> The Excel database will be made available on the Orange County CERF website so that it can become a tool for sector groups and partners to leverage in their collaborative work. There are a number of ways the database can be utilized, including:

### **1) To Understand Roles in Creating a High Road Economy**

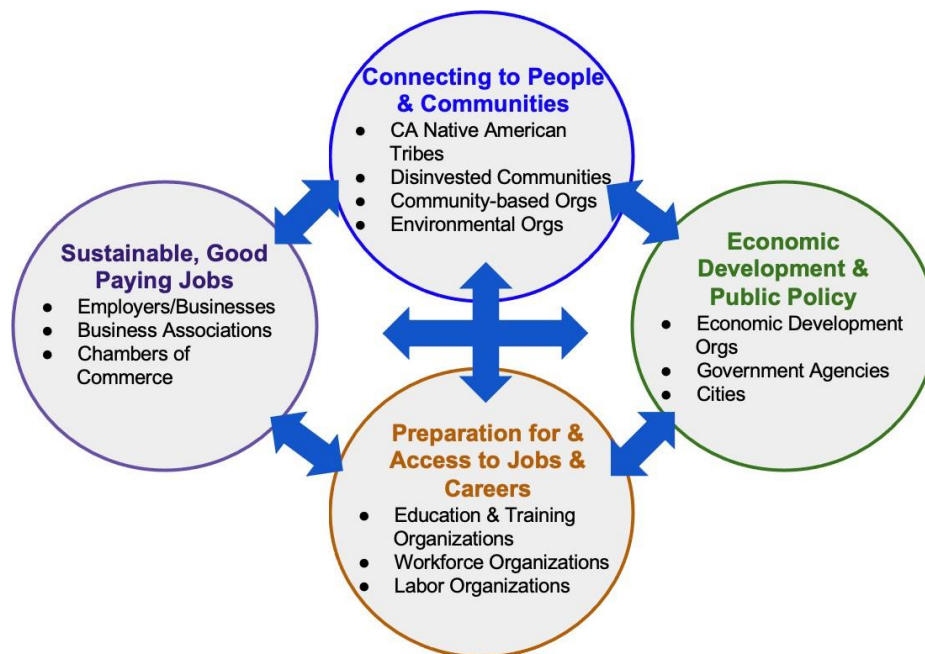
While the stakeholder mapping database enables segmentation based on geography, sector, and other questions, it is important to understand stakeholders based on the various roles they can play in the CERF planning and implementation phases. The following framework outlines how to segment stakeholders based on potential CERF role:

- Connecting to People & Communities
- Economic Development & Public Policy
- Preparation for & Access to Jobs and Careers
- Providing Sustainable, Good Paying Jobs

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<sup>5</sup> This report is meant to accompany the Excel database, which will be made available on the Orange County CERF website.




**Figure 4: Framework for Segmenting Stakeholders Based on Role(s) in Creating a High Road Economy**



Utilizing this framework, it is easy to search the stakeholder mapping database and identify those organizations to engaged for different purposes.

**Table 1: Overview of Organizations Based on Roles in Creating a High Road Economy**

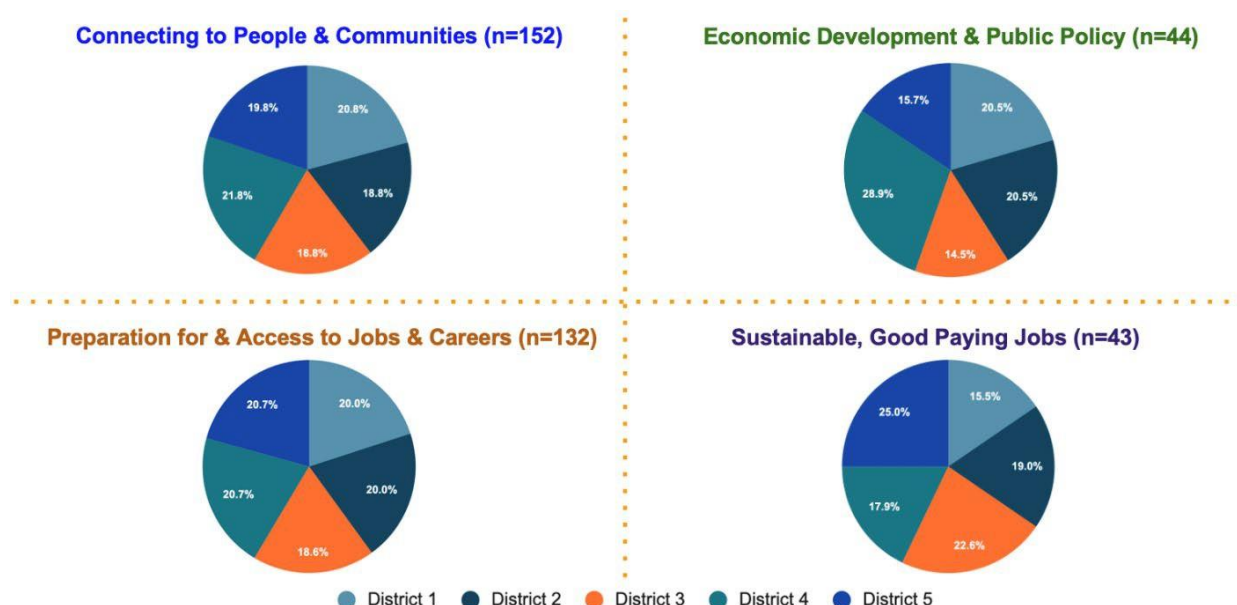
Segment	Role	Overview of Orange County Stakeholders
 <p><b>Connecting to People &amp; Communities</b></p> <ul style="list-style-type: none"> <li>CA Native American Tribes</li> <li>Disinvested Communities</li> <li>Community-based Orgs</li> <li>Environmental Orgs</li> </ul>	<p>Outreach, convening, collaborating, representing, and providing a platform for people and communities to be engaged. Connecting people to resources and opportunities so they can access good paying jobs.</p>	<ul style="list-style-type: none"> <li>Primarily community-based organizations and those working with disinvested communities and CA Native American Tribes (together, these sectors represent over 1/3 of stakeholders in the stakeholder mapping database)</li> <li>Also includes 12 environmental organizations that focus on education, advocacy and specific environmental causes, such as renewable energy, and protecting native lands</li> </ul>

 <p><b>Economic Development &amp; Public Policy</b></p> <ul style="list-style-type: none"> <li>• Economic Development Orgs</li> <li>• Government Agencies</li> <li>• Cities</li> </ul>	<p>Supporting residents of Orange County and developing policies to create and diversify the economic conditions that sustain our environment and enable people to equitably access good paying jobs.</p>	<ul style="list-style-type: none"> <li>• 44 organizations/entities including 9 cities and other government agencies, public institutions and economic development organizations</li> </ul>
 <p><b>Preparation for &amp; Access to Jobs &amp; Careers</b></p> <ul style="list-style-type: none"> <li>• Education &amp; Training Organizations</li> <li>• Workforce Organizations</li> <li>• Labor Organizations</li> </ul>	<p>Providing education, career exploration, skills building (soft and technical skills), job placement and support, upskilling, and support and representation of workers.</p>	<ul style="list-style-type: none"> <li>• Over 90 organizations that are Education &amp; Training organizations, including community colleges (3) and universities (7) as well as schools (ROP and CTE), and workforce, CBO and other organizations</li> <li>• 25 workforce organizations including those whose entire mission is workforce development and others that have broader missions but do some workforce programming</li> <li>• 17 labor organizations, unions providing apprenticeship, training, support, and representation of workers across trades and industries</li> </ul>
 <p><b>Sustainable, Good Paying Jobs</b></p> <ul style="list-style-type: none"> <li>• Employers/Businesses</li> <li>• Business Associations</li> <li>• Chambers of Commerce</li> </ul>	<p>Providing connection to employers and business of all types that offer good paying jobs, especially those in sustainable industries.</p>	<ul style="list-style-type: none"> <li>• 43 organizations including 9 Chambers of Commerce</li> </ul>

By segmenting stakeholders based on role *and* geographic region served, potential areas for further outreach include:

- Economic Development & Public Policy: Government Entities, Public Entities and Economic Development Organizations in Districts 3 and 5
- Sustainable, Good Paying Jobs: Employers, Businesses and Business Associations in Districts 1 and 4

**Figure 5: Geographic Breakdown of Stakeholders Based on Role**



## 2) To Learn About Partner Organizations and Enhance Partnerships

In addition to summary-level analysis, the stakeholder mapping database can be utilized to gain a deeper understanding of partners at the organization level. For example, if a sector group wants to reach out to an organization in another sector to explore the potential of cross-sector, they can use the database to learn more about the organization to frame an initial discussion. Specifically, they can identify:

- Whether they are an HRTC member
- Sector that BEST describes them
- Other sectors
- Geographic areas served
- About the organization/entity (in their own words)
- Communities/groups served (in their own words)

An example of a Partner Snapshot is included below:

**Figure 5: Partner Snapshot of The Cambodian Family**

<b>The Cambodian Family</b> <a href="http://www.cambodianfamily.org">www.cambodianfamily.org</a>	<b>HRTC Member</b>	<b>Office Location: Santa Ana</b>
<b>Primary Sector: Community-based Organization</b>		<b>Other Sectors: Disinvested Community</b>
<p><b>About TCF:</b> The Cambodian Family (TCF) is a nonprofit, community-based organization that was formed in 1980 when Cambodian refugees first settled in America after escaping the horrors of war and genocide in their homeland. Our mission is to provide opportunities for refugee and immigrant families to develop the knowledge, skills, and desires for creating better health and well-being in their lives. Over the years, our services have been expanded to immigrants and refugees from all over the world.</p>		
<p><b>Geographic Areas Served:</b> County-wide and specifically Anaheim, Costa Mesa, Garden Grove, Orange, Santa Ana, Stanton, Tustin, and outside Orange County (Long Beach and Riverside)          Since TCF is the only Cambodian-serving organization in Orange County, we provide services to the Cambodian community in all areas of Orange County; however, there are community members from 7 cities noted above who frequently come to utilize our services.</p>		
<p><b>Communities/Groups Served:</b> TCF serves a very diverse population, with <u>60% of our clients of Southeast Asian descent</u> (mostly Cambodian), 35% Latinx, and 5% other ethnicities. Over 33% of our clients are seniors 65+. <u>TCF also serves teens and transitional age youth through our after-school and SUD prevention programs.</u> We also provide <u>education and support to small business ethnic owners of donut stores and restaurants.</u></p>		

### 3) As a Tool for Collaboration and Partnership

Finally, and most importantly, the stakeholder mapping process clarifies opportunities for collaboration and partnership during CERF planning and implementation, and beyond. The HRTC and sector groups may have questions to help guide their collaborative efforts that the stakeholder mapping database can help address. For example, the city of La Habra has several census tracts that are disadvantaged tracts and below the cutoff median income levels. If there was a CERF project aimed at those tracts, the HRTC may want to know which organizations *specifically* noted that they serve La Habra (not including organizations that operate county-wide). This inquiry would yield 8 organizations/entities along with specific contact people and information that work in La Habra.

Other examples of questions that can be addressed utilizing the stakeholder mapping results include (but are not limited to):

- What organizations work with BIPOC communities and could potentially help with outreach?
- Which stakeholder(s) involved in CERF might be interested in having a conversation about collaborating with educators and providing work-based learning experiences to students (high school, community college and 4-year college)?

- What organizations are doing work and have specific knowledge of South County disinvested communities?
- What organizations could potentially be involved in a project involving workforce development for young people?
- Which organizations are located (in terms of their physical location) in Supervisorial District 2?
- What labor organizations are engaged at this time?
- Which organizations also work outside Orange County and where do they work?
- What Chambers of Commerce can we reach out to if we want to partner with them on a project?

## **Conclusion**

The stakeholder mapping process was a collaborative effort that involved outreach and collaboration on the part of all HRTC members and sector leads, as well as the Orange County CERF research team. The results from this process give us a deeper understanding of the organizations already engaged in the CERF planning phase, as well as those that are interested in playing a role now or in the future. It also provides a rich list of organizations to leverage for further outreach into the Orange County community. Our goal is for the stakeholder mapping process to also provide opportunities to break down silos and spur cross-sector collaboration and partnership beyond the CERF efforts.

## **Connection to Participatory Action Research in Orange County**

While the stakeholder mapping process focused on “grass-tops”, the community forum summarized in the next section gathered input directly from people and groups most affected by economic inequality in Orange County. The stakeholder mapping process helped to identify the organizations that work with and impact disinvested communities. Organizations included in the Stakeholder Mapping exercises worked together to design and facilitate the community forum that kicked off the participatory action research (PAR) phase of CERF efforts in Orange County. In this way, the two efforts (stakeholder mapping and PAR) work together to give us a more comprehensive picture of the landscape in Orange County, and the factors impacting disinvested communities as well as the organizations working to include and support them.



# **Participatory Action Research - Amplifying Resilience, Unveiling Economic Hardships: Insights from Orange County Workers and Community Residents**

## **A Summary of Community Forum Findings**

July 14, 2023

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## Introduction

An equitable and sustainable economy that fosters long-term community resilience must intentionally include the people and groups most impacted by inequality. On June 22, 2023, Cooperacion Santa Ana and THRIVE Santa Ana Community Land Trust, with the support of community partners including Latino Health Access, The Cambodian Family, CIELO, and Orange County Environmental Justice, organized a community forum as part of Orange County's Community Economic Resilience Fund (CERF) initiative<sup>6</sup>. The forum deliberately focused on including people and groups most affected by economic inequality in the design and execution of the research and strategies of CERF-OC. The aim was to ensure that the methods and findings reflect the perspectives, cultures, priorities, and concerns of those intended to benefit from these efforts.

The following sections summarize the participatory research methods, a preliminary analysis of the forum, and some recommendations.

## Methodology

The complexity of economic inequality in urban settings requires explicitly conducting multiple lines of inquiry using various sources of information. While there are robust and recent quantitative-oriented reports on equity and the economy in Orange County (e.g., "An Equity Profile of Orange County: Summary"), qualitative reports based on Participatory Action Research (PAR) allow residents to share and report on their knowledge, attitudes, behaviors, and experiences in multiple ways. The June 22 forum marks the initial phase of a comprehensive PAR project to amplify the experiences and voices disproportionately impacted by economic and racial inequalities. Cooperacion Santa Ana and THRIVE Community Land Trust designed and organized this forum with various organizations, including CIELO, Latino Health Access, The Cambodian Family, Orange County Environmental Justice, and Radiate Consulting Orange County. Before the forum, representatives from most of these organizations met to share input regarding the forum's purpose, design, and focus group questions. Additionally, organizational representatives received facilitation training to facilitate the forum focus groups. The group facilitators collectively represent extensive experience in community organizing,

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<sup>6</sup> On September 23, 2021, the State of California created the Community Economic Resilience Fund (CERF), a \$600,000,000 initiative "to build an equitable and sustainable economic recovery from the impacts of COVID-19 on California's industries, workers, and communities, and to provide for the durability of that recovery by fostering long-term economic resilience in the overall transition to a carbon-neutral economy" ([Senate Bill No. 162](#)). The bill requires that the CERF program provide financial support to establish and support regional "high road transition collaboratives" dedicated to economic recovery efforts based on the disproportionate impacts of COVID-19 in such areas. Orange County was selected as its own development region, with Orange County Business Council as the regional convener.

outreach, and resident-driven initiatives in Orange County, bringing invaluable facilitation expertise to these discussions.

In approximately 30 days, these organizations recruited and registered just over 100 participants to the forum. All participants were first or second-generation Vietnamese, Cambodian, and Latino immigrants, most lived in Santa Ana and Anaheim, and a handful came from Orange, Garden Grove, Huntington Beach, Fullerton, Buena Park, Norwalk, and a few additional cities. Most participants were women, and ages varied, from young adults to seniors, and some participants brought their entire family. Most participants spoke a language other than English, with Spanish being the most commonly spoken language. Participants also spoke English, Khmer, and Vietnamese. Forum organizers made intentional efforts to ensure the participation of domestic workers and unemployed workers who often go under the radar in other outreach efforts, as well as include immigrant and low-income workers engaged in existing community economic initiatives such as cooperatives.

The two-hour community forum was held at Latino Health Access, a well-established non-profit in Santa Ana, California (92701 zip code). Forum organizers provided food, childcare, simultaneous interpretation in Spanish and English, and simultaneous and consecutive interpretation in Khmer by partner The Cambodian Family. As participants arrived and settled in, forum organizers encouraged them to write what they believe are community and cultural assets on two large posters (please see Figure 1).

**Figure 1. Community and Cultural Strengths**



[Left] Two community members engage in a discussion about what they should contribute as a community strength. [Right] Participants express their thoughts and ideas on Post-it notes in response to the question, “What are some strengths that our culture(s) gives us individually and as a community?”

The forum was divided into three parts. The first part opened with a welcome and an overview of the principles of language justice, the goals of the CERF initiative, and the evening's agenda. Next, participants engaged in a popular education exercise informed by the theater of the oppressed<sup>7</sup>. The goal of the exercise was to learn about participants' analysis of the current economy and ideas about what their ideal economy would be. In three groups, participants were invited to create a still image representing different actors and how they relate to the current economy and their ideal economy.

The focus groups were the third component of the forum. The focus groups aimed to gain insights specific to each group's efforts to secure economic well-being for themselves, their communities, and their families. The groups were organized according to predetermined criteria, encompassing shared group experiences and specific relationships to the economy. Groups<sup>8</sup> included domestic workers, homemakers, unemployed persons, and tenants, among others (Please refer to Table 1 for descriptions). While participants shared characteristics within their own focus group, many similarities existed across groups, such as working-class and immigrants.

Each focus group lasted about 35 minutes, and the average group consisted of 10 participants and ranged between 8 and 11.

**Table 1. Types of Break-out Groups**

<b>Types of Break-Out Groups</b>	<b>Description</b>
Domestic Workers	Workers <sup>9</sup> , such as housekeepers, nannies, and caregivers for the elderly)
Community Organizers and <i>Promotores</i>	Community engagement workers, including paid staff and volunteers, <i>Promotores de salud</i> <sup>10</sup> (community health workers), and community organizers
Homemakers	Women and men, though the majority women, some single mothers, who primarily do unpaid work in the household <sup>11</sup> ,

	including caring for their children, homes, and attending to the household budget
Neighborhood-level organizations and renters	Renters <sup>12</sup> , including members of neighborhood organizations such as Sullivan en Accion formed largely of mobile home residents, also community land trust members
Cooperative Workers	Worker-owners of worker-owned businesses <sup>13</sup> , also first and second-generation immigrants
Worker Benefits <sup>14</sup>	Unemployed <sup>15</sup> persons, workers on disability, or workers with unstable employment
Micro-entrepreneurs	Businesses with fewer than 5 employees, includes street vendors, other non-store retailers and informal income- generating strategies <sup>16</sup>
Other sectors (two separate groups)	Students <sup>17</sup> and workers from sectors not represented in the predefined work sectors.
The Cambodian Family	Immigrant elders from the Cambodian community. About 56% of the Cambodian community in Orange County are immigrants or refugees <sup>18</sup> .

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<sup>12</sup>Orange County ranks 12th in rent-burdened households among the 150 largest regions, and in general, people of color face a higher housing-cost burden than people in general, whether they are owners or renters. Edward-Michael Muña, Sabrina Kim, Joanna Lee, and Jennifer Ito. An Equity Profile of Orange County. 2019. [https://dornsife.usc.edu/assets/sites/242/docs/EP\\_Summary-Orange\\_County\\_15\\_final.pdf](https://dornsife.usc.edu/assets/sites/242/docs/EP_Summary-Orange_County_15_final.pdf)

<sup>13</sup> Some worker and community economic benefits associated to worker cooperatives include reducing turnover and promoting job retention, generating good jobs with fair wages, creating community wealth and building equity among low-income populations, and lifting people out of poverty. Sutton, S. A. 2019. Cooperative cities: Municipal support for worker cooperatives in the United States. *Journal of Urban Affairs*, 41(8), 1081-1102)

<sup>14</sup> Many community members experience varying levels of underemployment. This group brought together community members experiencing unemployment and underemployment, the majority of whom did not receive benefits of any kind. However, one group participant did rely on disability benefits.

<sup>15</sup> The unemployment rate in Orange County is 3.2%. Employment Development Department. [https://labormarketinfo.edd.ca.gov/file/lfmonth/oran\\$pd.pdf](https://labormarketinfo.edd.ca.gov/file/lfmonth/oran$pd.pdf)

<sup>16</sup> Non-store retailers are an important sector contributing to local economies. Agyeman, J., Matthews, C., & Sobel, H. (Eds.). (2017). *Food trucks, cultural identity, and social justice: From loncheras to lobster love*. MIT Press.

<sup>17</sup> Despite progress, only 9% of Latine immigrants have a bachelor's degree or 49% higher, while 53% have less than a high school degree. Edward-Michael Muña, Sabrina Kim, Joanna Lee, and Jennifer Ito. An Equity Profile of Orange County. 2019. [https://dornsife.usc.edu/assets/sites/242/docs/EP\\_Summary-Orange\\_County\\_15\\_final.pdf](https://dornsife.usc.edu/assets/sites/242/docs/EP_Summary-Orange_County_15_final.pdf))

<sup>18</sup> Edward-Michael Muña, Sabrina Kim, Joanna Lee, and Jennifer Ito. An Equity Profile of Orange County. 2019. [https://dornsife.usc.edu/assets/sites/242/docs/EP\\_Summary-Orange\\_County\\_15\\_final.pdf](https://dornsife.usc.edu/assets/sites/242/docs/EP_Summary-Orange_County_15_final.pdf)

Small group facilitators used standardized semi-structured questions to guide conversations. Within each group, facilitators encouraged participants to share personal experiences in which they collaborated with others to improve their families' economic well-being. Subsequently, participants responded to two questions:

1. What worked well?
2. What didn't work well and why not? What obstacles exist?

Each group kept track of responses with volunteer notetakers and audio recordings. Additionally, participants were invited to submit written notecards with final thoughts or ideas they had not been able to share. At the end of the forum, researchers held a debrief session with group facilitators, collecting important notes regarding participant dynamics, themes, and other observations and feedback.

The authors of this report attended the forum, observing and listening, and reinforcing best practices for documentation and data collection during the forum. We conducted a content analysis for this report that relied on the audio recordings obtained during the theater activity and focus groups, along with the detailed notes and photographs taken by assigned notetakers and photographers. Participants provided consent to share their photographs. We transcribed the audio recordings and translated them into English, ensuring conceptual equivalence. We coded inductively per group to identify what they reported doing to improve their income and pay household expenses and the obstacles they experienced. We then did a second coding round to differentiate the various obstacles and quantified them. Finally, themes emerged as the relationships between various codes became more apparent. THRIVE Santa Ana and Cooperacion Santa Ana provided valuable feedback on the preliminary analysis and aided us in addressing inquiries that arose during the preparation of the report.

The following section contains the main themes that emerged in the theater activity and ten focus groups.

## Theater Activity

### **Community Analysis of the Current and Ideal Economy**

Through the theater activity, the three groups created distinct, still images of both their perceptions of the current economy and their ideal economy, choosing different actors and depicting their relationship to each other using physical movements and gestures. Participants could choose from large nametags, naming actors and elements common in the local economy. "Actors" included workers, business owners, investors, unions, city council members, county supervisors, youth and students, schools, money, household expenses, climate, etc. Organizers invited participants to take on these nametags and portray a hypothetical scenario of how these actors and elements might interact, first

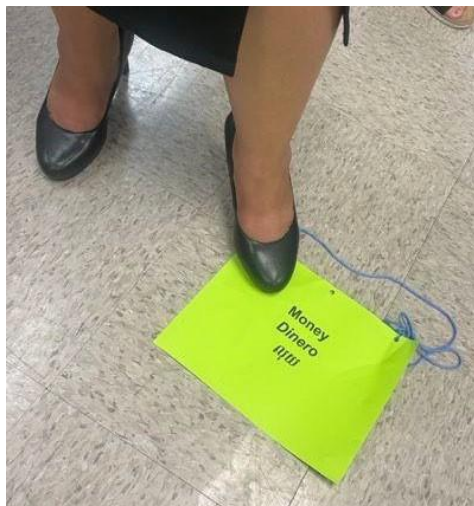


representing the current economy and secondly portraying an ideal economy. After each scene, participants were invited to comment aloud regarding the scenario, power dynamics and relationships between groups, and other impressions.

## Understanding Power

Groups generally made it clear that working individuals were often disconnected from one other, as well as from crucial resources and decision-making power. Senior citizens/elders, the environment, as well as youth and students, were depicted as largely marginalized and ignored in the current economy. In one group, a participant stressed the concentration of money and power in the hands of workplace bosses (“Los patrones son los que mandan” or “bosses dictate”), who possessed the authority to hire and fire and a great deal of power to impact workers’ lives. The participant mentioned that in restaurant work, he and others were fired for minor errors, allowing the owners to hire new workers who could be paid less. Similarly, power was associated with property owners who could evict and displace residents to charge higher rents to new, “more desirable” tenants. Another image portrayed investors and business owners joining forces for mutual economic interests while metaphorically stepping on the city council, illustrating how campaign donors have a high degree of influence in city politics [and low-income workers’ understanding of the political power of more wealthy business owners and investors]. In contrast, in one ideal image, a participant (visible in Figure 2) stepped on “money” to symbolize an end to the concentration of wealth and power.

**Figure 2. Stepping on Money and Power**

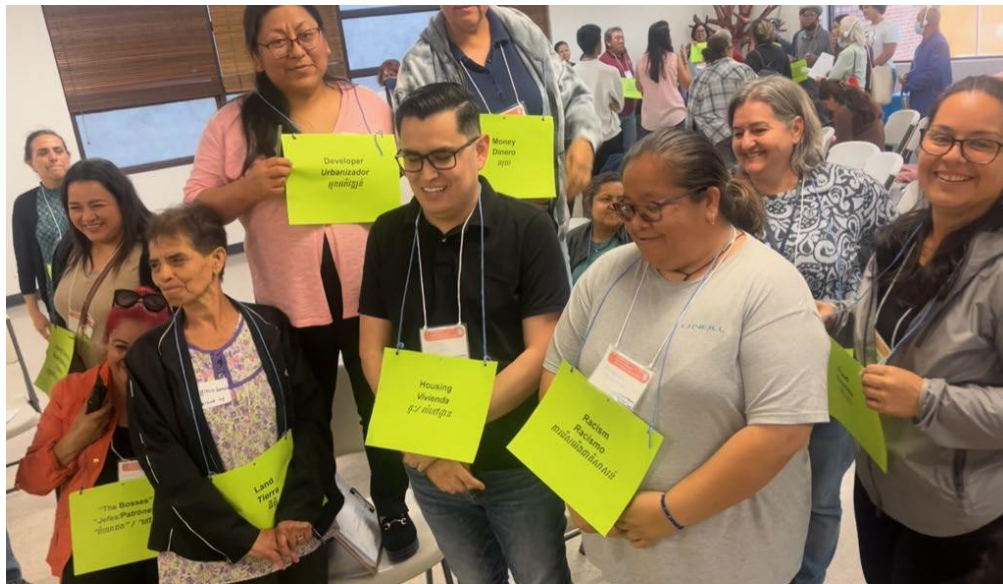


The participant portrayed a worker stepping on a representation of “money” to demonstrate the challenge of the existing unequal power structure in their ideal economy.

## Institutions, Racism, and the Economy

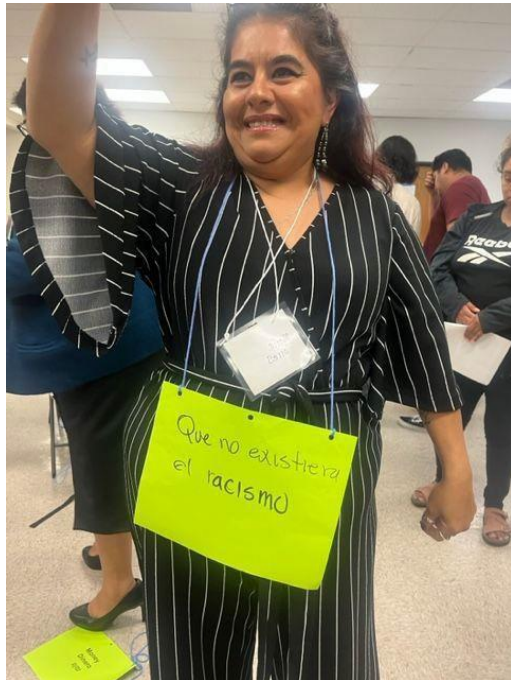
The issue of racism was a prominent topic of discussion in all theater groups. In one group, participants noted that despite their attempts to get ahead, working-class people of color always face additional barriers due to institutionalized racism. In another group, a participant wearing the “racism” name tag walked encircling all members in her group, particularly land, money, and development (Figure 3), emphasizing how racism affects various institutions at all times. In contrast, one representation of the “ideal” economy portrayed racism as being eradicated and destroyed (Figure 4), indicating an aspiration for a society free from racism.

**Figure 3.** “Racism Everywhere”



The participant representing “racism” moved around others representing developers, land, and money.

**Figure 4. End of Racism**



Participants changed the label from “racism” to a new one that reads “*Que no existiera el racismo*,” or “that racism no longer exist.”

### **Land, Connection, and Future Generations**

Participants mentioned unity and togetherness, and feelings of happiness and relaxation when creating their image of the ideal economy. Land was connected to feelings of peace and home. For example, a participant represented the earth and stated, “I am the land. I have housing, and I can stay in my town ....on my small piece of land, and I live in peace.” In contrast, land and the climate were also portrayed in the current economy, represented by a woman fanning herself to represent global climate change. Another participant, an older woman holding the “Climate” nametag, commented that the current economy is harming the Earth, which is the source of all wealth and well-being. In the ideal economy, participants portrayed necessary alliances so that “citizens, land, city council or government could all collectively work towards conserving the environment for our children and future generations.” The ideal economy was one where basic human needs were met, including food security (“Nadie debería pasar hambre”), housing for everyone, and fair work and wages. One participant noted that an ideal economy is one where the average worker could work four days and rest three. In the images of the ideal economy, participants representing schools, students, unions, children, and youth linked arms to demonstrate their alliance to better the lives of workers and future workers “because we are all workers.”

Figure 5 illustrates a primary distinction in the representations of the ideal economy, wherein marginalized groups, including elders and youth, are integrated with decision-making groups, in contrast to depictions of the current economy that portray them as dispersed and distant. Participants in the group emphasized that coming together is key to addressing these power imbalances.

**Figure 5: Community Connections in the Ideal Economy**



A primary distinction in the representations of the ideal economy was *connection* and collaboration that altered unequal power dynamics. One group represented workers bumping fists with investors, with the support of City and County elected. Another group depicted parents, youth, students, and k-12 schools working together. Another group of colleges and community organizations were placed side by side.

These depictions represent a community-based analysis of the current economy from the perspective of local workers and low-income residents. Overall, the participants' vision focused on the relational, material, and emotional aspects of a thriving economy. They highlighted the economic marginalization of workers, the negative implications of a concentration of power and resources, and the importance of having access to land for peace and connection. They also noted the pervasive nature of racism and the additional barriers faced by working-class people of color. Participants' vision emphasized the importance of alliances and a sense of togetherness.



## Focus Group Results

The focus group results are divided into three sections. The first section presents the examples provided by participants of actions they have taken to improve their families' economic well-being. The second section highlights the themes that emerged when participants shared their insights on successful strategies. The third section covers the obstacles and challenges they encountered while striving to improve economic well-being.

### Participants Acted Individually and with Others to Improve Their Families' Economic Well-being

Participants reported taking on varied roles and responsibilities in their community to improve their economic well-being. These activities ranged from individual actions to collective activities that helped improve economic well-being at the community level. Some individual activities to improve one's family's economic well-being included furthering educational and training experiences and even changing careers to find a better job or supporting family members to do so. Yet, these strategies were often insufficient, and participants enacted strategies such as working multiple jobs and some informal revenue-generating strategies, such as renting out rooms and food vending, to obtain additional income. Sharing expenses like dividing up household expenses such as rent and food between their own and other families is an example of strategies to make ends meet. Some community members were developing their cooperatives, pooling funds, and starting their micro-businesses. Community-based support came from mutual aid, providing services like childcare and carpooling, and sharing information with others. Many of these forms of mutual aid occur informally, though some individuals did receive support from organizations offering food, various forms of financial aid, and support for their cooperatives. To improve economic well-being at the community scale, participants also engaged politically and created new organizations to push for policy changes to transform economic conditions, increase worker and renter rights, and connect families to additional resources, like legal support or housing opportunities.

**Table 2: Actions to Improve Economic Well-being**

Education	Income-generating strategies	Sharing Expenses	Community Based Support	Organizing and Political Participation

Financial education	Multiple employments	Dividing rent among multiple families	Mutual aid	Domestic worker organizations
New careers	Supporting new entrepreneurs	Youth contributing to the rent	Connecting others to resources	Tenant unions
Renter rights	Informal employment	Choosing to not move out	Sharing information	Community organizing
Certifications	Cooperatives	Budgeting and planning	Childcare	Voting
Worker Rights	Renting out rooms	Distributing household expenses	Carpooling	Housing defense
	Micro-business		Community fairs and resources	Passing Rent control
			Food distribution	Legal support and advocacy
			Caring for family members	
			Financial Aid	

In conclusion, participants shared having to enact individual and collective strategies to improve their economic well-being. Individual strategies were often insufficient and required other community-level activities and access to community-based support. Some participants also formed part of community-based initiatives like housing defense to improve overall community conditions.

### **What Worked Well For Participants When Attempting to Improve Their Family's Economic Well-Being?**

Two major themes emerged concerning what worked well: 1. Shared responsibility within the family and neighborhood networks for economic survival, and 2. Empowering settings for professional and leadership development and systemic change. Regarding shared responsibility within the family and neighborhood networks for survival, participants' insights heavily revolved around survival strategies used with family members and



neighbors to meet their most basic needs, such as housing, food, clothing, and a sense of security. Most participants noted that their household struggles economically because of inflation and extremely unaffordable housing. Participants shared what they do to help address these economic hardships, including agreements with their families to share responsibilities to pay for and minimize household expenses. For example, one participant noted that her children, who are young adults, help pay rent. She stated, “Everybody pays rent, even my younger kid pays. My three kids are in school, and they try to cover most of their expenses.” Another participant noted that he attends a local community college as a strategy to work and help pay his parents’ rent.

Participants also discussed their invaluable ties with neighbors and social circles, who share access to basic and free goods. Some participants shared that neighbors help inform them about food banks, free and previously used material goods (e.g., furniture, clothes, electronics), locally or from more economically advantaged areas in the County. One participant said, “I have friends who work in [San Juan] Capistrano, over there in El Toro, and when they have things to give away, quality things, even furniture, they say ‘hey there is a living room [furniture], there is a refrigerator ’ or ‘there is a bed.’ That network. Many people throw them away. Some people throw away good clothes, good shoes, and many people need it, so [we] make that chain like recycling.”

Some participants reported that community-based organizations have provided professional and leadership development classes and organizing opportunities to participate in campaigns to impact macro-level policies. For example, participants noted that they enrolled with community-based organizations and completed financial literacy and group facilitation courses or workshops. Many shared that community-based organizations provided them with the knowledge, skills, and practical experience to participate in local or sitewide political change campaigns that impact many areas of their life, such as rent control and COVID-19 relief. One participant of the Radiate Consulting Orange County cooperative noted that the group provided her workshops “to learn to facilitate...and helped me personally to train myself to manage other areas [of my life].”

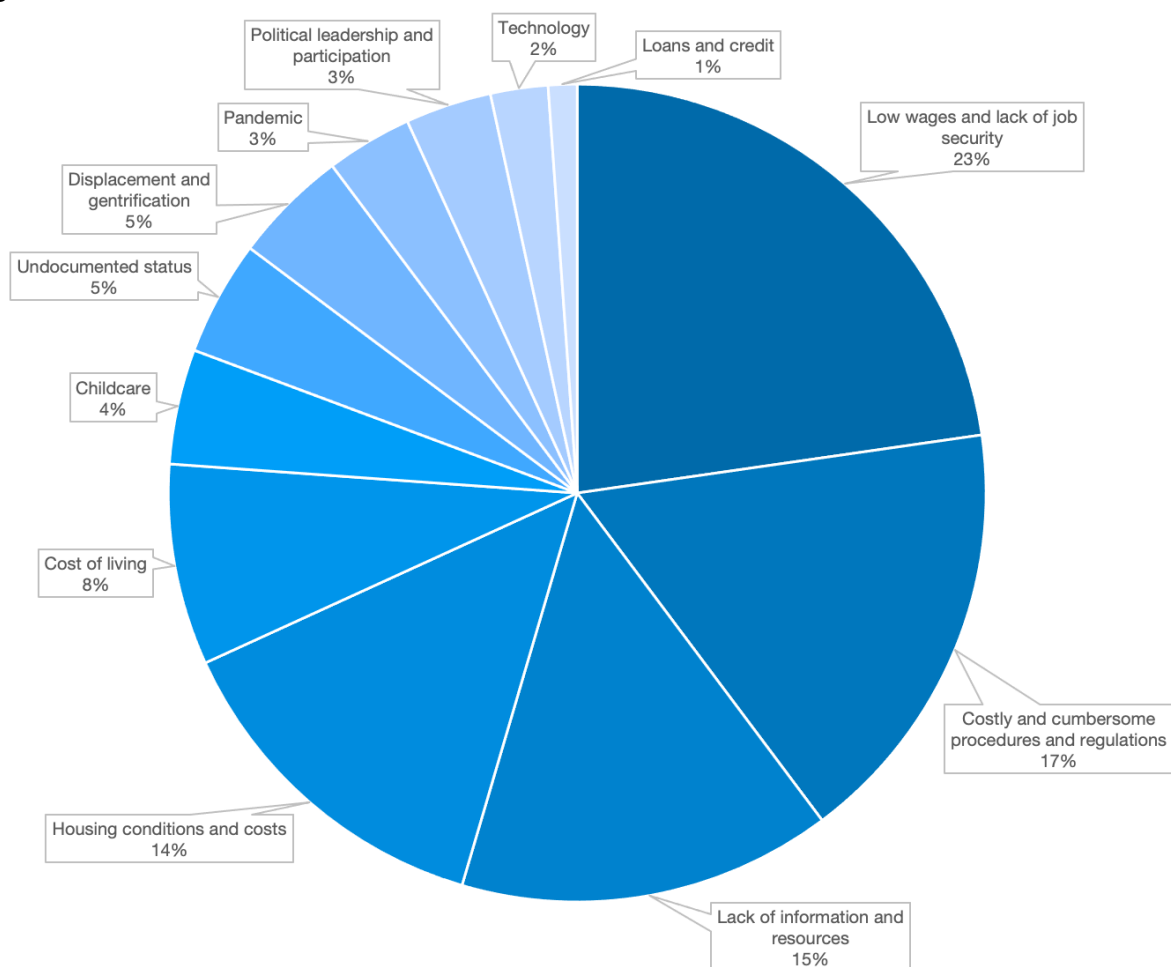
In summary, participants found economic success by sharing responsibilities with their families and leveraging community-based networks and relationships to meet basic needs and foster personal development. Additionally, they actively contributed to policy changes and the overall improvement of their community with the support of community-based organizations.

### **What Didn’t Work Well For Participants When Attempting to Improve Their Family’s Economic Well-Being**

Participants shared the obstacles they faced in meeting their financial needs and the challenges they encountered while striving to improve their economic well-being. Figure

4 outlines the 12 most mentioned obstacles across different groups, while Table 4 illustrates some of the themes associated with low wages, high housing costs, interrupted support networks, and cumbersome policies and regulations. The most prevalent obstacle was surviving low wages and dealing with unstable employment in the face of increasing living expenses in Orange County, accounting for 23% of mentions. Burdensome bureaucratic procedures and regulations involved in obtaining a business license was the next top mention at 17%. The lack of information and lack of access to resources (15%) and housing conditions and costs (14%) were the third and fourth most frequently cited obstacles, respectively.

**Figure 6: Obstacles**



Four overall themes represent the relationships between certain obstacles across the different groups. For example, the cost of low wages was a prevailing theme that pointed to other consequences. Having more than one employment created a barrier to accessing educational opportunities and other resources related to mental, financial health and overall well-being. Low wages made participants increasingly vulnerable in times of crisis, particularly evident during the COVID-19 pandemic. The lack of secure housing was a related but separate theme; paying for housing led to strategies that had their challenges. For example, sharing housing costs between multiple families sometimes led to unsafe spaces for children and a lack of privacy. Sometimes, asking youth to contribute to the rent also meant asking them to postpone their educational goals to attend a university and instead enroll at the local community college. Participants connected the current housing crisis to gentrification pressures, racism, and the resulting loss and dislocation of services, employment, and support networks when people are displaced.

Relatedly, the third theme points to this interruption of community and support networks and the loss of access to resources such as childcare, language classes, financial education, information on housing, and worker rights, among others. The disruption of community networks was coupled with limitations in transportation, language access or interpretation, technology, and fearfulness of approaching agencies for resources due to immigration status. Some participants pointed to the privatization of education and services to explain the rising costs and increased barriers to attending school. Those providing services, like the *promotores*, expressed the feelings of being overwhelmed when they are unable to meet community needs effectively or address the misinformation circulating in the community. Finally, the fourth theme points to the relationship between policy regulations and political accountability. Participants noted the lack of accountability from elected officials in making regulations, business permitting processes, and housing policies responsive to community needs. For example, participants pointed to the failure of elected officials to make the micro-enterprise permitting processes more in tune with the needs of community members.

**Table 3. Themes across the groups**

Four Themes	Representative Quotes
The high cost of low wages, unstable employment, and exploitation	"In my case, I think that the greatest challenge is this...we are living a very fast life, having to have two or three jobs. At what time am I going to self-educate? I am living the problems and I don't have the tools to defend myself right? I get home very late. That doesn't help me. I think the big challenge is [lack of] consciousness." (Worker Benefits Group)
Lack of Secure Housing, Displacement, and mental health	"Making community requires that we spend time living there. So this rent problem is another problem that uproots us. That is, it's not just moving from one to a cheaper home, but it uproots us from our place where we have neighbors who we can go to, where we have the park that we advocated for with

	<p>a hard fight. So all those things also have to be seen as mental health. The issue of housing is much deeper. We cannot build with communities when we have to be moving or searching. And not only that, it not only uproots us from our familiar place, but also distances us from our sources of work and income. So I see this thing about housing as very basic in the sense that it has a lot to do with other things, too, right?" (Tenants group)</p>
Interrupted support networks and resources	<p>"I think that [this applies]to our entire generation because we did not have the capacity to have the resources to access technology. I remember that five years ago there was still accessibility in schools in the community centers in community colleges but now they have privatized it so much that you no longer have that access. And they have changed the hours so much that we can no longer have that access like [we did] 5 or 6 years ago to go study English, to study computing. Because now they have made it into a business so it is no longer free for the community to have that accessibility" (Cooperatives group)</p> <p>"Honestly, I say 'wow!' I mean, I never thought that this small amount could make them so happy in certain moments, or it could be a moment of difference in a family. But there are families that even if you take a lot of time, you will always know that it is not enough and [feel] like you did not do your job well." (Community Organizers and Promotoras)</p>
Permitting procedures, policy regulations, and political accountability	<p>"The problem we have is the famous licenses that the city [requires]. And that they are very high [in costs]. Well, informally, many, many businesses work. Many businesses work, but what we want is for this informality to become formal, not to be afraid about how we would achieve it." (Neighborhood-level organizations and renters)</p> <p>"He really said that he just really wants the governor to really lower the price of housing...He really really wishes that the housing is much lower because this is his main fear and concern." (Cambodian elder group)</p>

The analysis of obstacles *per group* illustrates some collective and unique economic challenges (see Table 5). While every group mentioned low wages as a primary challenge, other obstacles were specific to their groups. For example, the community organizer and promotora group, the workers benefits groups, and the micro-enterprise group were the three groups to mention undocumented status as a barrier to accessing

information and fundamental resources. In another example, the micro-entrepreneurs group was the only one to mention the lack of technology as a barrier, potentially pointing to a specific need they currently face.

**Table 4. Most Cited Obstacles per Break out Group**

<b>Break Out Groups</b>	<b>Most Cited Obstacles</b>
Domestic Workers	Wages, pandemic, child care, lack of information, displacement, housing costs, exploitation, and gentrification.
Community Organizers and <i>promotoras</i>	Lack of information, pandemic, undocumented status, wages.
Homemakers	Childcare, cost of living, lack of information, wages.
Neighborhood-level organizations and Renters	Housing costs, conditions, regulations, wages, cost of living, pandemic, loans and credit, displacement, racism.
Cooperative Workers	Costly and cumbersome permitting procedures and regulations, political leadership and participation, lack of information, resources, and wages.
Worker Benefits	Childcare, lack of information and knowledge of rights, wages.
Micro-entrepreneurs	Undocumented status, costly and cumbersome permitting procedures and regulations, wages, childcare, and technology.
Other sectors	Lack of information, wages, and housing costs.
Other sectors	Housing costs and conditions, regulations.
Cambodian Elders	Living costs, wages, political leadership and participation, and housing costs.

In summary, participants faced challenges from low wages, high housing costs, interrupted community networks, and cumbersome and unresponsive policies. Multiple jobs left little to no time for education, family, and well-being. Housing costs led to extreme difficulties, such as sharing expenses, displacement, and disruption of support networks. Language barriers and fear of approaching agencies due to immigration status made accessing resources difficult. Some groups pointed to their disenfranchisement despite their political participation.

## Conclusion

The community forum provided an entry point to the lived economic experiences and concerns of participants who may represent among the most extreme economically challenged communities in much of today's urban contexts. We end this report with the forum highlights, five recommendations, and lessons based on Cooperacion Santa Ana's and THRIVE Community Land Trust's PAR efforts.

There are three forum highlights. Participants:

1. Emphasized the importance of relational, material, and emotional aspects in creating a thriving economy.
2. Stressed the importance of accessing community-based support to improve economic well-being at both the individual and collective levels.
3. Shared financial costs with their families, leveraged community-based networks, and contributed to policy changes for overall community improvement. However, persistent obstacles were low wages, rising housing costs, lack of resource access, and cumbersome permitting processes for micro-businesses and cooperatives.

The seven recommendations are intended to inform the strategic planning of Cooperacion Santa Ana, THRIVE Community Land Trust, and CERF partners.

### **Recommendations**

1. Support and uplift community participatory action research as an invaluable approach to capture and involve underrepresented voices and design future initiatives to provide sufficient resources and time for an iterative process with residents.
2. Invest in community-based organizations with long-term relationships and experience working with underserved communities (such as those included in this study), strengthening their networks and community organizing efforts that connect underserved communities with resources and advocacy.
3. Support the development of cooperatives, micro-enterprises, and organizations that increase wealth and decision-making power in disinvested communities, and increase affordability and access to resources, including food, child care, healthcare, affordable housing, and worker rights.
4. Track and resource existing and new policies and initiatives in Orange County meant to alleviate the housing crisis and increase affordable housing options, especially those for families who represent the lowest tiers of the Area Medium Income and which increase local ownership and political participation, including community land trusts, housing cooperatives, rent stabilization, tenant opportunities to purchase or first right of refusal, and non-citizen voting.
5. Develop policy proposals to support economic projects and strategies that decrease costs and provide incentives for organizations, micro-businesses, and worker cooperatives, in need of planning and development support.
6. Create regional taskforces, including city and county representatives, that meet periodically with community-based organizations and micro-businesses from historically disinvested communities, permitting processes, code enforcement, and other regulatory mechanisms.



# Our Economy Community Forum 2

## Report for CERF-OC



Cooperación Santa Ana & THRIVE Santa Ana CLT

## Introduction

As part of Orange County’s Community Economic Resilience Fund (CERF-OC) initiative, and building upon deeply rooted local work, Orange County organizations have invited residents from disinvested communities to take ownership of the economic development process. As offered in a [first report<sup>3</sup>](#), an equitable and sustainable economy that fosters long-term community resilience must intentionally include the people and groups most impacted by inequality. On October 12, 2023, Cooperacion Santa Ana and THRIVE Santa Ana Community Land Trust, with community partners including Latino Health Access, The Cambodian Family, Radiate Consulting Orange County, and outreach workers Maria Aguilar, Maria Andrade and Carmen Cuellar held the second of three community forums. This second community forum included a report back from the first forum, including community analysis on the current state of the OC economy. Building on input from the first forum, the second forum sought to highlight and prioritize community-based strategies and solutions for economic development. The “Our Economy” forums aim to ensure that CERF-OC is grounded in the perspectives, cultures, priorities, and concerns of Orange County’s disinvested communities, the intended beneficiaries of the CERF initiative.

The following sections provide an Executive Summary, findings, recommendations, methodology, and an analysis of data gathered at the second community forum.

## Executive Summary

*“Como ama de casa, yo pienso que la economía de un país o de una nación, empieza desde ahí con nosotros como amas de casa, porque si nos damos cuenta...el dinero, la cantidad que tengamos, nosotras tenemos que distribuirla y generalmente creo la que toma las decisiones más fuertes en el hogar es la mujer.”* English translation: *“As a stay-at-home parent, I think that the economy of a country or of a nation starts with us in the home, because when you think about it... The money, the amount we have, we have to distribute it and generally I think the one who makes the strongest decisions in the home is the woman.”* – Response from one participant in response to the focus group question, “What sectors do you think about when trying to benefit a large part of our community?”

The experiences of disadvantaged communities were well represented at the forum, with almost 80% of the over 150 participants being from Santa Ana zip codes. Participants’ occupations ranged from “amxs de casa” (homemakers or stay at home parents), domestic workers, community health workers, and small business owners. In focus group discussions, many participants shared personal experiences that directly inform many CERF-OC areas of interest, including strategies for economic equity, economic diversification, health and environmental equity. Other responses signaled where community members see room for improvement or conduits for change. A common

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<sup>3</sup> <https://www.thrivesantaana.org/par-report>

sentiment was that although some resources might exist to improve economic attainment (e.g. permits for home based businesses), these are often insufficient, and too many people face systemic barriers to accessing these resources.



*Two photos above display focus group discussions during the event.*

## **Main Findings and Recommendations**

The following are findings and recommendations most highlighted by residents. More detailed information can be found in the later section, “Data Summaries and Analysis.”

- Domestic workers (professional housekeepers and caretakers) and stay-at-home parents shared overwhelmingly that their work is undervalued, unpaid or underpaid. Recommendation: Implement policies and programs to provide adequate pay and economic support for these significant sectors in Orange County.
- Participants shared many recommendations to check the rising cost of living in Orange County, including reducing the cost of housing, gas, and utilities including electricity and internet.
- Higher pay for low-wage workers. “Skilled labor,” in this report, refers to a sector which requires laborers to have specialized skills, many of which have traditionally been considered “unskilled” (a term which can be offensive and inaccurate). These are currently low wage jobs such as food handling, childcare, auto mechanic/repair, landscaping, and many other types of work. Many responses indicated a desire for these types of jobs to have higher pay, and an increase in paid training to entice more workers into these skilled labor positions.
- The formalization of home-based businesses and micro-business activities was offered as a means to increase opportunities and income for many of the participants.



## Methodology

The second “Our Economy” community forum built upon the first forum, designed in collaboration with community based researchers Erualdo Gonzalez and Carolina Sarmiento. Informed by Participatory Action Research (PAR) methodologies, this forum series invited residents of Orange County’s disinvested communities to provide their perspectives and experiences with the local economy, to guide the CERF-OC initiative.

Outreach for the forum was conducted by community partner organizations and contracted organizers in Spanish, English, and Khmer. With grassroots partners including Cooperación Santa Ana, Radiate OC, Santa Ana Building Healthy Communities, The Cambodian Family, Latino Health Access, and THRIVE Santa Ana, many residents contributed to outreach with the understanding that this was an opportunity for local residents who have been historically excluded from economic development initiatives to provide guidance for the CERF initiative. Accessibility support including childcare, transportation, a meal, and gift cards for participants were offered in consideration of many of the material barriers for participation of low-income families and community members.

The image displays four posters for a community forum, arranged in a 2x2 grid. Each poster features a colorful sun logo with a rainbow-colored center and a cartoon illustration of a woman holding a child. The posters are for 'Nuestra Economía Foro Comunitario Parte 2!' and 'Our Economy Forum Part 2!'. The top-left poster is in Spanish, the top-right in English, the bottom-left in Khmer, and the bottom-right is a Khmer version with additional details and logos. All posters specify the date as Thursday, October 12, from 5:30-8pm at 450 W 4th St. They include registration links (bit.ly/nuestraeconomia2), QR codes, and a 'RSVP' section. The Khmer poster also lists partner organizations like CIELO and Cooperación Santa Ana, and mentions a meal and gift cards for participants.

**Top Left (Spanish):** Nuestra Economía Foro Comunitario Parte 2! Jueves 12 de Octubre 5:30-8pm 450 W 4th St. Regístrese bit.ly/nuestraeconomia2. Si no vino al primer foro, ¡está bien! Compartiremos lo que escuchamos en el primer foro, y discutiremos que estrategias priorizar. ¡Necesitamos escuchar de usted!

**Top Right (English):** Our Economy Forum Part 2! Thursday October 12 5:30-8pm 450 W 4th St. RSVP: bit.ly/nuestraeconomia2. If you didn't make it to the first forum, it's ok! We will share what we heard at forum #1, and discuss which strategies we want to prioritize. We need to hear from you!

**Bottom Left (Khmer):** វេទិកា សេដ្ឋកិច្ចសហគមន៍ របស់យើង រៀបចំឡើង! ថ្ងៃព្រហស្បតិ៍ ទី១២ ខែតុលា អាសយដ្ឋាន៖ 45 W 4th St Santa Ana ចាប់ពីម៉ោង៖ ៥:៣០-៨pm. សូមមេត្តាចូលរួមផ្តល់មតិយោបល់របស់អ្នកដល់យើង។ យើងនឹងចែករំលែកនូវលទ្ធផលដែលបានឮពីអ្នកទាំងអស់គ្នា។

**Bottom Right (Khmer):** សូមអញ្ជើញចូលរួម វេទិកា សេដ្ឋកិច្ចសហគមន៍ របស់យើង រៀបចំឡើង! ថ្ងៃព្រហស្បតិ៍ ទី១២ ខែតុលា អាសយដ្ឋាន៖ 45 W. 4th St. Santa Ana ម៉ោង៖ ៥:៣០-៨:០០យប់ ចុះឈ្មោះ៖ @ bit.ly/nuestraeconomia2 ឬនៅទីនេះ: ទទួលបានកាតរង្វាន់លើកទឹកចិត្តសម្រាប់ សិក្ខាកាមដែលចូលរួម! មានជួយមើលក្មេងតូចៗអោយ ត្រូវការមធ្យោបាយ ធ្វើដំណើរ? សូមប្រាប់ ឲ្យយើងដឹង!

Outreach was conducted in English, Spanish, and Khmer (by The Cambodian Family)

In a PAR process, research questions are developed in collaboration with impacted community members. In this case, due to the time constraints of the CERF initiative, questions were reviewed and revised together with the partner organizations named above, many of whom have extensive experience leading outreach and community planning processes. Partner organizations reviewed and contributed to the forum design, as well as proposed questions for the small discussion groups. A training was hosted for community-based facilitators to guide these group discussions, and to prepare to adequately capture residents' ideas.

The forum itself began with an overview of the CERF initiative, and sharing the findings from the first forum in June. This allowed residents who had not attended the first forum to be caught up in discussions around the CERF initiative, and those residents who did attend forum number 1 were able to reflect and comment whether or not their input had been adequately captured.

After presenting the analysis from the first community forum in a large plenary, focus groups were formed for more participative discussion. Focus groups ranged from 5 people all the way to 20 individuals, based on occupations listed on the registration forms. Each focus group's facilitators utilized post it notes and voice memo recordings to capture responses. Participants were free to respond or not to each question. Responses were then entered into a spreadsheet and in some cases coded into themes for further analysis.

## **Data Summaries and Analysis**

This section provides summaries of participants' responses during focus group discussions, with a preliminary analysis of themes and other points of interest. As mentioned above, groups were formed based on occupation, or other common experiences or sectors. More on the creation of group categories is provided in the first forum report.

### **Question 1: What local and regional policies could there be in your sector/experience to make a difference in your economy?**

Disinvested community residents overwhelmingly expressed a need for more income, particularly naming types of work that are generally unpaid or undervalued: domestic workers, street vendors, small and micro-businesses. In response to the question, many participants offered possible strategies to resolve or alleviate many of the hurdles that were mentioned. Responses ranged from creating a source of income for homemakers, fair pay for domestic work, facilitating other sources of income, making permits more accessible for cottage or home-based businesses, street vending and other micro-businesses, employment for disabled individuals, and compensating students for going to school.

<b>Response theme:</b>	<b>Count</b>
Income for domestic work	7
local representatives valuing community members	3
Social security	2
Domicile business permits	2
local representatives economic policies	2
a place to street vend that isn't dangerous for customers or street vendor	1
Business permits	1
childcare	1
community approved resources	1
educational opportunities	1
fair rents	1
Getting paid to study	1
high cost of living prevents youth from succeeding at completing academic careers	1
MediCal	1
more scholarships for students to become nurses or doctors	1
more studying opportunities	1
more work for people with disabilities	1
parking for Santa Ana residents	1
policies against excessive costs	1
resources to learn new skills	1
training for youth	1
base rents prices wages on percentage of inflation	1
better hospital services	1
better wages	1
business education to sell online	1
Community banking	1
Computer workshops for older people	1
decrease gas prices	1
decriminalizing street vending	1
Domicile permits	1
Employment Opportunities for disabled people	1
find ways to reduce costs	1
grow the number of Latino doctors and public servants	1
health insurance	1



increase food production	1
Increase Social Security payments	1
increase wages	1
Internet accessibility	1
investing in shelters for houseless people	1
lack of affordable housing	1
Livable wage	1
make electricity publicly owned	1
More activities for youth	1
more safety in the streets and street lighting	1
Participation in environmental justice	1
participatory budgeting in public funds	1
police should not discriminate against Santa Ana residents or take so much money	1

**Question 2: What interventions do you recommend to reduce costs of living based on your sector/experience?**

The top response indicates that participants simply can't keep up with increasing prices for basic needs. Some suggestions for reducing costs still focus on the individual's ability to keep costs down (cook food at home instead of eating out, turn off lights and electronics when not in use). However, apart from individual actions to reduce costs, many participants identified policies that can assist with reducing costs at a public level as well. The second top response indicates one policy that was mentioned throughout the forum, showing that participants are aware that rent stabilization can help residents afford other basic necessities. Indeed, the cost of housing is one aspect which many if not all participants were majorly aware of with many response types touching upon the topic of housing costs in one way or another. A noticeable lack of response to this question was the focus group comprised of individuals who fall in the category of worker benefits. Apart from responses pertaining to household costs were some responses which pertain to life in community, for example "supporting small businesses" or responses that indicate a need for a cultural shift "for politicians to be more responsive to community needs".

<b>Response type:</b>	<b>Count</b>
decrease individual costs of basic needs	9
rent control	4
financial education	2
food manufacturers/distributors should reduce prices	2

government should decrease taxes	2
fair rents and decrease the cost of rental deposits	2
solar panels to decrease energy bills	2
(no response - worker benefits group)	1
address/reduce shame of applying for subsidies and other financial assistance programs	1
affordable housing	1
cultural paradigm shift so husbands share financial decision making with their wives	1
for politicians be more responsive to community needs	1
government should control the cost of basic needs	1
government should control/reduce the cost of water, trash and other utilities	1
health	1
higher paying jobs, resources to find/qualify higher paying jobs	1
housing	1
improve the health sector	1
increase government subsidies for electricity and internet	1
increased accessibility to purchase homes	1
make the process of applying for financial assistance easier/more accessible	1
more community spaces	1
more opportunities to go to school	1
more projects to help small business owners	1
recognition of workers/sectors that go unrecognized	1
reduce the cost of rent	1
safer parks	1
supporting small businesses	1
Total	44

**Question 3: What sectors or industries do you think about when you think about benefiting a large part of our community? Ex) Food? Domestic work? Mechanics? Landscaping?**

Many community members who responded to this question may have a different understanding of the word "sector" than that which is held by higher level decision makers. Many responses came from a place of lacking resources and benefits as well as a desire for increased access to resources for benefitting a large part of the community. The phrasing of the question at times resulted in direct responses "Cuidado de niños" [child care] for example, while many responses were less direct, more generally describing sectors that play a large role in Santa Ana's communities. The top response was a

category which we have named "skilled labor," which includes specialized work including professional cooking, cleaning, and caretaking. The second top sector that respondents think about benefiting Santa Ana's community is the sector of business development. Many responses indicated that having access to resources to start a business enterprise - whether it be co-op, home-based, or otherwise - and understanding how to navigate bureaucracies therein benefits Santa Ana residents - even if access to such is currently lacking. The other "sectors" that people responded with are shown below. One last finding of interest is in one group where this question resulted in additional questions regarding the outcomes of this process: "How do I know that what is proposed will become a project that will actually be carried out?" [translated from Spanish]. This type of response is not accounted for in any of the "sectors" listed below, but nonetheless show that many community participants are looking with expectation to the results of this process.

Sector	Sector description	Count
Skilled labor	<p>Typically called "unskilled labor" (a term which can be offensive if not inaccurate) or "low-wage" labor, these responses pertain to the types of employment which require an individual to have specialized training in a specific field such as food handling, childcare, auto mechanic/repair, landscaping, etc. Many responses indicated a desire for these types of jobs to have higher pay or an increase in paid training to entice more workers into skilled labor positions.</p> <p>Típicamente llamado "mano de obra no calificada" (un término que puede ser ofensivo si no inexacto) o mano de obra "de bajos salarios", estas respuestas se refieren a los tipos de empleo que requieren que una persona tenga capacitación especializada en un tipo de trabajo específico, como manipulación de alimentos, cuidado de niños, mecánico / reparación de automóviles, paisajismo, etc. Muchas respuestas indicaron el deseo de que este tipo de trabajos tengan un salario más alto o un aumento en la capacitación remunerada para atraer a más trabajadores a puestos de mano de obra calificada.</p>	20
Enterprises/co-ops/home-based business development	These types of responses generally pertain to a desire for self-directed income via any of the following: small business, a home based business, co-op business, and/or any desire to gain access to knowledge or resources pertaining to such.	14
Cultural (includes education)	These types of responses pertain to values and literally "las culturas" but also includes sentiments related to access to participation in formal/traditional educational institutions.	10
Housing	These responses relate to anything pertaining to housing whether it be a desire to limit rent increases, or making housing more affordable.	7
Community financial education and institutions	These types of response indicated a specific desire for community based local financial education and resources whether it be a literal community bank, lending at low interest rates for businesses or housing, or a general desire to have more money given rising costs of living.	6
Medicine	There was only one response which indicated the medical sector benefits a large part of the community in Santa Ana.	1

#### Question 4: What strategies are important to improve opportunities and salaries in your sector/experience?

Participants' responses to this question provide a fundamental perspective on our regional economy, essential for the success of the CERF-OC initiative. The first table displays a categorization or types of strategies proposed by participants, and the table further below displays participants' responses in greater detail. The most common type of response referred to strategies for increasing income or access to financial support including low-cost loans for small businesses and community banks. Ideas around taxes were included in this category as well, named "finances, taxes, and income." A related category referred to strategies around "material resources and support," ranging from providing childcare, to training on how to start a home based business. A third category, "cultural representation" encompasses strategies for better representation of disinvested communities among local organizations, public agencies and elected officials. These institutions largely rely on the work of community members who face systemic disadvantages, and should be accountable accordingly. Lastly, the category of "skills development" reflects the need for greater training and education resources and access to such resources, whether for increased ability within one's existing area of work, or to gain education and remain resilient economically in new areas.

Category of strategy	Count
finances, taxes, income	19
material resources and support	18
cultural representation	17
skills development	15

Response type	Count	Category of strategy
Have a formalized home based business	4	finances, taxes, income
Groups and organizations should be held accountable to community	3	cultural representation
financial training/education	2	finances, taxes, income
learn how to do marketing	2	skills development
template/model for creating a cooperative	2	skills development
a law that recognizes/ protects women who choose domestic work as an occupation	1	cultural representation
banks with low interest loans for small businesses	1	finances, taxes, income

better paying jobs, laws which protect workers	1	finances, taxes, income
budget trainings/education	1	skills development
childcare	1	material resources and support
community fund for insurance	1	finances, taxes, income
control the cost of taxes	1	finances, taxes, income
create a center for job training/education	1	skills development
create a community bank who offers low interest rates on loans	1	finances, taxes, income
create agency to create and connect workers to high paying jobs	1	finances, taxes, income
create jobs in childcare for moms	1	finances, taxes, income
cultural shift regarding employment	1	cultural representation
ensure funding for caretakers	1	finances, taxes, income
entice auto and manufacturing for jobs in OC	1	finances, taxes, income
fair rents	1	material resources and support
financial assistance for small businesses	1	material resources and support
financial assistance to cover the cost of childcare	1	material resources and support
financial support to cover business licensing fees	1	material resources and support
financial training	1	skills development
for domestic workers to be recognized for all the ways in which they impact the home and the economy	1	cultural representation
for the system to formally recognize domestic worker as an occupation/sector of work	1	cultural representation
increase benefits to part time workers, like medical insurance	1	material resources and support
increase MediCal eligibility	1	material resources and support
increase taxes for the rich/corporations/ investors	1	finances, taxes, income
increase the number of engineers	1	finances, taxes, income
increased opportunities to go to school/access an education	1	skills development
invest in street vendors so that they can have avenues to generate an income from home	1	cultural representation
know your rights trainings	1	skills development
know your rights trainings for immigrants, parents	1	skills development

low interest loans	1	finances, taxes, income
marketing for small businesses	1	skills development
more attendance at community forums	1	cultural representation
more childcare centers for lowincome workers	1	material resources and support
more information dissemination for currently existing programs	1	cultural representation
more occupational training without regard to age, immigration status	1	skills development
more opportunities to go to school/ get an education	1	skills development
more unions	1	cultural representation
no rent increases Worker benefits group	1	material resources and support
place cameras in certain areas to prevent theft	1	cultural representation
pressure on public officials	1	cultural representation
prevent financial abuse between married couples	1	cultural representation
programs to support women who are widowed/divorced for a lapse of time until they find work	1	material resources and support
provide childcare	1	material resources and support
recover values and cultural practices	1	cultural representation
retirement plans/programs for immigrant workers	1	material resources and support
security	1	material resources and support
skill development healthcare	1	skills development
skills development	1	skills development
someone's immigration status should not be an obstacle in getting a home loan	1	cultural representation
startup funds for small businesses	1	material resources and support
the people united will never be divided	1	cultural representation
to be paid for childcare	1	finances, taxes, income
training on how to apply for specialized work permits	1	material resources and support
training/education on how to start a business from home	1	material resources and support
training/education to certify mothers to become cooks, seamstresses, estheticians	1	material resources and support
trainings/education to develop businesses	1	material resources and support

Grand Total	69	finances, taxes, income
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**Question 5: Do you know of specific projects that are already underway that are making a difference economically?**

This last question yielded the fewest responses, possibly due to participants running out of time, the wording of the question, or other factors. The responses that were offered are varied, and informative. Three groups had no responses indicating that participants may have run out of time to respond to this question. The wording of the question is somewhat open ended, about “projects that are already making a difference.” Some of the programs most mentioned are housing programs and food distribution including urban farming. Space for community markets, for youth, sports and recreation, and educational programs were also mentioned. The responses suggest there is room for improvement, and at least one participant shared that there is often still stigma attached to making use of assistance programs.

Many who shared about existing programs in other questions, did not necessarily list out those programs as making a difference economically. There may be a number of explanations for this. Negative experiences with the official systems and bureaucracies make it difficult to see projects that already are making a difference. For example, one woman from Group 9 shared a personal experience where she was given a ticket by code enforcement for selling tamales out of her car trunk. Ultimately, she recognized that she lacked the proper licenses to be selling food, but was only doing so as an additional source of income to make ends meet. She accepted that she would have to lose out on that income given that attempts at doing so again without the proper licenses might spell more trouble for herself and her family.



Focus Group Description	Responses:
Domestic workers/Trabajadorxs de hogar (limpiadorxs de casas, cuidadores de niños y de ancianos)	none
Homemakers; Amxs de casa (4 responses)	<ul style="list-style-type: none"> <li>-CalFresh para los niños y adultos, amas de casa (increase CalFresh to cover domestic workers)</li> <li>-Edison programas de lamparas para que sea menos reducción de electricidad (programs to reduce the cost of electricity/energy)</li> <li>-Pension para jubilarse (pension programs for retirement like they have in other countries)</li> <li>-No conozco a ningunos proyectos que ya estan en marcha (I don't know of any programs)</li> </ul>
Cooperative workers / Cooperativistas (5 responses)	<ul style="list-style-type: none"> <li>-Seccion 8, vales de vivienda: hay mucha espera, quisiera que inviertan mas en vivienda accesible, que sea más rápido el proceso (section 8 the wait is too long the length of the process should be shortened)</li> <li>-espacios públicos para hacer mercaditos (public spaces to organize open air markets for small businesses)</li> <li>-invertir en granjas urbanas locales (invest in local urban farms)</li> <li>-centros deportivos sin costos (free sports centers/recreational centers)</li> <li>-programas recreativos para implementar la educación desde temprana edad del cuidado del medio ambiente (programs to teach youth how to be mindful of the environment)</li> </ul>
Worker Benefits - Disability, sin trabajo o trabajo inestable, houseless, formerly incarcerated people (8 responses)	<ul style="list-style-type: none"> <li>-Programas de vivienda en Santa Ana, estoy en lista de espera (more affordable housing) (I am on a waitlist)</li> <li>-También agencia del condado de orange que te envia comida (agency in the county that sends food to your door)</li> <li>-Latino Health Access</li> <li>-Trabajadoras del hogar, Centro Cultural de México, estamos haciendo una cooperativa (domestic workers organizing at El Centro to build a coop)</li> <li>-Lugares que estan dando comida por Santa Clara y Grand, LHA, Clínica Dr Meca (places that have pantries/ distribute free food/groceries)</li> <li>-que se respete la nueva ley de 3% en la renta (that the new rent control law be respected by landlords)</li> <li>-todo lo que estamos pasando es por el gobierno, el costo de la gasolina, que se mantengan los precios justos, ayudar más a las personas que producen comida (more support for farmworkers) (decrease cost of gas) (maintain fair prices of goods)</li> <li>-aprender ingles (resources to learn English)</li> </ul>

Micro-empresarixs, vendedores ambulantes, y pequeños comerciantes/ micro-entrepreneurs, street vendors, and small business owners	none
Organizadorxs y Promotorxs, Organizers and Promotores	none
Community-Owned Land and Resident-Led Development, Renters / Inquilinxs, tierras comunitarias, y desarrollo liderado por residentes (2 responses)	-Casas para familias de bajos recursos (homes for low-income families) -Control de renta (rent control)
Otros sectores (trabajadores de otros sectores, estudiantes, otros?) (4 responses)	-Como mercadito comunitario, los pequeños negocios, las cooperativas que ya son sus propios jefes, las promotoras de salud que ya se nos reconocen de pero seguimos en la lucha (community markets) (already established small businesses and worker cooperatives) -Casas de retiro y vivienda digna para las personas de la tercera edad (retirement homes for the elderly) -Queremos votar todos tengan o no tengan papeles (increase voting rights to non-citizens) -estamos esperando la reforma migratoria (waiting on an immigration reform)
one nurse in home, home based businesses like Avon or sell food from home (5 responses)	-control de renta (rent control) -el programa de asistencia de renta no hizo una diferencia porque yo aplique y a dueña no acepto aunque nos daban hasta \$5,000 pero solo se lo entregaban al dueño y ella no quiso (emergency rental assistance did not make a difference, because even though my application was approved, the landlord would not accept the 5k she was being offered) -lugares como LHA donde dan comida/dispensa aunque es penoso (places like LHA that give away free groceries) -que la policía no discrimine a los residentes de Santa Ana (Police officers should not discriminate against people living in Santa Ana) -la biblioteca tienen muchos servicios (the library has many existing services we should use)

<p>Cambodian community members (2 responses)</p>	<p>-existing businesses that can improve are hair salon and barber shops, people have skills that might not be professional but can get training to improve (formal training/certification for workers that have the skills already/would like to acquire them) (support for barbers and hairdressers to obtain their licenses) -training and support for licenses</p>
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## Final Considerations

Data and input from the community is always powerful, while at the same time, gaps in our data can also tell an important story. Two major themes across all focus groups were the need for higher incomes in historically exploitative types of work such as domestic work, and the need for programs to check the rising cost of living in our region, particularly around housing and other basic needs. Many other themes and ideas were mentioned that provide valuable insight, including climate justice and other strategies towards equity. Lastly, many voices are still missing from this process, and could contribute significantly to a better understanding and way forward in Orange County.

The intersectionality between low-wage work and the environment has often been overlooked within discussions of climate change in the United States. Some forum participants, however, shared climate justice solutions and strategies that underline this connection. One participant offered the idea that SoCal Edison should provide families a manner of producing electricity in the home using a bicycle attached to a generator. The price of gas was a common pain point for a sizable number of participants, yet only a few suggested utilizing public transit or policies to entice development of walkable communities - ideas which shift costs and thinking away from the individual and instead towards societal and cultural manners of solutions based thinking.

Another significant factor for disinvested communities mentioned by some participants, is the systematic exclusion from decision-making of large portions of the population. Many participants who are immigrants spoke of their inability to vote on matters of public importance, and how the matter of legal documents can exclude them from many types of public support, such as Section 8. Often even with legal status, additional barriers such as language or technical knowledge keep many from accessing programs.

Similarly, forum organizers noted the absence of voices of formerly incarcerated and system impacted individuals. Theirs is a vital perspective still missing in the CERF-OC initiative. While some outreach was done to groups that work with system-impacted community members, much more collaboration and connection are needed.

Much work is still needed. While the large majority of responses indicated confidence in community organizing efforts, some responses reveal doubts about campaigns seeking community input. One participant asked, “¿Cómo me aseguro que se haran cambios y que no solamente soy parte de un proceso? *How do I make sure that changes will be made and that I'm not just part of a process?* ” This healthy skepticism is often based on lived experiences, wherein public and private entities have utilized public participation without committing to follow through on residents’ ideas or needs. Residents from disinvested communities, particularly those such as forum participants with experience in organizations, often have a clear understanding of real or superficial

inclusion, in decision-making and resource sharing. That's why it is so important to create real partnerships that center the decision-making role of disinvested community members, providing the support and long term commitment needed to make this a reality.

In all responses, participants shared a vision of struggle for a better future, and a need for connection with one another. Solidarity within focus groups allowed for participants to share ideas and information about tough situations, whether related to strategies or sacrifices made to afford the high costs of housing in Orange County. Many participants have lived resilience against difficult odds, and can provide vital insight on the way forward for our regional economy. Others shared the challenge of finding reliable information regarding important matters including insurance, their workplaces, and housing. In seeking better economic opportunities, many participants carry the sense that, so long as trustworthy and transparent methods are employed which honor and give full weight to the experiences of those who are most negatively affected by unjust systems, a better world can be created.

# Regional Summary

## Regional Summary Major Key Points

1. Orange County is a large prosperous economy that has demonstrated a history of resilience and is well- positioned to succeed over the next several years
2. The county faces two large challenges in the next several years: labor force gap and housing gap
3. The county's ability to lift up disinvested communities will depend in part on its ability to provide education and training opportunities for members of these communities, enabling them to participate more fully in the county's future growth.
4. Orange County residents overall achieve better outcomes in terms of higher education attainment, work, and prosperity when compared to statewide averages. This suggests that the County has a strong foundation for economic growth and success, but a closer examination of the data reveals that this success is not evenly distributed across the County. Without addressing these disparities, Orange County risks leaving behind significant portions of its population, which could ultimately hinder the County's overall economic and social development.
5. To build a strong, inclusive economy, decision-makers must prioritize creating effective pathways and programs to and through higher education and onto better job opportunities. By engaging employers to support crafting postsecondary and training pathways that equip individuals with the skills and knowledge they need to succeed in the workforce, Orange County can help to close the opportunity gap and ensure that residents are prepared for the jobs of today and tomorrow. This can also ensure that the skills and knowledge that residents gain are aligned with the needs of local businesses and industries.
6. Transforming higher education to meet the needs of today's students, including adult learners, people with dependents, formerly incarcerated individuals, and those from marginalized communities, presents a significant opportunity for building a more equitable and competitive society. By expanding access to relevant and flexible educational opportunities, decision-makers can unlock new sources of talent and potential, leading to a more prosperous future for all.

## Brief History of the Region

Orange County has been home to indigenous populations for thousands of years. Portions of what is now Orange County are the ancestral homelands of the Tongva and Acjachemen people.

Formed as its own county in 1889, Orange County was a rural area for most of its early

history. The county's name reflects one of its most important crops; other key agricultural products included grapes, cattle and lima beans. The 185-square mile Irvine Ranch included most or all of the cities of Irvine, Tustin, Orange and Newport Beach. In the early 1900s, the city of Laguna Beach (incorporated in 1927) became known as an artists' colony, a hotspot of California Impressionism.

Orange County became home to many military facilities during the Second World War; more than a dozen military bases were established in the county. For instance, the Santa Ana Naval Air Station's blimp hangars remain Tustin icons and are listed on the National Register of Historic Places. In January 1942, the United States Army Air Corps opened the 1,336-acre Santa Ana Army Air Base, a basic training camp which hosted the 81<sup>st</sup> Flying Training Wing. After the war, the base was deactivated and transformed into John Wayne Airport, Orange Coast College and the Orange County Fairgrounds.

The county saw tremendous growth after World War II, with its population increasing from approximately 165,000 in 1945 to 1.42 million in 1970. This period saw the establishment of many county landmarks: Disneyland (1955), California State Route 55 (freeway construction beginning in 1964), the University of California, Irvine (1965) and the highest-grossing shopping mall in the United States, South Coast Plaza (1967). The planned "university city" of Irvine was incorporated in 1971; the postwar era also saw the incorporation of Costa Mesa (1953), Garden Grove (1956), Westminster (1957) and Yorba Linda (1967).

Immigration, especially from Mexico and east Asian countries, has transformed Orange County over the past-half century into one of the nation's most diverse counties. Orange County is now home to 34 cities, two major league sports teams, nine community colleges and a number of universities, including UCI, California State University, Fullerton (UCI), Chapman University and Vanguard University. The county has become internationally famous for its high quality of life. Five Orange County cities made WalletHub's 2022 list of the best places in which to raise a family, including Irvine (3<sup>rd</sup>), which has also gained a national reputation as one of the safest cities in the United States.

Orange County demonstrated significant resilience during the COVID-19 pandemic, which of course disrupted its world-class Hospitality and Tourism industry, as well as every other aspect of life in the county. For instance, after being closed for more than a year and temporarily becoming a vaccine distribution center, Disneyland reopened in April 2021. Despite supply chain and labor force issues, as well as macroeconomic issues such as the threat of recession and continuing inflation, the county economy has rebounded strongly from the impacts of the pandemic, with many industries meeting or exceeding pre-pandemic employment totals in 2022 or 2023.

Please see Appendix B for a brief timeline of Orange County history.

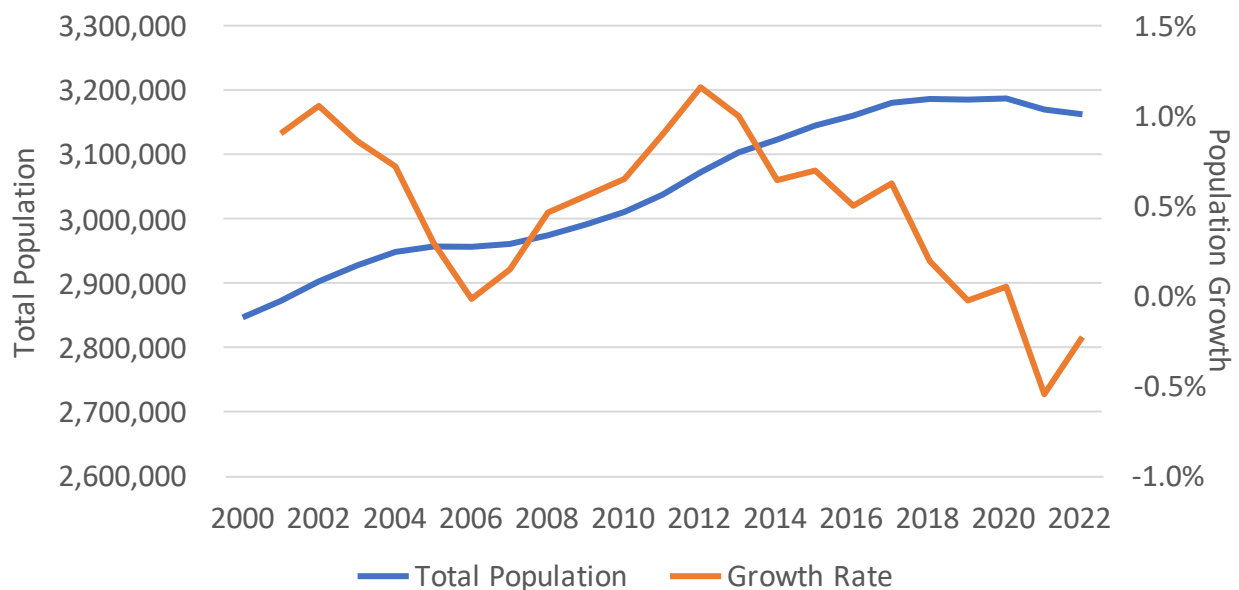


## Demographic Overview

### Dr. Robert Kleinhenz, California State University Long Beach

Located in Southern California with 42 miles of beautiful coastline and a land area of 799 miles, Orange County borders Los Angeles, San Diego, Riverside and San Bernardino counties, as well as the Pacific Ocean. It is the third largest county in California and sixth largest in the nation; it had a total population of 3.162 million as of 2022. Despite seeing its population expand rapidly over the past several decades, the county's population has edged down in recent years, similar to other coastal regions of the state.

#### Orange County Total Population and Population Growth, 2000-2022

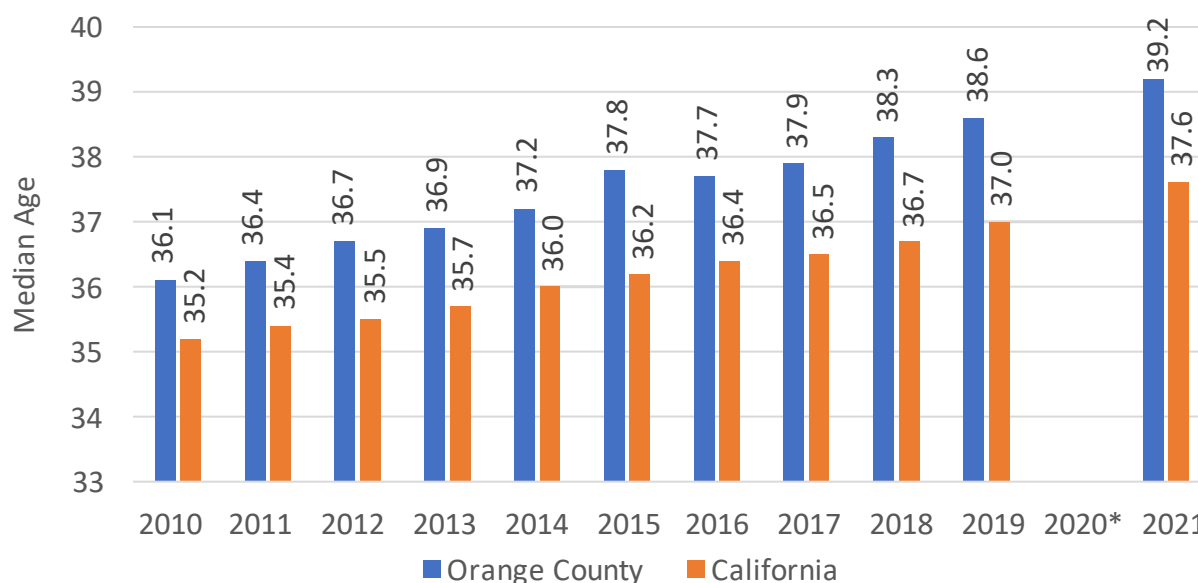


Source: State of California, Department of Finance, *E-5 Population and Housing Estimates for Cities, Counties and the State* — January 1, 2021-2022. Sacramento, California, May 2022.

#### Orange County Age Groups

The median age in Orange County has consistently trended upward since 2010, increasing from 36.1 years to 39.2 years in 2021; the state-level median age saw a slower increase, from 35.2 years to 37.6 years. Given its recent population trends, it is important for the county to continually attract and retain young workers and families – an increasingly difficult prospect due to the already high and constantly increasing cost of living.

## Orange County and California Median Age, 2010-2021



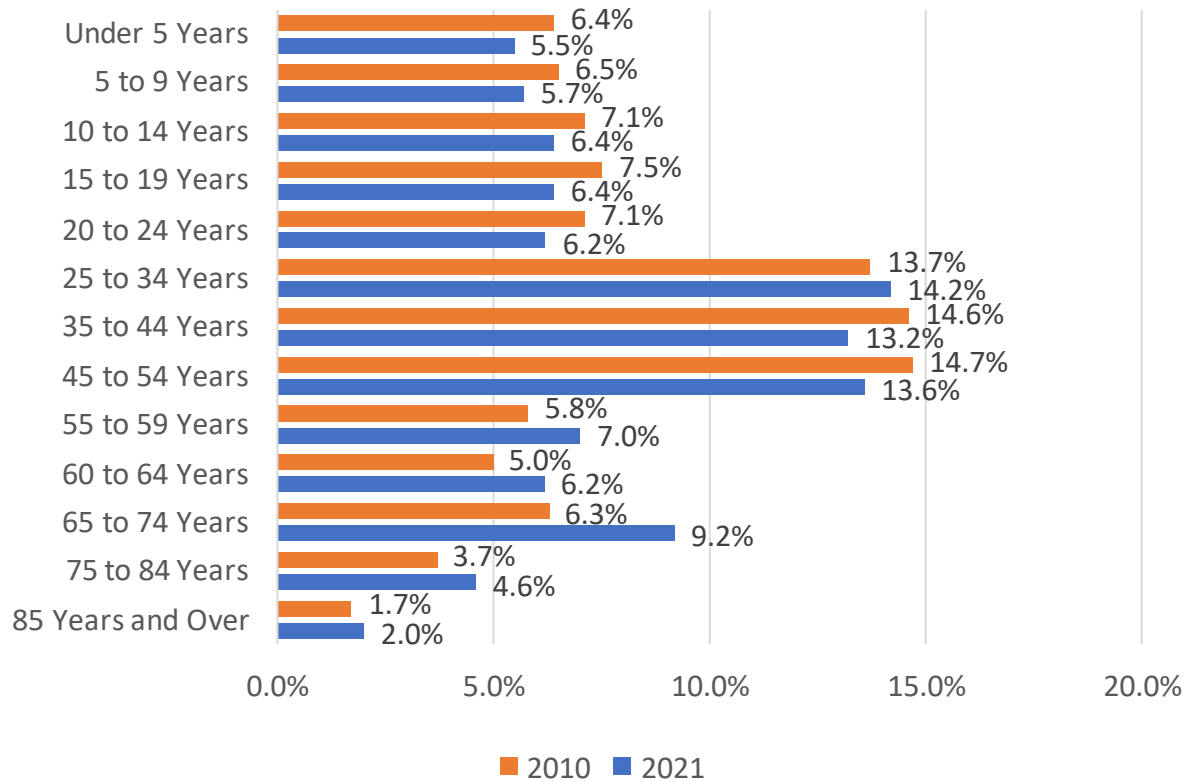
Source: U.S. Census Bureau, American Community Survey, 1- Year Estimates

\*Data for 2020 not available.

Orange County's young populations have been contracting since 2010, while its older age groups have been expanding. The proportion of the population under 19 years of age declined from 27.5 percent in 2010 to 24.0 percent in 2021 while the proportion of 65 years and over age group has increased from 11.7 percent to 15.8 percent. This highlights the rapid, ongoing demographic shift currently impacting Orange County. This trend is also observed at the broader state and national levels. By 2060, Orange County's 19 years and younger population will represent only 19.4 percent of the population, compared to 28.9 percent for the 65 year and older age group.<sup>19</sup>

<sup>19</sup> California Department of Finance. Demographic Research Unit. Report P-2B: Population Projections by Individual Year of Age, California Counties, 2010-2060 (Baseline 2019 Population Projections; Vintage 2020 Release). Sacramento: California. July 2021

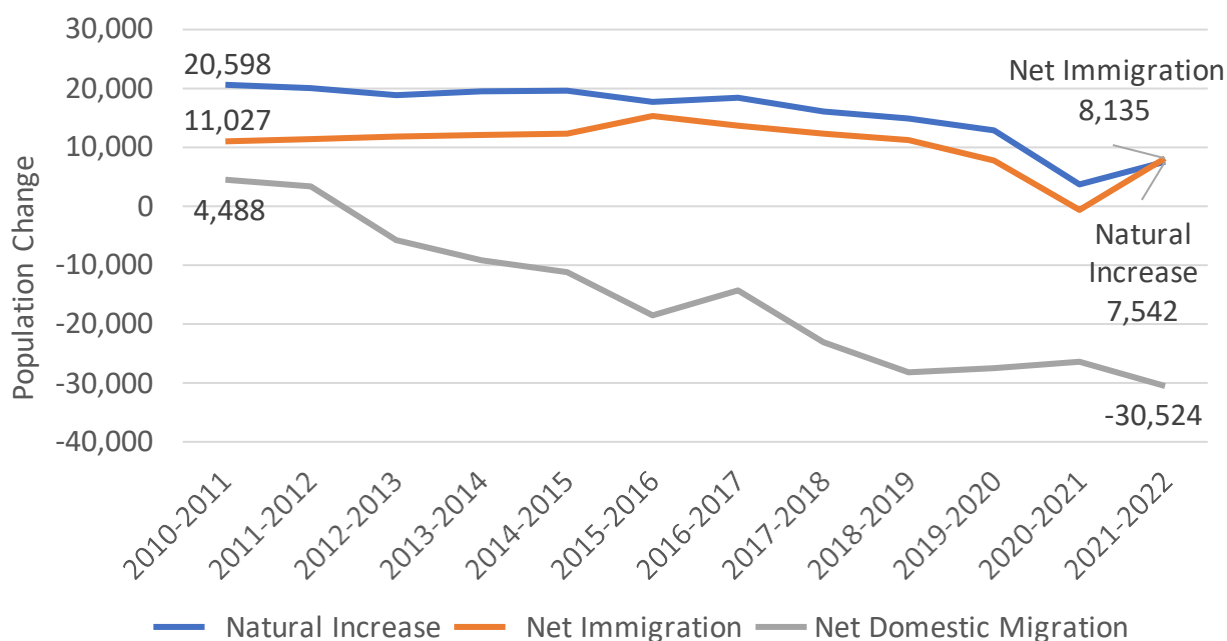
## Orange County Population Age Distribution, 2010-2021



Source: U.S. Census Bureau, American Community Survey, 1- Year Estimates

Over the past decade, the drivers of Orange County population growth have shifted. While natural increase (births minus deaths) declined from 20,598 to 7,542 from 2010-2011 to 2021-2022, net domestic migration shrank from 4,488 to -30,524 during the same time period. International immigration also declined, from 11,027 to 8,135, further highlighting the challenges to population growth in the region. To the extent that the county relies on migration to supplement its own homegrown labor force, these trends have implied greater tightness in an already taut labor market.

## Components of Population Change in Orange County, 2010-2022



Source: State of California, Department of Finance, E-2. California County Population Estimates and Components of Change by Year — July 1, 2020-2022, January 2023

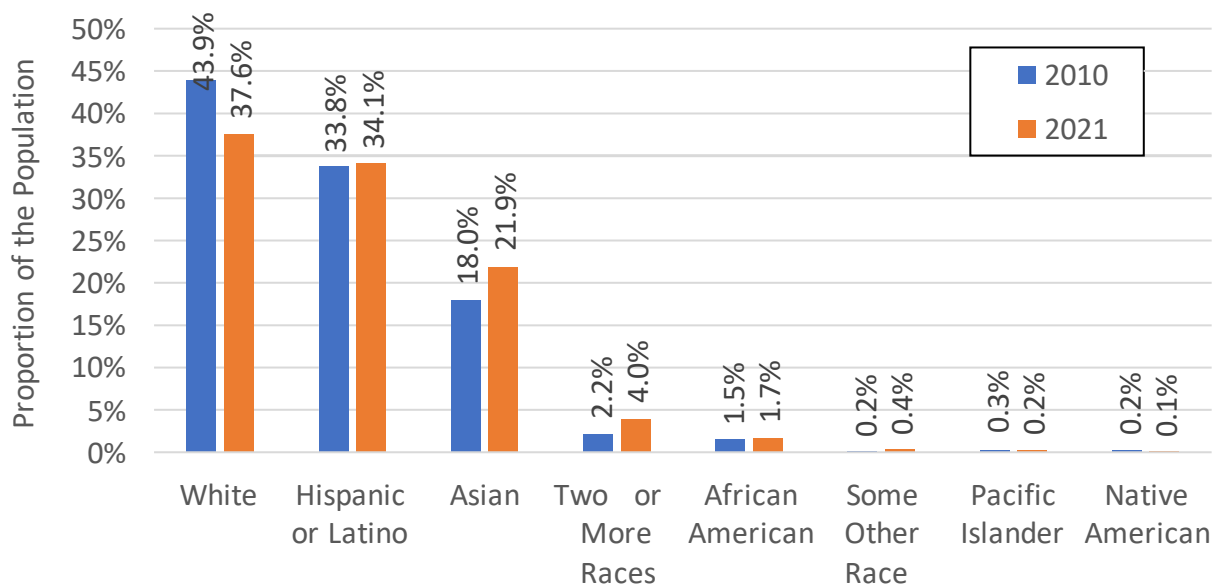
## Orange County Racial/Ethnic Groups

On top of becoming increasingly older, Orange County has also become increasingly more diverse. Between 2010 and 2021, the county's White residents declined from 43.9 percent of the population to 37.6 percent, while the percentage of Asian residents increased from 18.0 percent to 21.9 percent and the percentage of Hispanic/Latino residents rose more modestly from 33.8 percent to 34.1 percent. It should be noted that while the U.S. Census Bureau currently does not track or breakout racial or ethnic data for Southwest Asian, Middle Eastern or North African (SWANA) within its American Community Survey (ACS) Demographic and Housing Estimates; it is estimated that there are nearly 100,000 SWANA residents in Orange County, representing approximately 3.2 percent of the population.

**SWANA Population:** SWANA stands for Southwest Asian and North African. This term is used to describe the region commonly referred to as the Middle East. This includes countries like Iran, Iraq, Lebanon, Syria, Turkey, Saudi Arabia, Yemen, UAE, Algeria, Egypt, Libya, Morocco, and Tunisia, among others. SWANA is a “way to distinguish the region in geographical terms, rather than “political terms” as defined by the Western world” (SWANA-LA). There has been a growing movement within California to recognize SWANA students as a distinct group in higher education. This includes efforts to track SWANA student enrollment, graduation rates, and other metrics separately from other groups. The goal of these efforts is to better understand and address the unique challenges and needs of SWANA students.

Historically, CSU's have been collecting the information on applications under white category where the students belonging to SWANA either marked themselves as Middle Easterner or North African. Starting Fall 2022, these two values were removed from white category and a separate category was created to further give the applicants an opportunity to mark themselves into 36 subcategories such as Afghan, Armenian, Azerbaijani and so forth. To expand representation within the SWANA community 36 subcategories have been introduced for new applicants starting Fall 2022 is collected. However, for reporting purposes to be consistent with IPEDS we still report these students under white category. For the University of California student ethnicity and data reporting an expanded definition of IPEDS race and ethnicity section was introduced in 2010 and expanded on beginning in 2014 to be inclusive of the SWANA population.

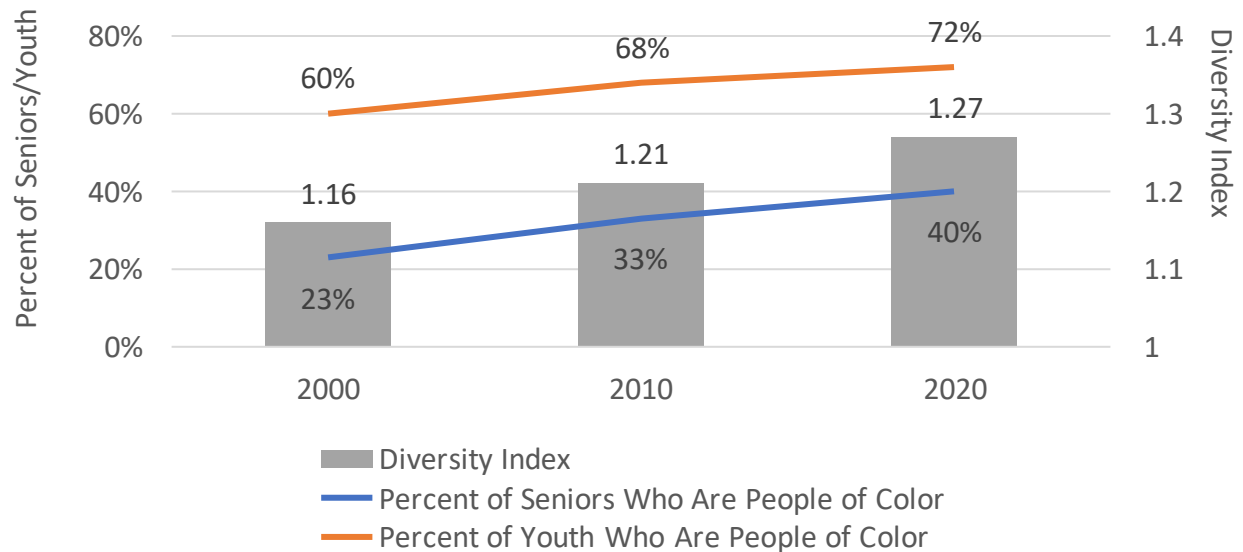
### Orange County Racial/Ethnic Distribution, 2010-2021



Source: U.S. Census Bureau, American Community Survey, 1- Year Estimates

Since the start of this century, Orange County has seen its population become increasingly diversified with both the proportion of seniors and youth who are people of color increasing from 23 percent and 60 percent to 40 percent and 72 percent, respectively, from 2000 to 2020. At the same time, the region's Diversity Index, measured by the National Equity Atlas, increased from 1.16 to 1.27, a trend which is expected to continue as domestic and international migration trends persist.

## Orange County Diversity Index, 2000-2020

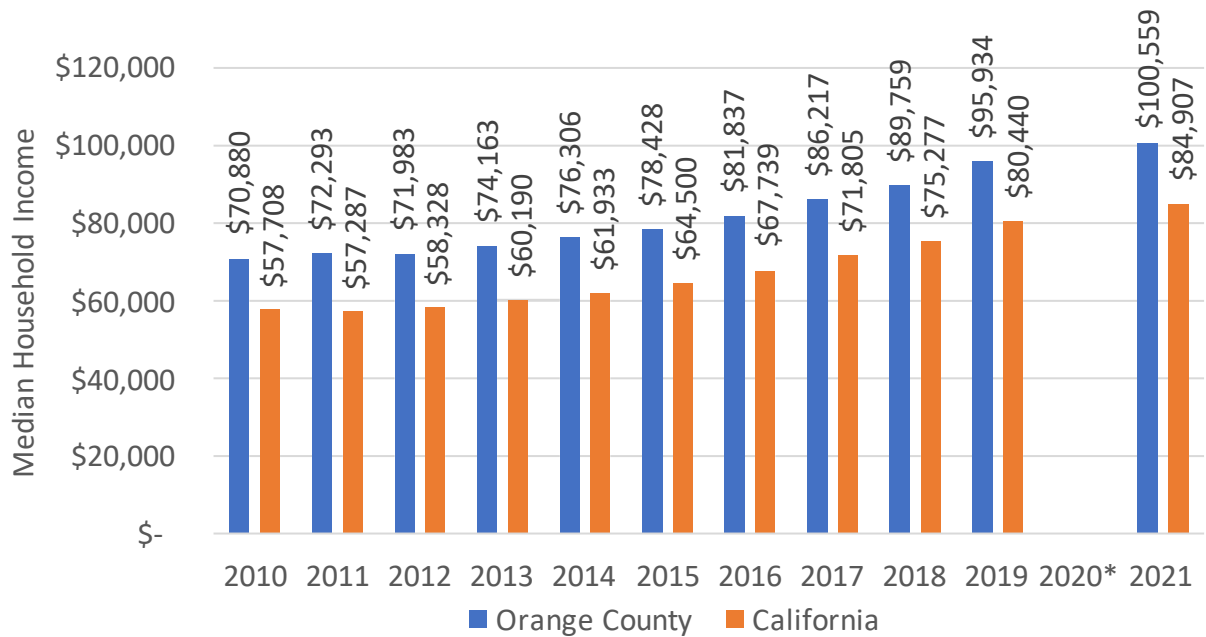


Source: National Equity Atlas

## Orange County Income Overview

Median household income in Orange County has increased from \$70,880 in 2010 to \$100,559 in 2021, an increase of 41.9 percent. California's median income increased by 47.1 percent over the same timeframe but remained well below Orange County's at \$84,907.

## Orange County and California Median Household Income, 2010-2021



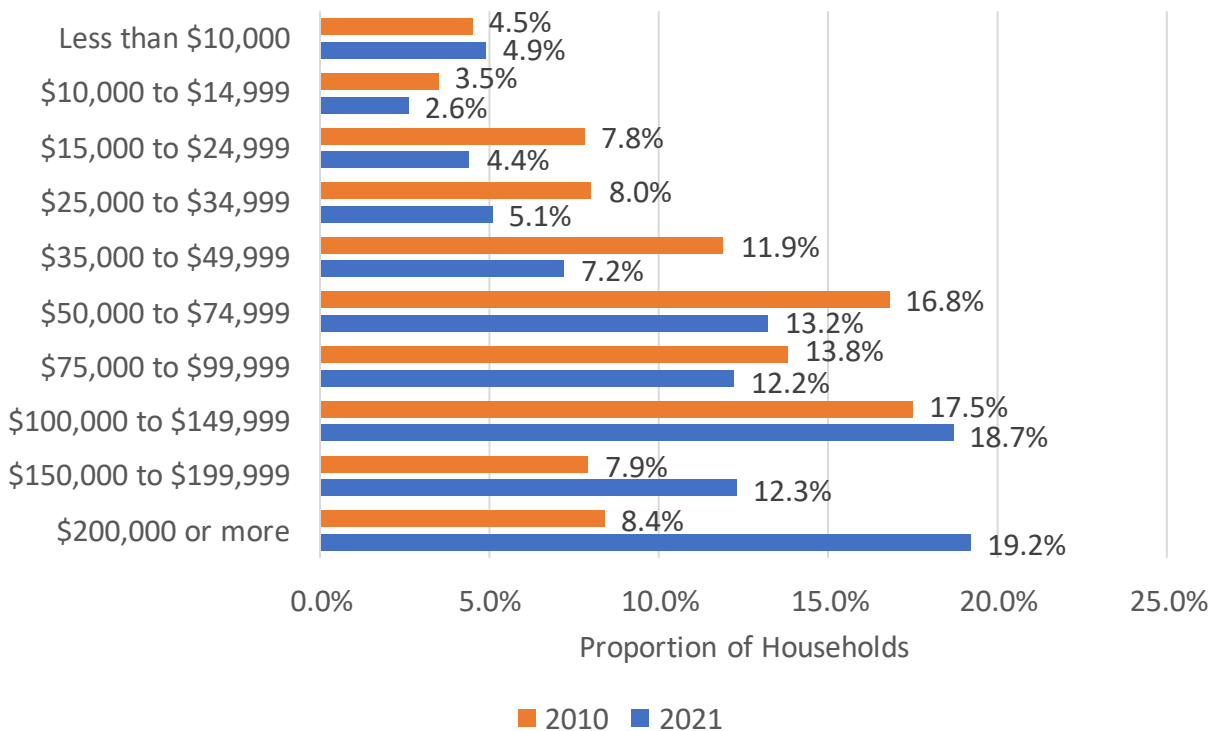
Source: U.S. Census Bureau, American Community Survey, 1- Year Estimates

\*Data for 2020 not available.

Looking at household income distribution, approximately 11.9 percent of households make under \$25,000 while approximately 50.2 percent make \$100,000 or more. Since 2010, the proportion of households making under \$25,000 declined by 4 percentage points, from 15.9 percent while the proportion of households making \$100,000 or more increased 16.4 percentage points from 33.8 percent.



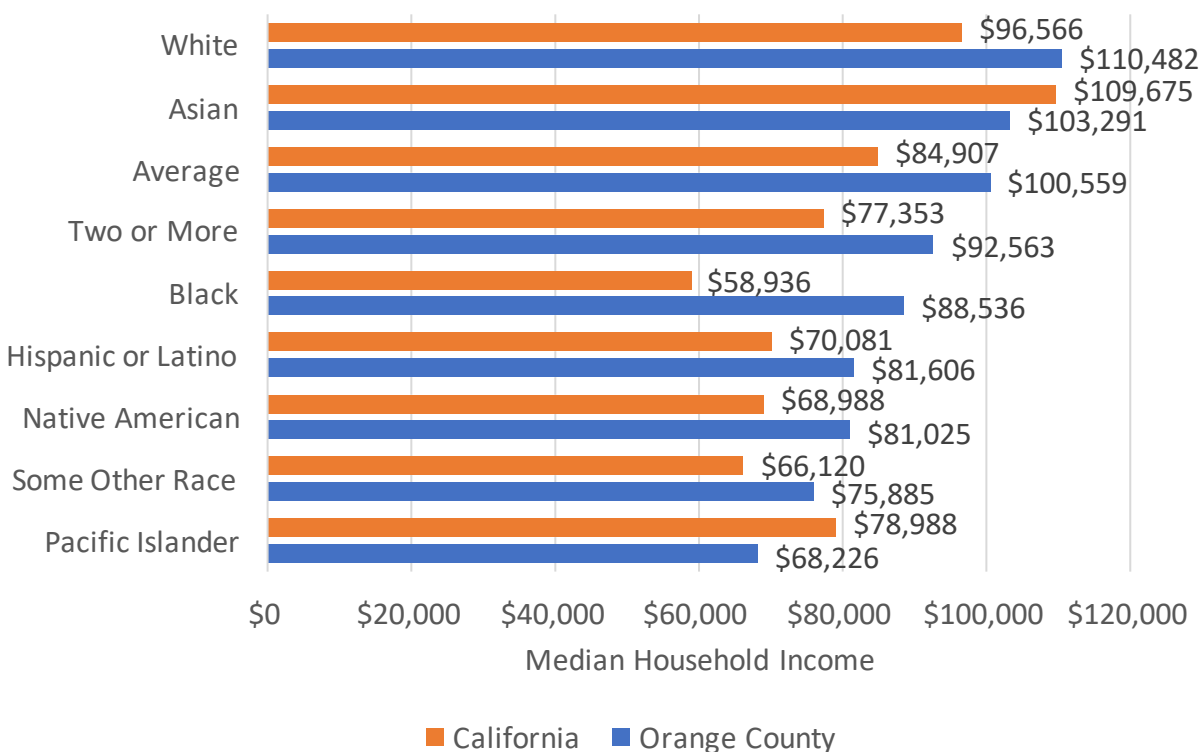
## Orange County Household Income Distribution, 2021



Source: U.S. Census Bureau, American Community Survey, 1- Year Estimates

Orange County's above-average median household income can be partially attributed to the region's above-average educational attainment rates. The proportion of the population with a Bachelor's degree or higher was 43.1 percent in the county compared to 36.1 percent statewide, while the share without a high school diploma was 12.7 percent in the county, nearly three percent lower than the state average (15.5 percent).

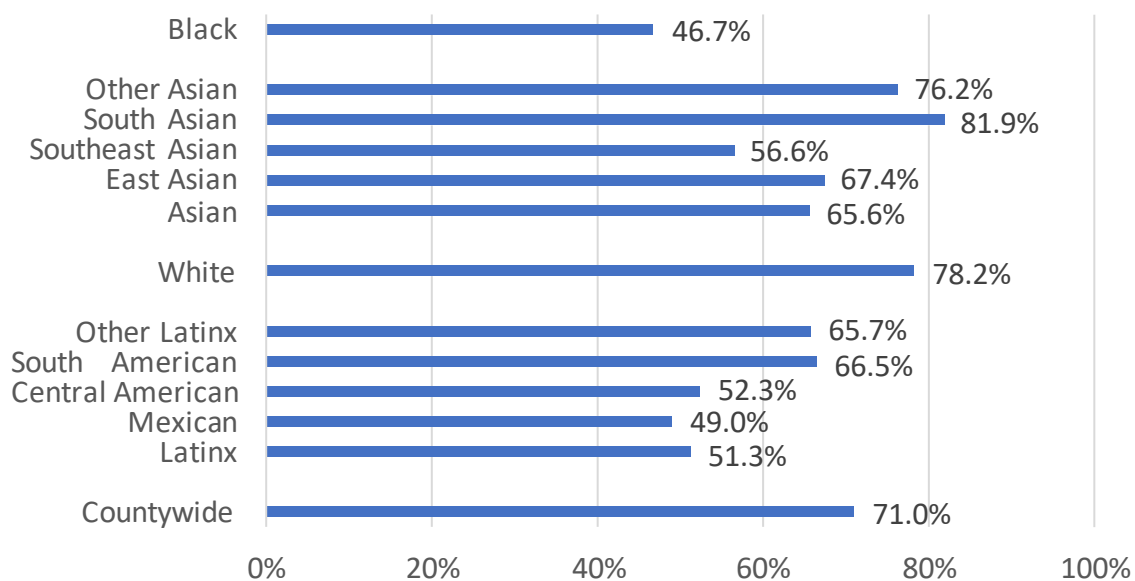
## Orange County and California Median Household Income by Race/Ethnicity, 2021



Source: U.S. Census Bureau, American Community Survey, 1- Year Estimates

While Orange County incomes are well above the state-level, the cost-of-living is also higher causing affordability concerns for many residents. Overall, 71 percent of households in Orange County earn a ‘living wage’ – the minimum wage required to afford basic needs and necessities. While 78.2 percent of White households earn a living wage, only 65.6 percent of Asian households do, followed by 51.3 percent of Latinx households and 46.7 percent of Black households. While the data for the proportion of Native Americans in Orange County earning a living wage is currently unavailable, it is important that not only wage data, but additional demographic, healthcare, housing and other data points for Native Americans in the region be available and collected so that a more complete picture of economic growth and equity can be captured. Additionally, this data is used to craft important strategies and policies for the regional populations and, as such, each population group must be properly understood and represented to help ensure all population segments or groups benefit from increased regional economic prosperity.

## Percent of Orange County Households Earning a Living Wage by Major Ethnic Groups

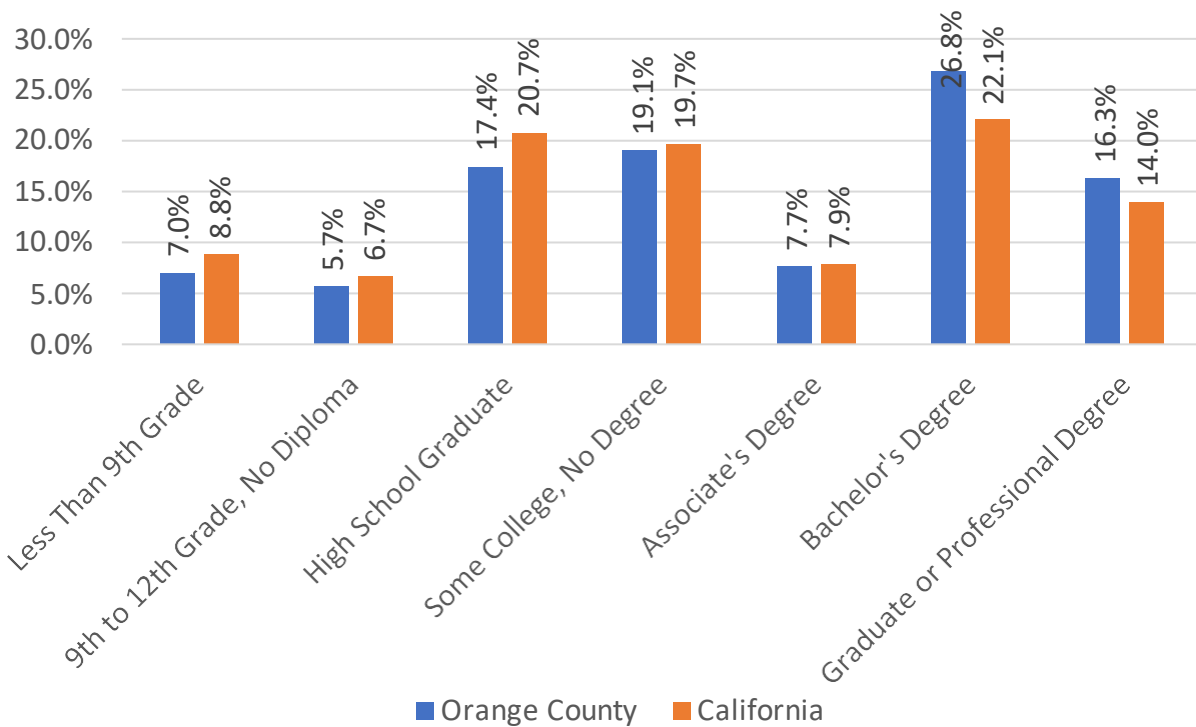


Source: California Competes, Orange County's Path to a Stronger Economy: Advancing Higher Education and Workforce Alignment

## Orange County Educational Attainment

Orange County not only enjoys median household incomes well above the state average but also boasts increased educational attainment. In 2021, 43.1 percent of Orange County residents over the age of 25 years have a Bachelor's degree or higher compared to 36.2 percent for the state average. At the same time, only 12.7 percent of Orange County residents aged 25 and older lack a high school diploma compared to 15.5 percent at the state level. This increased level of educational attainment has served to attract and retain a number of world-class employers and organizations to the region, reinforcing one of its primary competitive advantages.

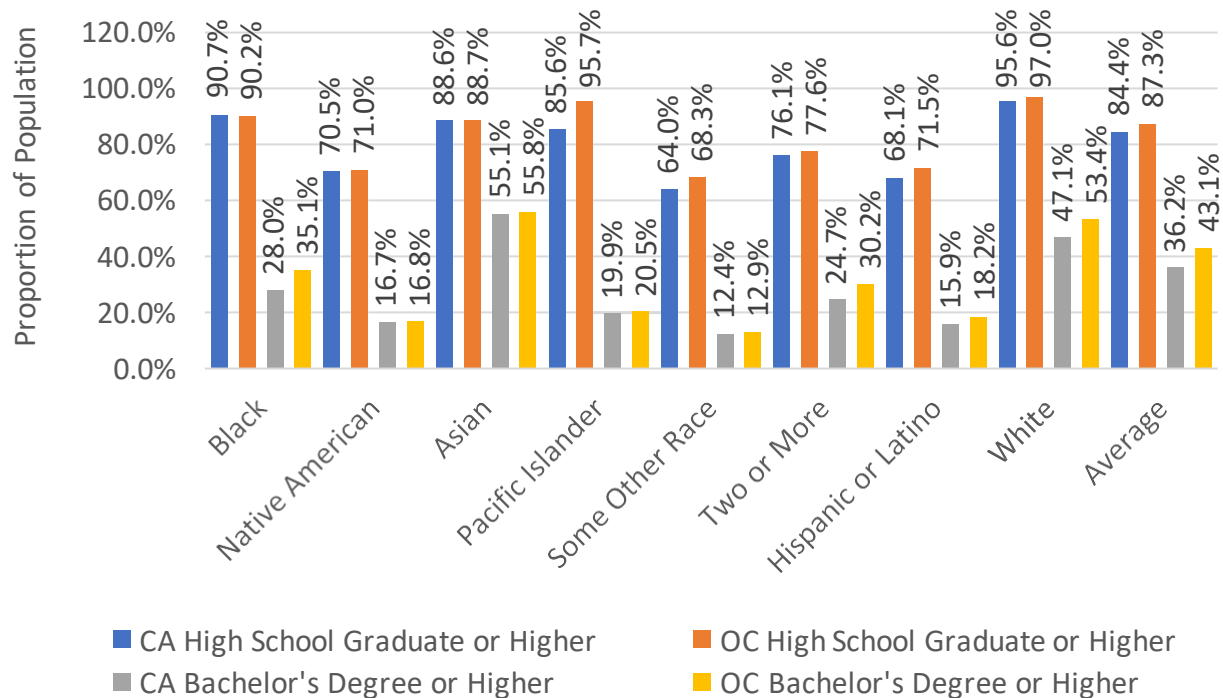
## Orange County and California Educational Attainment, 2021



Source: U.S. Census Bureau, American Community Survey, 1- Year Estimates

Compared to the state as a whole, each of Orange County's racial or ethnic groups have a higher proportion of residents with a Bachelor's degree, with the largest gap existing between Black residents at 7.1 percentage points, followed by White residents at 6.3 percent and Two or More Races at 5.5 percent. A similar trend was observed for those with at least a high school diploma, except for Black residents where 90.7 percent were high school graduates or higher at the state level versus 90.2 percent in Orange County.

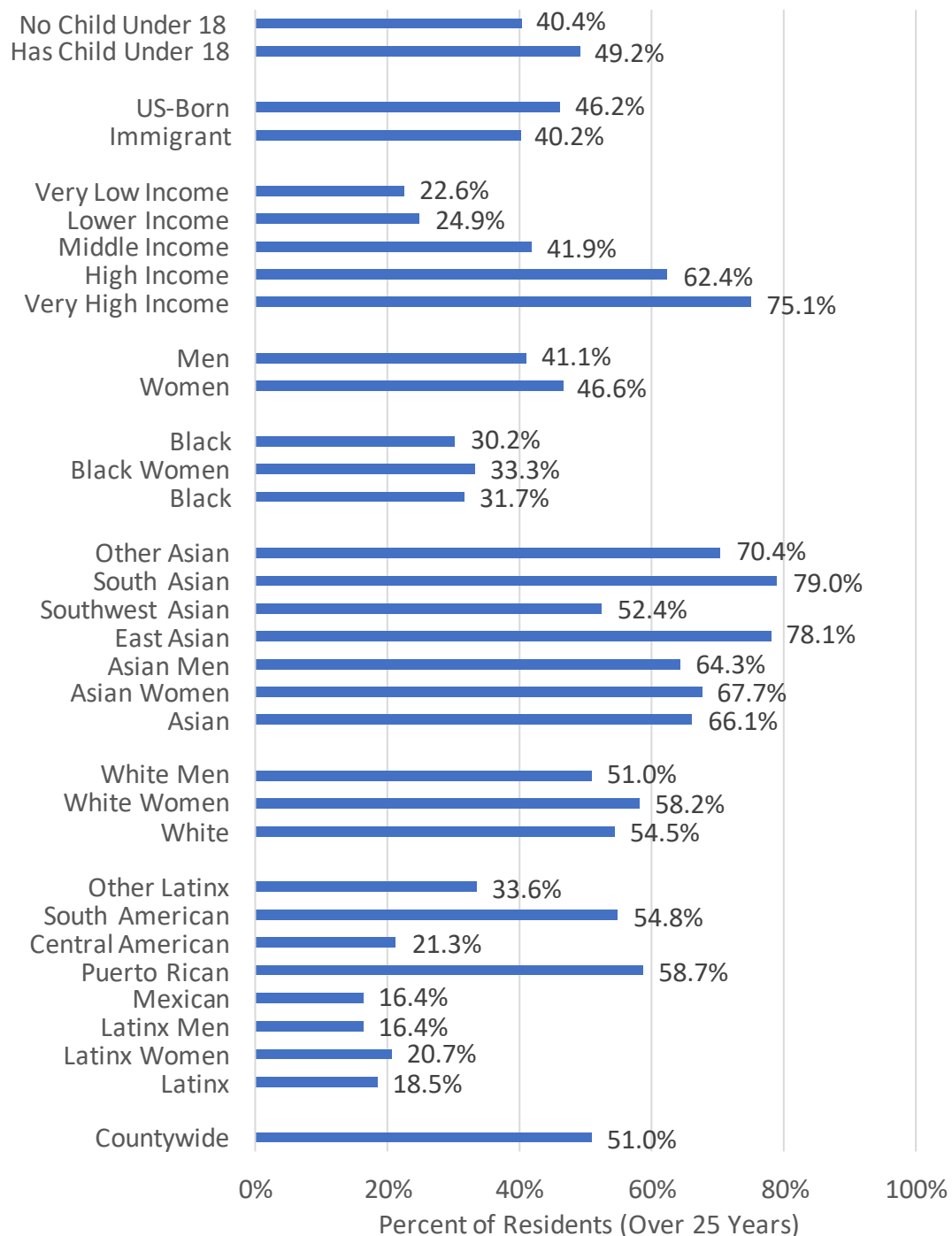
## Orange County and California Educational Attainment by Race/Ethnicity, 2021



Source: U.S. Census Bureau, American Community Survey, 1- Year Estimates

While Orange County itself is highly educated when compared to regional peers, there are educational gaps which exist within its own population. Countywide, 51 percent of residents aged 25 and older have a Bachelor's degree or higher. Approximately 66.1 percent of Asian communities in Orange County have a Bachelor's degree compared to 54.5 percent of White communities and followed by Black communities at 31.7 percent and Latinx communities at 18.5 percent.

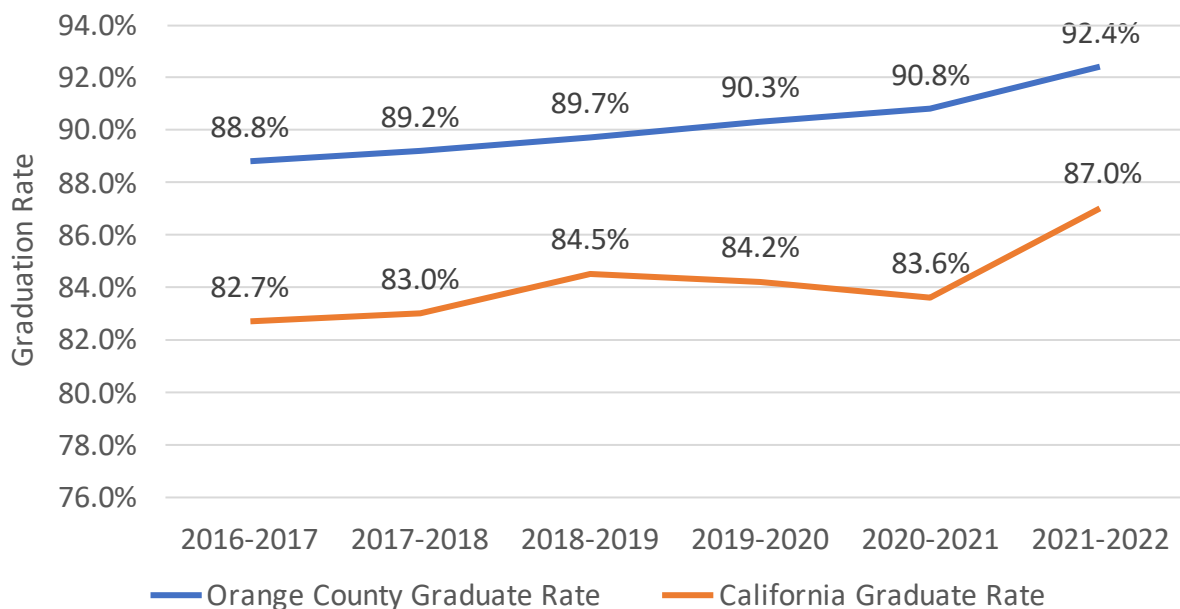
## Proportion of Orange County Residents with a Bachelor's Degree by Population Group



Source: California Competes, Orange County's Path to a Stronger Economy: Advancing Higher Education and Workforce Alignment

In 2021-2022, Orange County's graduate rate rose to 92.4 percent, compared to 87.0 percent at the state-level. Looking at specific groups, Filipino and Asian students had the highest graduation rates in 2021-2022 at 96.1 percent, followed by White students at 94.2 percent. African American students had the lowest graduation rate at 8.4 percent while Hispanic or Latino students saw the largest improvement from 2016-2017 to 2021-2022; their graduation rate increased by 5.1 percentage points from 84.9 percent to 90.0 percent.

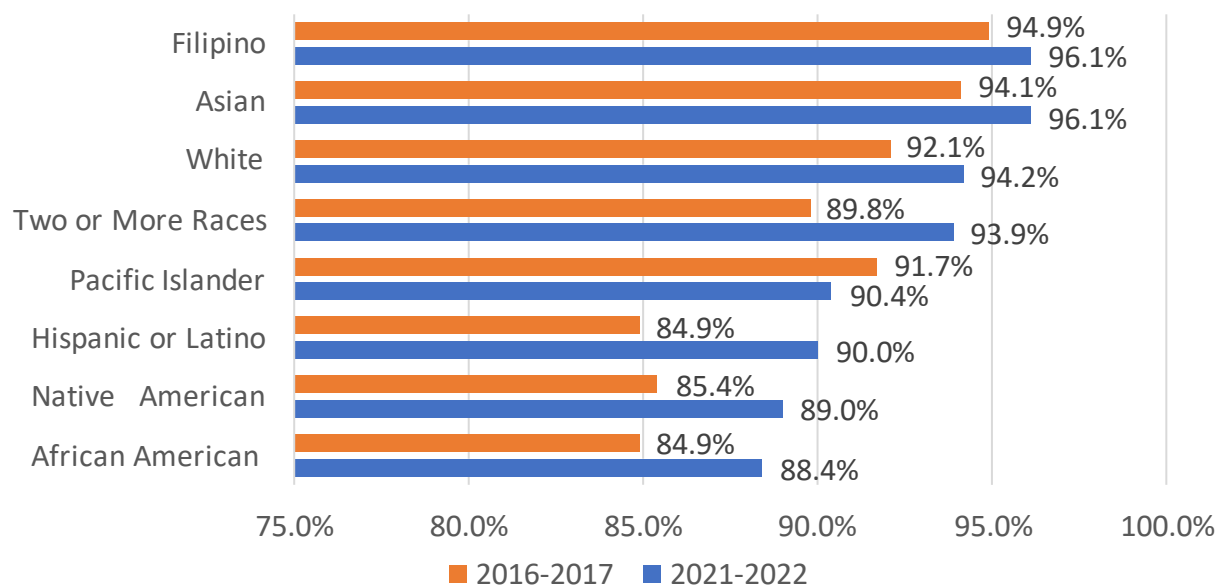
### Orange County High School Graduate Rate, 2016-2017 – 2021-2022



Source: California Department of Education, DataQuest



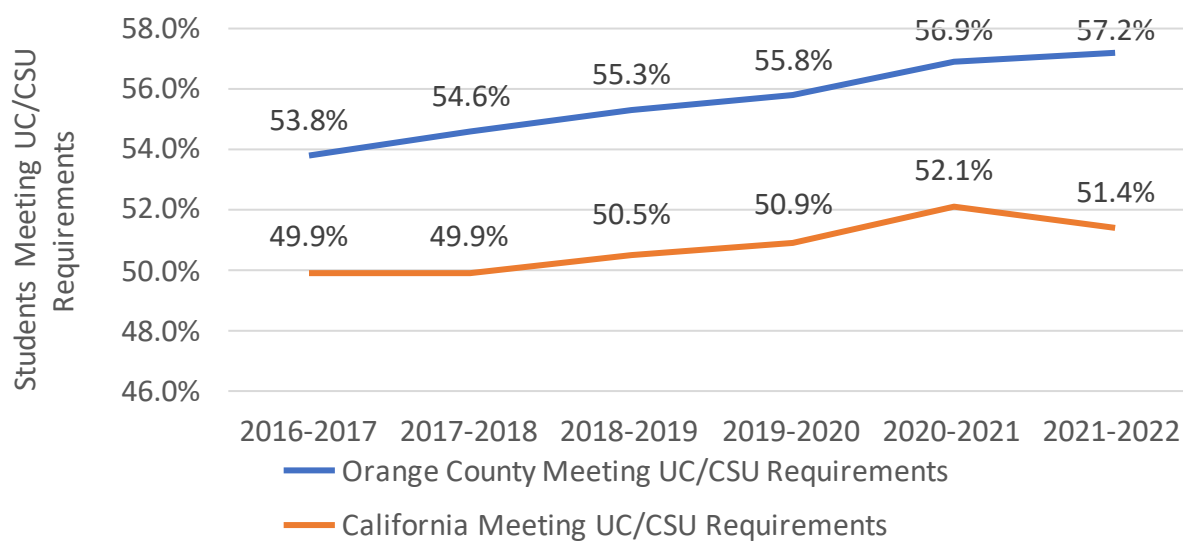
## Orange County High School Graduate Rate by Race/Ethnicity, 2016-2017 – 2021-2022



Source: California Department of Education, DataQuest

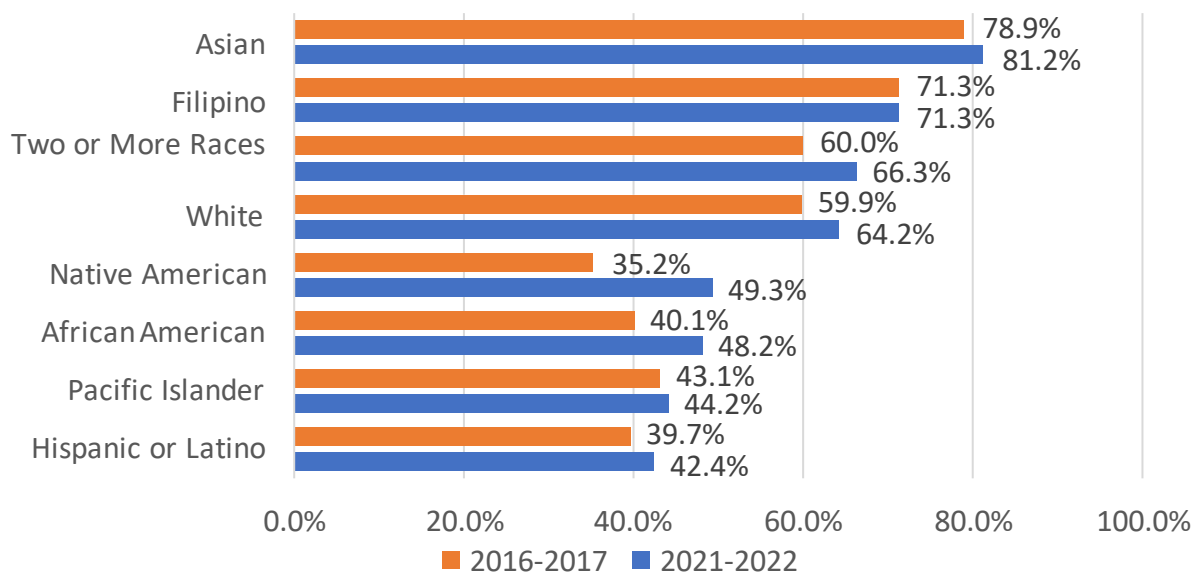
The percent of Orange County students meeting University of California (UC), or California State University (CSU) requirements increased from 56.9 percent to 57.2 percent from 2020-2021 to 2021-2022 while the state saw its percentage of students meeting UC/CSU requirements shrink from 52.1 percent to 51.4 percent. Asian students had the highest proportion meeting UC/CSU requirements at 81.2 percent, followed by Filipino students at 71.3 percent and students of Two or More races at 66.3 percent.

### Orange County Students Meeting UC/CSU Requirements, 2016-2017 – 2021-2022



Source: California Department of Education, DataQuest

### Orange County Students Meeting UC/CSU Requirements Rate by Race/Ethnicity, 2016-2017 – 2021-2022

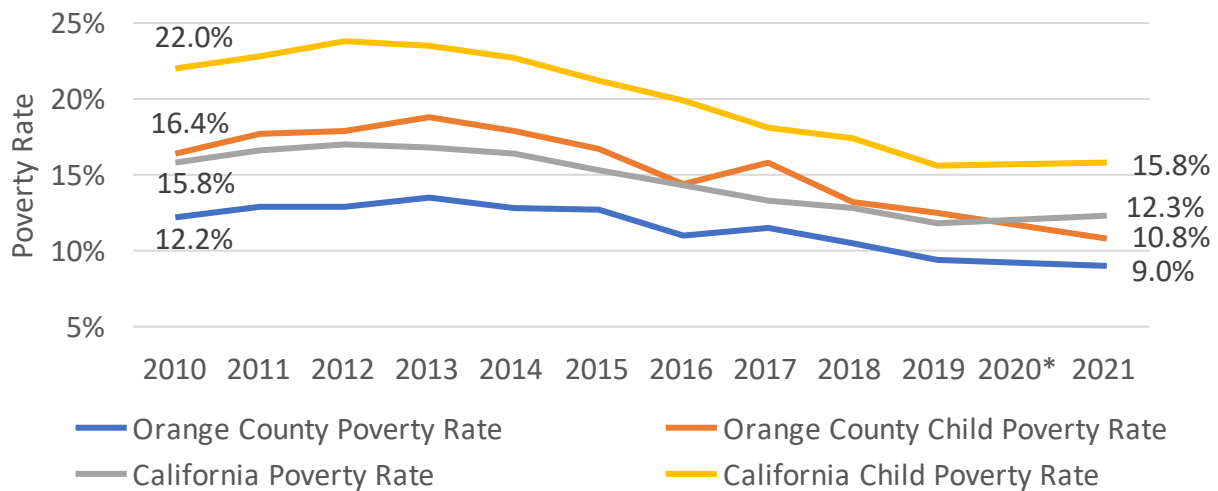


Source: California Department of Education, DataQuest

## Orange County Poverty and Health Insurance Coverage

Orange County's overall poverty rate was 9.9 percent in 2021, well below the state rate of 12.3 percent. The child poverty rate for residents below the age of 18 was 10.8 percent in 2021 compared to the state's rate of 15.8 percent. Orange County's overall poverty rate has declined 3.2 percentage points since 2010 while the child poverty rate has declined 5.6 percentage points, compared to a decline of 3.5 percent and 6.2 percent, respectively, at the state-level.

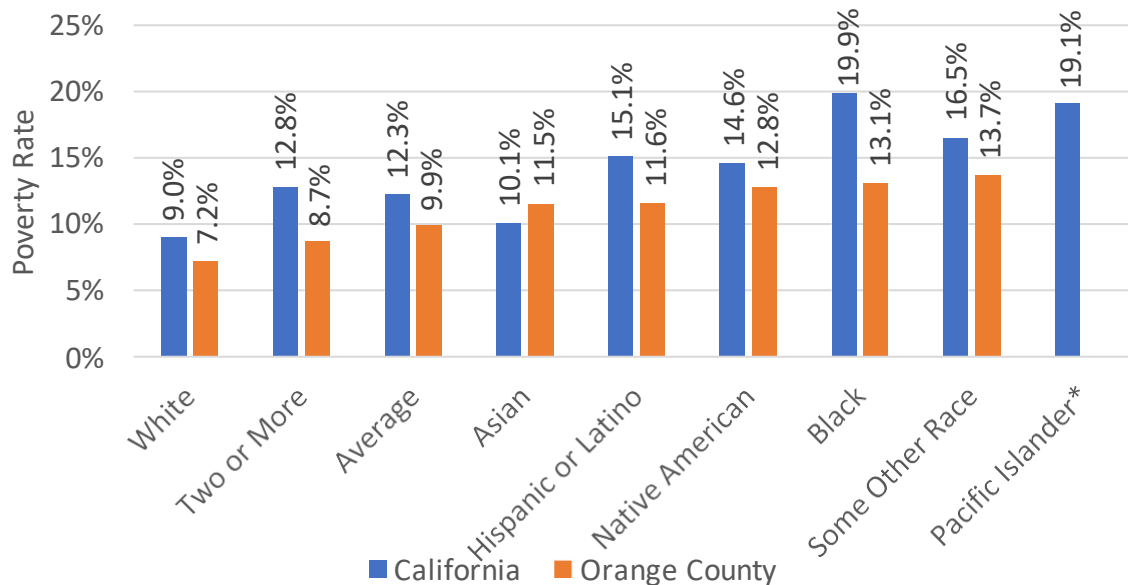
### Orange County and California Poverty Rates, 2021



Source: U.S. Census Bureau, American Community Survey, 1- Year Estimates; \*Data not available for 2020

Nearly all racial or ethnic groups had lower poverty rates in Orange County than at the state level with the exception of Asian residents, whose county-level poverty rate of 11.5 percent exceeded the state-level rate of 10.1 percent. The largest gap between state and county-level poverty rates in 2021 was for Black residents, with an overall poverty rate of 19.9 percent for the state compared to 13.1 percent in Orange County. (Data on Pacific Islanders in Orange County was not available for 2021).

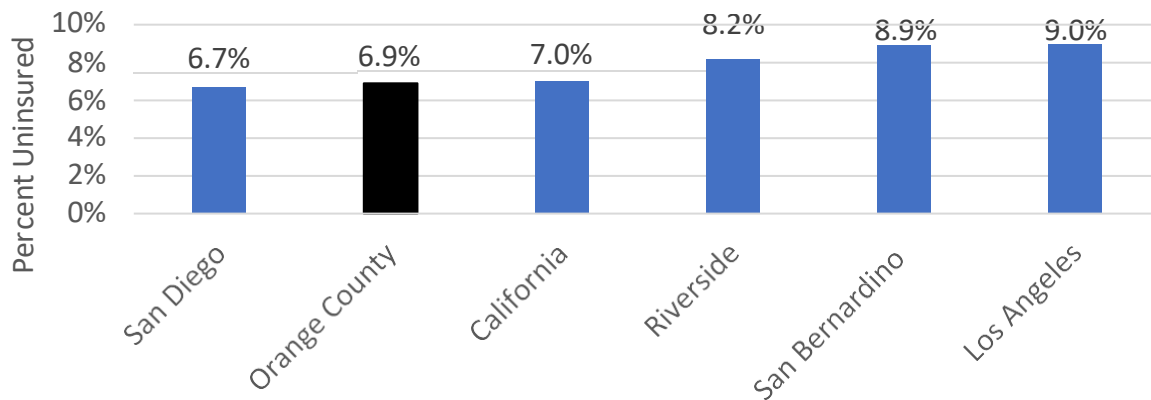
### Poverty Rate by Race or Ethnicity in Orange County and California, 2021



Source: U.S. Census Bureau, American Community Survey, 1- Year Estimates; \*Data not available for Pacific Islanders in Orange County in 2021

Alongside lower poverty rates in the county compared to the state, Orange County also had the second lowest proportion of its population without health insurance coverage among the larger Southern California counties. In 2021, 6.9 percent of Orange County residents were uninsured, 0.2 percentage points above San Diego County's rate of 6.7 percent yet below the state average of 7.0 percent and the uninsured rates of Los Angeles, Riverside, and San Bernardino Counties.

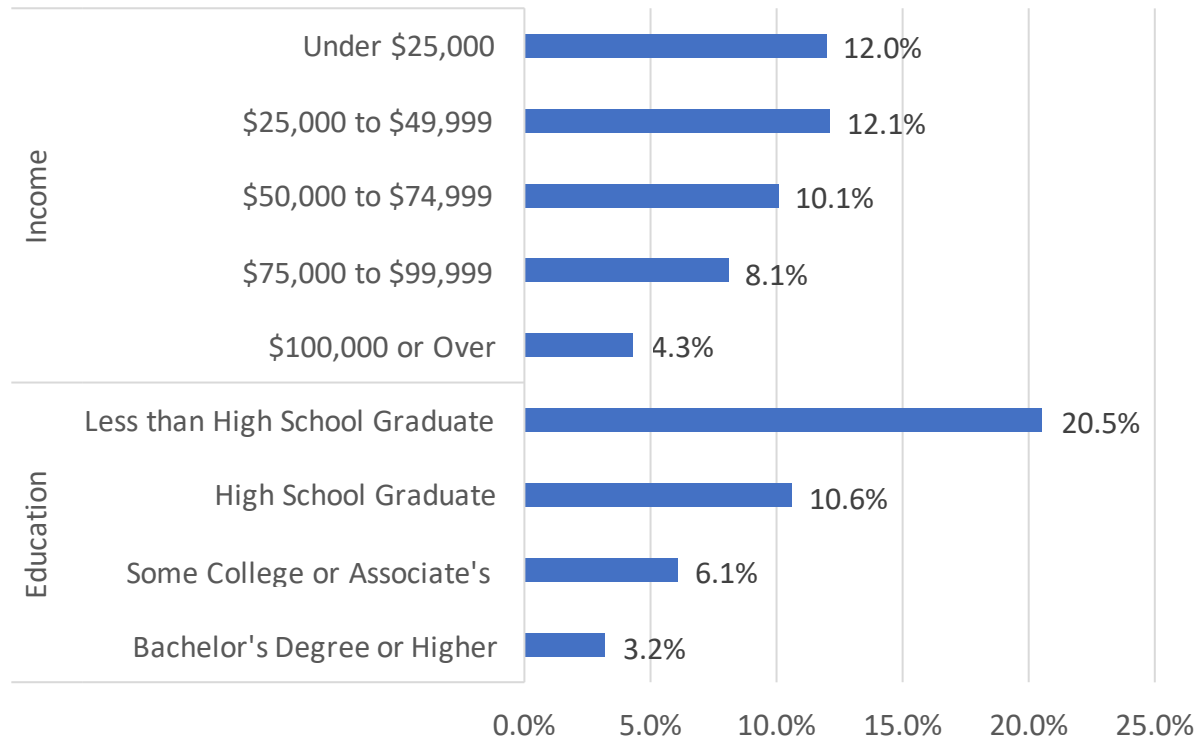
## Health Insurance Coverage by Southern California County, 2021



Source: U.S. Census Bureau, American Community Survey, 1- Year Estimates

Exemplifying the need for the additional support and policies aimed at improving equity across the region, Orange County's lower income groups – those making under \$25,000 and between \$25,000 and \$49,999 – were uninsured at rates of 12.0 percent and 12.1 percent, respectively, compared to just 4.3 percent of individuals making over \$100,000. A similar trend emerges for educational attainment where 20.5 percent of individuals with less than a high school degree are uninsured, compared to just 3.2 percent to those with a Bachelor's degree or higher.

## Health Insurance Coverage in Orange County by Income and Education, 2021



Source: U.S. Census Bureau, American Community Survey, 1- Year Estimates

# Orange County Demographic Analysis

## Dr. Robert Kleinhenz, California State University Long Beach

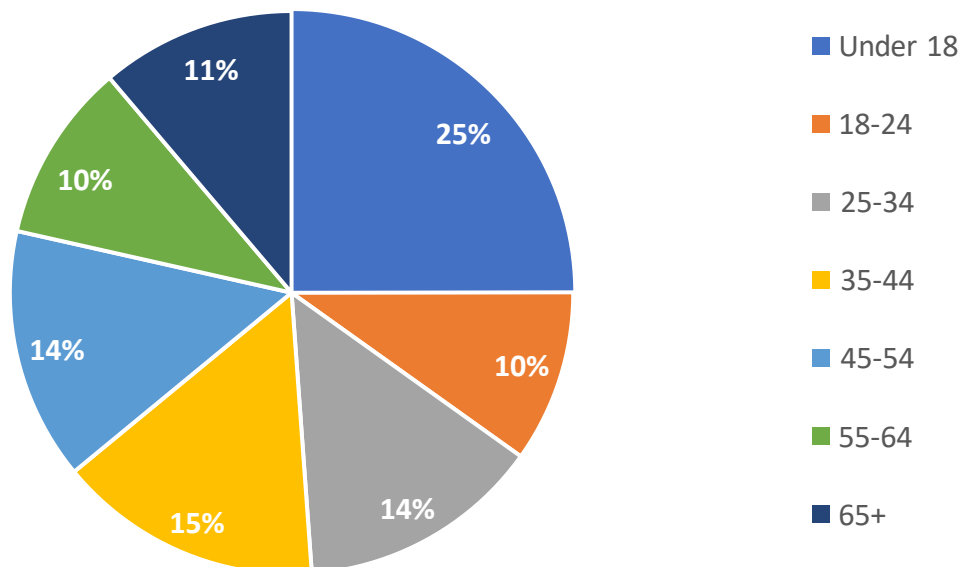
### Gender and Age Group 2010/2020 Representation

The 2010 census shows large percentages of younger age groups in Orange County. With the most notable representation by those under 18 (25 percent). Young adult population most likely to contribute to increased population (18-24 and 25-34) also remains strong, representing 24% of the population. With that being said the County shows a representation of a growing senior population over the next two decades with 15 percent population representation by both 35-44 and 45-54 age groups. Those at the cusp of the senior age group (55-64) and in the senior age group of 65+ are conservatively contributing to the population at 10 percent and 11 percent, respectfully.

### Orange County Proportion of Population by Age Group, 2010

2010 Total	Under 18	18-24	25-34	35-44	45-54	55-64	65+
2,965,525	741,381	293,587	415,174	450,760	430,001	305,449	332,139

2010 Total	Male	Female
2,965,525	1,467,799	1,497,726



Source: U.S. Census Bureau, American Community Survey, 5- Year Estimates

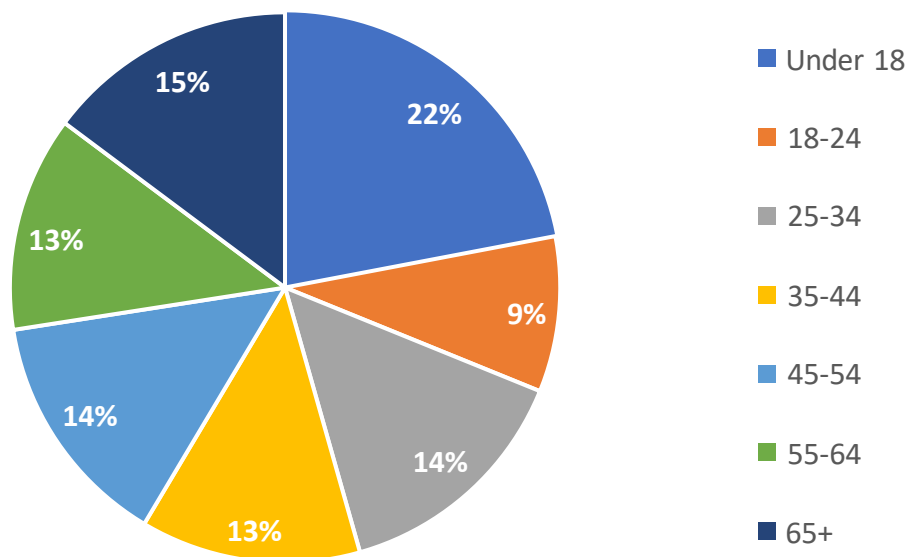


Examining the 2020 census we see strong representation among populations under 18 (22 percent), a decline of 3 percent from the prior census but nothing of immediate concern. Minor drops of 1 percent are seen in the age groups of 18-24 (10 percent to 9 percent), 25-34 (15 percent to 14 percent), 35-44 (14 percent to 13 percent) and 45-54 (15 percent to 14 percent). The age group of 35-44 had a drop of 2 percent from 15 percent to 13 percent. Notable growth was experienced for age populations above 55. Age group 55-64 grew 3 percent from 10 percent to 13 percent and the age group of 65 plus saw the largest growth: from 11 percent to 15 percent.

### Orange County Proportion of Population by Age Group, 2020

2020 Total	Under 18	18-24	25-34	35-44	45-54	55-64	65+
3,170,345	697,715	289,774	458,450	410,423	443,404	401,737	468,842

2020 Total	Male	Female
3,170,345	1,564,577	1,605,768



Source: U.S. Census Bureau, American Community Survey, 5- Year Estimates

## Difference in Orange County Age Groups Between 2010/2020 Census

Differences in age groups between the 2010 and 2020 census become apparent when looking at the number's variance over time. The largest decline by an age group was experienced by age group 35-44 (N: -40,337 / percentage: -8.95 percent). This change reflects that from the decade prior the 25-34 population exited the county numbers. The other notable drop was experienced by the under 18 population (N: -43,666 / percentage: -5.89 percent) and 18-24 population (N: -3,813 / percentage: -1.30 percent). Alternatively, populations over 55 had significant growth, with 55-64 growing 31.52 percent (N: +96,288) and 65 and older population increasing the greatest at 41.16 percent (N: +136,703). For purposes of workforce projection, this change from the 2010 and 2020 census brings attention to concerning changes within working age demographics and future working age demographics as the county is aggressively moving towards a senior informed population.

Total	Under 18	18-24	25-34	35-44	45-54	55-64	65+
204,820	(43,666)	(3,813)	43,276	(40,337)	13,403	96,288	136,703
6.91%	-5.89%	-1.30%	10.42%	-8.95%	3.12%	31.52%	41.16%

Total	Male	Female
204,820	96,778	108,042
6.91%	6.59%	7.21%

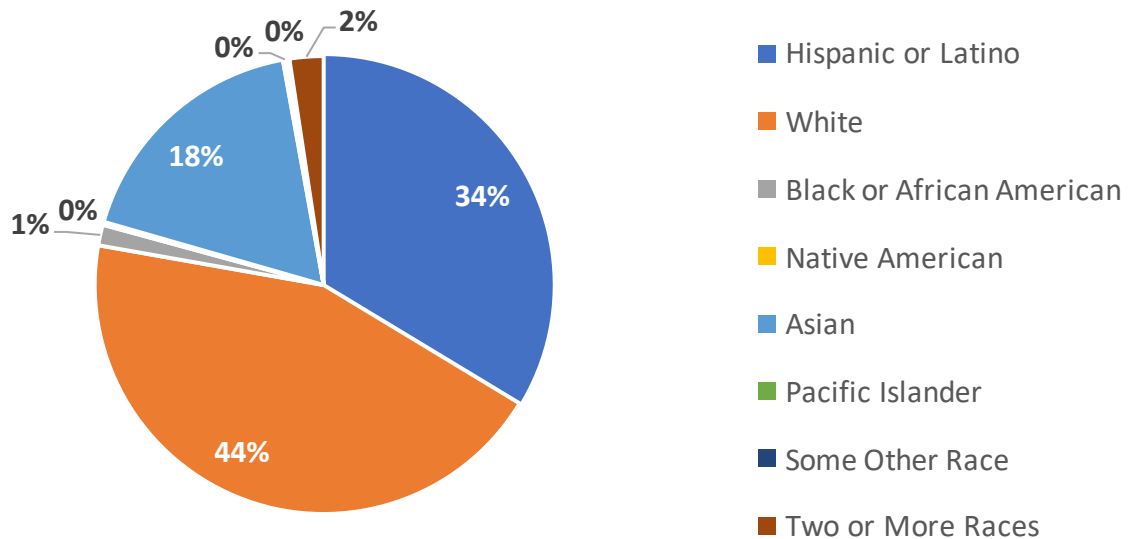
## Orange County Racial and Ethnicity Groups 2010/2020 Representation

Reviewing representation among race and ethnicity within the 2010 census, Orange County shows strong representation among White (44 percent) and Hispanic (34 percent) populations. This is followed by Asian populations at 18 percent, Black or African American (2 percent) and Two or more races (2 percent). Lastly while these races and ethnicities are represented in the county, Native Hawaiian and Other Pacific Islanders, American Indian and Alaska Natives, and those that identify as Some Other Races each make up less than one percent of the county population.

### Orange County Population by Race/Ethnicity, 2010

2010 Total Race	3,010,232
Hispanic or Latino	1,012,973
White	1,328,499
Black or African American	44,000
Native American	6,216
Asian	532,477

<b>Pacific Islander</b>	8,357
<b>Some Other Race</b>	5,593
<b>Two or More Races</b>	72,117



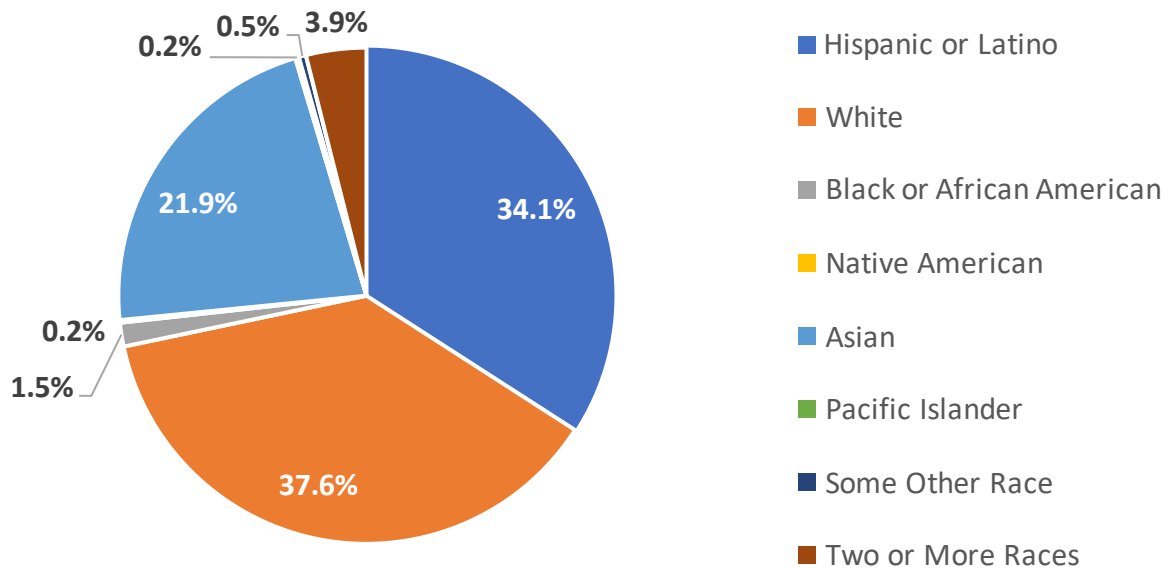
Source: U.S. Census Bureau, American Community Survey, 5- Year Estimates

Percentage shifts in race and ethnicity are noted between the 2020 and 2010 census. Orange County shows decline, but still predominant representation among White (dropping from 44 percent to 38 percent). This Hispanic population remained consistent at 34 percent. Asian populations experienced growth of 4 percent from 18 percent to 22 percent. Black and African American remained consistent at 2 percent, while Two or more races population grew from 2 percent to 4 percent. Lastly while these races and ethnicities are represented in the county, Native Hawaiian and Other Pacific Islanders, American Indian and Alaska Natives, and those that identify as Some Other Race remained at below 1 percent.

### Orange County Population by Race/Ethnicity, 2020

<b>2020 Total Race</b>	<b>3,186,989</b>
<b>Hispanic or Latino</b>	1,086,834
<b>White</b>	1,198,655
<b>Black or African American</b>	49,304
<b>Native American</b>	5,298
<b>Asian</b>	699,124
<b>Pacific Islander</b>	7,714

<b>Some Other Race</b>	14,818
<b>Two or More Races</b>	125,242



Source: U.S. Census Bureau, American Community Survey, 5- Year Estimates

Similar to the Race and Ethnicity, comparing the population changes in headcount from 2010 and 2020 provides a clearer story of change. Orange County shows showed the greatest decline in its predominant White population (dropping 129,844 and 9.77 percent from 20201). The limited representative American Indian and Alaska Native (dropping 918 or 14.77 percent) and Native Hawaiian and Other Pacific Islanders (dropping 643 or 7.69 percent) also experienced decline. Greatest growth in numbers was experienced by Asian (increasing 166,647 or 31.30 percent), Hispanic or Latino (increasing 73,861 or 7.29 percent), Two or More Races (increasing 53,125 or 73.67 percent), Some Other Race (increasing 9,255 or 164.94 percent and Black or African American (increasing 5,304 or 12.05 percent) populations.

#### Difference in Orange County Race/Ethnic Groups Between 2010/2020

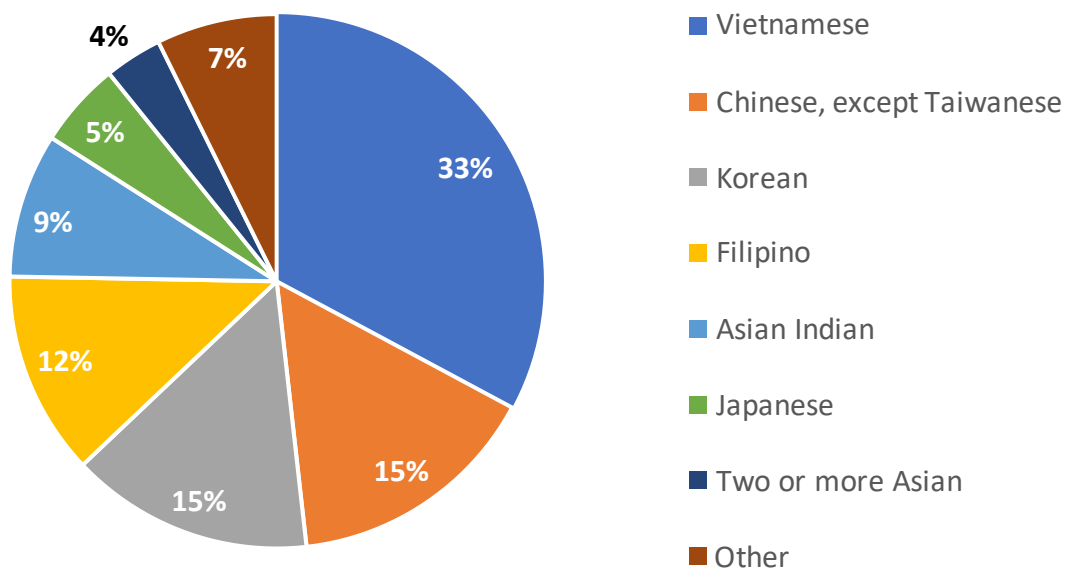
	2010-2020 Absolute Change	2010-2020 Percent Change
<b>Total Race</b>	<b>176,757</b>	<b>5.87%</b>
Hispanic or Latino	73,861	7.29%
White	-129,844	-9.77%

Black or African American	5,304	12.05%
Native American	-918	-14.77%
Asian	166,647	31.30%
Pacific Islander	-643	-7.69%
Some Other Race	9,225	164.94%
Two or More Races	53,125	73.67%

### Asian Pacific Islander 2020 Representation

While not represented in the 2010 Census, the expanded Asian and Pacific Islander populations within the 2020 census gives greater insight into the diversity of Asian community members within Orange County. Notably, Vietnamese population has the largest representation at 32.8 percent (N: 219,713), followed by Chinese, except Taiwanese at 15.38 percent (N: 102,688) and Korean at 14.72 percent (N: 98,287) representing the top three communities within the expanded Asian communities.

API Group Summary	Number	Percentage
<b>Vietnamese</b>	219,173	32.83%
<b>Chinese, except Taiwanese</b>	102,688	15.38%
<b>Korean</b>	98,287	14.72%
<b>Filipino</b>	82,438	12.35%
<b>Asian Indian</b>	58,339	8.74%
<b>Japanese</b>	34,497	5.17%
<b>Two or more Asian</b>	23,357	3.50%
<b>Other</b>	48,755	7.30%



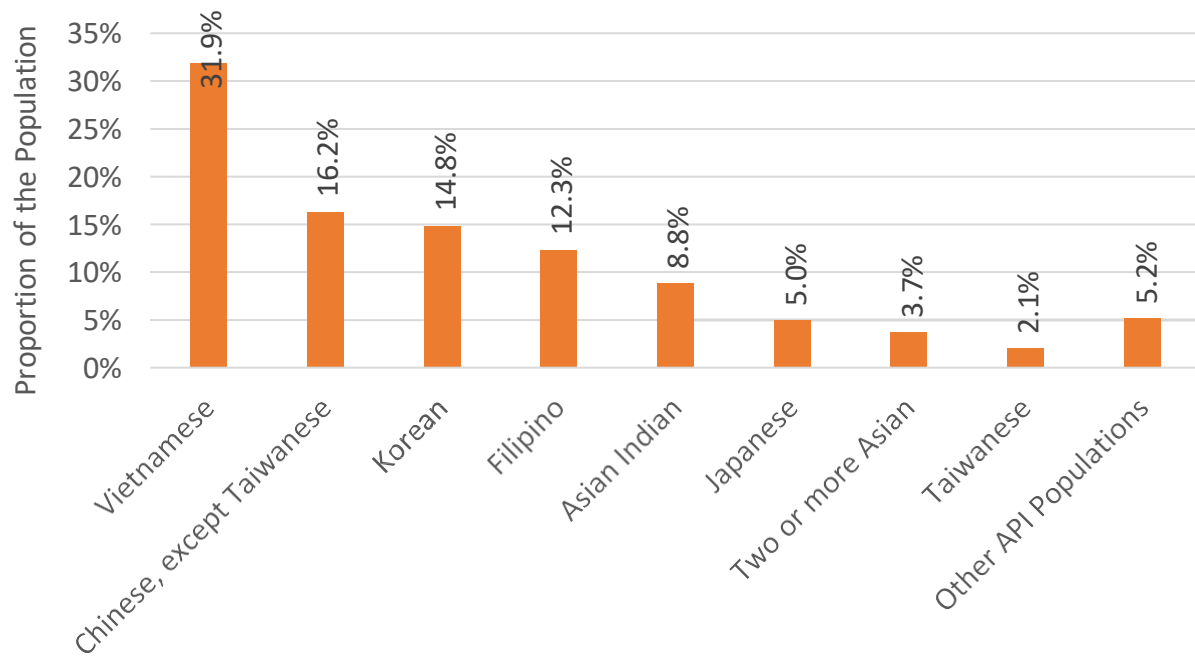
Source: U.S. Census Bureau, American Community Survey, 5- Year Estimates

### Proportion of Asian Pacific Islander Groups, 2020

API Groups (Entirety)	Number	Percentage
Vietnamese	219,173	32.83%
Chinese, except Taiwanese	102,688	15.38%
Korean	98,287	14.72%
Filipino	82,438	12.35%
Asian Indian	58,339	8.74%
Japanese	34,497	5.17%
Two or more Asian	23,357	3.50%
Taiwanese	12,833	1.92%
Cambodian	8,726	1.31%
Pakistani	6,659	1.00%
Thai	4,128	0.62%
Laotian	3,242	0.49%
Indonesian	3,088	0.46%
Other Asian, not specified	2,166	0.32%
Sri Lankan	1,961	0.29%
Hmong	1,375	0.21%
Bangladeshi	1,285	0.19%
Nepalese	1,262	0.19%
Other Asian, specified	901	0.13%
Burmese	679	0.10%
Mongolian	229	0.03%
Malaysian	185	0.03%
Okinawan	36	0.01%
Bhutanese	0	0.00%

While not represented in the 2010 Census, the expanded Asian and Pacific Islander populations in the 2021 census gives greater insight into the diversity of Asian community members within Orange County. These communities represent 21.3 percent (N: 678,436) of the Orange County Population. Notably, Vietnamese population has the largest representation at 31.9 percent (N: 216,257), followed by Chinese except Taiwanese at 16.2 percent (N: 110,154) and Korean at 14.8 percent (N: 100,568) representing the top three communities within the expanded Asian communities.

## Orange County Asian Pacific Islander Distribution, 2021



Source: U.S. Census Bureau, American Community Survey, 5- Year Estimates



# Orange County Demographic Census Tract Analysis

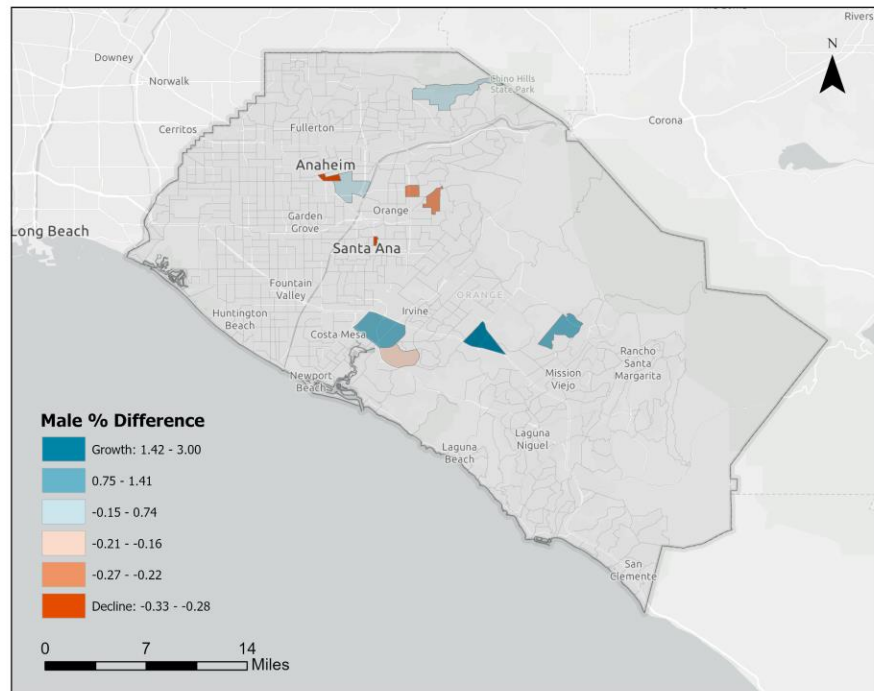
## Gender and Age Group 2010/2020 Representation

Comparison by sex and age group of the top 5 census tracts for growth, top 5 census growth for decline and a comparison of the sum of these changes to determine where we are seeing community growth and decline.

Census Tract	Male Difference	Male % Difference
06059052422	2,952	140.57%
06059052518	2,785	299.78%
06059062610	2,613	97.21%
06059086303	2,061	74.03%
06059021822	1,499	42.63%

Census Tract	Male Difference	Male % Difference
06059062614	-1,387	-15.57%
06059087405	-1,106	-32.70%
06059021913	-1,084	-21.55%
06059075004	-978	-27.77%
06059075812	-909	-23.23%

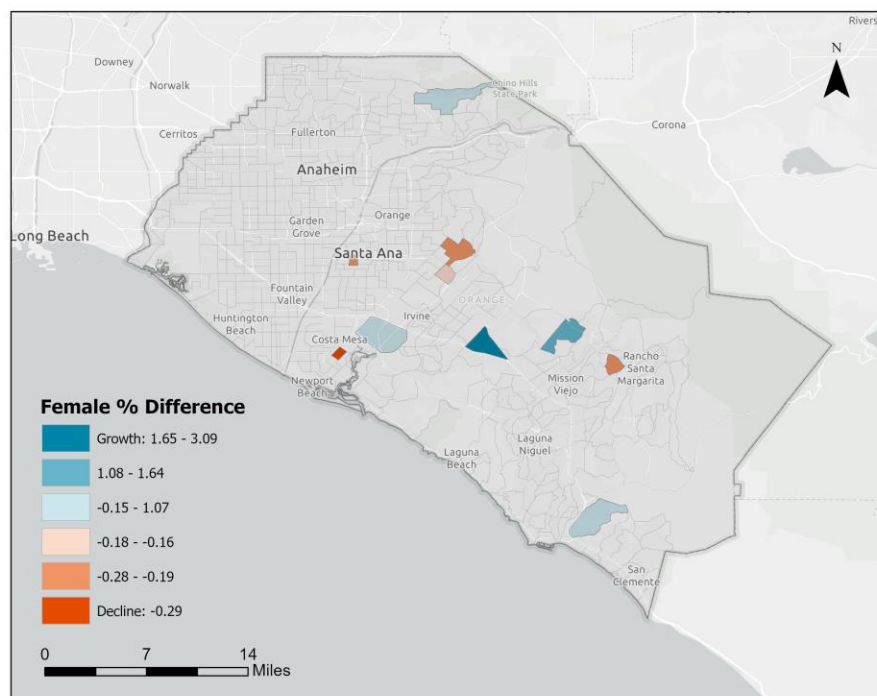
Orange County 2010/2020 Census Male Population % Difference



Census Tract	Female Difference	Female % Difference
06059052422	3,507	164.34%
06059062610	2,611	106.53%
06059052518	2,213	309.08%
06059042203	2,013	57.33%
06059021822	1,875	57.59%

Census Tract	Female Difference	Female % Difference
06059063201	-727	-28.72%
06059052524	-722	-16.21%
06059074801	-705	-20.69%
06059032034	-674	-21.60%
06059075606	-659	-19.30%

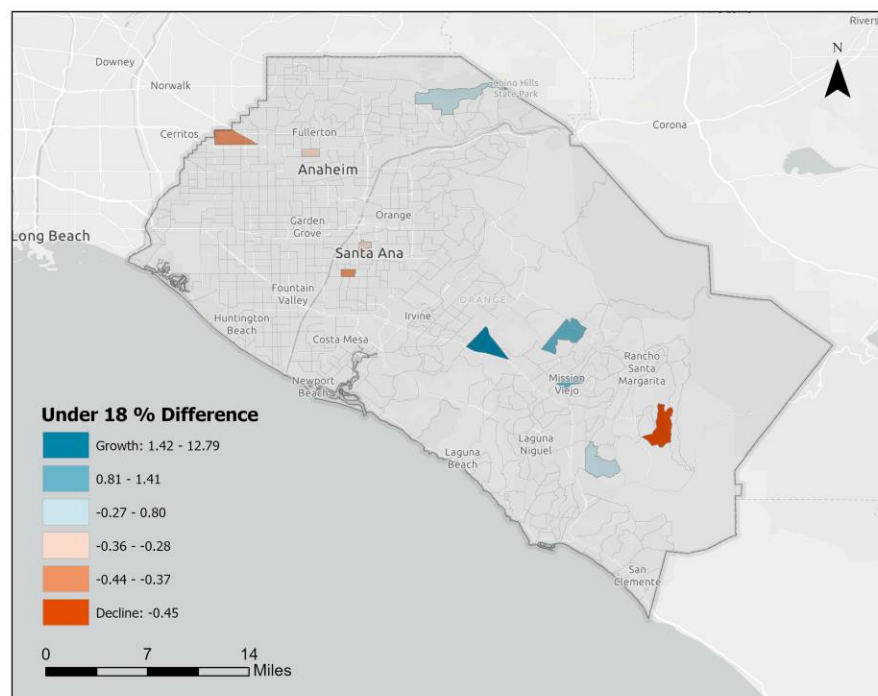
**Orange County 2010/2020 Census Female Population % Difference**



Census Tract	Under 18 Difference	Under 18 % Difference
06059052422	1,546	130.45%
06059032058	1,212	80.06%
06059021822	1,131	63.27%
06059032028	1,034	140.89%
06059052518	821	1279.47%

Census Tract	Under 18 Difference	Under 18 % Difference
06059110500	-1,127	-36.74%
06059032046	-1,072	-45.37%
06059074701	-1,071	-38.36%
06059086601	-1,057	-28.24%
06059075100	-962	-32.66%

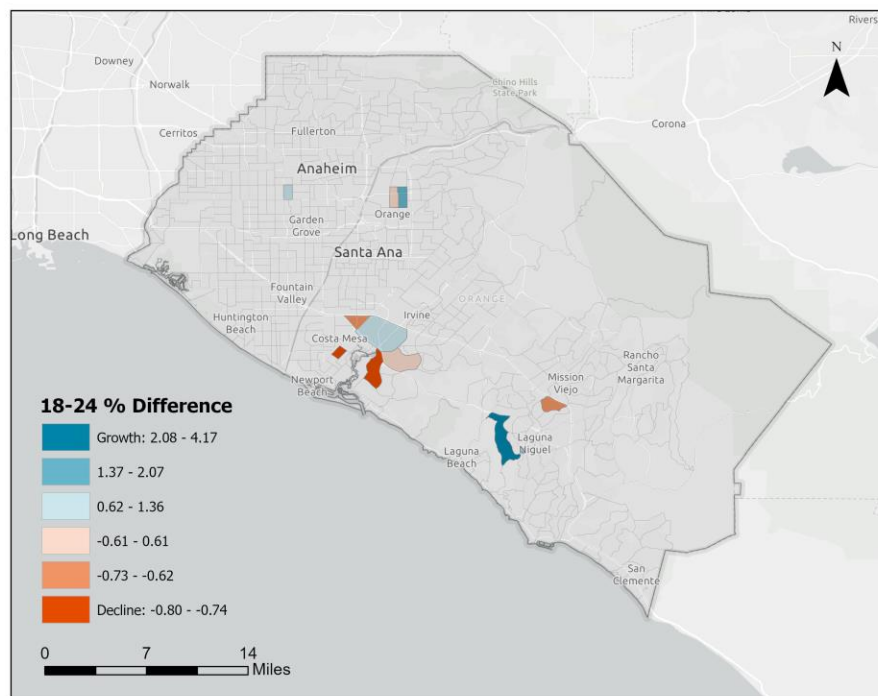
**Orange County 2010/2020 Census Under Age 18 Population % Difference**



Census Tract	18-24 Difference	18-24 % Difference
06059076205	1,209	60.72%
06059062610	1,203	115.34%
06059076206	711	206.69%
06059062633	634	417.11%
06059087704	586	136.28%

Census Tract	18-24 Difference	18-24 % Difference
06059062614	-1,723	-14.42%
06059063201	-891	-79.84%
06059063007	-806	-74.22%
06059063908	-696	-65.97%
06059042307	-561	-61.99%

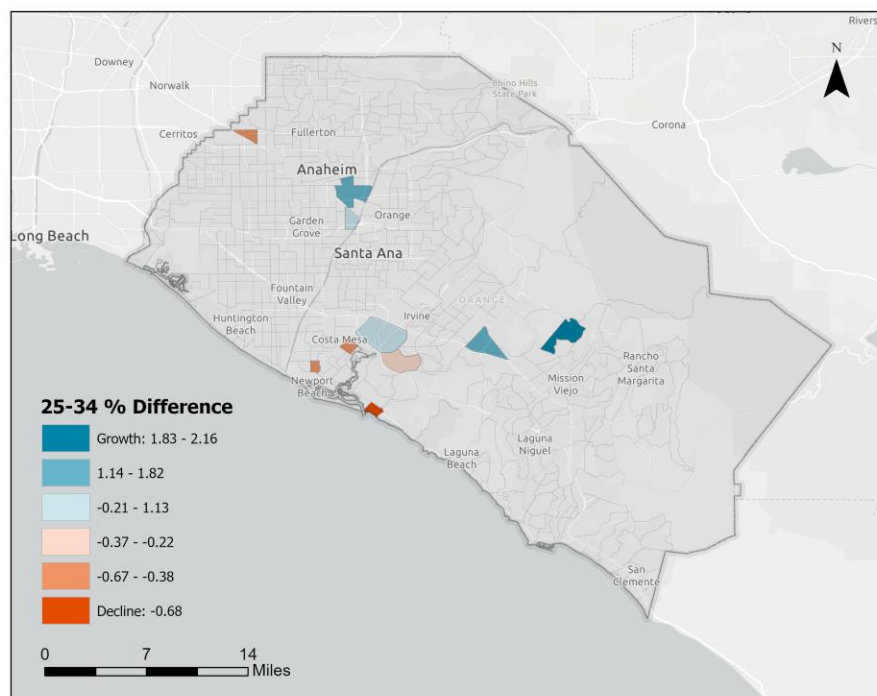
**Orange County 2010/2020 Census Age 18-24 Population % Difference**



Census Tract	25-34 Difference	25-34 % Difference
06059062610	1,792	107.95%
06059086303	1,445	171.21%
06059052422	1,397	215.59%
06059076102	1,382	113.28%
06059052518	1,379	181.93%

Census Tract	25-34 Difference	25-34 % Difference
06059062614	-700	-21.63%
06059110603	-620	-38.25%
06059063102	-613	-43.75%
06059063605	-576	-43.37%
06059062702	-535	-67.55%

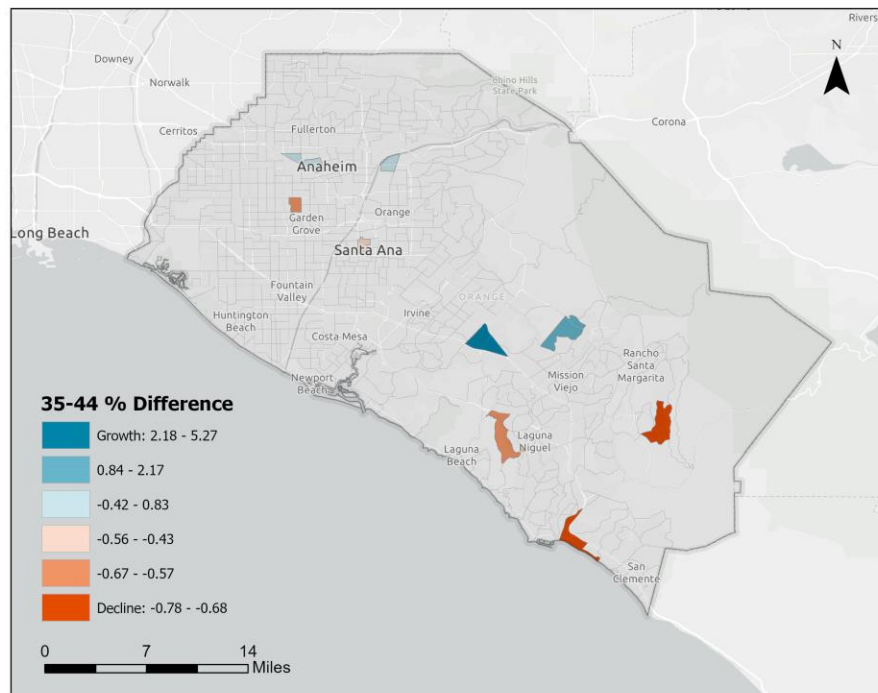
**Orange County 2010/2020 Census Age 25-34 Population % Difference**



Census Tract	35-44 Difference	35-44 % Difference
06059052422	1,581	217.17%
06059052518	1,318	527.20%
06059076201	669	83.00%
06059087200	650	67.01%
06059086702	618	62.93%

Census Tract	35-44 Difference	35-44 % Difference
06059075100	-1,133	-43.36%
06059032046	-804	-68.25%
06059062633	-777	-56.63%
06059042201	-731	-77.77%
06059088301	-676	-57.93%

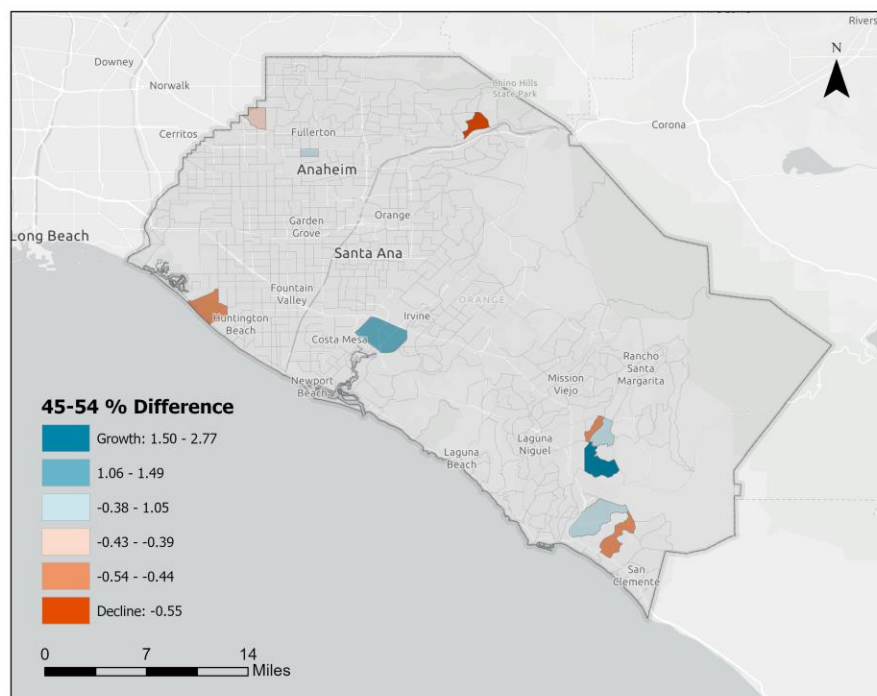
Orange County 2010/2020 Census Age 35-44 Population % Difference



Census Tract	45-54 Difference	45-54 % Difference
06059032058	1,051	277.31%
06059032057	836	104.89%
06059062610	775	149.33%
06059042203	734	82.10%
06059086601	619	97.02%

Census Tract	45-54 Difference	45-54 % Difference
06059021830	-732	-54.79%
06059032039	-622	-44.91%
06059110604	-611	-38.50%
06059042111	-591	-44.20%
06059099415	-571	-47.74%

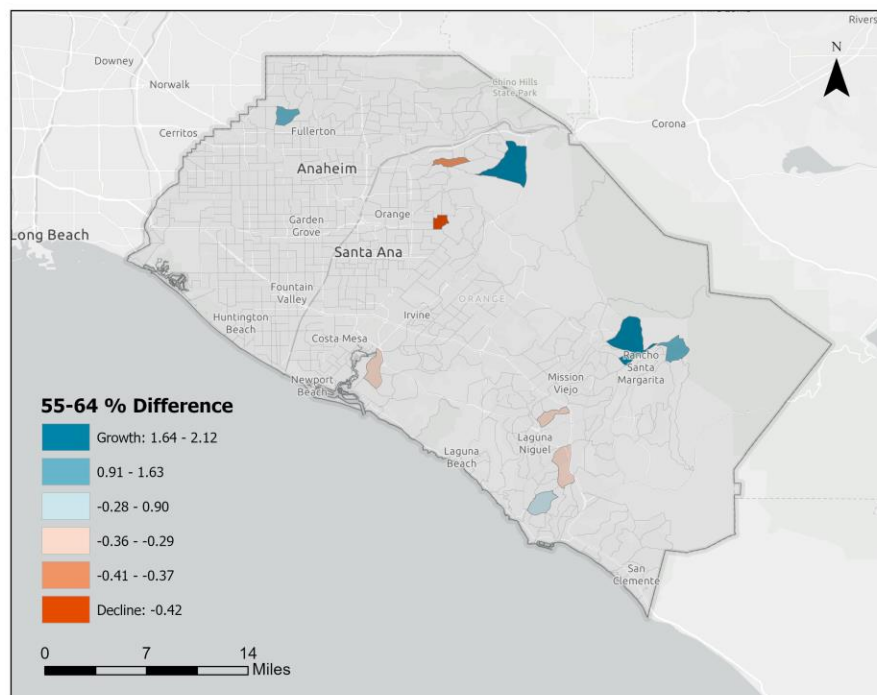
**Orange County 2010/2020 Census Age 45-54 Population % Difference**



Census Tract	55-64 Difference	55-64 % Difference
06059032049	1,050	211.69%
06059021923	1,016	188.85%
06059032042	976	162.67%
06059042332	800	90.19%
06059001704	782	131.65%

Census Tract	55-64 Difference	55-64 % Difference
06059063007	-343	-29.34%
06059042327	-302	-29.67%
06059042315	-297	-30.56%
06059021916	-273	-37.40%
06059021914	-268	-41.94%

**Orange County 2010/2020 Census Age 55-64 Population % Difference**

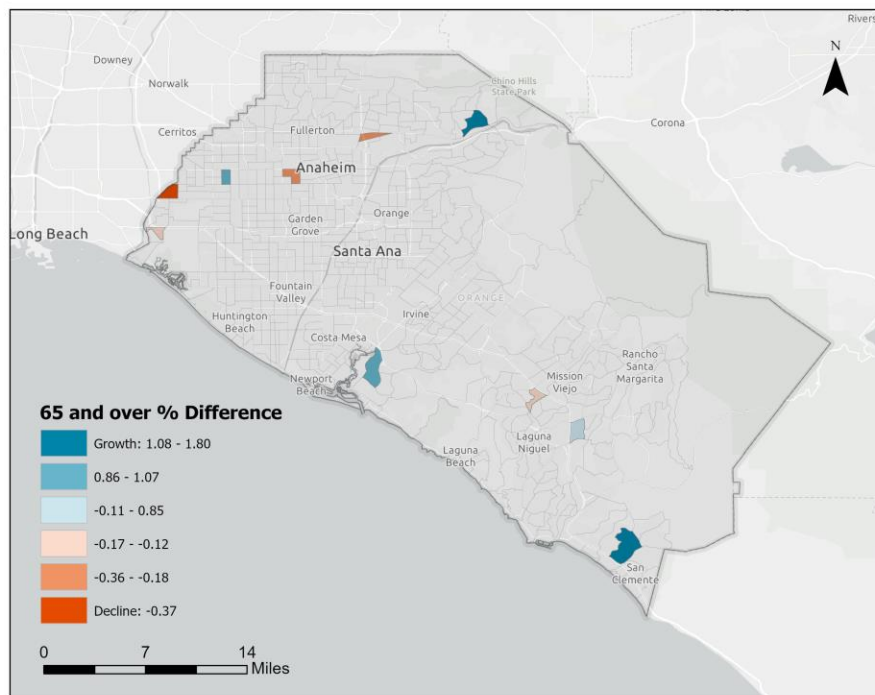




Census Tract	65 and over Difference	65 and over % Difference
06059063007	1,048	105.97%
06059032013	854	84.98%
06059110202	841	107.00%
06059021830	817	172.73%
06059042112	810	180.40%

Census Tract	65 and over Difference	65 and over % Difference
06059099509	-443	-14.71%
06059062647	-258	-12.04%
06059110108	-254	-36.71%
06059087103	-224	-18.54%
06059011722	-189	-18.09%

**Orange County 2010/2020 Census Age 65 And Over Population % Difference**



To provide perspective at a census tract level, comparing the top 5 census tracts of growth and decline among age groups, we see that age groups 25-34, 55-64 and 65 and over experience the largest growth when comparing the overall numbers of growth and decline when comparing the 2010 and 2020 census. Affirming findings at the county level, age groups under 18 and 18-24 show the smallest growth and decline respectfully. Gender distribution remains relatively close, with a great increase in female populations.

<b>Gender</b>	<b>Growth</b>	<b>Decline</b>	<b>Difference</b>
<b>Female</b>	12,219	-3,487	8,732
<b>Male</b>	5,744	-5,464	280

<b>Age Group</b>	<b>Growth</b>	<b>Decline</b>	<b>Difference</b>
<b>25-34</b>	7,395	-3,044	4,351
<b>55-64</b>	4,624	-1,483	3,141
<b>65 and Over</b>	4,370	-1,368	3,002
<b>45-54</b>	4,015	-3,127	888
<b>35-44</b>	4,836	-4,121	715
<b>Under 18</b>	5,744	-5,289	455
<b>18-24</b>	4,343	-4,677	-334

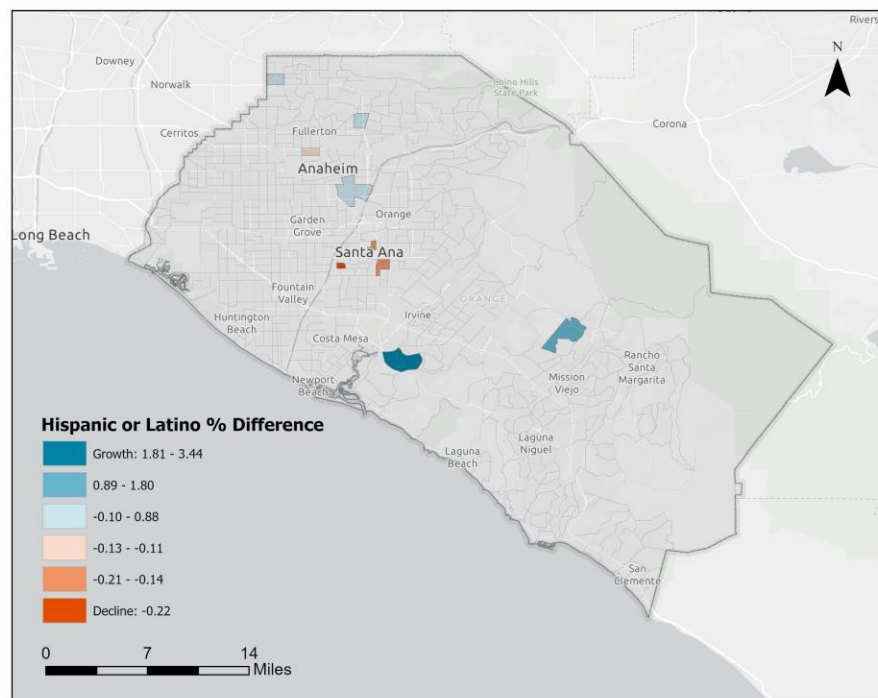
## Race and Ethnicity Group in Orange County between 2010/2020 Representation

Comparison by race/ethnicity of the top 5 census tracts for growth, top 5 census growth for decline and a comparison of the sum of these changes to determine where we are seeing community growth and decline.

Census Tract	Hispanic or Latino Difference	Hispanic or Latino % Difference
06059062614	5,906	343.57%
06059086303	1,922	70.82%
06059011504	1,226	88.14%
06059052422	1,145	180.31%
06059001301	942	35.31%

Census Tract	Hispanic or Latino Difference	Hispanic or Latino % Difference
06059074805	-1,249	-22.04%
06059074602	-1,210	-13.72%
06059075003	-1,008	-14.24%
06059074501	-873	-14.44%
06059086601	-862	-10.89%

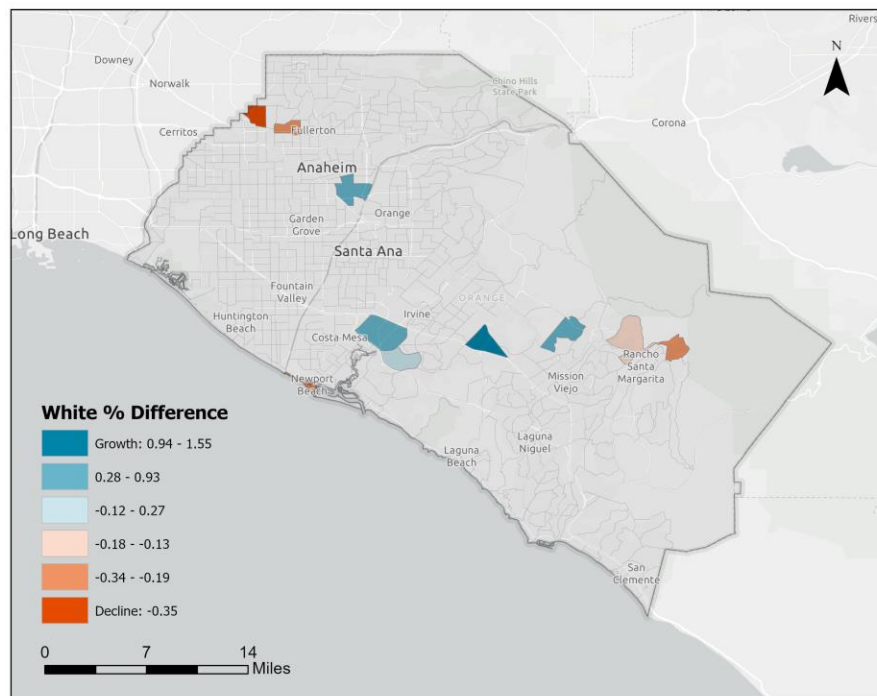
Orange County 2010/2020 Census Hispanic or Latino Population % Difference



Census Tract	White Difference	White % Difference
06059052518	2,532	155.43%
06059052422	2,394	92.54%
06059062610	2,118	61.00%
06059062614	1,373	26.50%
06059086303	1,292	60.97%

Census Tract	White Difference	White % Difference
06059063500	-927	-18.96%
06059032042	-873	-19.13%
06059011000	-835	-24.77%
06059110604	-833	-34.71%
06059032049	-830	-12.98%

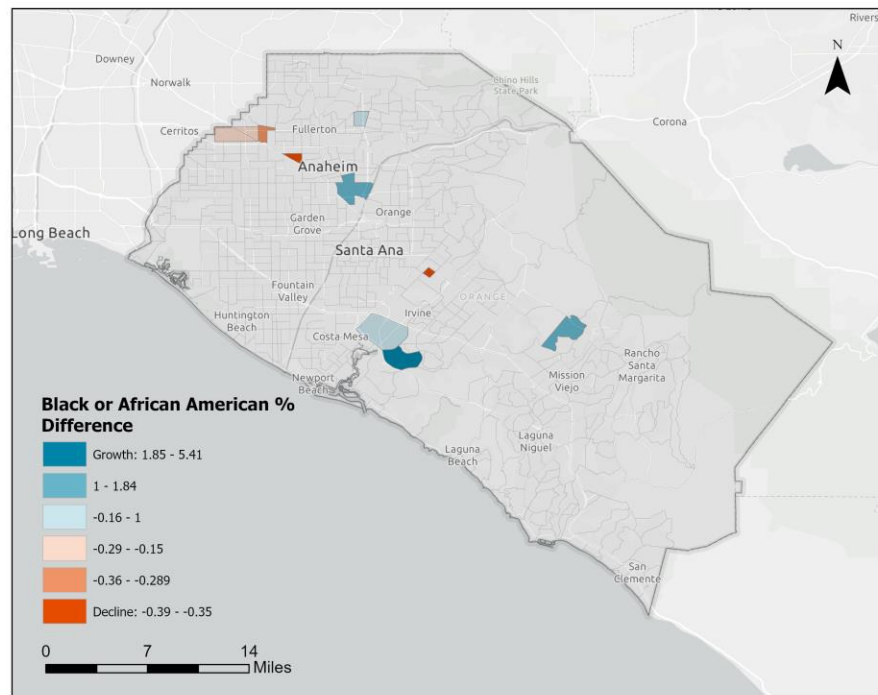
**Orange County 2010/2020 Census White Population % Difference**



Census Tract	Black or African American Difference	Black or African American % Difference
06059062614	1,249	540.69%
06059086303	310	184.52%
06059062610	165	96.49%
06059052422	157	180.46%
06059011504	146	53.48%

Census Tract	Black or African American Difference	Black or African American % Difference
06059086702	-110	-35.83%
06059110603	-82	-21.81%
06059110500	-74	-16.16%
06059075513	-71	-39.44%
06059001801	-69	-28.63%

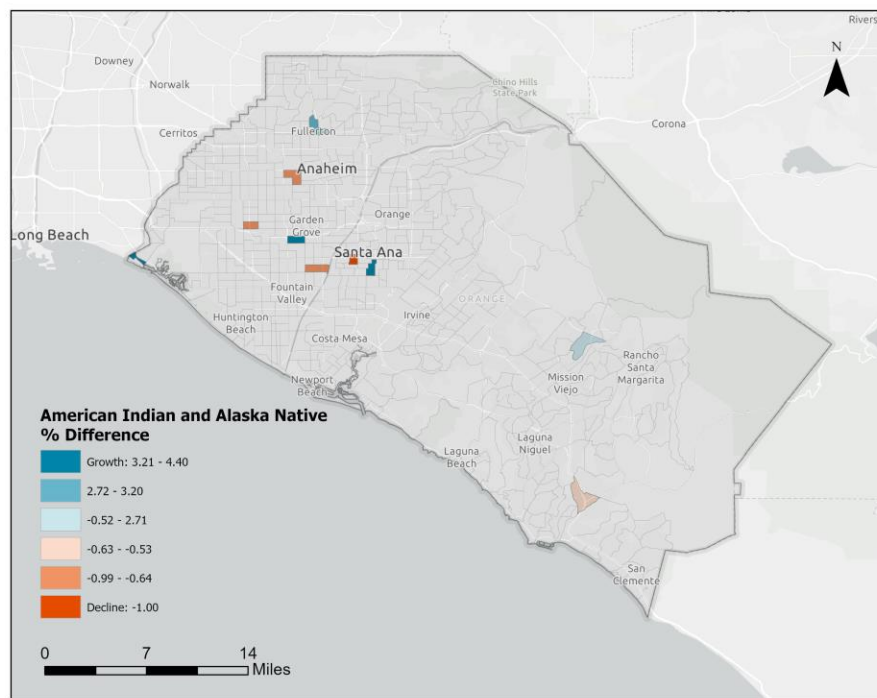
**Orange County 2010/2020 Census Black or African American Population % Difference**



Census Tract	American Indian and Alaska Native Difference	American Indian and Alaska Native % Difference
06059011300	32	320.00%
06059074601	22	440.00%
06059052423	19	271.43%
06059088902	17	425.00%
06059099512	17	425.00%

Census Tract	American Indian and Alaska Native Difference	American Indian and Alaska Native % Difference
06059042312	-41	-53.25%
06059088106	-25	-75.76%
06059087103	-24	-66.67%
06059099202	-23	-63.89%
06059074801	-19	-100.00%

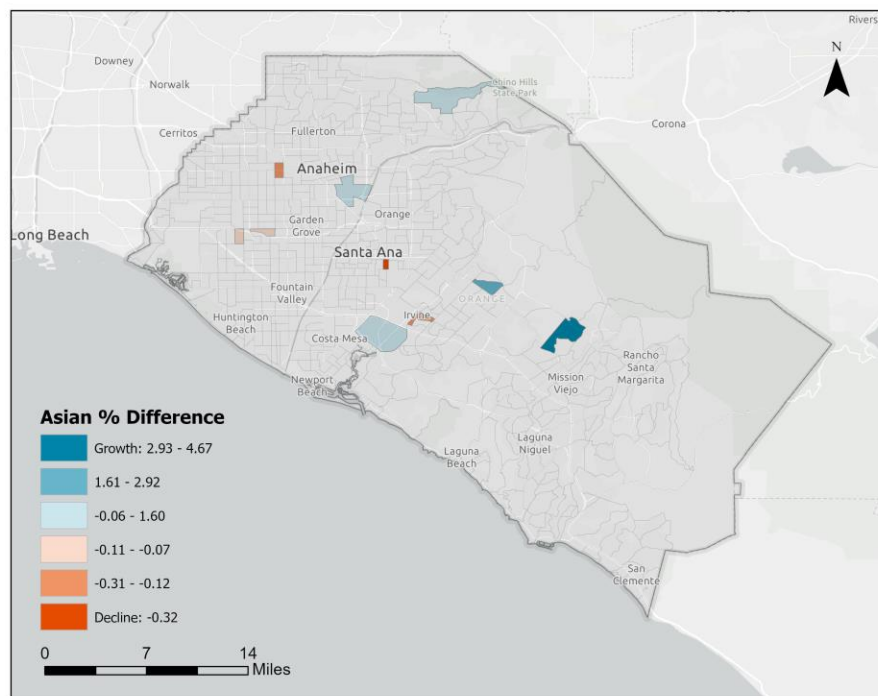
**Orange County 2010/2020 Census American Indian and Alaska Native Population % Difference**



Census Tract	Asian Difference	Asian % Difference
06059052421	4,237	291.60%
06059052422	3,140	466.57%
06059062610	2,148	118.87%
06059021822	1,977	106.23%
06059086303	1,621	159.86%

Census Tract	Asian Difference	Asian % Difference
06059088801	-338	-7.26%
06059052521	-248	-12.20%
06059087101	-234	-15.59%
06059074501	-213	-31.60%
06059099904	-190	-6.81%

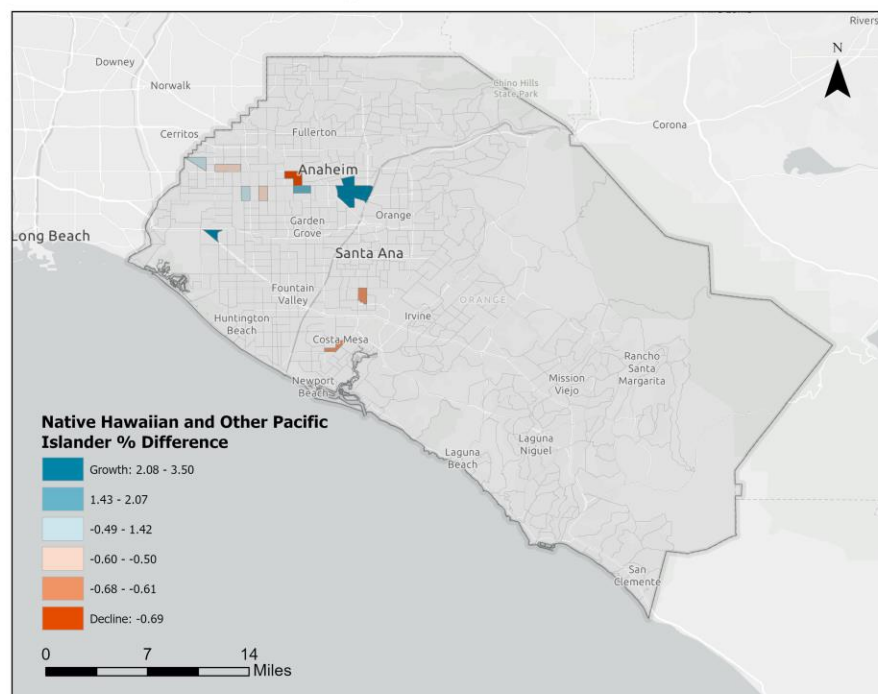
**Orange County 2010/2020 Census Asian Population % Difference**



Census Tract	Native Hawaiian and Other Pacific Islander Difference	Native Hawaiian and Other Pacific Islander % Difference
06059086303	49	288.24%
06059087601	29	207.14%
06059099905	28	350.00%
06059110102	27	142.11%
06059087802	24	120.00%

Census Tract	Native Hawaiian and Other Pacific Islander Difference	Native Hawaiian and Other Pacific Islander % Difference
06059087103	-50	-69.44%
06059063906	-46	-61.33%
06059087805	-43	-50.00%
06059074005	-40	-60.61%
06059110201	-39	-53.42%

**Orange County 2010/2020 Census Native Hawaiian or Pacific Islander Population % Difference**

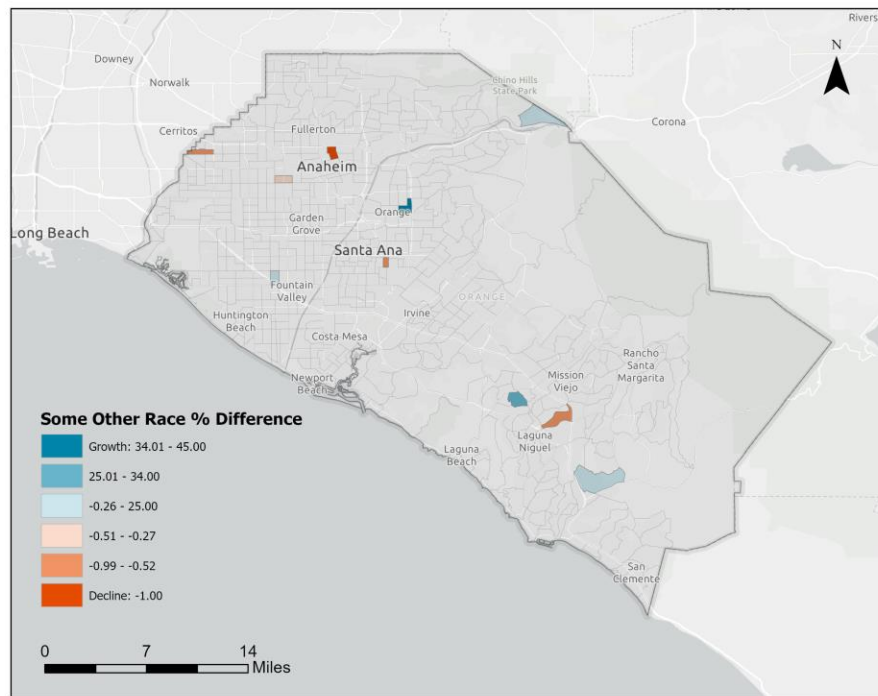




Census Tract	Some Other Race Difference	Some Other Race % Difference
06059075805	45	4500.00%
06059062641	34	3400.00%
06059032061	25	2500.00%
06059099224	24	2400.00%
06059021828	22	2200.00%

Census Tract	Some Other Race Difference	Some Other Race % Difference
06059110116	-16	-51.61%
06059086502	-13	-100.00%
06059074501	-12	-63.16%
06059042328	-10	-76.92%
06059087701	-8	-26.67%

**Orange County 2010/2020 Census Some Other Race Population % Difference**

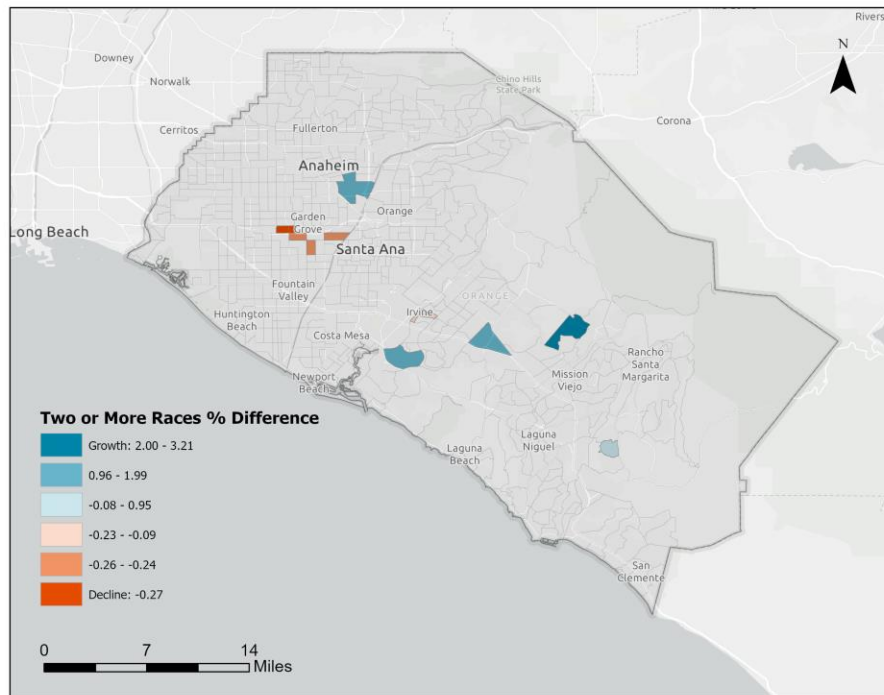


Census Tract	Two or More Races Difference	Two or More Races % Difference
06059062614	1,226	178.72%
06059052422	498	321.29%
06059032059	352	94.62%
06059086303	302	191.14%
06059052518	286	198.61%

Census Tract	Two or More Races Difference	Two or More Races % Difference
06059052521	-33	-8.68%
06059088702	-28	-27.45%
06059089102	-23	-25.84%
06059089001	-21	-25.00%
06059088902	-18	-24.32%

**Orange County 2010/2020 Census Two or More Races Population % Difference**



To provide perspective at a census tract level, comparing the top 5 census tracts of growth and decline among race/ethnicity groups, we see that race/ethnicity groups Asian, Hispanic and Latino and White experiencing the largest growth when comparing the

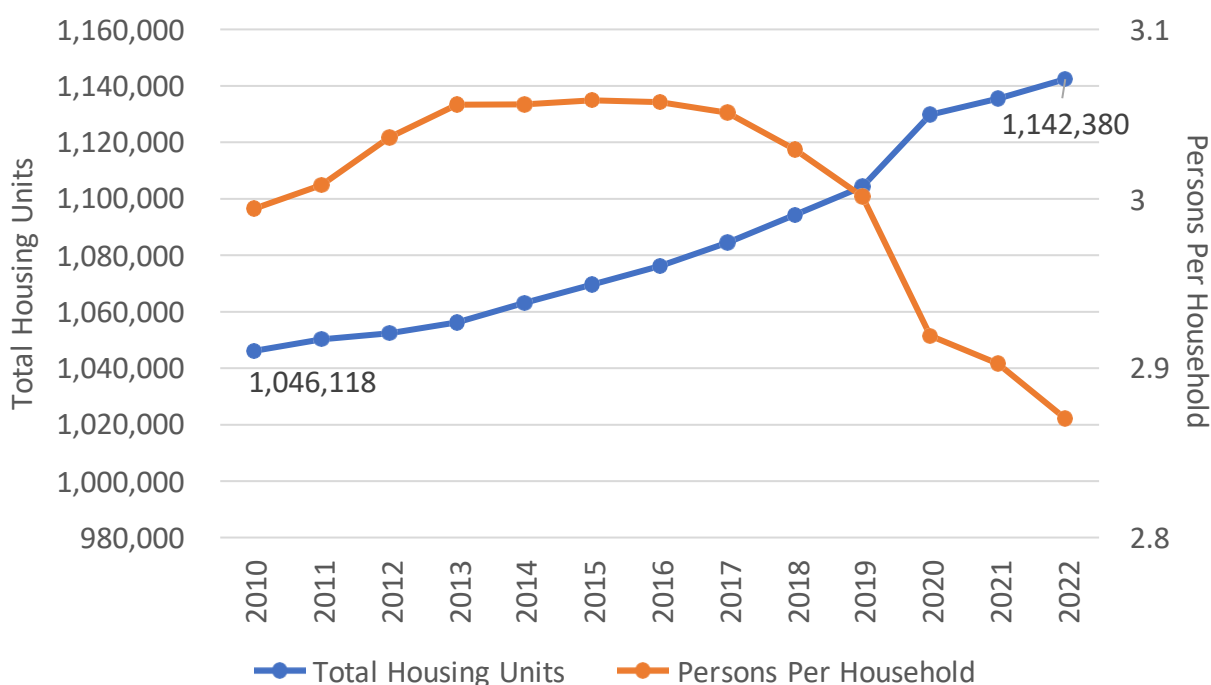
overall numbers of growth and decline when comparing the 2010 and 2020 census. Affirming findings at the county level, race/ethnicity groups Two or More Races and Black or African American showing the smallest growth.

<b>Race/Ethnicity</b>	<b>Growth</b>	<b>Decline</b>	<b>Difference</b>
Asian	13,123	-1,223	11,900
Hispanic or Latino	11,141	-5,202	5,939
White	9,709	-4,298	5,411
Two or More Races	2,664	-123	2,541
Black or African American	2,027	-406	1,621
Some Other Race	150	-59	91
American Indian and Alaska Native	107	-132	-25
Native Hawaiian and Other Pacific Islander	157	-218	-61

## Housing Landscape

Despite steady growth, Orange County's housing supply still lags behind demand, which has pushed the county's home prices to new highs in recent years. There were 1,142,380 housing units in the county in 2022, up 9.2 percent from 1,046,118 in 2010. Over the same time period, the population grew by 5.0 percent. Over the last few years, household size has decreased from 3.1 persons per household in 2016 to 2.9 persons in 2022. While this decline could be attributable to the impacts of COVID-19, other demographic changes may also be driving this trend as well.

**Total Housing Units and Persons Per Household in Orange County, 2010-2022**

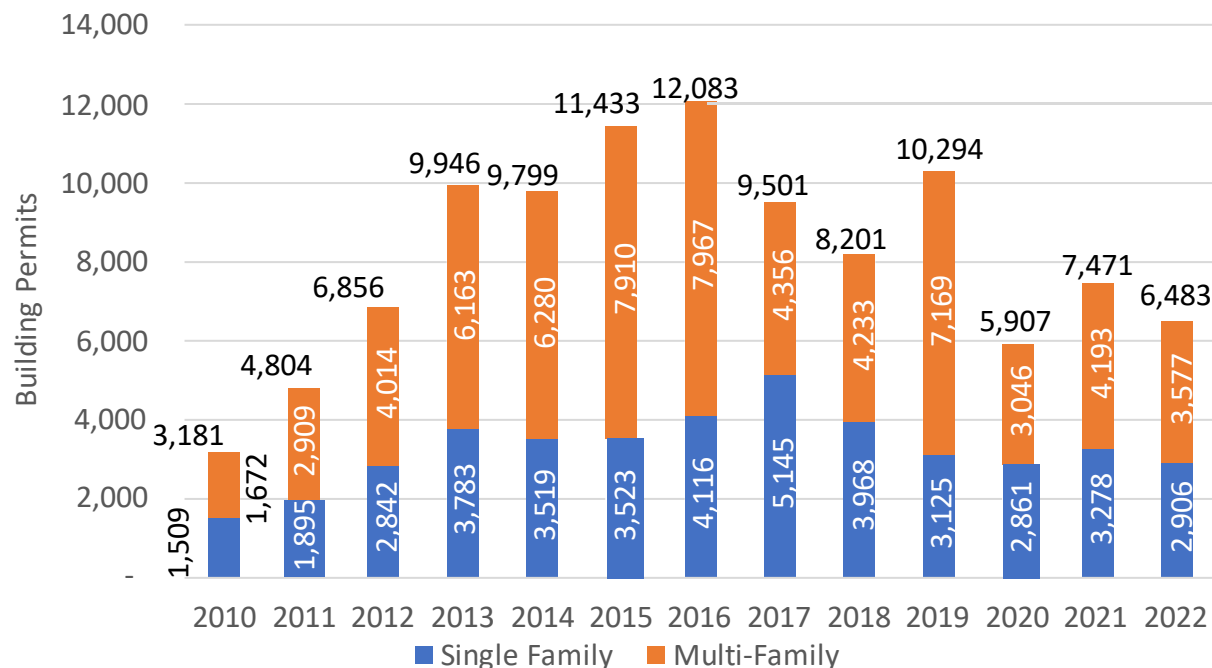


Source: State of California, Department of Finance, *E-5 Population and Housing Estimates for Cities, Counties and the State — January 1, 2021-2022*. Sacramento, California, May 2022.

On the supply side, housing permits in Orange County generally rose in the first half of the last decade, peaking in 2016 with 4,116 single family permits and 7,967 multi-family housing permits for a total of 12,083 housing permits. This figure has declined in recent years. As of 2022, there were 2,906 permitted single-family units and 3,577 multi-family units, bringing the total to 6,483. This was a 46.3 percent decline since 2016 and a decline of 13.2 percent year-over-year. Increasing the supply of housing in Orange County will help to further moderate recent home price growth serving to improve affordability for county residents which has eroded in recent years because of both home price increases and higher mortgage rate. Ensuring that new and existing families in the region are able

to find affordable living spaces close to their place of work will be crucial to reversing recent population trends.

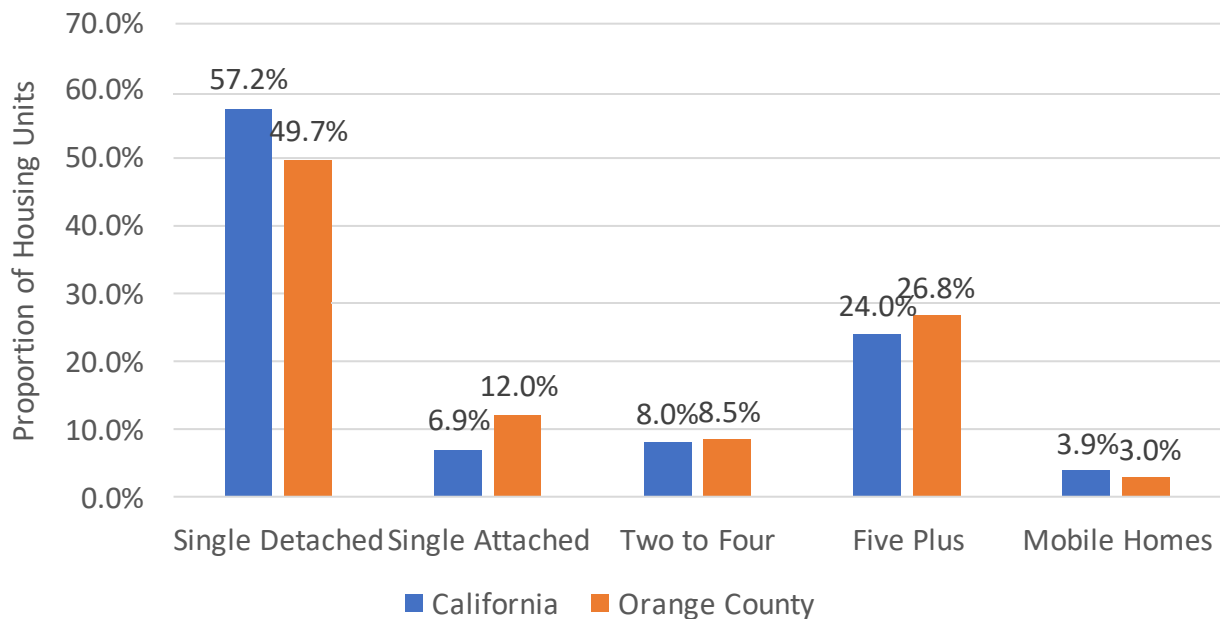
### Orange County Housing Permits, 2010 – 2022



Source: U.S. Census Bureau, Building Permit Survey

Orange County's early role as a bedroom community for Los Angeles manufacturing workers has had long lasting implications including a mix of housing which is focused on single-family arrangements. While Orange County does have a lower proportion of single detached homes at 49.7 percent compared to 57.2 percent for the state, the county does have a higher proportion of single attached housing units as well as housing units with 5+ units indicating. Despite multi-family housing units growing from 24.9 percent of housing stock to 26.8 percent from 2010 to 2022, the region will need to further increase its focus on multi-family unit developments.

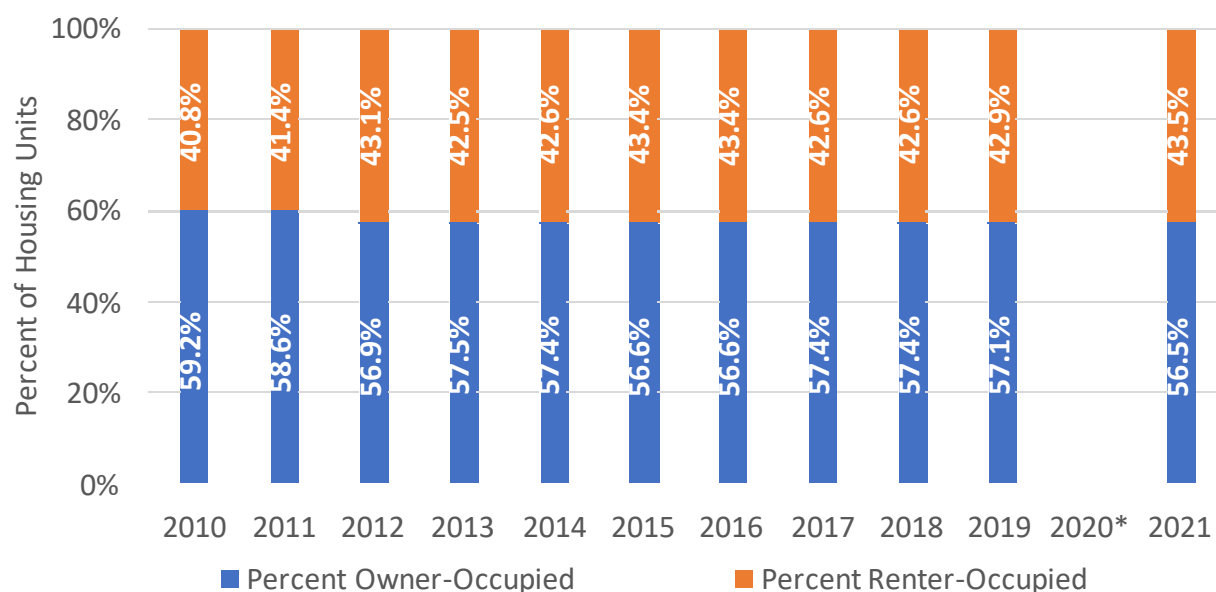
## Orange County and California Housing Breakdown, 2022



Source: State of California, Department of Finance, *E-5 Population and Housing Estimates for Cities, Counties and the State — January 1, 2021-2022*. Sacramento, California, May 2022.

Since 2010, the proportion of renter-occupied housing in Orange County has been gradually increasing while owner-occupied housing has been gradually declining. The percentage of renter-occupied housing grew from 40.8 percent in 2010 to 43.5 percent in 2021, while owner-occupied housing declined from 59.2 percent of total housing units to 56.5 percent.

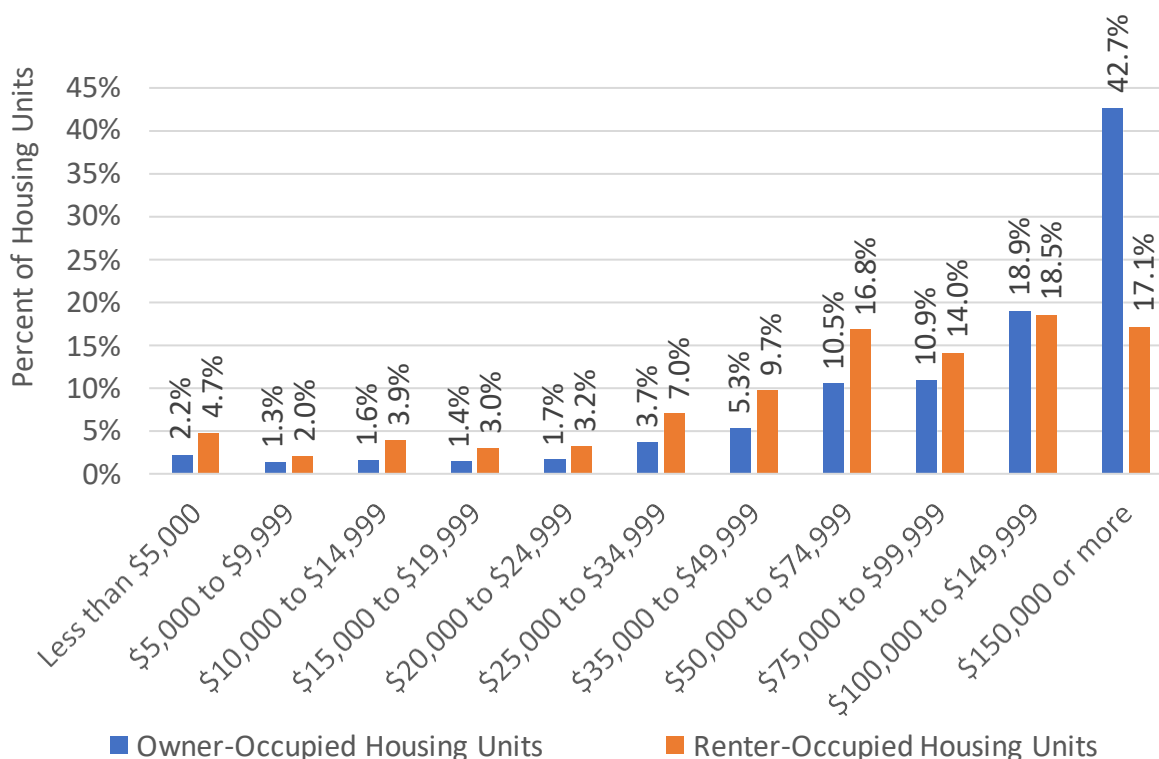
## Percent of Owner- and Renter-Occupied Housing Units in Orange County, 2021



Source: U.S. Census Bureau, American Community Survey, 1-Year Estimates

One glaring difference between owner- and renter-occupied housing units is their distribution by income group. Lower income households tended to be renters, while higher income households tended to own their home. 42.7 percent of owner-occupied housing units were occupied by households making \$150,000 or more accounted for 42.7 percent; by contrast, just 17.1 percent of households in this income group were in rented units. With the cost of both rentals and ownership reaching new highs in recent years, it has become increasingly difficult for would-be buyers to save up for the large down payments required to buy a home.

## Percent of Owner- and Renter-Occupied Housing Units by Income Group, 2021

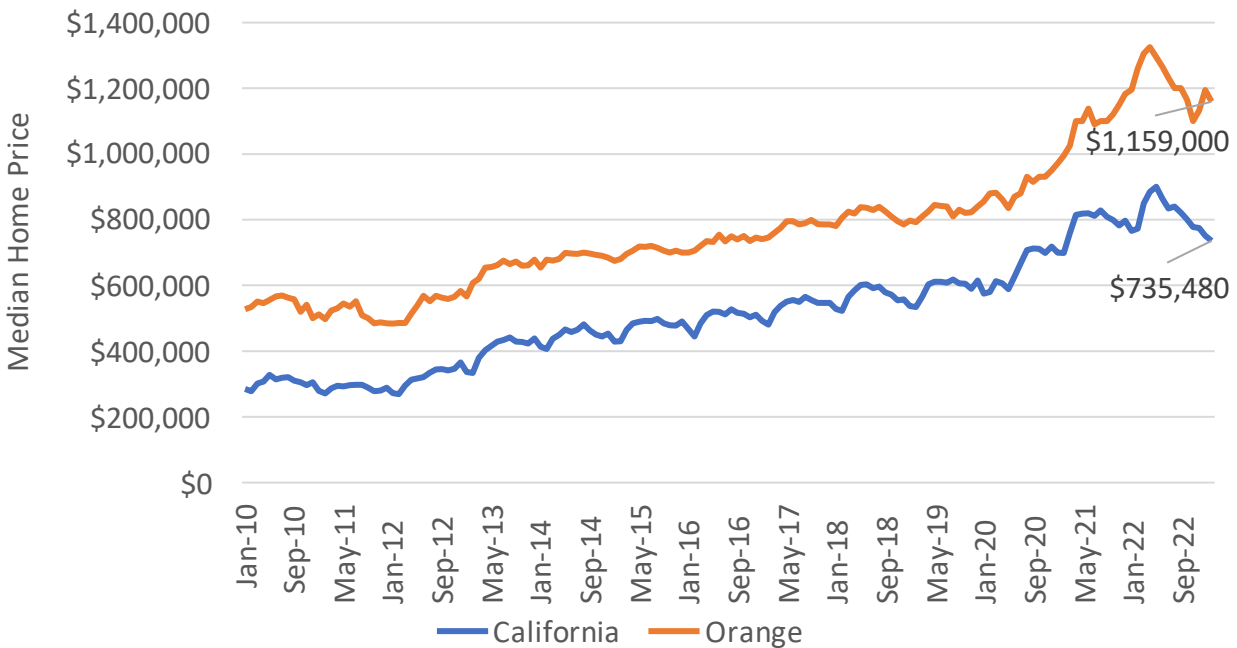


Source: U.S. Census Bureau, American Community Survey, 1-Year Estimates

Interest rates were cut at the start of the pandemic, triggering increased demand for housing in the county and elsewhere. With low supply and high demand, the median home price in Orange County rose from May 2020 forward before peaking in April 2022 at \$1,325,000. The median home price in the state peaked a month later in May 2022 at \$900,170. Since then, home prices both at the county- and state-level have moderated as the Federal Reserve's attempts to rein in inflation with rate increases have resulted in a reduction in the number of qualified buyers bringing both demand and prices down. The state median home price has since declined by 18.3 percent to \$735,480 while in Orange County home prices declined 12.5 percent to \$1,159,000 as of February 2023.



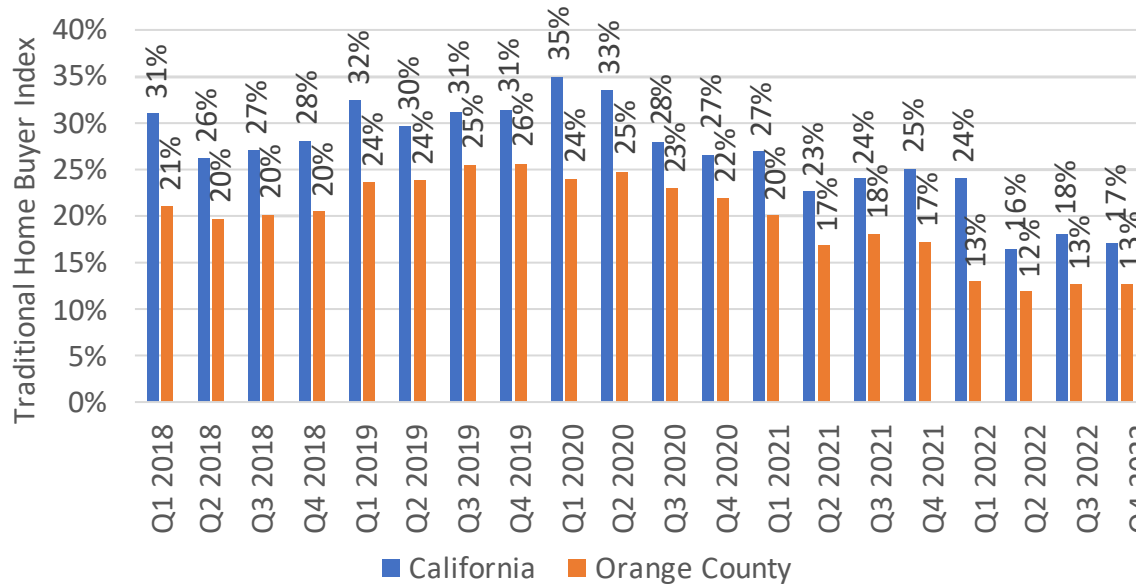
## Orange County and California Median Home Price, 2010 -2022



Source: California Association of Realtors

The California Association of Realtors' Traditional Home Buyer Affordability Index measures the percentage of households in a given region that can afford to purchase a median priced home. This index illustrates the current affordability crisis impacting not only Orange County but across California as well. As of the last quarter of 2022, only 13 percent of households in Orange County and 17 percent of households across the state could afford to purchase a median priced home in the region. Although prices have declined from their recent peaks, they are still high relative to incomes. When combined with interest rates that are at their highest in over a dozen years, the resulting affordability is near historic lows.

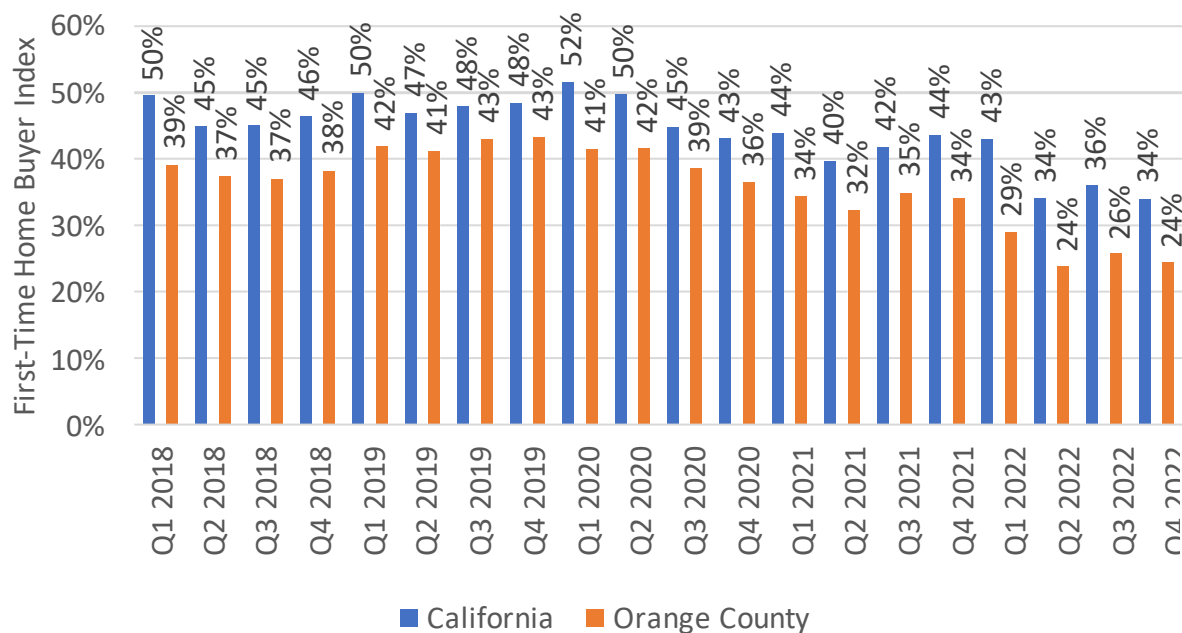
## Orange County and California Traditional Home Buyer Affordability Index, Q1 2018 – Q4 2022



Source: California Association of Realtors

Providing more insight into the affordability crisis, the First-Time Home Buyer Affordability Index measures the percentage of the population that can afford to purchase an entry-level home (priced at 85 percent of the median price of existing homes). In Orange County, the First-Time Home Buyer Affordability Index measured 24 percent compared to 34 percent in California. Orange County's index of 24 percent is just 3 percentage points above the historical low of 21 percent measured in mid-2006. Ensuring residents can afford entry-level homes not only helps to retain existing residents and workers but can also serve to attract young professionals and young families looking to establish themselves in the region.

## Orange County and California First-Time Home Buyer Affordability Index, Q1 2018 – Q4 2022

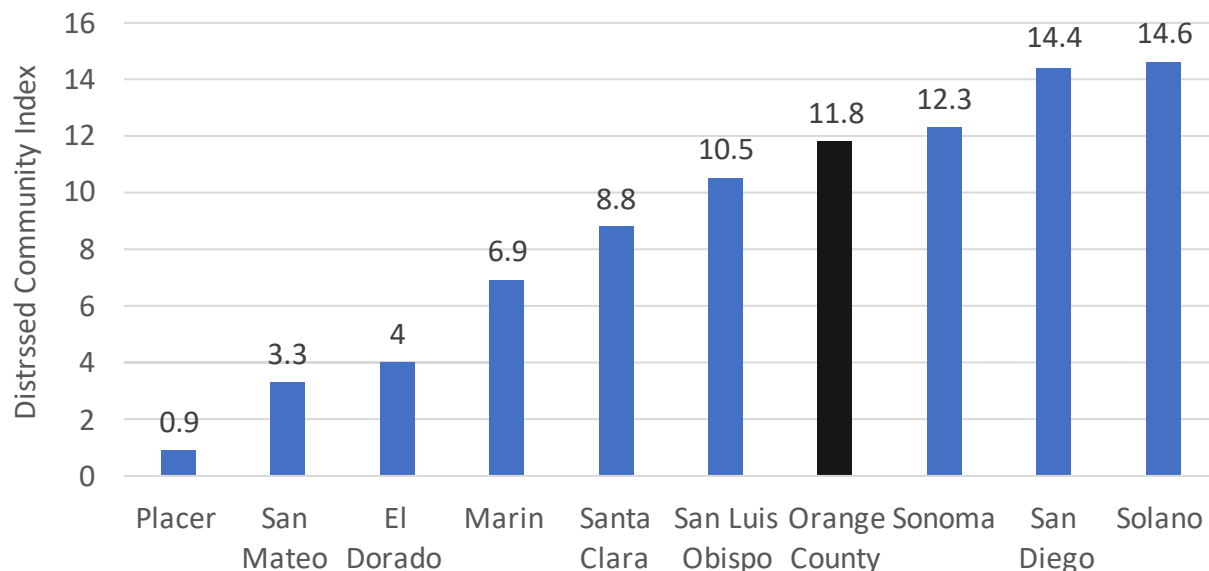


Source: California Association of Realtors

High housing costs are contributing to the cost-of-living across the region, state and nation. Very low- and low-income communities were impacted the most. While there are multiple tools to identify these communities, the Economic Innovation Group created the Distressed Community Index (DCI) to help in measuring comparative economic well-being in U.S. communities. The DCI takes measures of educational attainment, housing vacancy, unemployment, poverty, income, employment and number of businesses.

Orange County had a DCI score of 11.8, the 7th best in the state. This was the best score in the Southern California region, well below Los Angeles County (38.4), San Bernardino County (34.1), Riverside County (21.2), and San Diego County (14.4).

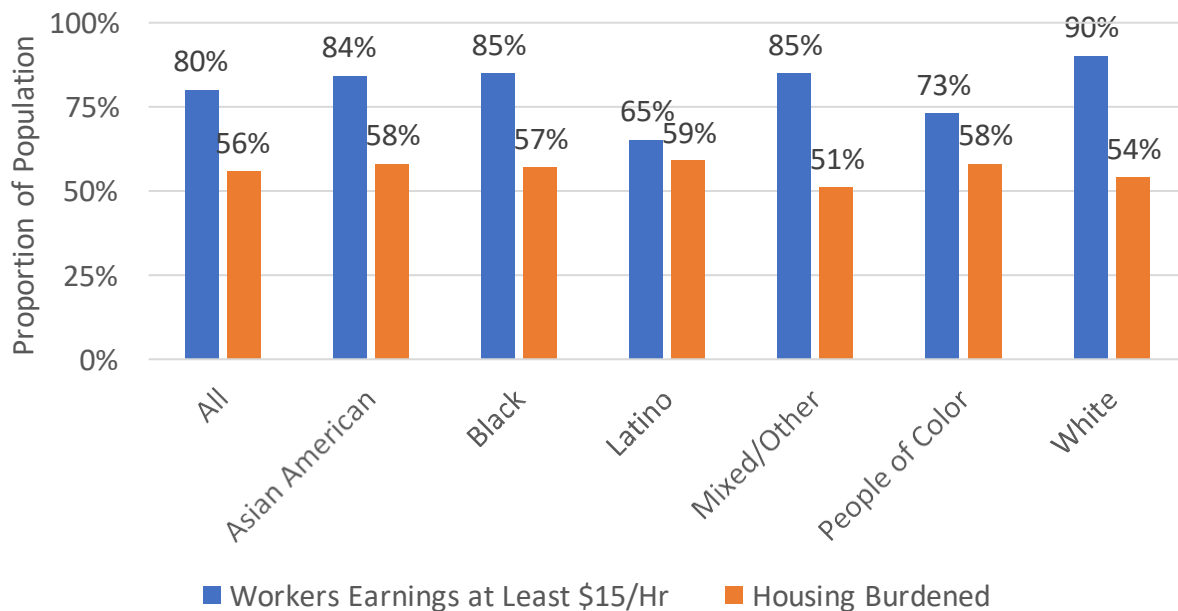
## Orange County and Peer Distressed Community Index, 2022



Source: Economic Innovation Group

The high cost of housing can also be visualized through the percentage of residents who were housing burdened in 2020. Per the U.S. Department of Housing and Urban Development (HUD), families or households who spend more than 30 percent of the income on housing are considered housing burdened. The National Equity Atlas estimates that 56 percent of all Orange County residents are housing burdened, including 59 percent of Latinos, 58 percent of Asian Americans, and 57 percent of Black residents while only 54 percent and 51 percent of White and Mixed/Other residents, respectively, are housing burdened. Orange County's Latino communities, which had the highest housing burden in the county, also had the lowest percentage of residents making at least \$15 an hour.

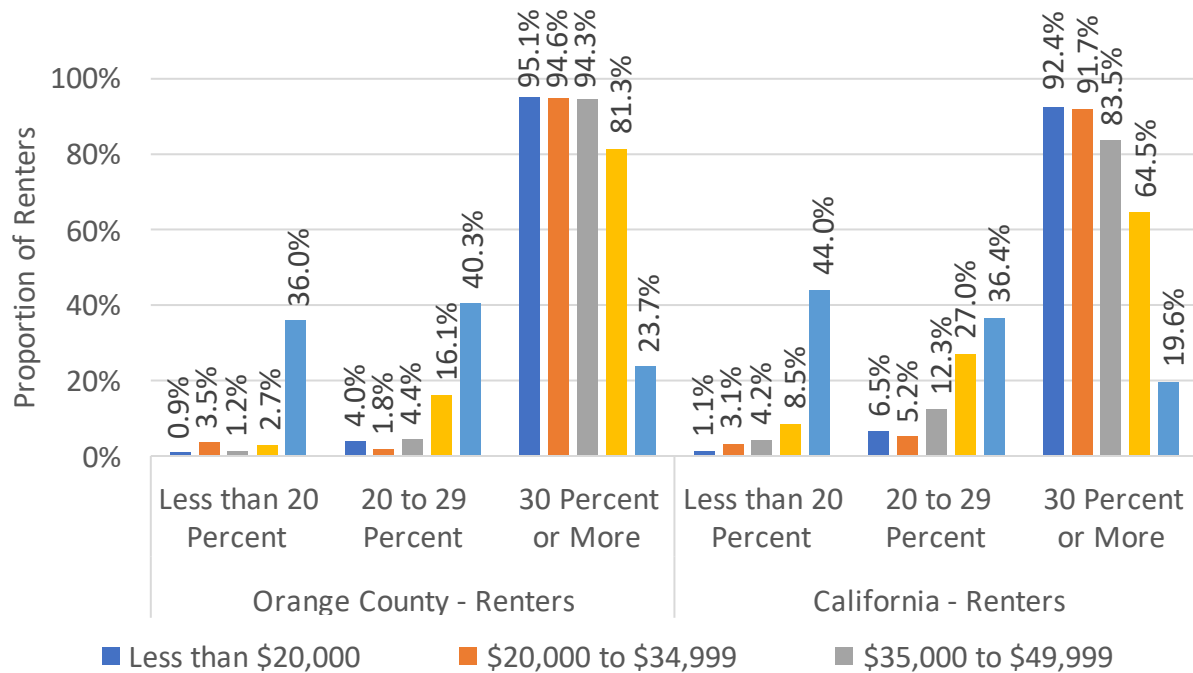
## Proportion of Orange County Residents Who Are Housing Burdened, 2020



Source: National Equity Atlas

The disproportionate spending on housing costs by lower income residents in the region can be seen below. While only 23.7 percent of Orange County renters who make \$75,000 or more pay 30 percent or more of their income on housing costs, the significant majority of all other income groups spent more than 30 percent on housing costs in 2021. This trend is mirrored at the state level.

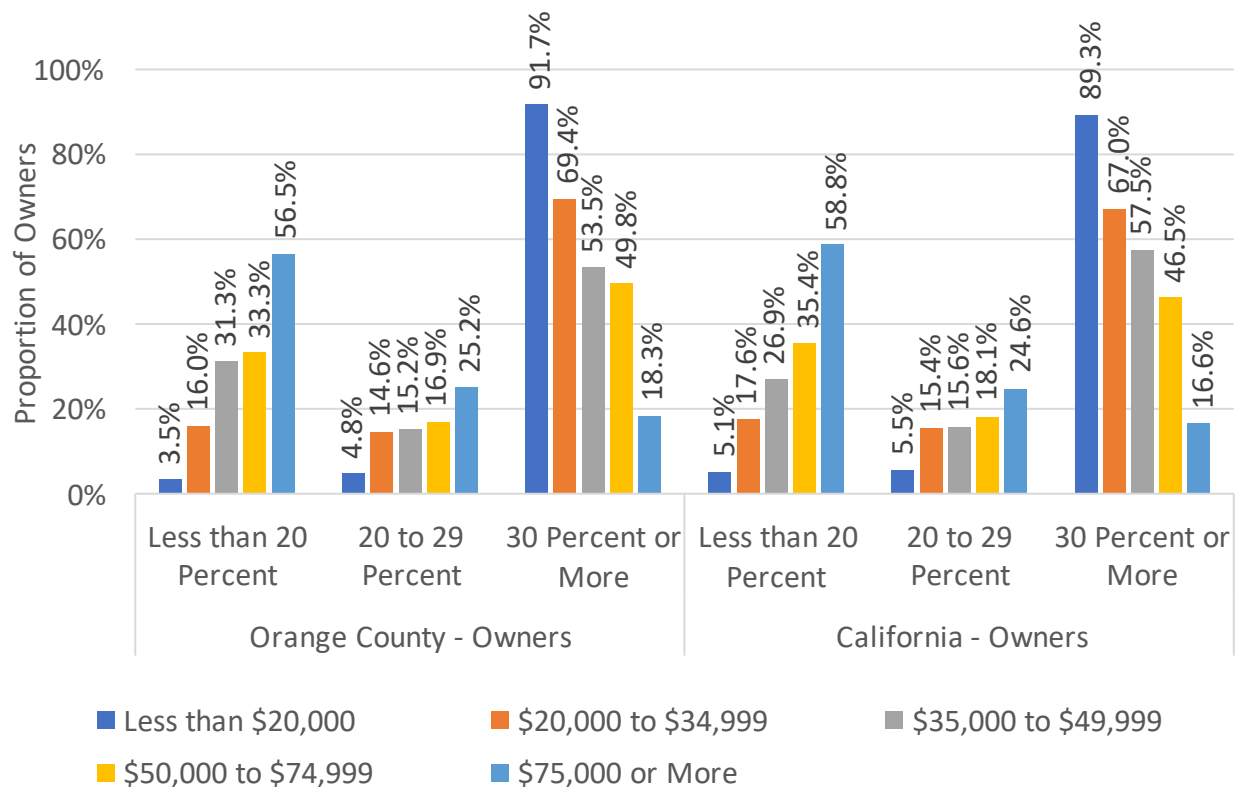
## Proportion of Renters by Percent of Income Spent on Housing Costs, 2021



Source: U.S. Census Bureau, American Community Survey, 1-Year Estimates

Most homeowners also pay 30 percent or more on housing costs. However, the trend is less severe than was seen for renters in Orange County.

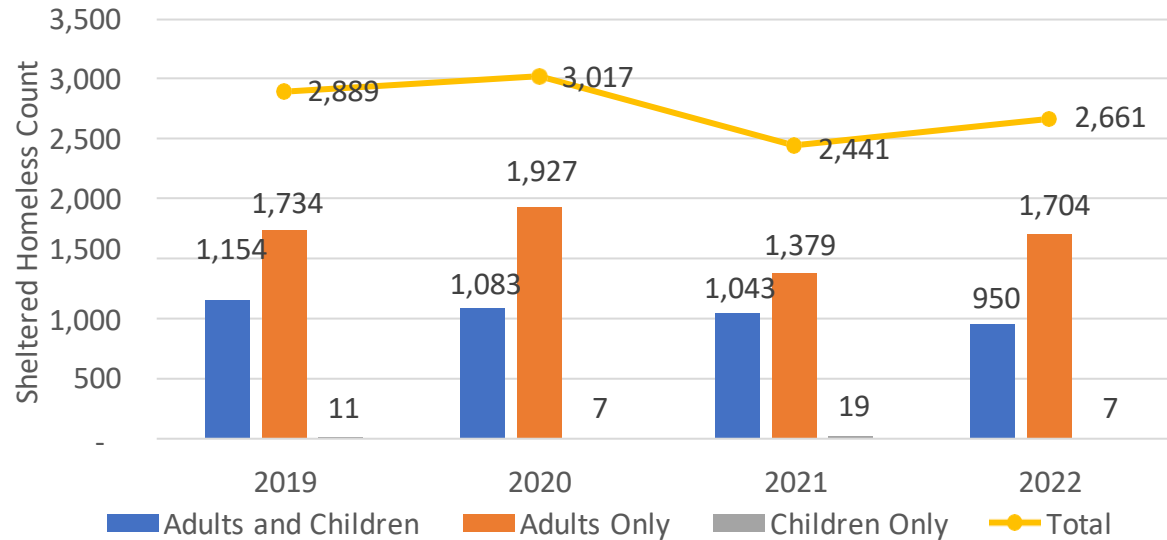
## Proportion of Owners by Percent of Income Spent on Housing Costs, 2021



Source: U.S. Census Bureau, American Community Survey, 1-Year Estimates

Despite increasing slightly from 2021 to 2022, the number of sheltered homeless in Orange County remains below pre-pandemic totals. Sheltered populations in Orange County increased by 220 individuals, or by 9 percent, from 2021 to 2022 but remained 228 individuals or 7.9 percent below 2019 totals. The number of sheltered families in Orange County, those with adults and children, has been steadily decreasing since 2019, averaging a 6.3 percent annual decline from 2019 to 2022.

## Sheltered Homelessness Count in Orange County, 2019 – 2022

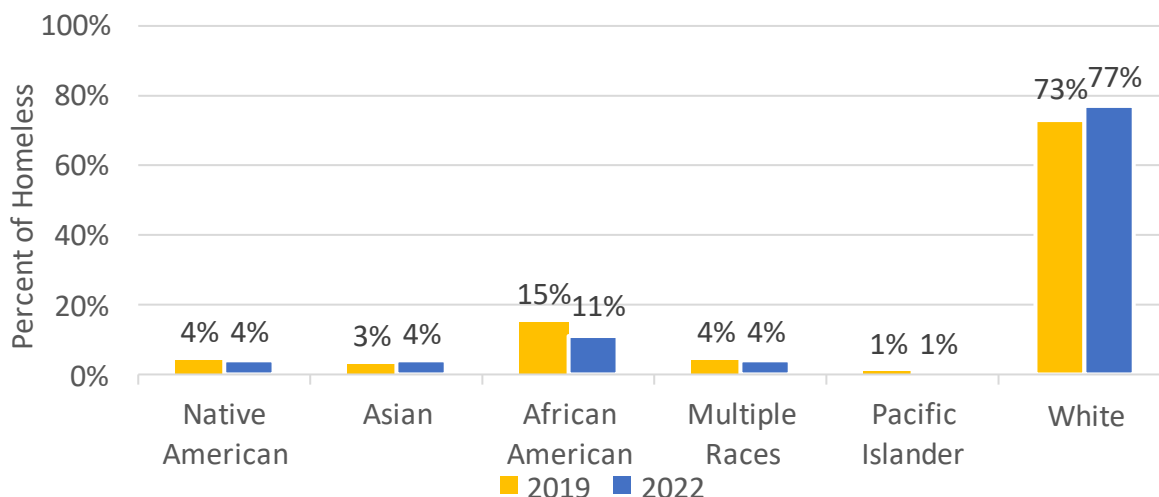


Source: Orange County Homeless Management Information System (HMIS) Point-in-Time Count Reports and Briefs

When looking at sheltered homeless by race or ethnicity, the majority (77 percent) identified as White in 2022, followed by 11 percent identifying as African American, and Native American, Asian and Multiple Races tied at 4 percent. Overall, while the proportion of the sheltered population identifying as African American declined from 15 percent to 11 percent from 2019 to 2022 the proportion identifying as White increased from 73 percent to 77 percent and the proportion identifying as Asian increased from 3 percent to 4 percent.



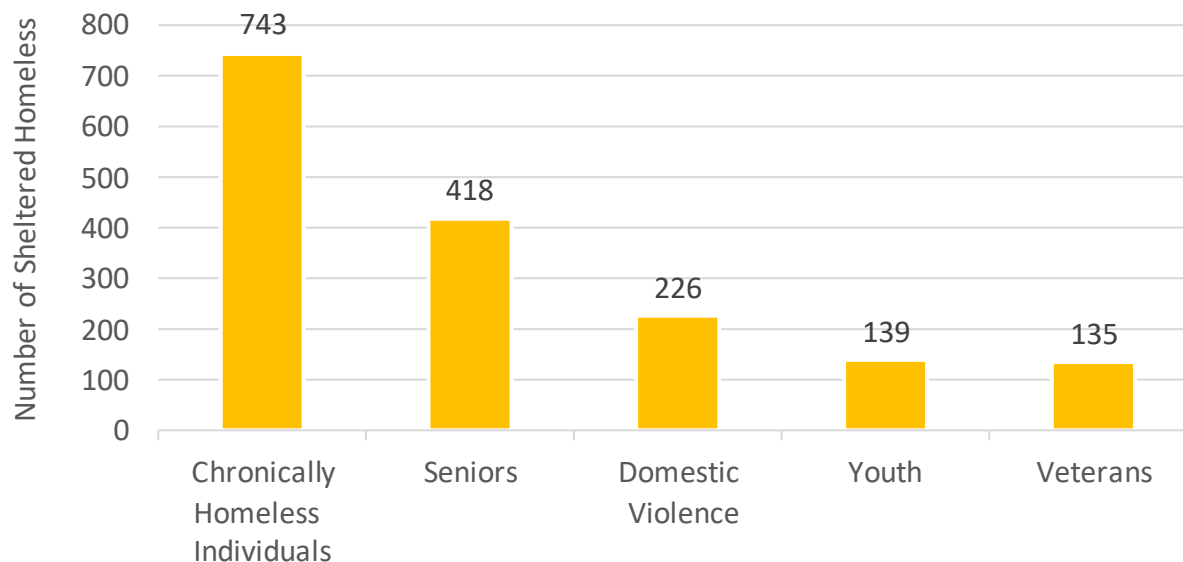
### Sheltered Homelessness by Race/Ethnicity in Orange County, 2019 and 2022



Source: Orange County Homeless Management Information System (HMIS) Point-in-Time Count Reports and Briefs

The largest sheltered homeless group who are vulnerable or who may require additional services were chronically homeless individuals at 743, followed by seniors at 418, and those in domestic violence programs at 226.

### Sheltered Homelessness by Special Populations, 2019-2022



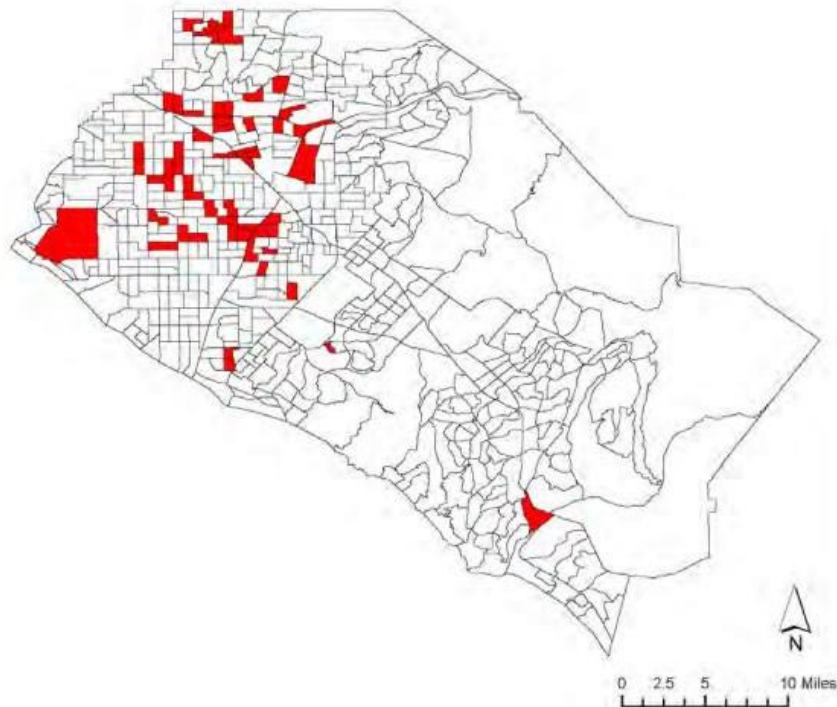
Source: Orange County Homeless Management Information System (HMIS) Point-in-Time Count Reports and Briefs

## Red Zones

Orange County's economic prosperity is not evenly distributed within the county. While Orange County is home to some of the most expensive neighborhoods and ZIP codes in the United States, it also has much poorer areas. As of 2022, just over ten percent of county residents lived under the poverty line. While this is less than all of its neighbors (such as Los Angeles County, at 14.2 percent, and Riverside County, at 12.5 percent), it does represent a significant portion of the county population.

As part of the Community Economic Development Strategy (CEDS) Five-Year Plan, OCBC identified the county's most disadvantaged areas, the Red Zones: census tracts with unemployment rates two or more percentage points above the national average and per capita income less than 80 percent of the national average. Across the county, 55 census tracts qualify as Red Zones, with the largest numbers in Anaheim (12), Santa Ana (10) and Fullerton (7). As seen in the map below, these tracts are almost exclusively located in the northern part of the county.

### *Red Zone Map of Orange County*



19 PERCENT OF NEIGHBORHOODS HAVE LOW LEVELS OF FAMILY FINANCIAL STABILITY

FAMILY FINANCIAL STABILITY INDEX – ORANGE COUNTY:  
2020 NEIGHBORHOOD-LEVEL RESULTS

The map displays the geographical distribution of family financial stability across Orange County's neighborhoods. The color coding indicates that while many areas are in the 'High' (green) or 'Medium' (yellow) categories, there are significant pockets of 'Low' (red) and 'Very Low' (dark red) stability, particularly in the central and western parts of the county. Major transportation corridors like SR 91, SR 15, and SR 5 are clearly marked. The map also shows the county's irregular coastline and its proximity to neighboring jurisdictions, indicated by hatched areas.

## **Economy and Economic Development**

### **Dr. Robert Kleinhenz, California State University Long Beach**

In 2019, before the pandemic upended the job market, approximately 965,000 county residents also worked in Orange County. About 530,000 county residents commuted to other counties for work, while more than 720,000 commuted into the county. The county, in other words, had a net influx of about 190,000 commuters, which reflects its hot job market and lack of affordable workforce housing.

The University of California, Irvine (UCI) was Orange County's largest employer in 2022 with more than 26,000 employees. The rest of the county's top ten employers included:

- Walt Disney Company (25,000)
- County of Orange (18,139)
- Providence Southern California (13,079)
- Kaiser Permanente (8,800)
- Albertsons Southern California Division (7,853)
- Hoag Memorial Hospital (7,051)
- Walmart (6,300)
- Target (6,000)
- MemorialCare (5,490)

This mix of employers reflects some of the county's most important industries, namely Tourism and Hospitality, Healthcare, Retail and Education. While Orange County is home to major corporations, small businesses are equally important to the county economy as 97.4 percent of county businesses employ fifty or fewer employees.

One key indicator of Orange County's growth and urbanization is its high-tech sector. According to the Milken Institute's *Best Performing Cities* report, it has the nation's second most concentrated high-tech sector, second only to Oakland and more concentrated than Seattle or San Jose. Similarly, multiple Fortune 500 companies are headquartered in Orange County, including Ingram Micro, Pacific Life and Western Digital.

Orange County employers do face several challenges, especially the skills gap: the discrepancy between employer needs and the skills that job candidates actually present. In particular, many job candidates lack the right combination of 'hard' (technical) and 'soft' (social and organizational) skills needed for success in the 21<sup>st</sup> century workplace. This mismatch may be exacerbated by the fact that Orange County attracts 190,000 workers from outside the county which may have different educational attainment or skills development.

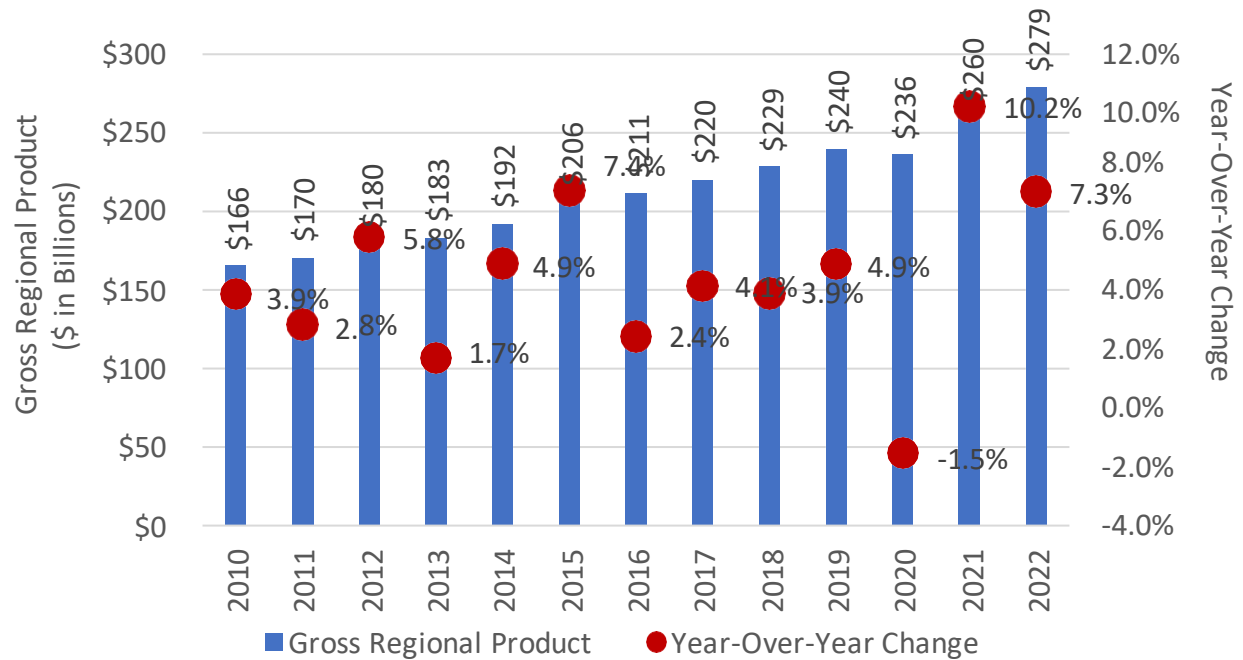
Finally, one major part of Orange County's strong business climate is the extent to which established employers – both public and private – support the next generation of entrepreneurs. For example, UCI's Applied Innovation Program supports local

entrepreneurs and startups through a number of programs and partnerships, including ANTrepneur Center, BioENGINE, Experts-in-Residence, I-Corps @ UCI, POP Grants, Tech Surge, and Wayfinder Incubator. Other similar programs include Chapman University's Launch Labs Application, part of the Chapman University Ralph W. Leatherby Center for Entrepreneurship and Business Ethics, and California State University, Fullerton's (CSUF's) CSUF Startup Incubator.

Orange County's 2022 Gross Regional Product (GRP) was \$279 billion, larger than that of 25 states and many countries. A number of key strengths fuel this strong economy:

- Its prime geographic location and proximity to other major population centers.
- Its extensive transportation network, including ports, airports, freeways and railways.
- A significant manufacturing sector that includes information technology industries, aerospace and defense-related activities, medical devices, and construction related products.
- A large and dynamic array of professional, financial, and real estate sectors that serve the clients in region, the nation, and globally.
- Major attractions such as the Disneyland Resort and Knott's Berry Farm that anchor Southern California's tourism and hospitality industry.
- Its internationally renowned quality of life, as seen in its mild weather and 42 miles of coastline.
- Its strong business environment, with both successful multinationals and cutting-edge startups.
- Its highly educated population, which gives today and tomorrow's businesses a deep talent pool of potential job candidates.
- World class beaches and surfing which play host to a number of competitions including the annual U.S. Open of Surfing in Huntington Beach.
- Orange County has over 1,000 miles of bikeways and scenic trails providing significant recreational opportunities for both residents and visitors.

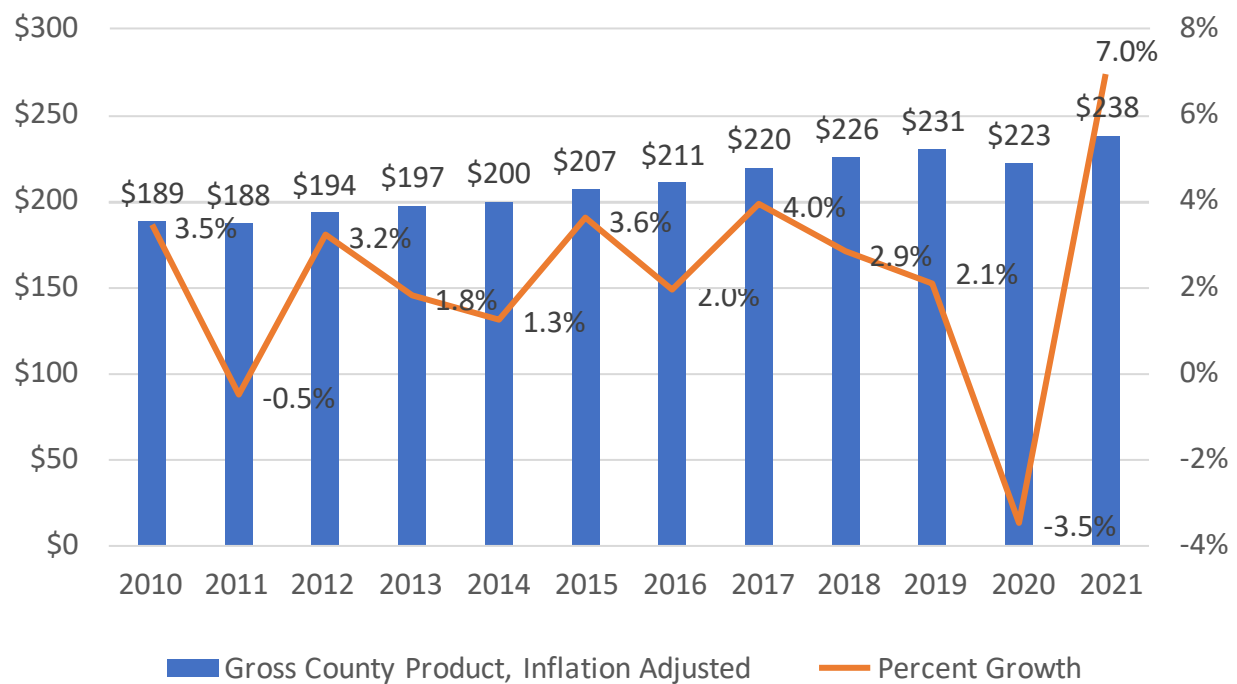
## Orange County Gross Regional Product (GRP) in Current Dollars, 2010-2022



Source: Lightcast

Over the past year, nominal GRP increased by 7.3 percent, slightly below the year-over-year growth experienced from 2020 to 2021 of 10.2 percent. Overall, the pandemic served to cut GRP by \$4 billion with GRP shrinking from \$240 billion in 2019 to \$236 billion in 2020.

## Orange County Gross Regional Product (GRP) in Inflation Adjusted Dollars, 2010-2021

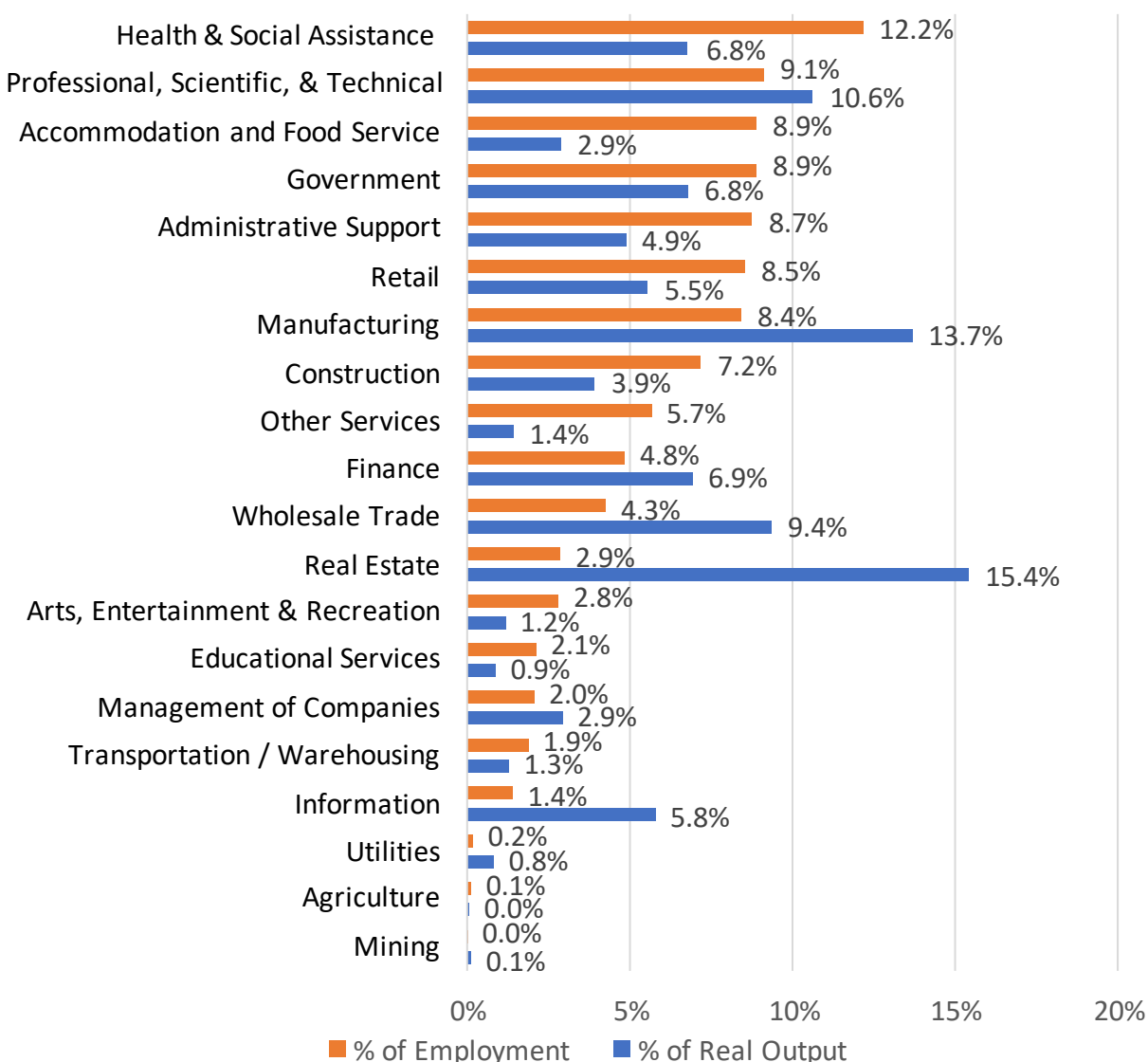


Source: Bureau of Economic Analysis

In thinking about the contribution each sector makes to the Orange County economy, it is common to look at each sector's share of total employment. For example, Healthcare and Social Assistance jobs account for the largest share of county jobs at 12.2 percent, followed by Professional, Scientific, and Technical Services at 9.1 percent, and Food and Accommodation Services and Government, each at 8.9 percent. However, when viewed in terms of the contribution to the county's Gross Regional Product, or regional economic activity measured in value terms, there are some significant differences.

The Real Estate Rental and Leasing sector, which ranked twelfth by employment, accounts for 15.4 percent of county economic activity. Manufacturing ranks fifteenth by employment, but second in terms of GRP at 13.7 percent, and Professional, Scientific, and Technical Services is third at 10.6 percent, compared to second when ranked by employment. Health Care, which ranked first in terms of employment, is the sixth largest in terms of GRP, while Accommodation and Food Services falls to thirteenth place with a contribution of 2.9%. The difference between proportion of GRP and proportion of industry employment helps provide insight on which sectors drive economic activity in the county economy, as opposed to job creation.

## Orange County Real Gross Regional Product and Employment by Industry



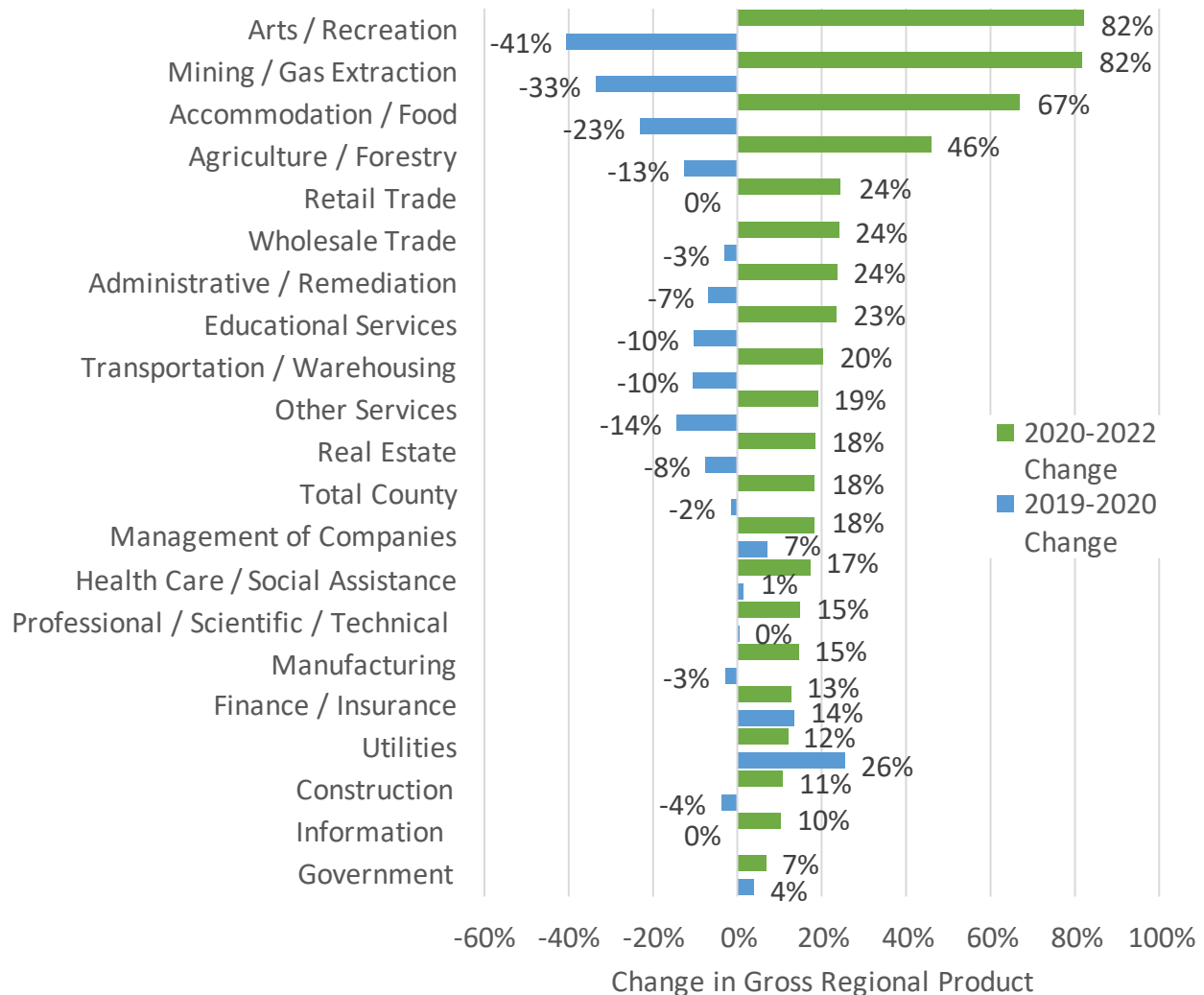
Source: Bureau of Economic Analysis

With the COVID-19 pandemic forcing the closure of many businesses in the region in an attempt to reduce community spread, certain industry sectors were more impacted than others. Orange County's Arts, Entertainment and Recreation industry saw GRP tumble 41 percent from 2019 to 2022 followed by Mining and Gas Extraction at 33 percent and Accommodation and Food Services at 23 percent. With theme parks, movie theaters, and many retailers completely closed, and restaurants fumbling to adopt food delivery services or pass constantly changing rules and regulations, these sectors were dramatically impacted.



Yet, these sectors also saw the most significant recoveries in GRP as well with Arts, Entertainment and Recreation and Mining and Gas Extraction jumping 82 percent from 2020 to 2022 and Accommodation and Food Service recovering 67 percent during the same time period.

### Impacts of the COVID-19 Induced Recession on Orange County Industry Gross Regional Product, 2020-2022



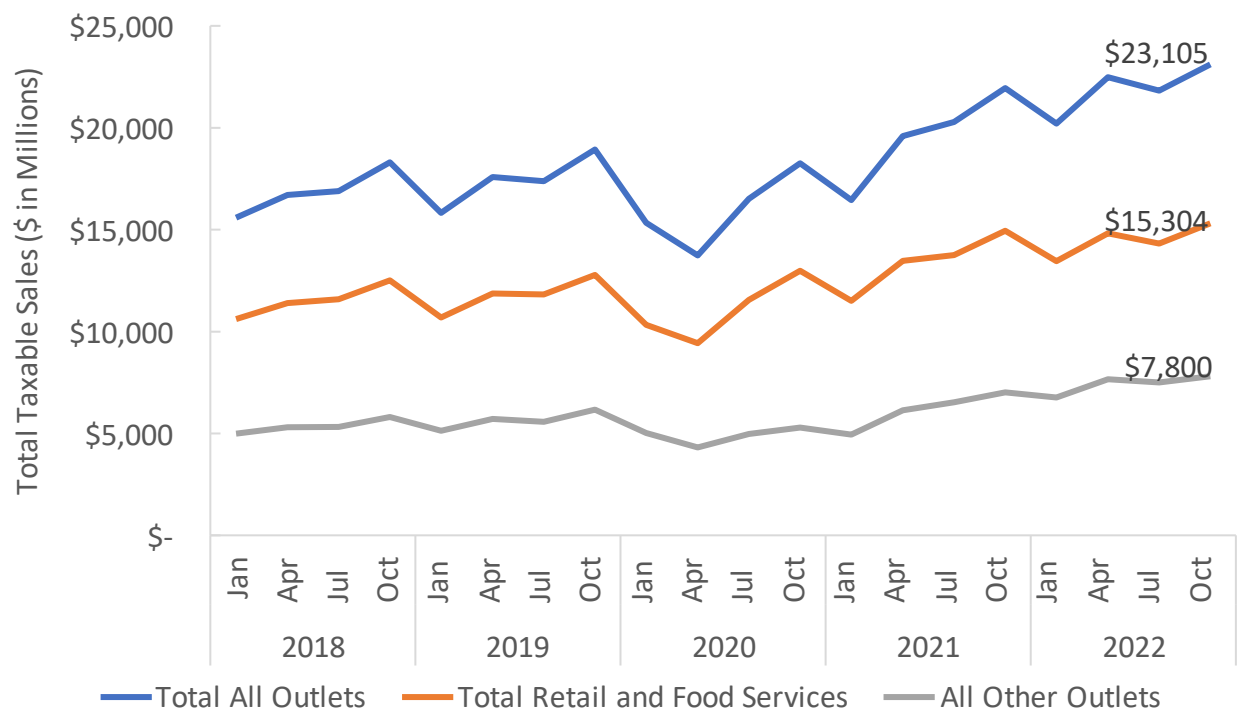
Source: Lightcast

Taxable retail sales in the region not only serves as a measure of economic activity, but also provides insights into which sectors are helping to drive those metrics. Overall, all retail outlets in Orange County had taxable sales of approximately \$23.105 billion in the fourth quarter of 2022, with Retail and Food Services representing 66.2 percent of that total and All Other Outlets accounting for 33.8 percent. From the fourth quarter of 2019

to the first quarter of 2020, total taxable sales in Orange County declined 19.0 percent and by another 10.4 percent the following quarter, before rebounding by 20.3 percent in the third quarter of that year and by another 10.6 percent the following quarter.

More recently, total taxable sales in Orange County increased by 5.9 percent from the third to the fourth quarters of 2022, with Retail and Food Services seeing growth of 6.9 percent and All Other Outlets seeing growth of 4.0 percent.

### Total Taxable Sales by Outlet Type in Orange County, Q1 2018 – Q4 2022

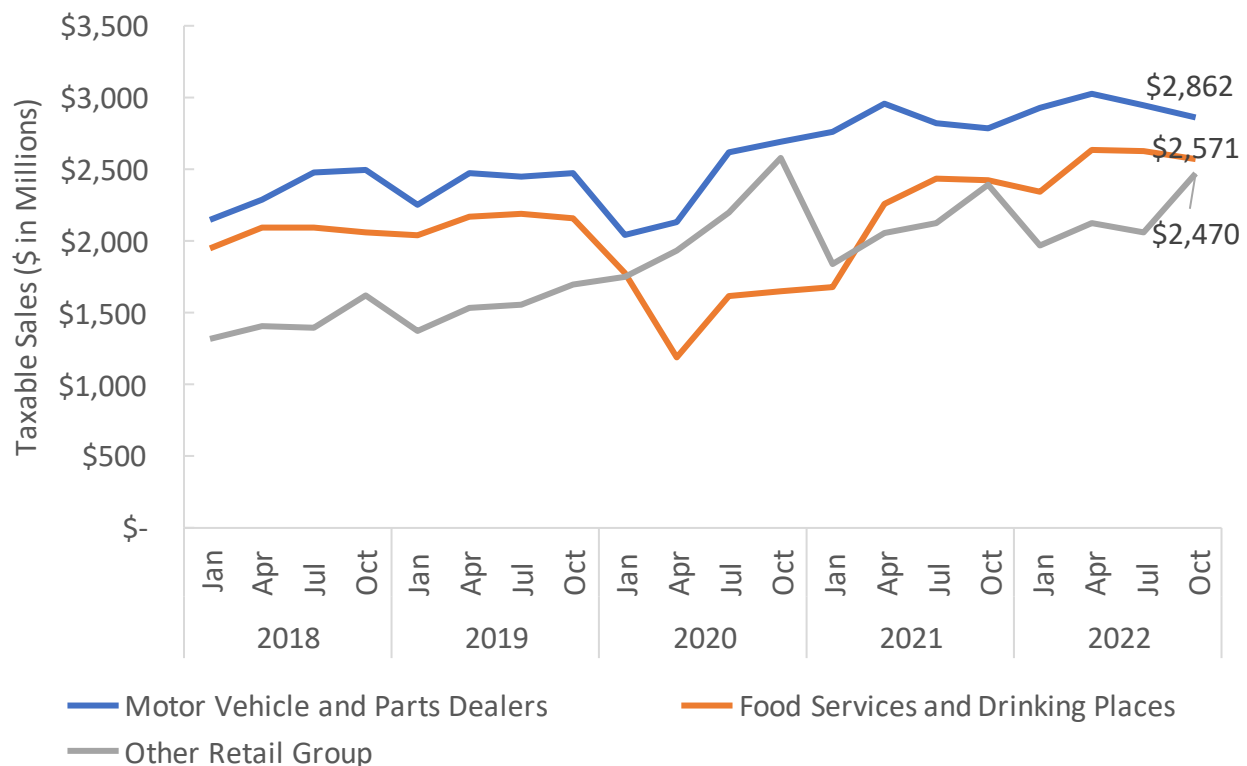


Source: California Department of Tax and Fee Administration, Taxable Sales by Type of Business, 2018 - 2022 Q4

Looking specifically at which business sectors are driving taxable sales, Motor Vehicle and Parts Dealers had the highest taxable sales at \$2.862 billion in the fourth quarter of 2022 representing a slight decline of 2.8 percent compared to the previous quarter's total of \$2.945 billion. Taxable sales at Food Services and Drinking Places totaled \$2.571 billion at the end of 2022, declining by 2.2 percent from the prior quarter total of \$2.627 billion. The Other Retail Group (includes health and personal care stores, non-store retailers, and gift, novelty and souvenir stores), on the other hand, saw a dramatic increase in taxable sales quarter-over-quarter, growing from \$2.061 billion to \$2.469 billion in the final quarter of 2022, an increase of 19.9 percent.

From the fourth quarter of 2019 to the first quarter of 2020, Motor Vehicle and Parts Dealers saw taxable sales shrink by 17.4 percent but was able to rebound slightly by 4.4 percent the following quarter and further by 22.8 percent in the third quarter. Food Services and Drinking Places, which struggled more with following shifting rules, regulations and COVID-19 policies regarding inside dining, saw taxable sales drop by 17.6 percent from the fourth quarter of 2019 to the first quarter of 2020 and plummet further by 33.1 percent in the second quarter of that year, before a strong rebound of 36 percent in the third quarter. The Other Retail Group actually increased 3.1 percent in the first quarter of 2020 and again by 10.5 percent and 13.7 percent in the third and fourth quarters, respectively.

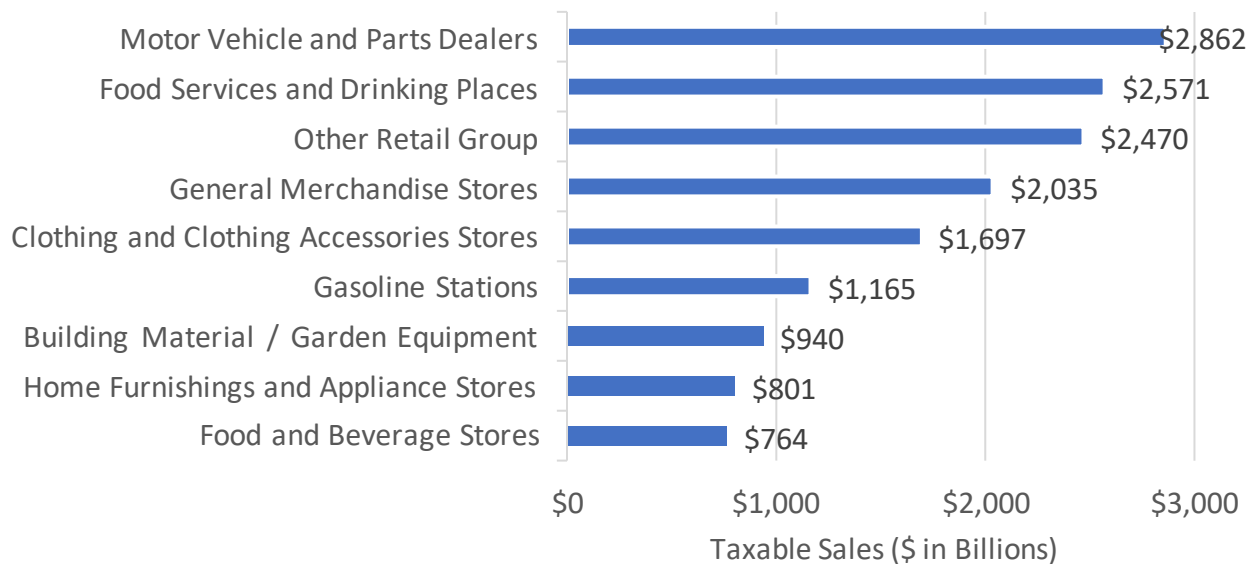
### Total Taxable Sales by Major Business Sector in Orange County, Q1 2018 – Q4 2022



Source: California Department of Tax and Fee Administration, Taxable Sales by Type of Business, 2018 - 2022 Q4

The chart below highlights total taxable sales by each major business type in Orange County for the last quarter of 2022.

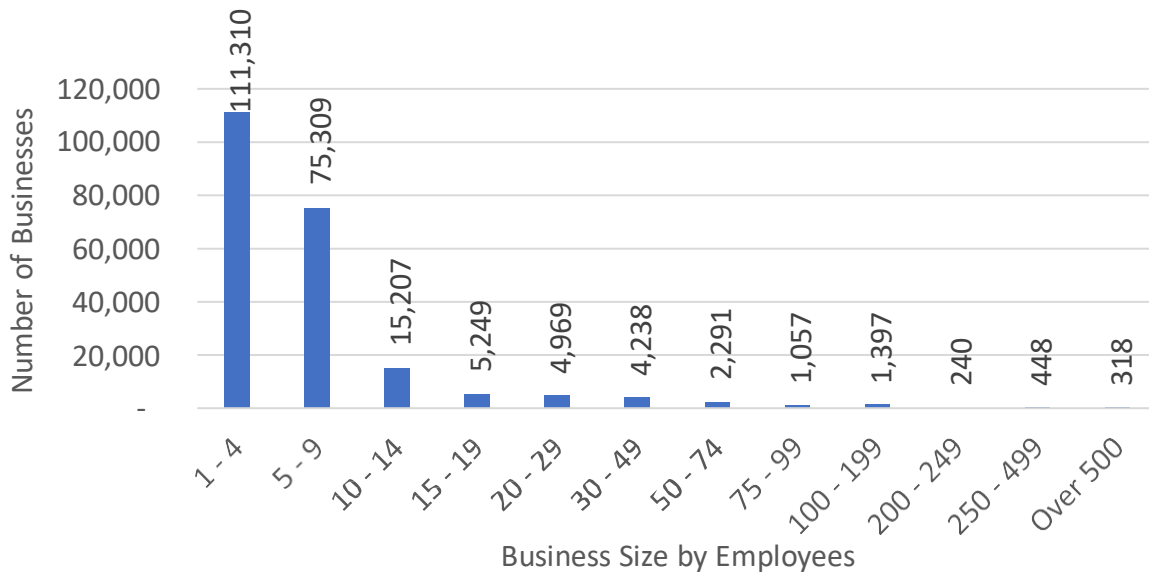
### Total Taxable Sales by Business Type in Orange County, Q4 2022



Source: California Department of Tax and Fee Administration, Taxable Sales by Type of Business, 2018 - 2022 Q4

A significant majority of Orange County businesses are small businesses. Approximately 97.4 percent of businesses have less than 50 employees, and 50.1 percent of Orange County businesses have only 1 to 4 employees. Only 1.1 percent of businesses in the region have over 100 employees. This helps to highlight the importance of business development centers and policies which support and encourage the growth of small businesses.

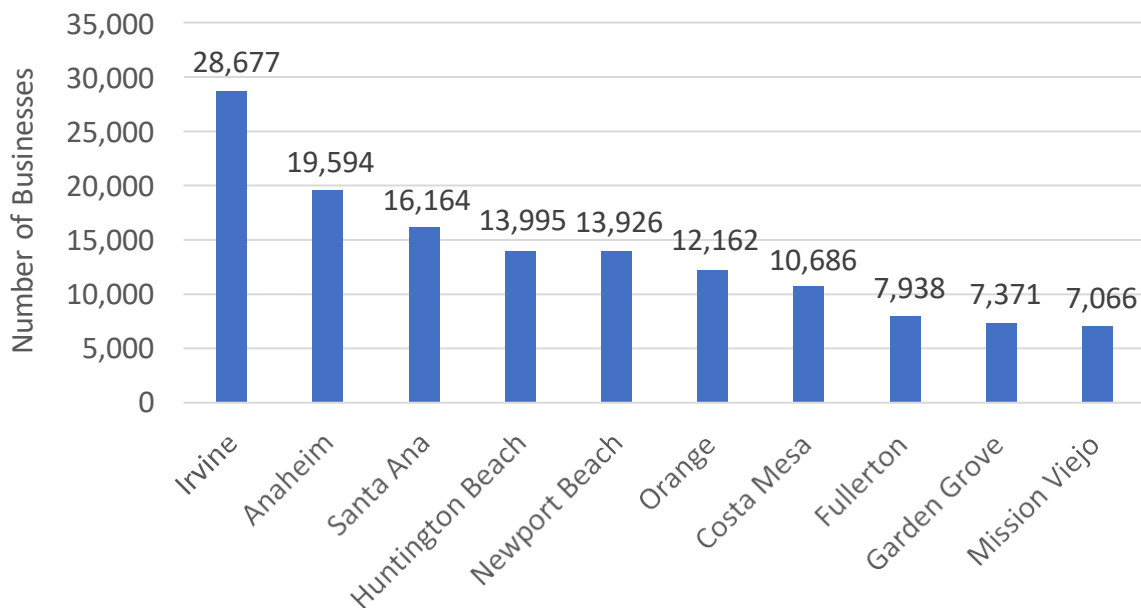
## Number of Businesses by Number of Employees in Business



Source: Dun and Bradstreet's Market Insight

Irvine, the unofficial primary business district of the county, had the largest number of businesses at 28,677 or 13.3 percent of the county total followed by Anaheim with 9.1 percent of county businesses and Santa Ana with 7.5 percent of county businesses.

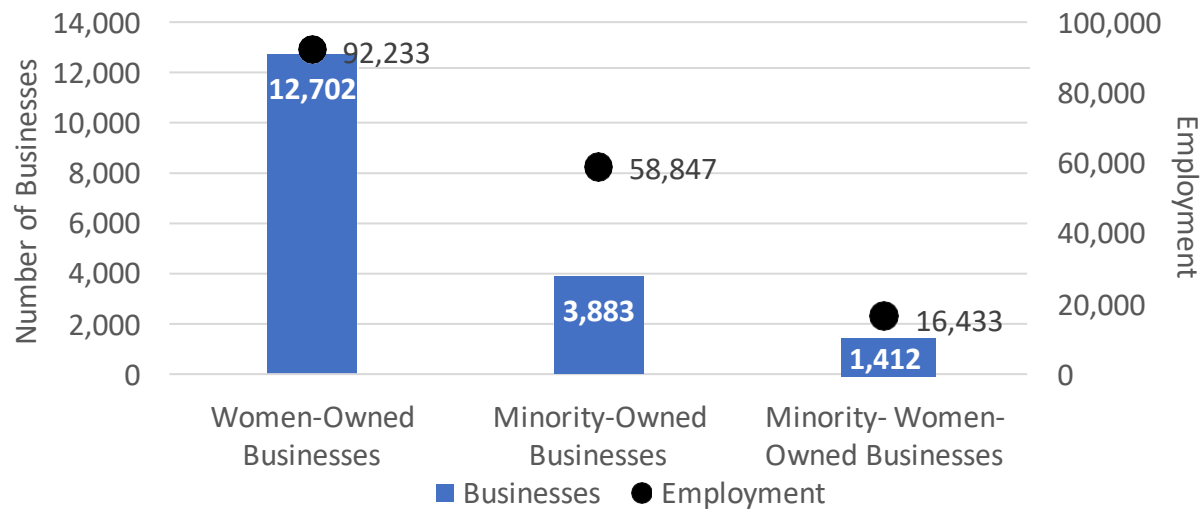
## Top Orange County Cities by Number of Businesses



Source: Dun and Bradstreet's Market Insight

Highlighting diversity within the Orange County business environment, there were a total of 12,702 women-owned businesses in the region in 2023 employing over 92,000 workers. There were 3,833 minority-owned businesses and 1,412 minority-women-owned businesses employing 58,847 and 16,433 workers, respectively.

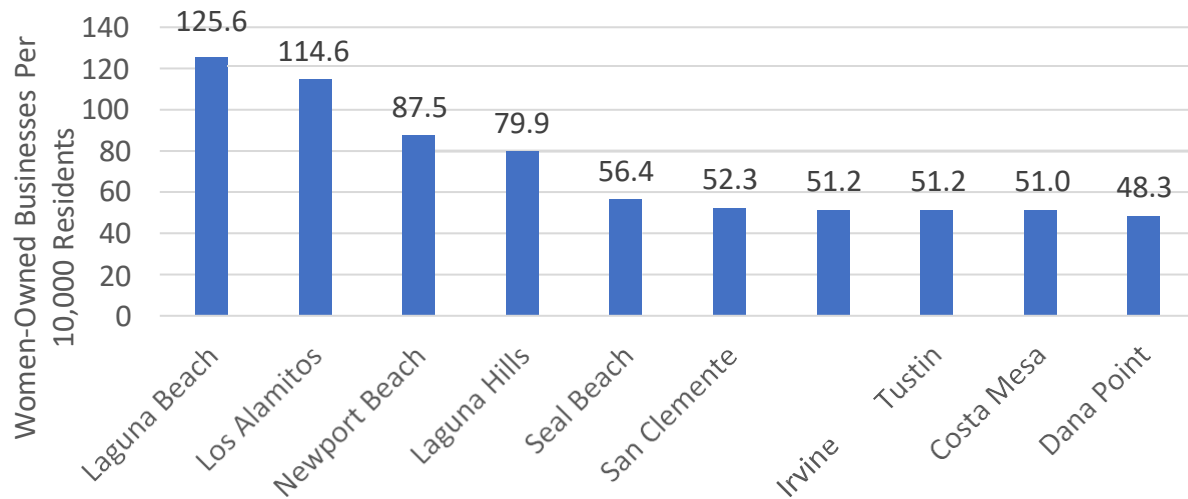
**Total Women-Owned, Minority-Owned, and Minority-Women-Owned Businesses and Employment in Orange County**



Source: Dun and Bradstreet’s Market Insight

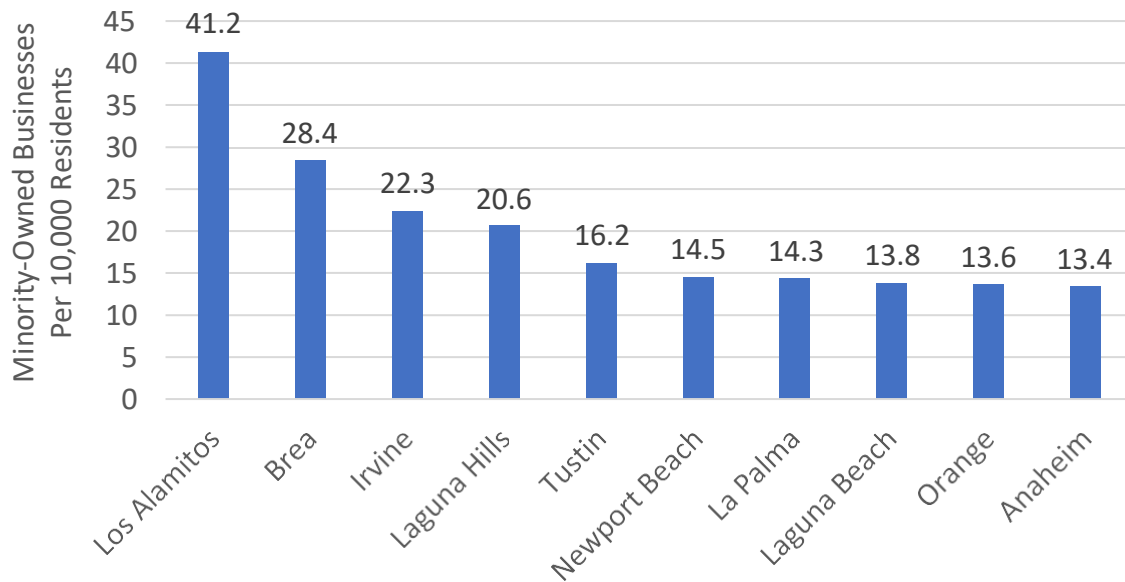
Looking at the number of businesses per capita or per 10,000 residents helps identify the cities that are home to the highest concentration of women-, minority- and women-minority owned businesses. Laguna Beach had 125.6 women-owned businesses per 10,000 residents followed by 114.6 in Los Alamitos and 87.5 in Newport Beach. For minority-owned businesses, Los Alamitos had 41.2 minority-owned businesses per 10,000 residents followed by 28.4 in Brea and 22.3 in Irvine. Los Alamitos also boasted the highest minority-women-owned businesses per 10,000 residents at 10.7, followed by Laguna Beach with 10.2 and Brea with 9.1 per 10,000 residents.

### Top Orange County Cities by Women-Owned Businesses Per 10,000 Residents



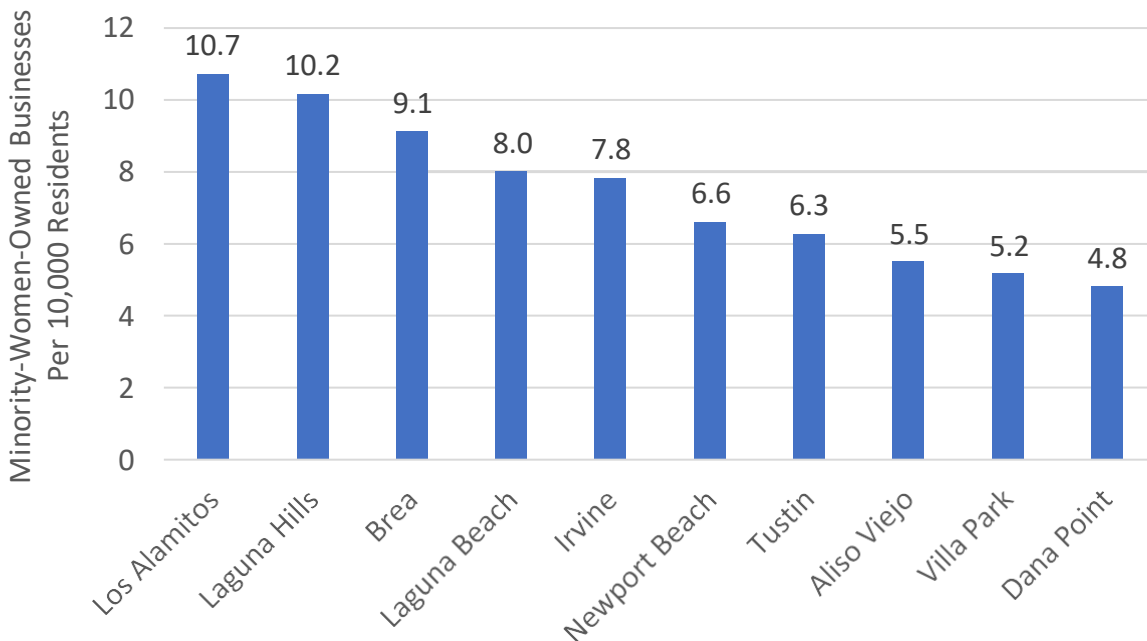
Source: Dun and Bradstreet's Market Insight

### Top Orange County Cities by Minority-Owned Businesses Per 10,000 Residents



Source: Dun and Bradstreet's Market Insight

## Top Orange County Cities by Minority-Women-Owned Businesses Per 10,000 Residents



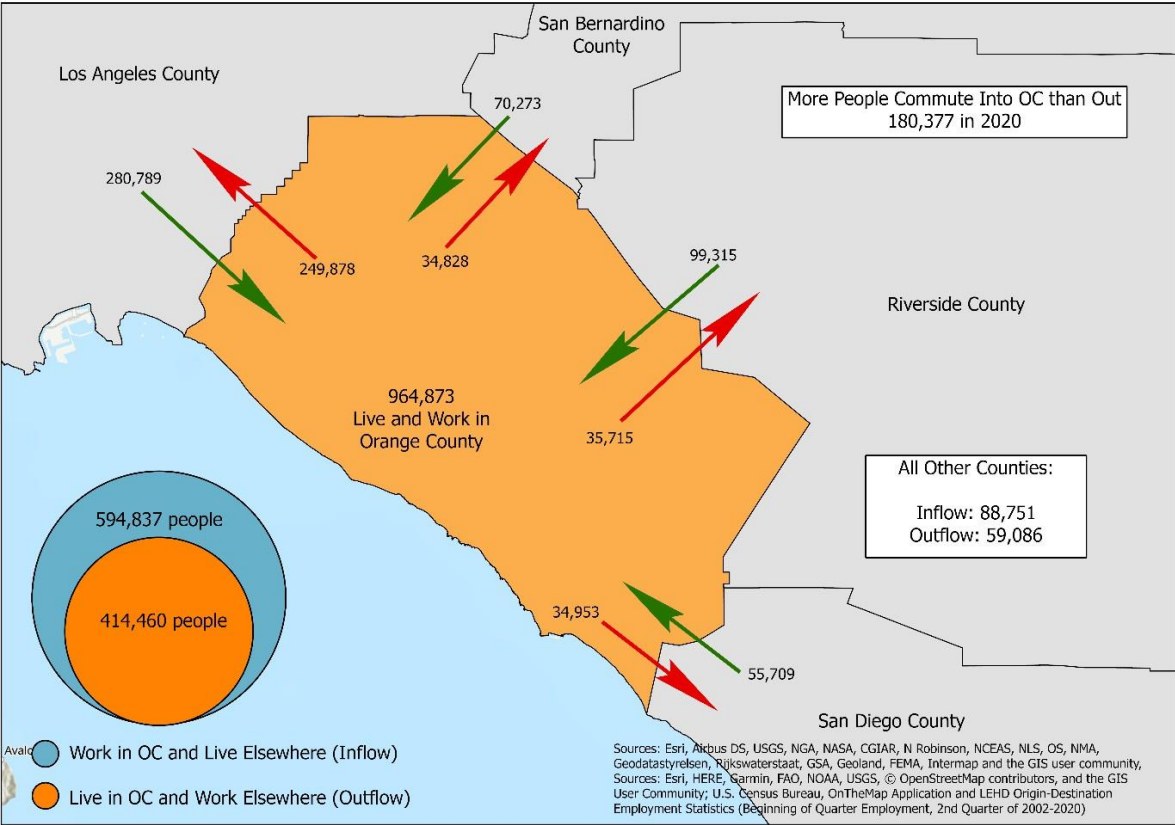
Source: Dun and Bradstreet's Market Insight

Orange County's strong and resilient labor market serves to draw workers in from neighboring regions looking to take advantage of the above-average wages available in the region. Overall, 732,691 people live and work within Orange County. Approximately 594,837 individuals commute into the county for work while living elsewhere compared to 414,460 individuals who commute outside of Orange County for work but live in the region. This means more than 180,000 people commute into Orange County for work than leave the region, indicating the region is a net importer of workers.

The largest number of cross-county commutes occurs between Los Angeles, where 280,789 Angelenos come to work in Orange County and 249,878 Orange County residents leave to work in Los Angeles. The largest gap between workers commuting into the region versus commuting out was with Riverside County, where 99,315 workers come into Orange County against 35,715 workers leaving Orange County for work in Riverside County, a difference of 63,600 workers.



Inflow/Outflow Patterns of Orange County Workers and Residents, 2020



## **Recent Local, State, and Federal Economic Development Initiatives**

The dissolution of redevelopment agencies in California over 10 years ago brought significant changes to local economic development efforts. Before then, cities relied mainly on redevelopment agencies to engage in long-term economic development planning, to execute those plans, and to pay for these and other related activities through tax increment financing.

In the years since their dissolution, resources for economic development in general and economic development strategies in particular have been tight. Nevertheless, cities across the county engage in various activities to improve pursue new real estate development, partly because they continue to wind down their portfolios of properties that were acquired by their now-defunct redevelopment agencies (referred to as Successor Agency properties). They also engage in business retention and attraction activities, assist small businesses, and implement initiatives to create and retain jobs. While encouraging business and job growth, they seek ways to expand the tax base by expanding retail and attracting out-of-town visitors whose local spending supports jobs and represents an external source of tax revenues. City economic development efforts may include formal or informal outreach to local business and property owners to learn about their needs and determine how existing or prospective city programs can meet those needs.

The following is a representative list of economic development initiatives that have been or are currently in use in Orange County communities, with cities using these initiatives shown in parentheses:

- Business corridor improvements (Anaheim Beach Boulevard);
- Shopping center revitalization efforts (Mission Viejo);
- Storefront improvements (Anaheim program);
- Shop local programs that encourage residents to keep their retail sales and other purchases in the local economy (Santa Ana);
- Real estate developments, including residential, commercial, and mixed use. Includes adaptive reuse and TOD (Santa Ana);
- Business friendly practices and measures: streamlined permit approval processes, one-stop permitting, film permitting (Irvine, Huntington Beach);
- Encourage sustainability and green practices in business community (Irvine);
- Business incubators (Irvine);
- Small business assistance, directly and indirectly by introducing business owners to Small Business Development Centers and other agencies at the state and federal level that support local business; AND
- Increasing attractiveness of communities through new and enhanced amenities (Mission Viejo).

At the county level, the Orange County Community Services Division (OCCS) has worked with several government agencies, local education institutions, and the Orange County Business Council to develop a County-level Comprehensive Economic Development Strategy (CEDS) for the period 2019-2023, with a prior CEDS produced for the period 2014-2018. The CEDS provides a framework that makes county entities and projects eligible for funding from the US Economic Development Administration (EDA). The CEDS is a 5-year plan for economic development that reviews current conditions in the county economy, identifies distressed or underperforming parts of the county, and proposes strategies to address these issues in particular and promote growth in general.

On top of economic development initiatives, many Orange County organizations also offer a variety of training programs aimed at training or providing skills to workers and residents looking to enter the workforce or more rapidly climb their career ladders. When working in partnership with local stakeholders and industry professionals, more effective training programs can be produced allowing for new hires to fill open positions more efficiently while having a better understand of their job and duties. This not only helps to drive gainful employment but also contributes to closing the skills gap and businesses can ensure candidates are being instructed properly.

One example is Orange County United Way's UpSkill OC workforce development program which supports underemployment and unemployment residents by connecting qualified candidates with local nonprofits, educational programs and business leaders. With a focus on healthcare, the trades, and information technology, UpSkill OC focuses on the largest middle-skill job sectors in Orange County helping to reduce the gap between the number of job openings and qualified workers. Alongside UpSkill OC, a number of Orange County Community Colleges also provide continuing adult education courses aimed at helping adults obtain common and specialized skills needed to enter the labor market including Orange Coast College, Saddleback College, Santa Ana College and a number of other institutions.

Alongside local community colleges, organizations such as North Orange Continuing Education provide residents with a number of Career Technical Education programs which provide certifications for certain disciplines including the Personal Care Aide Certificate, Early Childhood Education Certificate, and Electrical Technology Certificate. The North Orange County Regional Occupational Program, part of the North Orange County Regional Consortium, also provides career education for post-secondary and adult students taught by experts with industry experience in hands-on training environments. These training programs are valuable tools in better equipping Orange County workers and residents with the skills and knowledge necessary to fill lucrative employment positions. As such, this provides residents in disadvantaged communities with an enhanced ability to access high-wage employment opportunities which are often out of their reach.

The Southern California Association of Governments is working to improve tools and resources to better support regional equity across the SCAG region. Efforts include:

1. SCAG is developing data tools and resources, including a Job Quality Index, to help the region monitor its progress towards a more resilient, inclusive economy.
2. SCAG is supporting the regional economy by developing toolkits for public agencies and anchor institutions to expand contracting and supply-chain opportunities for woman- and minority-owned businesses.
3. SCAG is working to expand access to family-supporting jobs by identifying pathways, as well as barriers, to economic opportunity with a focus on disadvantaged communities.

At the state level, the California Governor's Office of Business and Economic Development (Go-Biz) promotes job growth, business assistance, and economic development support to communities across the state (<https://business.ca.gov/#>). Go-Biz has several programs that include business assistance, international trade promotion, small business and entrepreneurial programs, and various financing vehicles.

At the federal level, the US EDA supports growth and innovation at the regional level through its various programs (<https://www.eda.gov/funding/funding-opportunities>) that support economic development and workforce development efforts at the local/regional level, infrastructure investment, and as stated above, funding for local area comprehensive economic development strategies (CEDs).

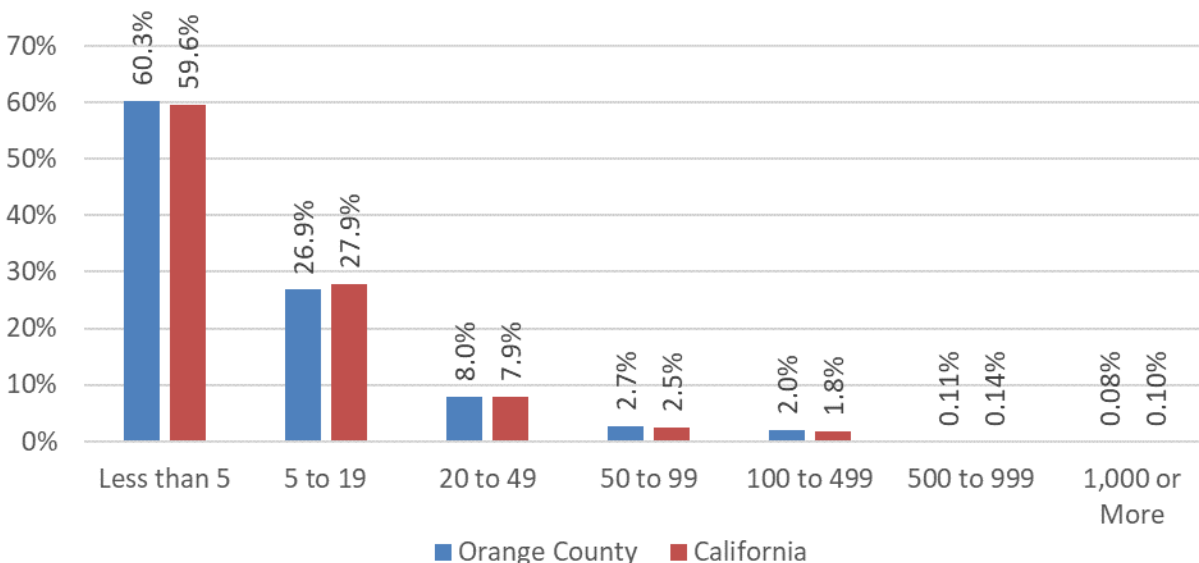
# Orange County Small Business Snapshot

## Small Business Overview

Small businesses represent a major driving economic force across the nation with the U.S. Small Business Administration finding that 44 percent of all economic activity is generated by small businesses.<sup>4</sup> Additionally, the U.S. Chamber of Commerce estimated that small businesses were responsible for nearly two-thirds of new jobs from 1995 to 2021.<sup>5</sup> Following the pandemic, when many businesses were shuttered, small business formation experienced a massive boom with 5.4 million business registrations in 2021 and 5 million in 2022, a 42 percent increase from pre-pandemic levels.<sup>6</sup> While small business drives both economic activity and employment, it also creates an environment that promotes entrepreneurship and innovation, both of which are crucial for healthy economic growth and activity.

According to the most recent U.S. Census Bureau County Business Patterns data release, approximately 60.3 percent of businesses in Orange County employ less than 5 employees compared to 59.6 percent at the state-level. Casting a somewhat wider net, firms with fewer than 20 workers account for 87.3 percent of all establishments in the county. At the other extreme, very large firms with at least 1,000 employees represent just a fraction (0.08 percent) of the total number of establishments in the county.

### Orange County and California Businesses by Employment Size, 2021



Source: Source: County Business Patterns, 2021

<sup>4</sup> <https://advocacy.sba.gov/2019/01/30/small-businesses-generate-44-percent-of-u-s-economic-activity/>

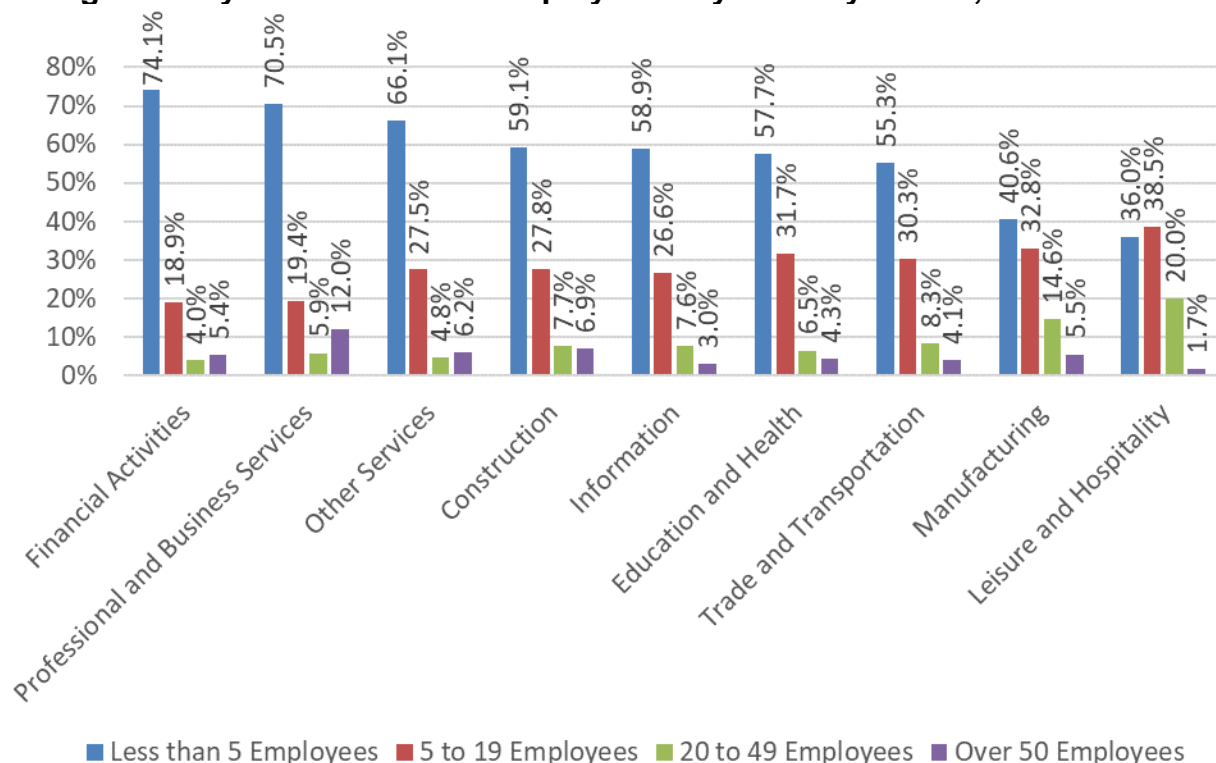
<sup>5</sup> <https://www.uschamber.com/small-business/state-of-small-business-now>

<sup>6</sup> [https://www.bloomberg.com/news/articles/2023-08-03/how-the-pandemic-small-business-boom-is-fueling-the-us-economy?in\\_source=embedded-checkout-banner&leadSource=uverify%20wall#xj4y7vzkg](https://www.bloomberg.com/news/articles/2023-08-03/how-the-pandemic-small-business-boom-is-fueling-the-us-economy?in_source=embedded-checkout-banner&leadSource=uverify%20wall#xj4y7vzkg)

Looking at specific industry sectors in the regions, the Financial Activities sector had the largest proportion of small businesses with less than 5 employees at 74.1 percent followed by Professional and Business Services (70.5 percent) and Other Services (66.1 percent). While Leisure and Hospitality had the lowest proportion of business with less than 5 employees, it did have the highest proportion of businesses with 5 to 19 employees at 38.5 percent followed by Manufacturing (32.8 percent) and Education and Health (31.7 percent).

Leisure and Hospitality was the only Orange County sector which had a higher proportion of businesses with 5 to 19 employees than businesses with less than 5 employees. Due to the nature of their business, their hours of operation, and reliance on part-time as well as full-time staff, businesses in Leisure and Hospitality such as restaurants, hotels, and entertainment venues tend to have greater staffing requirements. By comparison, Professional Services and Financial Activities firms that deal with specialized, often confidential, information and services tend to be smaller in size to more closely monitor their relationships with clients and ensure consistently high levels of service. Still, the county's Professional and Business Services sector is quite diverse, ranging from legal and engineering professional firms to management of companies, and the entire gamut of administrative support services, resulting in considerable variation in firm size. In turn, it also has the highest proportion of businesses with 50 employees or (12.0 percent), followed by Construction (6.9 percent), and Other Services (6.2 percent).

#### Orange County Small Business Employment by Industry Sector, 2021\*



Source: Source: County Business Patterns, 2021

\*NOTE: Table omits Utilities and Natural Resources and Mining due to incomplete/missing data

At times of economic downturns, the number of self-employed tends to increase, as individuals laid off from their payroll jobs turn to self-employment to keep their households afloat, or as others view a downturn as an opportunity to pursue a new avenue of their careers. In recent years, the 'gig economy' has drawn attention to the self-employed, as well. Business registrations rose rapidly following the pandemic, highlighting these underlying developments and trends.

The significant level of job loss during this time also served as a driver for new business creation and growth. Thankfully, Orange County residents have ready access to a number of organizations and services which help them better grow and cultivate their businesses including University of California Irvine's The Cove or Octane OC. These incubators and accelerators provide crucial support which allow startups and entrepreneurs to more successfully launch their products or services while serving as a community where cooperation and collaboration is encouraged.

## **Self-Employment Overview**

Nationally, the number of self-employed workers was increasing modestly prior to the pandemic, averaging 0.6% annually. However, as the pandemic and working from home disrupted economic trends, the number of self-employed rose substantially in 2021 and 2022, with annual increases of 3.5% and 2.8%, respectively. growth rates of employment trends. The share has shrunk over the last two years, and averaged 10.1 percent through the third quarter of 2023. In 2019, the latest year for which detailed county data are available, there were approximately 324,958 self-employed workers in Orange County, an increase of 0.4% over the previous year. To gauge the size of the self-employed sector, this is equivalent to 22 percent of the 1.5 million wage and salary or payroll positions during that year. In other words, when accounting for both self-employed and payroll, the number of positions in the county is about one-fifth (22%) larger than the wage and salary job counts that are typically cited in county-level employment reports.

## Self-Employed Workers by Industry Sector in Orange County, 2019

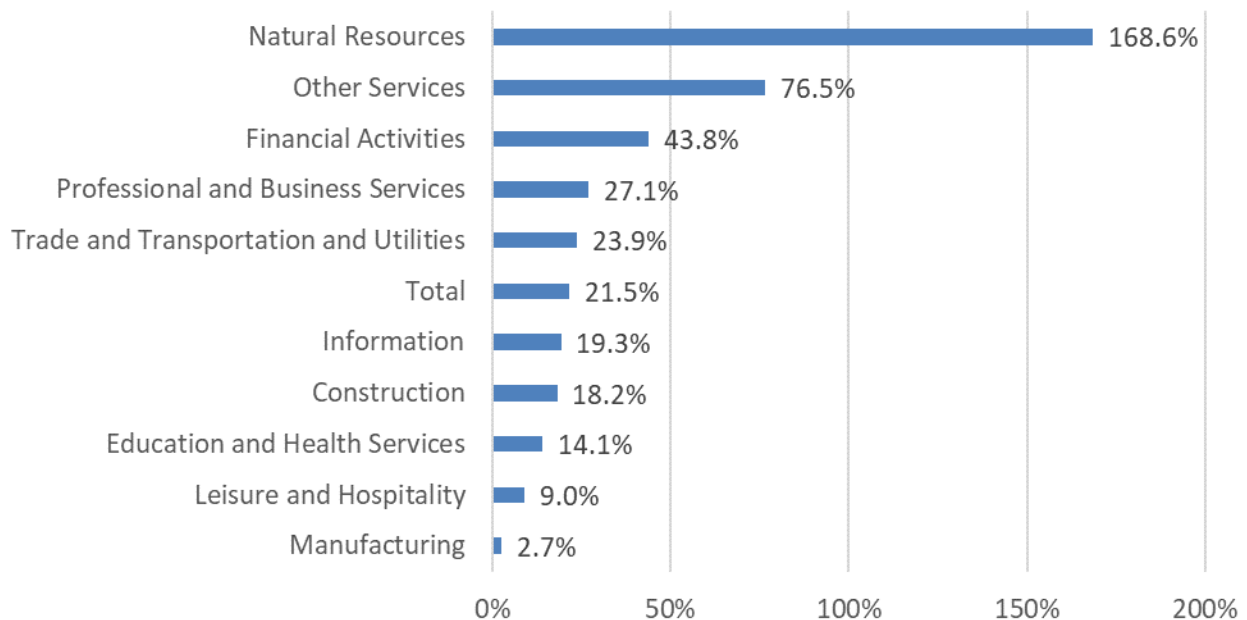
Sector	Number	% of Total	Payroll Employment*	Self-Employed Relative to Payroll Employment
Natural resources	843	0.3%	500	169%
Construction	19,307	5.9%	106,100	18%
Manufacturing	4,338	1.3%	160,100	3%
Trade and transportation and utilities	62,010	19.1%	259,500	24%
Information	5,014	1.5%	26,000	19%
Financial activities	51,513	15.9%	117,600	44%
Professional and business services	88,876	27.3%	328,400	27%
Education and health services	32,787	10.1%	233,100	14%
Leisure and hospitality	20,473	6.3%	227,700	9%
Other services	39,797	12.2%	52,000	77%
<b>Total</b>	<b>324,958</b>	<b>100.0%</b>	<b>1,511,000</b>	<b>22%</b>
Sources: Census Bureau Nonemployer Statistics, EDD CES Payroll Statistics *excludes Government payroll counts				

Professional and Business Services represented the largest proportion of self-employed workers in Orange County at 27.3 percent of total Professional and Business Services payroll employment followed by Trade, Transportation and Utilities (19.1 percent) and Financial Activities (15.9 percent). Considering the rapid increase in business registrations following the pandemic, the number of self-employed workers in the county, and throughout the nation, is likely to continue to increase.

In most, but not all, industries, the number of self-employed is equivalent to a fraction of all wage and salary workers. Orange County's Natural Resources sector only had 843 self-employed workers in 2019, but this is equivalent to 168.6 percent over traditional payroll employment, indicating that there are more self-employed workers in the Natural Resources sector than wage and salary workers. This was the only sector in Orange County to have more self-employed workers than payroll employees. Other Services had the second highest self-employed workers relative to payroll workers at 76.5 percent, followed by Financial Activities (43.8 percent) and Professional and Business Services (27.1 percent).



### Self-Employed Workers Relative to Payroll Employment\*, 2019



Sources: Census Bureau Nonemployer Statistics, EDD CES Payroll Statistics

\*Excludes Government Payroll Counts

In recent years, much attention has been given to the “shared economy” and “gig” workers, who work for organizations such as Lyft, Uber, and Grubhub. Given the spread of the internet and improved access to technologies for individuals overall, this particular segment of the self-employed has seen significant growth in recent years. It provides benefits to both businesses and workers: the former through significantly decreased employment costs, and the latter who are able to choose their own hours and schedules. With more and more emphasis being placed on a healthy work-life balance, many individuals see these work arrangements as a path to that goal.

With entrepreneurship, innovation, and small business creation playing central roles as drivers of economic growth and activity, it is imperative that startups or small businesses are able to successfully thrive in Orange County. As business technologies and processes continue to evolve and improve, it is crucial that entrepreneurs are properly supported, not only financially, but also through programs that encourage collaboration and provide access to knowledge or industry experts.

# **Climate and Environmental Impact**

**Dr. Marlon Boarnet, University of Southern California**

## **Climate and Environmental Impact Analysis Major Key Points**

1. Central/North County are near jobs, but job access by transit is weaker (by 10% or less) than job access by car.
2. Central/North County are concentrations of hotter temperatures (summer time highs can be 20 degrees F more inland than near coast), less tree canopy, and more impervious surface.
3. The SB 535 disadvantaged (disinvested) communities are location that are vulnerable to heat, heat islands, and in need of cooling centers and home cooling.

## **Introduction**

This section will analyze the impact of climate change on the environment in the SB 535 disinvested tracts and in Orange County more broadly. First, a discussion about the approach to this background research will help frame the analysis.

## **Resources and Vulnerabilities**

Climate and environmental impacts are a broad term, particularly so when focusing on communities that have experienced disinvestment for decades. This section will reframe the discussion to focus on access to resources and climate vulnerabilities. Neither is unique to climate change. The factors that create disproportionate access to resources in Orange County existed before climate change became a policy issue, and similarly the vulnerabilities that will make climate impacts more strongly felt in disinvested neighborhoods existed well before climate change. Yet climate change can widen inequalities. Communities with fewer resources, and with more vulnerabilities, have less ability to adapt and to shield themselves from the impact of the climate. Households who cannot afford air conditioning are more vulnerable to heat, as one example. Yet climate investments can also be an opportunity to address resource inequities, and to begin to channel investment to disinvested locations. The goal of the research, at this stage, is descriptive, to help inform how Orange County can craft climate responses that will bridge resource gaps and reduce vulnerabilities. This section will focus on two themes: Transportation access to jobs (as an indicator of access to resources) and vulnerabilities to heat.

## **Greenhouse Gas Emissions and Adaptation to Climate Change**

Climate policy analysts divide climate change responses into two broad categories - mitigation and adaptation. Mitigation policies are actions that reduce greenhouse gas (GHG) emissions. Adaption is actions or policies that reduce the harm from a changing climate.

The most powerful approach to climate change combines mitigation and adaptation. The more mitigation that is done, the less society needs to adapt. If adapting requires resources that are beyond the reach of disinvested communities, successful mitigation (GHG reduction) can advance equity by averting harm that would be more severe in disinvested places. Yet given that the climate is changing, the need to adapt equitably is important.

The California Air Resources Board estimates that, in 2020, the state's largest greenhouse gas emitting sectors were, in order<sup>7</sup>:

- Transportation: 38 percent of the state's GHG emissions
- Industry: 23 percent
- Electricity: 11 percent
- Agriculture: 9 percent

If imported electric power, generated out of state, is included, the share for electric power grows to 16 percent.<sup>8</sup>

Transportation is the largest GHG emitting sector in California, and while detailed sector data are not available for Orange County, the same is likely true for Orange County. Agriculture is a tiny sector in Orange County. Hence, looking beyond transportation, the next two largest GHG emitting sectors in Orange County are likely to be industry and electric power. Refineries, oil and gas, and pipelines account for 60 percent of the CARB estimated industrial GHG emissions in California<sup>9</sup>, and Orange County has no refineries and very little oil and gas or pipeline industry. Hence, we believe that electric power generation and distribution will be the most important source of GHG emissions in the county following transportation.

California generates over 50 percent of its energy from clean (non-GHG emitting) sources.<sup>10</sup> Orange County, served by Southern California Edison (SCE) and in far south county by San Diego Gas and Electric (SDG&E), likely has a similarly green generation mix. Both the state and Orange County will increase their reliance on renewable energy going forward, and that will require investments in battery storage, peak generation plants, and distribution.

Solar and wind are among the lowest cost electric power sources today. Yet investments in new storage and distribution facilities will be needed, and that could outweigh the lower cost of renewable generation. Looking forward, the impact of the state's shift to green power on Orange County electricity costs could be to either

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<sup>7</sup> California Air Resources Board, 2020 GHG Emissions by Main Economic Sector, 2020 GHG Emissions by Scoping Plan Category, and 2020 GHG Emissions by Scoping Plan Sub-Category, available at <https://ww2.arb.ca.gov/ghg-inventory-graphs>.

<sup>8</sup> Ibid.

<sup>9</sup> Ibid.

<sup>10</sup> California Energy Commission, 2021 Total System Electric Generation, available at <https://www.energy.ca.gov/data-reports/energy-almanac/california-electricity-data/2021-total-system-electric-generation>.

increase or decrease electric power rates.

Orange County's economy is heavily focused in knowledge based industries, health care, and tourism. Those sectors are not heavily reliant on low-cost power. For that reason, we do not see high risks to the county's economic base from cost impacts associated with a green energy transition.

## Transportation Access, as a Both a Mitigation, and Adaptation Approach

As of 2020, transportation is responsible for 38 percent of GHG emissions in California.<sup>20</sup> Transportation is both the largest GHG emitting sector in California, and a connector to opportunities. As we will show in this section, transportation access is highly uneven. Persons who lack a car in central Orange County have 1/10<sup>th</sup> or less the transportation access of those with cars. Conversely, persons with cars, and those with higher incomes, drive more and generate more GHG emissions.<sup>21</sup> Our first exploration is to focus on these differences in transit access, to lay the groundwork for a discussion about ways to both reduce GHG emissions and provide more resources to disinvested communities where transportation access is lagging.

The Orange County Transportation Authority Long Range Transportation Plan (LRTP) cites five key factors which will influence transportation in the county going forward (OCTA, 2023, p. ii).<sup>22</sup>

1. Growing travel demand and a built-out roadway system;
2. Evolving travel trends, including the impact of technology, the recovery from Covid, and declines in transit ridership over the past several years;
3. Increasing climate-related risks;
4. A changing funding outlook, with revenues becoming more scarce in part because the OC Go half-cent transportation sales tax is set to expire in 2041;
5. Diversity, equity, and inclusion, with a focus on making transportation equitable for all.

These factors are the context for an LRTP with four high-level goals:

1. Deliver on commitments (including but not limited to the infrastructure plan outlined in the voter approved OC Go);
2. Improve system performance;
3. Expand system choices (including reducing single occupant vehicle trips);
4. Support sustainability.

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<sup>20</sup> California Air Resources Board, 2020 GHG Emissions by Main Economic Sector, <https://ww2.arb.ca.gov/ghg-inventory-graphs>.

<sup>21</sup> As an example, in the metropolitan areas of Los Angeles, Sacramento, San Francisco, and San Diego, households who live further than a half-mile from rail transit and with incomes below \$25,000 per year drive on average 32.7 miles per day, while households with incomes over \$100,000 per year and who live beyond a half-mile from transit drive on average 62.2 miles per day, using data from 2017. The income gap for driving, in percentage terms, is wider for households living within a half-mile from rail transit, even though all income groups drive less when they live near transit. See Boarnet, Eisenlohr, Bostic, Rodnyansky, Burinskiy, Jamme, and Santiago-Bartolomei, "Rich versus Poor, Near versus Far from Transit: Who Travels More?" Transfers Issue 7, Spring, 2021, <https://transfersmagazine.org/magazine-article/issue-7/rich-versus-poor-near-versus-far-from-transit-who-travels-more/>.

<sup>22</sup> Orange County Transportation Authority (OCTA). 2023. Directions 2045: Long Range Transportation Plan, Executive Summary. May. Available at <https://octa.net/programs-projects/programs/plans-and-studies/long-range-transportation-plan/resources/>, accessed July 18, 2023.

The county's LRTP is shaped by a context of potentially declining revenues, a need for sustainability and equity, and a need to meet travel needs in the context of a built-out roadway system. The LRTP includes several lane widening projects on freeways, many specified in the OC Go program, and investments in the OC Streetcar (scheduled to open in 2024), local transit circulators, and first-last mile transit improvements. The overall package is a combination of freeway projects and transit investments that will rely heavily on the bus network. The LRTP includes a focus on local transit to meet specific contexts and technology to improve efficiency.

In that context, the analysis of transit access to jobs is informative. Improving the speed of first-last mile access to and from transit stations can increase the accessibility provided by the network. A targeted program of infrastructure investment (e.g., bike lanes or similar protected lanes separated or shielded from vehicle traffic), rapid circulators, and docked/dockless shared transportation that feeds transit stations and higher density locations is a vision consistent with the LRTP's focus on system choice, performance, sustainability, equity, and local context. Such opportunities could include infrastructure for bicycles, micromobility, or shared electric (or even autonomous) vehicles, working both to serve destinations directly and as first/last mile options for the transit system. Locations in central and north county are particularly good opportunities given the higher rates of transit usage and zero vehicle households in those areas and the more dense transit network in those places. Such investments would require less land and possibly be less costly than other options such as fixed route transit or freeway expansions, noting that the LRTP specifies a mixed portfolio of investments that does include fixed route transit and freeway expansions.

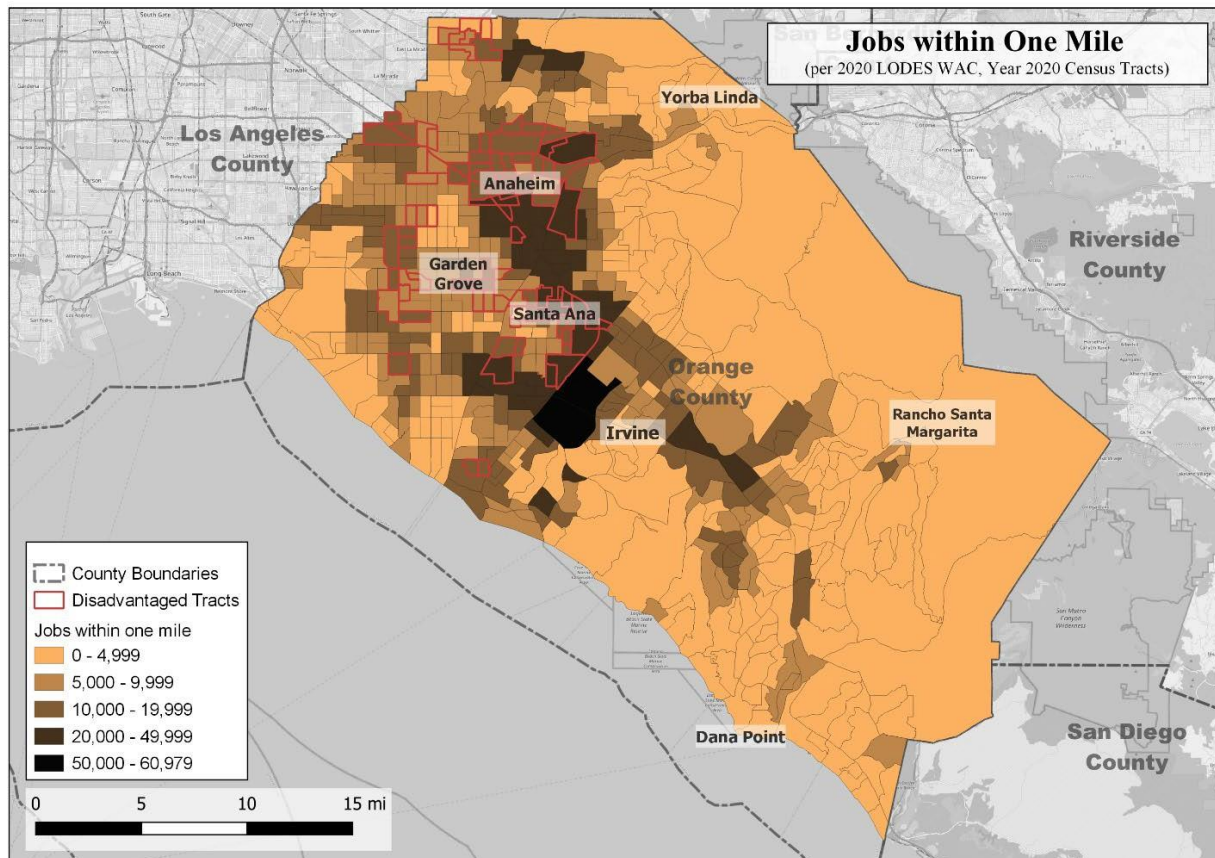
The goals of the LRTP are consistent with pilot programs that seek to leverage and improve first-last mile transit access, possibly by repurposing street space on major arterials to provide lanes for active travel or for slower speed, shared vehicles. That could include, at a point in the future, dedicated lanes to pilot slow speed driverless technology in ways that are shared and zero emission.

## Transportation Access to jobs

### Where are the Jobs in Orange County?

Figure 1 shows the number of jobs within one mile of every census tract in Orange County. Figure 2 shows the same thing for jobs within five miles, and Figure 3 shows jobs within ten miles. The darkest shaded tracts are the job concentrations in the county. SB 535 disinvested tracts are outlined in red.

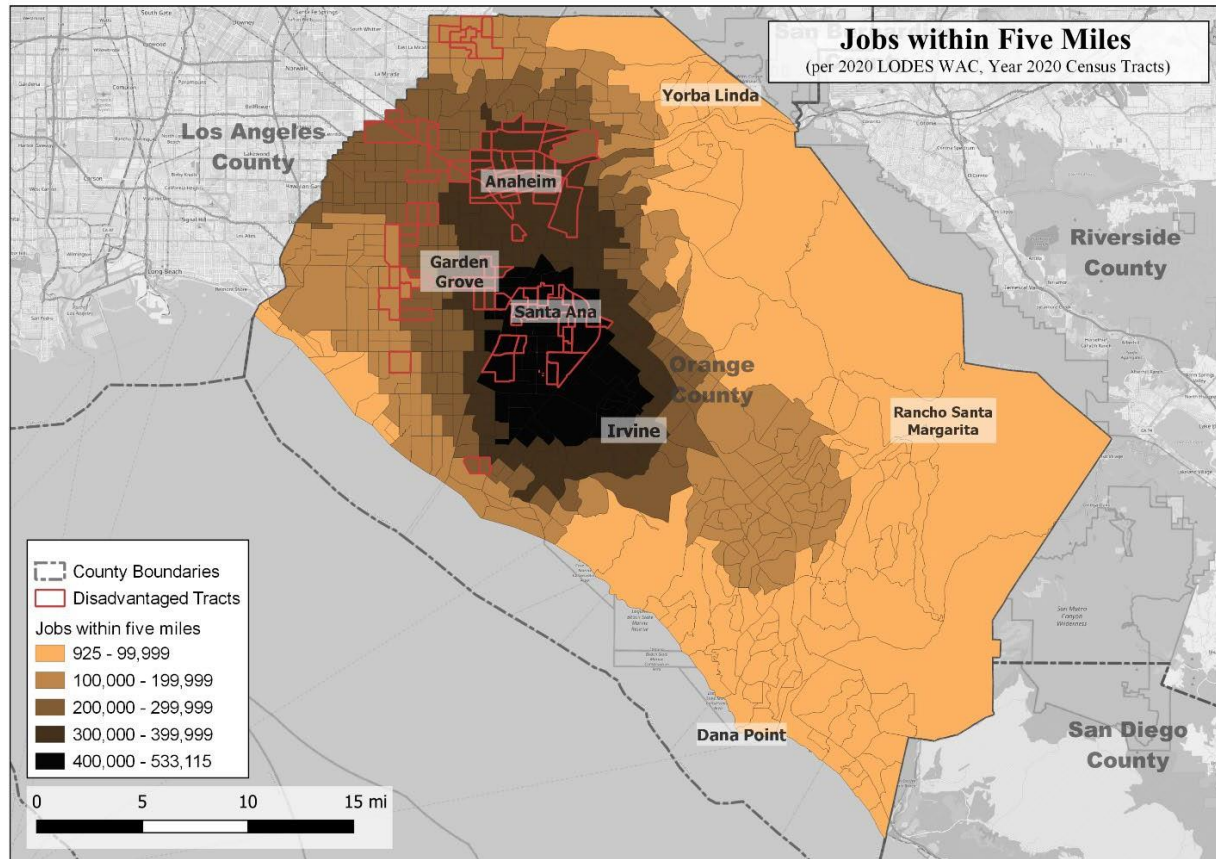
**Figure 1: Jobs Within One Mile, by Census Tract**



Source: Census LODS WAC, 2020



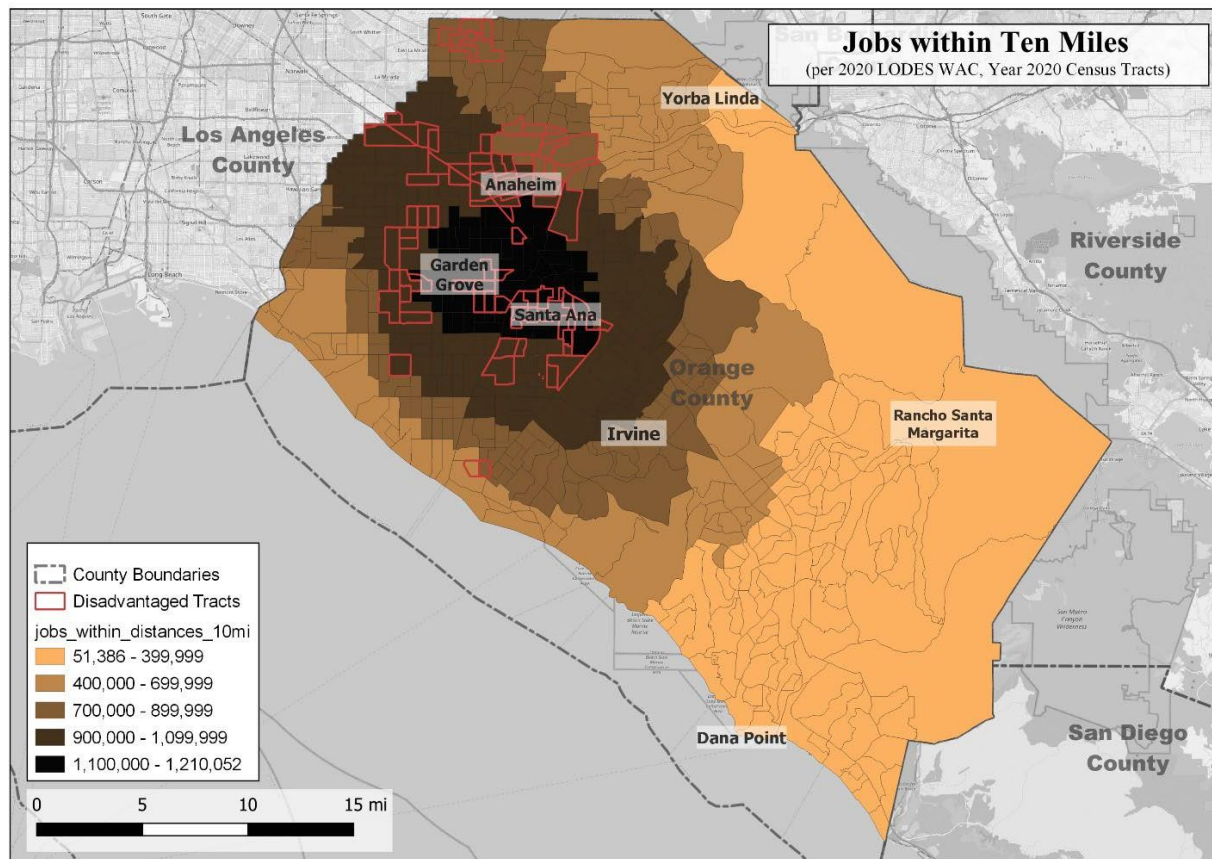
**Figure 2: Jobs Within Five Miles, by Census Tract,**



Source: Census LODS WAC, 2020



**Figure 3: Jobs Within Ten Miles, by Census Tract**



Source: Census LODS WAC, 2020

For 10-mile access (Figure 3), the disinvested tracts sit roughly in the middle of the largest job concentrations. For 5-mile job access (Figure 2), Santa Ana is roughly the most job accessible location in the county. For 1-mile job access (Figure 1), the disinvested tracts are generally highly accessible, although at the 1-mile range the highest job concentration is the cluster of jobs near John Wayne Airport.

This pattern, that the disinvested communities are generally near jobs, holds in other cities also. Previous research has demonstrated similar findings in Los Angeles, Boston, and San Diego.<sup>23</sup> Yet being physically near jobs does not equate the ability to reach those jobs – particularly if one does not have access to a car.

<sup>23</sup> Shen, Q., 2001. A spatial analysis of job openings and access in a US metropolitan area. *J. Am. Plann. Assoc.* 67 (1), 53–68; Blumenberg, E., 2004. En-gendering effective planning: spatial mismatch, low-income women, and transportation policy. *J. Am. Plann. Assoc.* 70 (3), 269–281; Boarnet, Giuliano, Hou, and Shin, 2017, First/last mile transit access as an equity planning issue, *Transportation Research Part A* 103 (2017) 296–310.

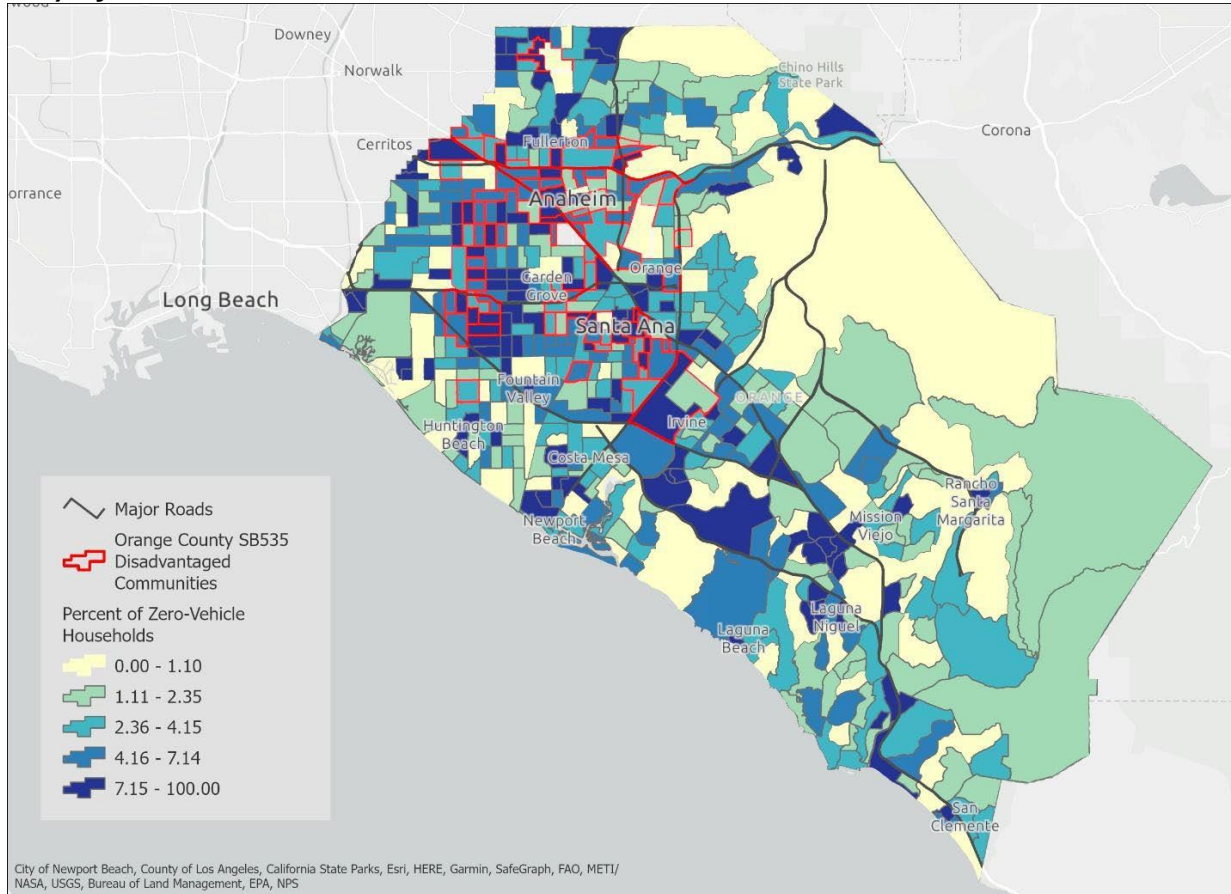
## **Job Access is More than Access to Employment**

Before going further, note that access to jobs shows more than access to employment. Jobs proxy locations where persons go for health care, education, shopping, services, and many leisure and entertainment activities. Your job access measures your access to schools, to health care, to shopping, services, and entertainment. While Employment is important, job also access measures the ability to engage in activities that go well beyond working.

## **Some Background - Zero Vehicle Households in Orange County and the Orange County Transit Network**

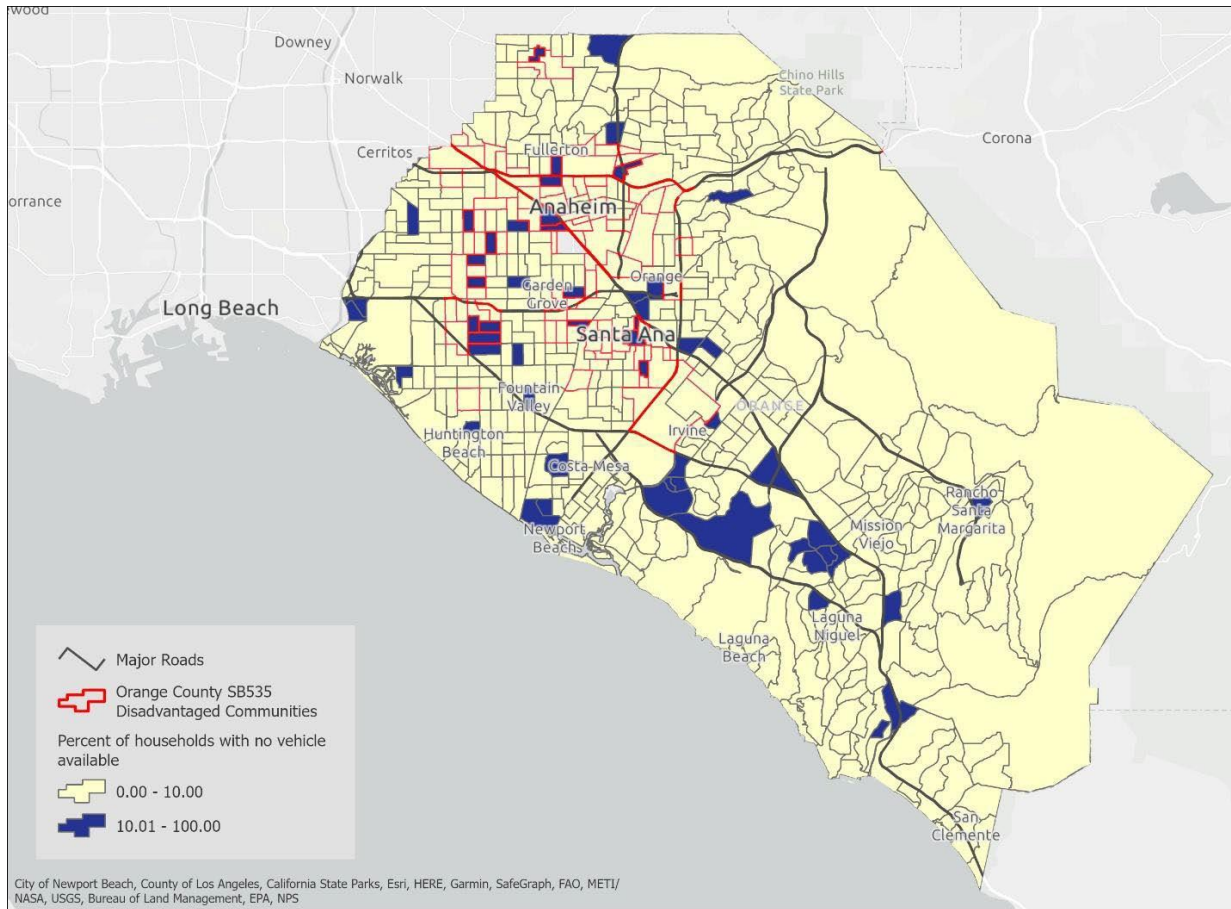
Getting to a job, school, shop, or doctor's office even a few miles away can be a challenge for persons who do not own a car. Figure 4 shows the percentage of households in Orange County census tracts who do not have access to a car – call these “zero vehicle households.” Areas of darker blue are census tracts where higher fractions of households lack car access. Figure 5 shows census tracts where greater than 10 percent of the households do not have access to a vehicle. Table 1 shows census tract data on zero-vehicle households in Orange County, from the 2017-2021 American Community Survey five-year estimates.

**Figure 4: Zero Vehicle Households (percent of households without access to a car) by Census Tract**



Source: American Community Survey 2017-2021 5-year estimates

**Figure 5: Census Tracts with Greater than 10 Percent Zero Vehicle Households**



Source: American Community Survey 2017-2021; 5-year estimates

**Table 1: Percent of Households without Access to a Private Vehicle, 2017-2021 Census American Community Survey**

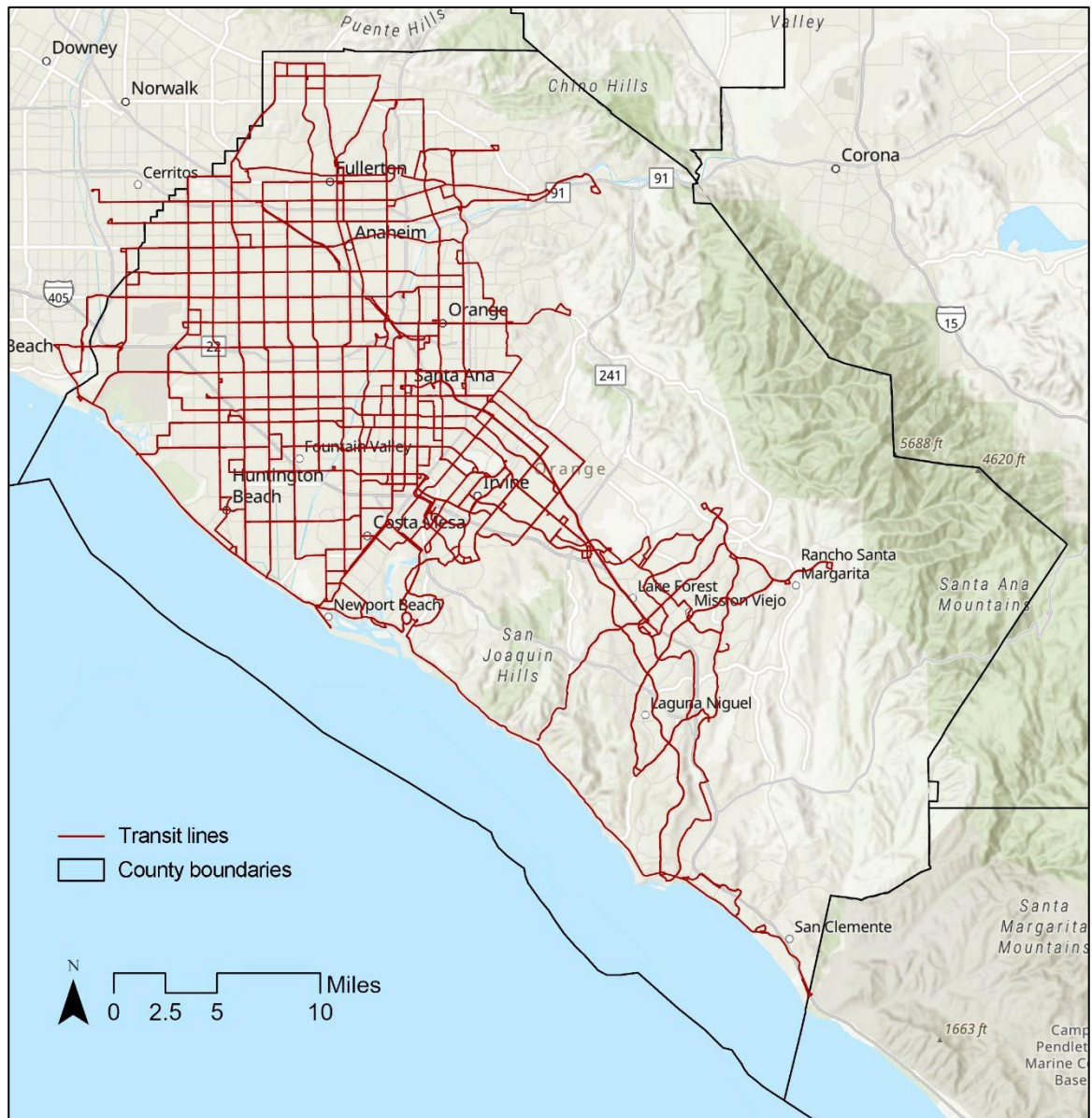
Category	Mean	Range
Full County	4.38	0.0-28.2
Disinvested census tracts	5.89	0.0-23.61
Non-Disinvested census tracts	4.10	0.0-28.2
Quintile 1 (bottom quintile) of census tracts	0.44	0.0-1.1
Quintile 2 of census tracts	1.74	1.1-2.35
Quintile 3 of census tracts	3.27	2.35-4.15
Quintile 4 of census tracts	5.41	4.16-7.14
Quintile 5 of census tracts	11.03	7.15-28.2

In disinvested census tracts in Orange County, an average of 5.89 percent of households do not have access to a car – higher than the 4.38 percent average for the full county. In 20 percent of the census tracts in the county the average zero-vehicle household rate is 11.03 percent. There are locations in Orange County, often the disinvested census tracts or nearby locations, where one in ten households, or more, lack car access. Note that some areas that are not disinvested census tracts also have zero vehicle household percentages that exceed 10 percent. Those locations are in some cases small population tracts, locations of major institutions (universities, colleges), or locations with unique demographics such as retirement villages.

Zero-vehicle households are often heavily reliant on the public transit network. The current transit network, from General Transit Feed System (GTFS) data, is shown in Figures 5 and 6. The transit network in the county – currently all bus – is more dense in the central and northern parts of the county. Figure 6 shows bus stops with less than 10-minute headway at 8 a.m. in the morning on weekdays – peak morning commute time. Headway is the frequency at which busses arrive, and stops with less than 10-minute headways (shown in red in Figure 6) have scheduled morning weekday peak-hour service that will have busses arriving every 10 minutes or less. These high frequency stops are concentrated in central Orange County and then along major thoroughfares extending mostly north and west.

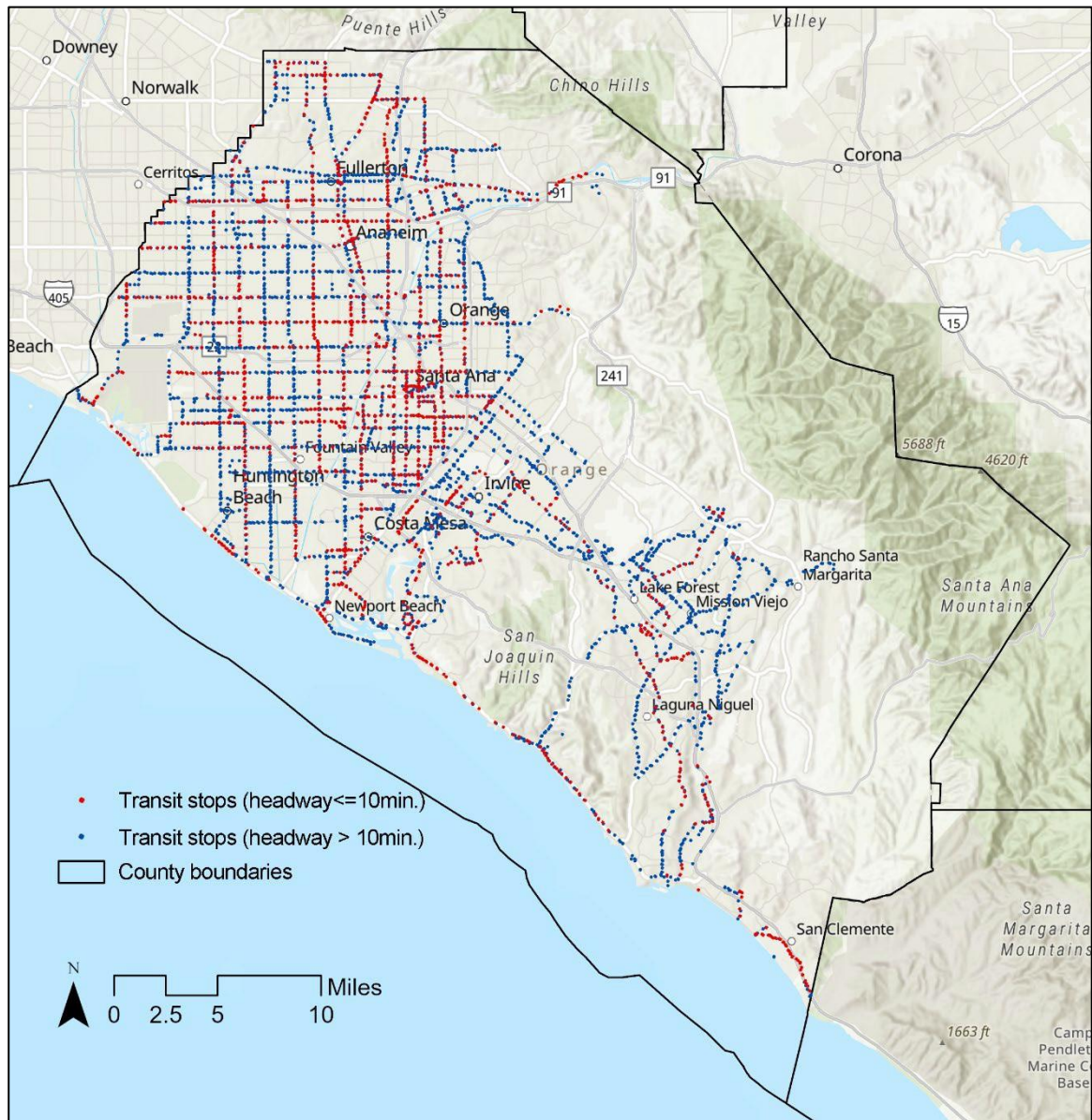


**Figure 5: Transit Lines in Orange County, as of May, 2023**



Source: GTFS

**Figure 6: Transit Stops by Headway Less Than or Greater than 10 Minutes at 8 a.m. on Weekday**



Source: GTFS

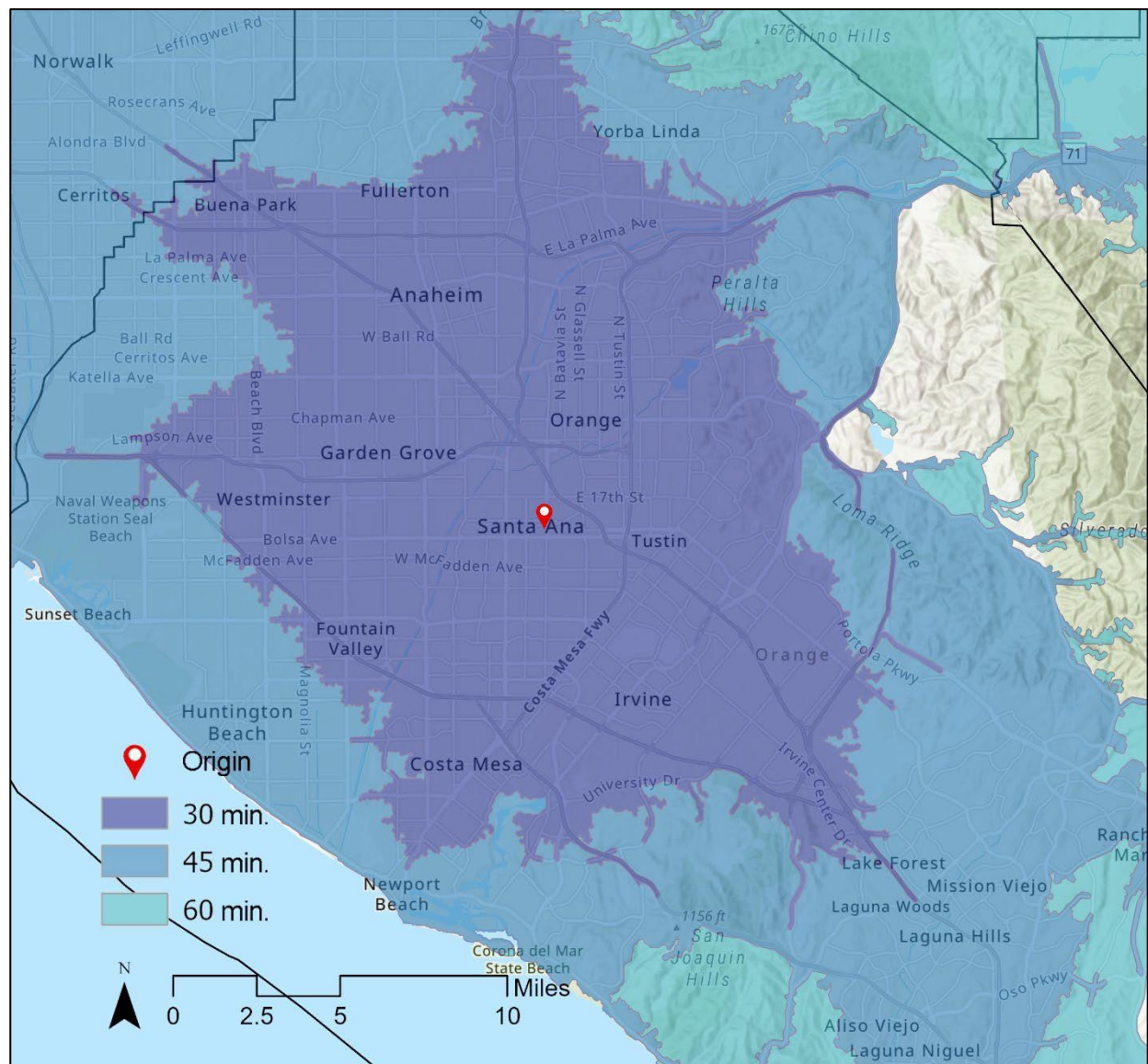
## Isochrone analysis of transit and car access to jobs

An isochrone is a map of the locations that you can reach in a given amount of time (e.g., 15, 30, or 45 minutes) traveling at a fixed speed over the road network. Some persons call this “reachability” – a map of how many places you can reach or how much distance you can cover in a fixed amount of travel time. Figure 7 shows isochrones for car travel during morning peak hour (8 a.m. weekday) starting from near downtown Santa Ana, 117 W 4th St, Santa Ana, CA. Note that, driving by car, a person can reach large portions of



central and north county in 30 minutes and virtually the entire central and north county in 45 minutes. The 45-minute isochrone extends well into south county also.

**Figure 7: Driving isochrones, from starting point in downtown Santa Ana, 8 a.m. weekday, origin location: 117 W 4th St, Santa Ana, CA**



Source: GTFS

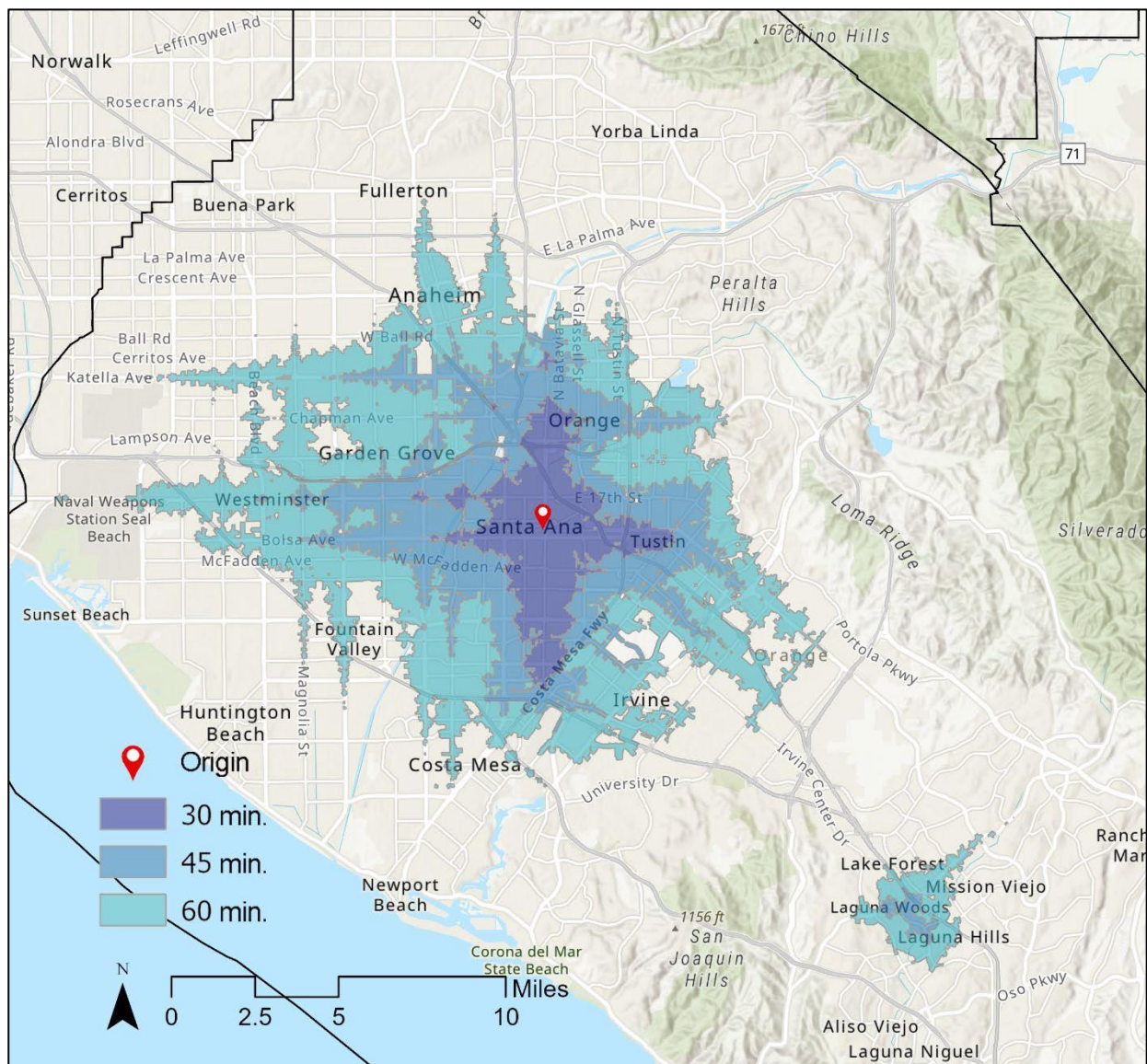
Figure 8 shows transit isochrones from the same downtown Santa Ana starting point, again for 8 a.m. weekday locations. For transit, we use the GTFS bus schedule for each transit stop in the county. We assume that persons walk to and from their origin and destination bus stop, at a walking speed of three miles per hour. Waiting for the bus, at the origin or for transfers, requires (we assume) half of the headway at that stop at that



time. In other words, if a bus stop has scheduled service arriving every 10 minutes, we assume that the rider will wait five minutes at that stop for the bus.

The isochrones for bus travel are clearly smaller areas than are the driving isochrones. The 30-minute isochrone hardly reaches Irvine to the south or Orange to the north. Even the 60-minute isochrone will only take a traveler as far as Irvine, Anaheim, or Westminster, with the exception of one location near Laguna Hills. Bus travel is slower than car travel, due to time spent walking to/from stations, waiting for buses transferring, and the bus itself which stops to let passengers on and off.

**Figure 8: Transit isochrones, from starting point in downtown Santa Ana, 8 a.m. weekday, origin location: 117 W 4th St, Santa Ana, CA**



Source: GTFS

Tables 2 and 3 show how the different car and transit isochrones translate into differences in job access. Table 2 shows the number of jobs that are accessible within 30 minutes by car from the center of each census tract in Orange County. Table 2 shows those tracts grouped into quintiles – five groups from the lowest to highest job access. The middle quintile – the 40<sup>th</sup> to 60<sup>th</sup> percentile tracts for 30-minute job access by car, can access from 122,526 to 138,680 jobs in a 30-minute morning rush hour drive. Table 3 shows the same 30-minute job access, at 8 a.m. on weekday, by transit. The middle quintile of tracts, the 40<sup>th</sup> to 60<sup>th</sup> percentile in transit job access, can reach from 987 to 2,060 jobs by transit in a 30-minute morning trip. For that middle quintile, cars provide over from 16 to 20 times more job access than does transit. This gap is similar to findings in other urban areas.<sup>24</sup>

**Table 2: Number of Jobs Within 30 Minutes by Car, 8 a.m. in the Morning, by Census Tract**

Quintile	Range
0-20%	0-88772
20-40%	88773-122525
40-60%	122526-138680
60-80%	138681-152359
80-100%	152360-183896

**Table 3: Number of Jobs within 30 Minutes by Transit, 8 a.m. in the Morning, by Census Tract, Assuming 3 Mile Per Hour Transit Stop Access/Egress Speed**

Quintile	Range
0-20%	0-321
20-40%	322-986
40-60%	987-2060
60-80%	2061-3452
80-100%	3453-18823

<sup>24</sup> See Boarnet, Giuliano, Hou, and Shin, 2017, First/last mile transit access as an equity planning issue, Transportation Research Part A 103 (2017) 296–310.

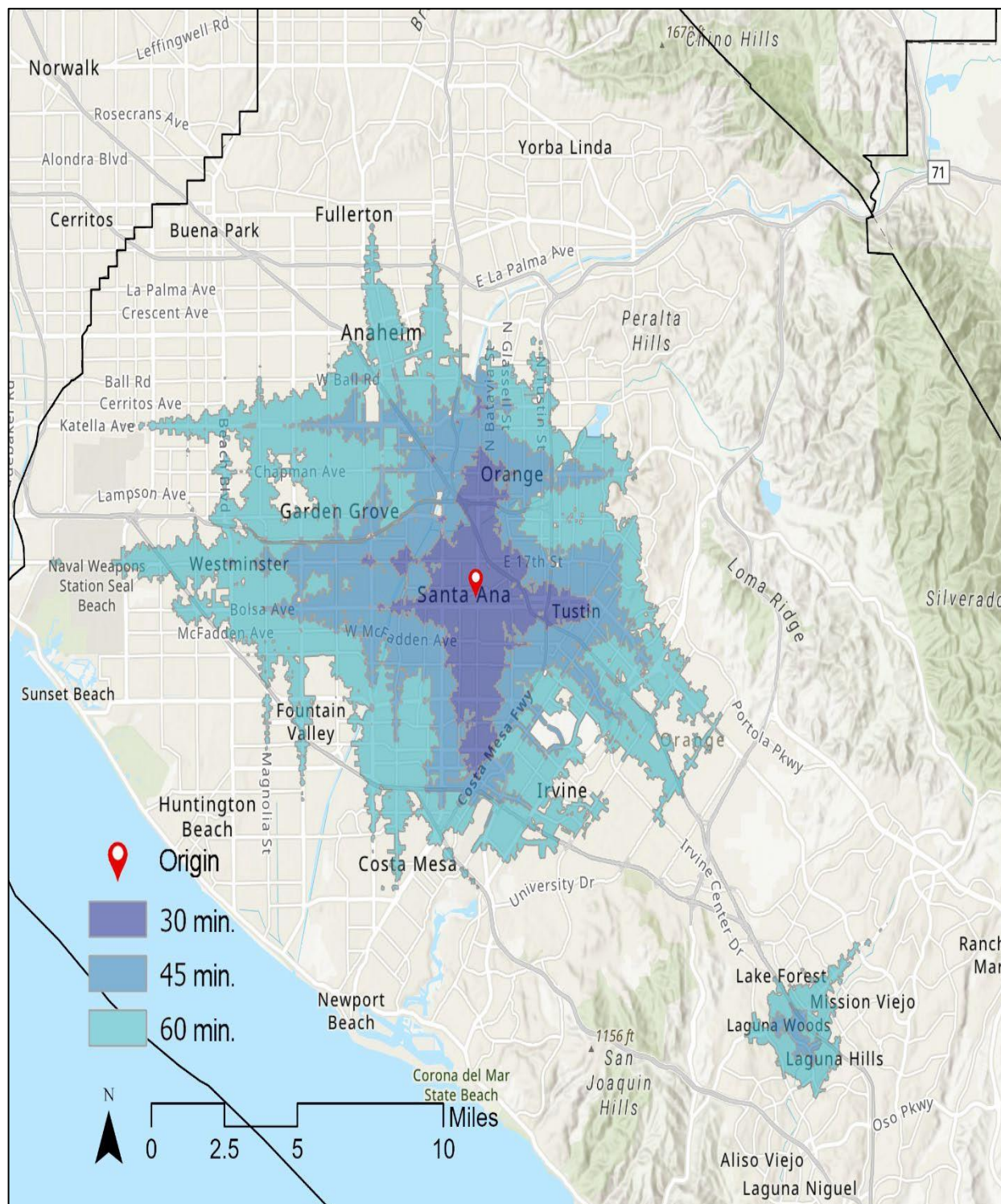
## **Job Access and First/Last Mile Transit Stop Access Speed**

The job accessibility calculations in sub-section E, above, assume that persons walk to and from their origin and destination transit stop. This subsection will illustrate how increasing that transit stop first-last mile access speed, to 10 miles per hour (approximately bicycle speed), changes job accessibility. This simulation does not change the bus network and timetable. The simulation illustrates how job access would change, from downtown Santa Ana, if persons could move to and from bus stops at bicycle speed rather than walking speed, with no changes in the bus network or operations.

For comparison, Figure 9 shows the transit isochrones from downtown Santa Ana assuming that persons walk to and from transit (bus) stops, at 3 miles per hour. Figure 9 is identical to Figure 8. Figure 10 shows transit isochrones from downtown Santa Ana assuming that persons move to and from transit (bus) stops at roughly bicycle speed, 10 miles per hour. Each isochrone is visibly larger in Figure 10 (bicycle speed transit stop to/from access) than in Figure 9 (walk speed to/from access.)



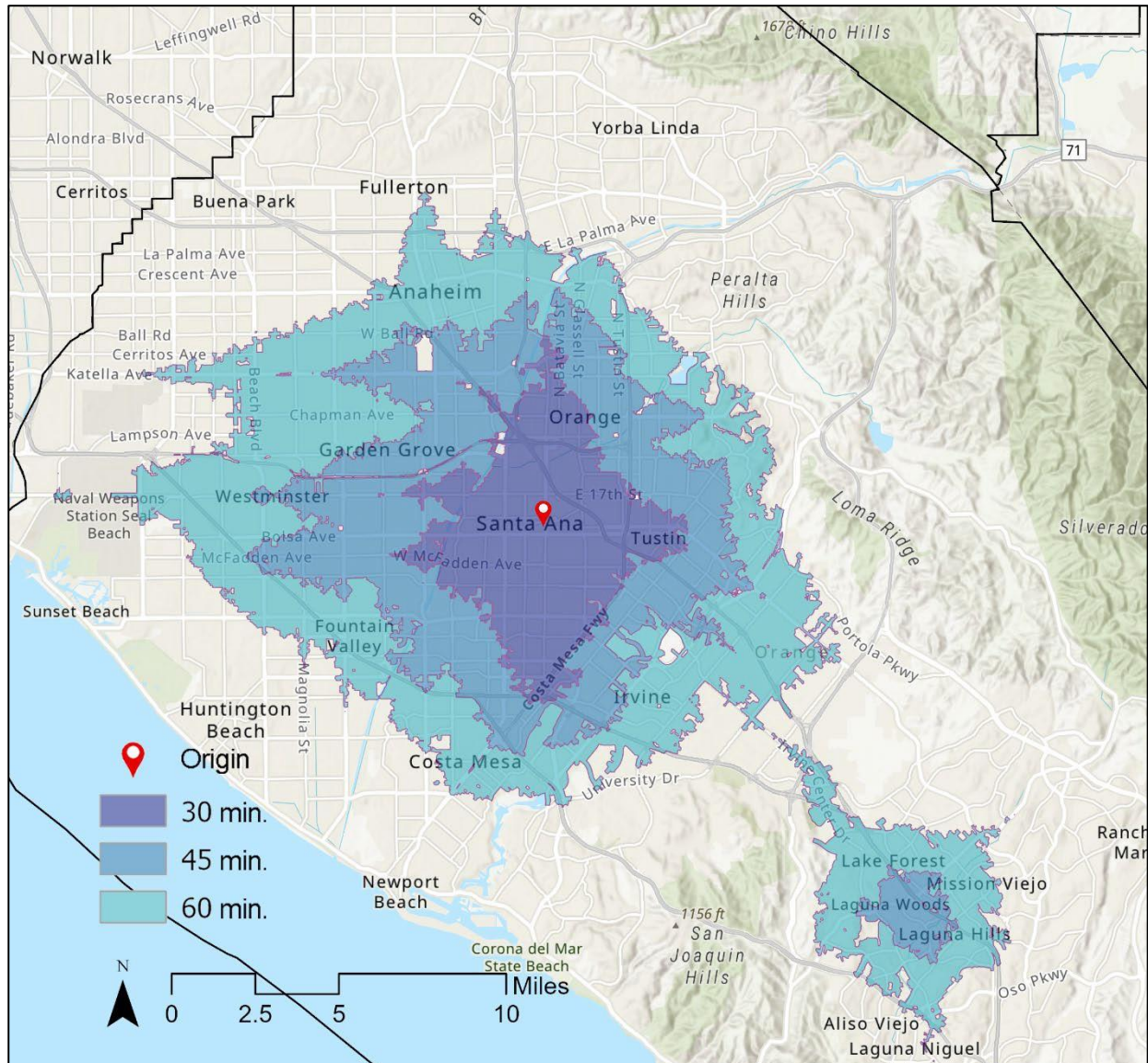
**Figure 9: Transit Isochrones, From Starting Point in Downtown Santa Ana, 8 a.m. Weekday, Origin Location: 117 W 4th St, Santa Ana, CA, assuming 3 mile per hour (walk speed) Transit Stop Access/Egress Speed (i.e. walk speed to/from stations)**



Source: GTFS



**Figure 10: Transit Isochrones, From Starting Point in Downtown Santa Ana, 8 a.m. Weekday, Origin Location: 117 W 4th St, Santa Ana, CA, Assuming 10 Mile Per Hour (approximate bicycle speed) Transit Stop Access/Egress Speed (i.e., bicycle speed to/from stations)**



Source: GTFS

Recall that Table 3 shows the number of jobs within 30 minutes, by transit, from every Orange County census tract during the morning rush hour, assuming a 3 mile per hour travel speed to and from transit stops. Table 4 shows the same thing, the number of jobs accessible within 30 minutes by transit, assuming a 10 mile per hour travel speed to and from transit stops. The 60<sup>th</sup> percentile census tract in the county would see its transit job access increase more than fourfold, from 2,060 jobs to 8,906 jobs accessible in 30 minutes (compare Table 3 and Table 4.) In other research (for San Diego), researchers have found that the increase in transit job access from moving transit stop access/egress

to bicycle speed is larger than can be achieved from large increases in transit frequency, suggesting a role for safe and accessible non-motorized travel as an important transit policy.<sup>25</sup>

**Table 4: Number of Jobs Within 30 Minutes by Transit, 8 a.m. In The Morning, by Census Tract, Assuming 10 mile Per Hour Transit Stop Access/Egress Speed (i.e., bicycle speed to/from stations)**

Quintile	Range
0-20%	0-2621
20-40%	2622-5697
40-60%	5698-8906
60-80%	8907-13894
80-100%	13895-41751

## Key Takeaways

Increasing transit access to jobs can help mitigate GHG emissions, by reducing reliance on car travel, and increase adaptation to climate by allowing residents in zero vehicle households more effective access to jobs and daily activity. The analysis above illustrates several points:

- Both jobs and the transit network are more dense in central and north county.
- From Santa Ana, a 45-minute 8 a.m. car commute will reach most areas of Orange County; a 45-minute transit commute will not reach Irvine Spectrum, Newport Beach, Huntington Beach, or Fullerton.
- At the 60<sup>th</sup> percentile of the census tract distribution, jobs accessible in a 30-minute morning peak (8 a.m.) commute are equal to:
  - 138,680 jobs by car,
  - 2,060 jobs by transit (walk speed station access/egress),
  - 8,906 jobs by transit (bicycle speed station access/egress).

As part of a larger economic and development package, creating safe and effective networks for non-motorized or slow-speed lightly motorized transport can increase job access.

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<sup>25</sup> Boarnet, Giuliano, Hou, and Shin found that in San Diego, moving transit access/egress to bicycle speeds produced larger increases in job access than did reducing transit headways to 10 minutes systemwide. See Boarnet, Giuliano, Hou, and Shin, 2017, First/last mile transit access as an equity planning issue, Transportation Research Part A 103 (2017) 296–310.

# Orange County Water and Coastal Landscape: Opportunities and Threats

## Major Key Points:

1. The combination of aging and undersized infrastructure, urban development and climate change has catalyzed significant and growing environmental challenges in Orange County including heat waves, air pollution, flood risk and coastal erosion including beach loss.
2. Coastal erosion cannot be reversed and several areas in Orange County are in danger of generating large economic, recreational, and ecological losses soon.
3. Technology developed at UCI can model complex coastal dynamics, identify hot spots and trends, and help communities develop efficient solutions tailored to their specific contexts and values.

## Current Landscape and Capacity

Southern California's climate and natural amenities such as the coast and ocean have long served as one of the primary amenities used to attract and retain new residents yet as global temperatures increase worldwide, the region and the broader state are seeing increasing vulnerabilities including drought conditions, water scarcity, and wildfire risks. Fortunately, a historic winter and spring with heavy weather and record snowfall has dramatically reduced these concerns, at least in the short term, after approximately two decades of persistent drought-like conditions. As of January 2023, California's average precipitation for the year was at 167 percent its annual average<sup>26</sup> with daily rainfall records being broken across the state. While water experts warn that an especially dry summer can still bring down the average significantly by the end of the year, the recent rains have still provided relief from the ongoing drought.

Thanks to increased conservation efforts, improved water use efficiency, projects such as the Groundwater Replenishment System, and increased public adoption of efficient water supply and quality strategies, the supply of potable drinking water in Orange County is likely to remain stable for years to come. Despite this adequate supply, threats to Orange County's drinking water remain via potential contamination, especially of hazardous chemicals.

On top of the concerns caused by pollution and contaminants, Orange County's beautiful beaches, which have attracted surfers and tourists from across the world, are under threat from increased erosion. Preserving and saving local beaches from increased erosion helps keep ecosystems healthy, encourages recreation, mitigate storm damage and preserve the county's cultural heritage and tourist industry.

These efforts are exemplified by sand replenishment efforts undertaken by the U.S. Army

Corp of Engineers from Surfside Beach all the way to Newport Beach. This project, which typically takes place every 5-7 years, has not occurred since 2010 due to a lack of federal funding. It entails nearly 1.9 million cubic feet of sand take from two off-shore sites and placed on north Orange County beaches. Despite these efforts, recent heavy rains in the region and across the state have resulted in increased erosion near cliffside developments with many structures failing or being red-tagged. Erosion is not just affecting residential homes, as seen in the recent landslides which disrupted Amtrak passenger services between Orange County and San Diego.

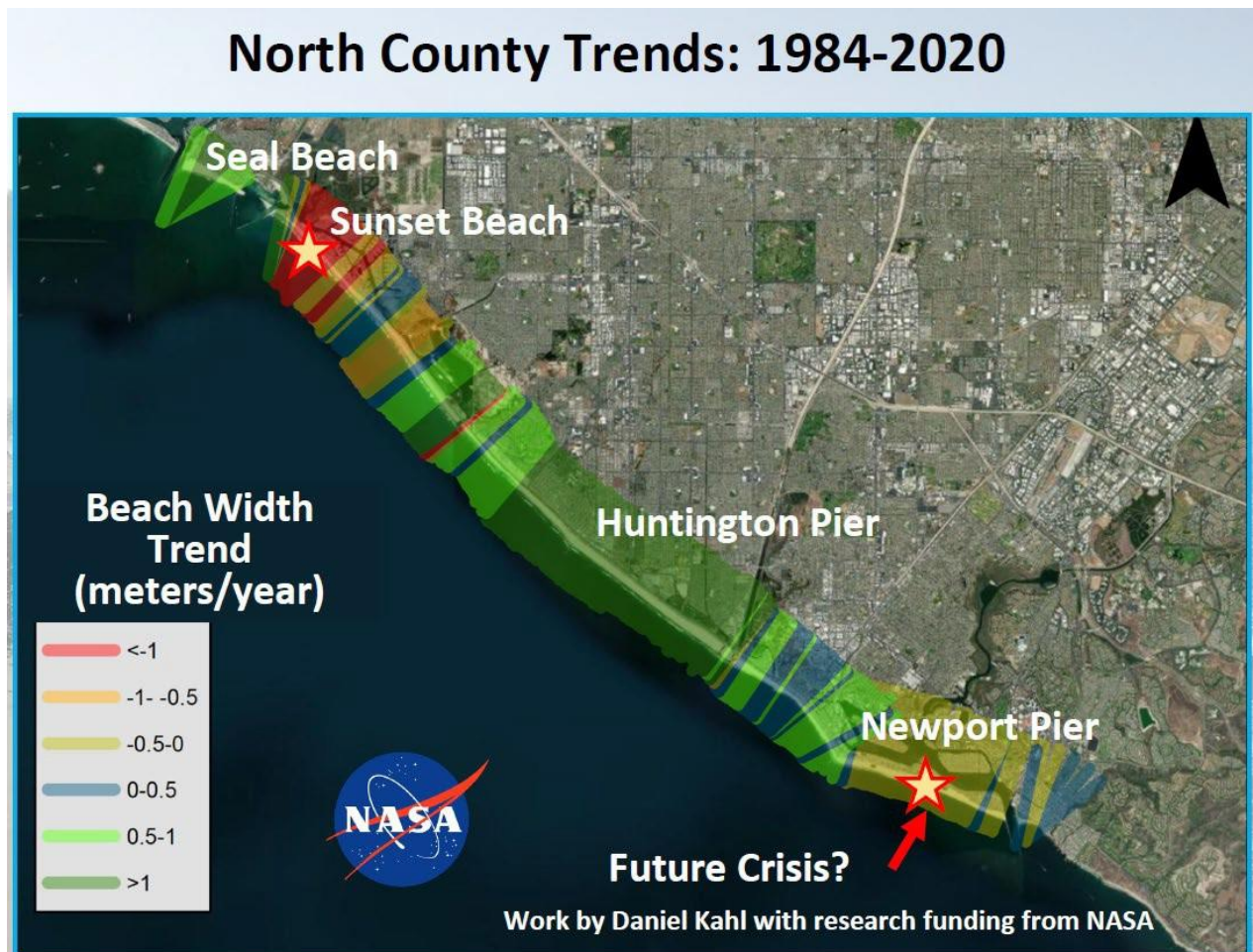
Overall, Orange County coast water community leaders and policymakers understand the region's key threats, especially beach loss and potential water contamination, in order to

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<sup>26</sup> <https://www.usatoday.com/in-depth/graphics/2023/01/21/rainfall-totals-california/11026775002/>

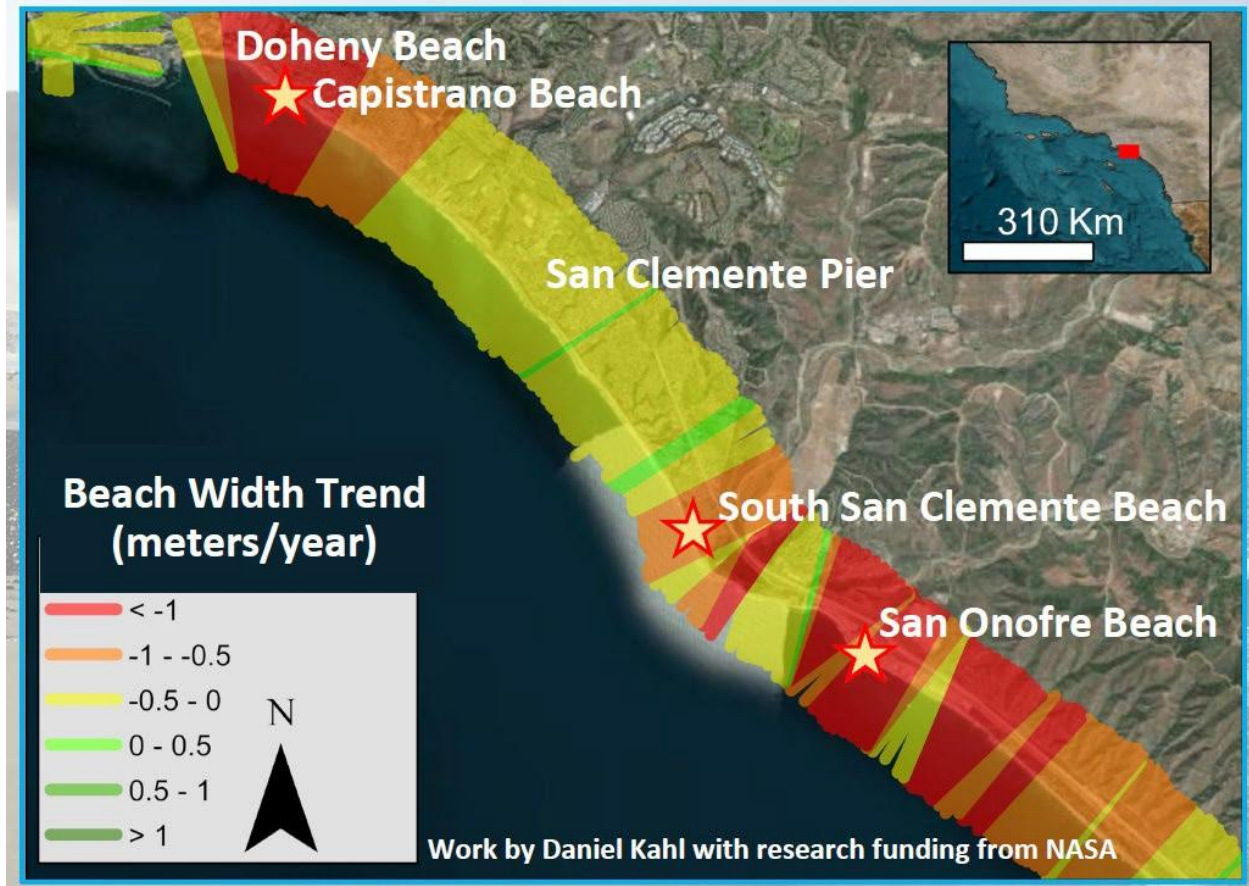


better mitigate these threats' impacts. Thanks to increased digitization of water data and systems, new technologies have been created to allow for better monitoring and predictions based on sediment dynamics as well as improved processes for decision-making. Additionally, an improved understanding of coastal areas will lead to better targeted interventions for specific at-risk areas. For example, while Huntington Beach has seen its beach width increasing over the past several decades, San Clemente's beach erosion already passed a tipping point in early 2010s, indicating significant future problems.



This is part of a larger countywide trend of north county beaches (except Sunset Beach and areas around Newport Pier) experiencing beach width increases in the past 40 years and south county beaches experiencing width decreases over the same period.

## South County Trends: 1984-2020



Overall, while new and improved monitoring and prediction technologies have allowed for a better, more encompassing understanding of shifts in sediment and how they can impact beach erosion, additional interdisciplinary research is needed to properly support Orange County's beach communities.

### Water Threats and Pollution

CalEnviroScreen can help identify the Orange County communities most impacted by pollutants, chemicals or runoff into their water bodies. south Orange County has a higher percent of census tracts with impaired water bodies – streams, rivers or lakes used for recreation or fishing which have been contaminated – largely due to the absence of large bodies of water in more central and northern portions of the region. At the same time, more northern and central parts of the county struggle with higher groundwater threats – leaks, spills, or contaminants into groundwater – likely due to increased population density, which leads to additional gas stations or other services which can potentially cause pollution or contaminants. Lastly, the proportion of census tracts with drinking water contaminants – potable water polluted by either natural (bacteria, wildlife, fires) and human (factories, sewage, runoff) sources – are fairly



spread throughout the region with improved drinking water in more coastal cities and more polluted water in cities bordering other counties.

## CalEnvioScreen Impaired Water Bodies

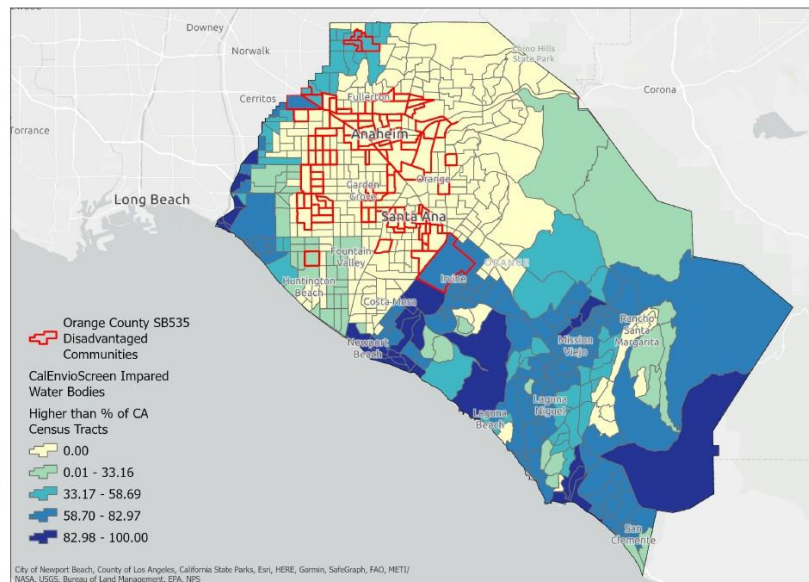
### What are Impaired Water Bodies?

Water bodies like streams, rivers or lakes are used for recreation and fishing or may provide water for drinking or irrigation. When water bodies are contaminated by pollutants, they are considered impaired. These impairments can harm wildlife habitats and prevent recreational and other uses of the water body.

Certain groups such as tribal or low-income communities may depend on the fish and wildlife in nearby water bodies more than the general public.

Link:

[https://experience.arcgis.com/experience/ed5953d89038431dbf4f22ab9abfe40d/page/Indicators/?data\\_id=widget\\_310\\_output\\_0%3A0&views=Impaired-Waters](https://experience.arcgis.com/experience/ed5953d89038431dbf4f22ab9abfe40d/page/Indicators/?data_id=widget_310_output_0%3A0&views=Impaired-Waters)



## CalEnvioScreen Groundwater threats

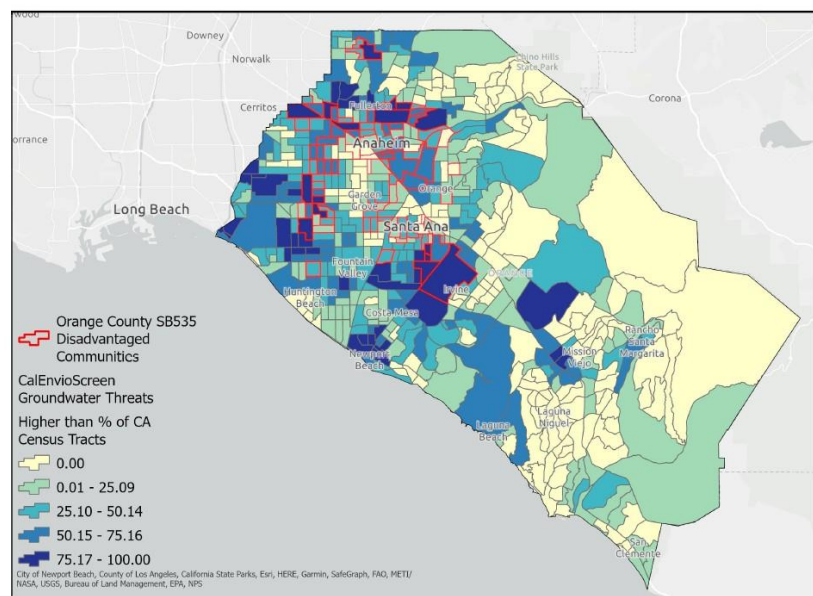
### What are Groundwater Threats?

Hazardous chemicals are often stored in containers on land or in underground storage tanks. Leaks from tanks can contaminate soil and groundwater. Common soil and groundwater pollutants include gasoline and diesel fuels at gas stations, as well as solvents, heavy metals and pesticides.

Leaking tanks can affect drinking water and expose people to contaminated soil and air. The land and groundwater may take many years or decades to clean up.

Link:

[https://experience.arcgis.com/experience/ed5953d89038431dbf4f22ab9abfe40d/page/Indicators/?data\\_id=widget\\_310\\_output\\_0%3A0&views=Groundwater-Threats](https://experience.arcgis.com/experience/ed5953d89038431dbf4f22ab9abfe40d/page/Indicators/?data_id=widget_310_output_0%3A0&views=Groundwater-Threats)



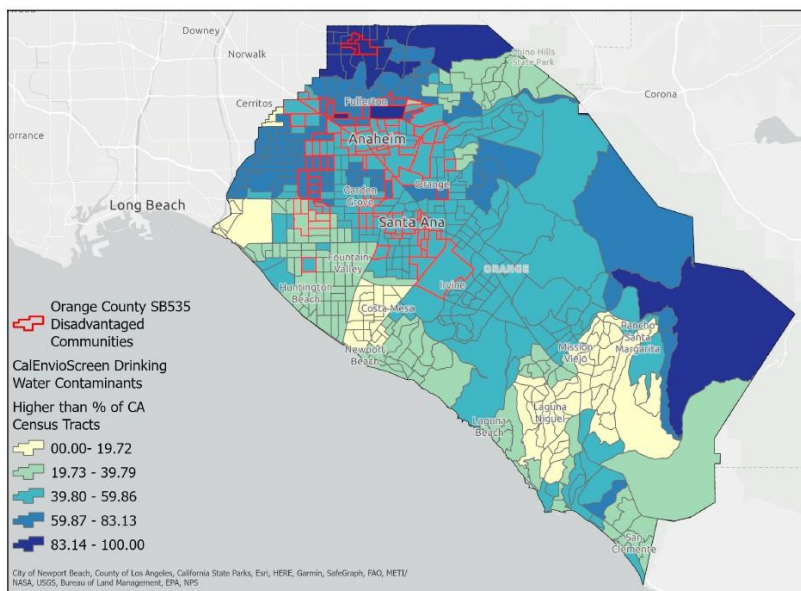
## CalEnviroScreen Drinking Water

### What are drinking water contaminants?

Most drinking water in California meets health standards. However, drinking water sometimes becomes contaminated with chemicals or bacteria above the standards. Both natural and human sources can contaminate drinking water. Natural sources include rocks, soil, wildlife and fires. Human sources include factories, sewage, and runoff from farms.

One common contaminant, arsenic, occurs naturally in some rocks and soil and is often found in groundwater in California. It can cause cancer. Nitrate from fertilizer or manure can leach into groundwater and contaminate wells. Nitrate can cause a blood disorder in infants called blue baby syndrome.

[https://experience.arcgis.com/experience/ed5953d89038431dbf4f22ab9abfe40d/page/Indicators/?data\\_id=widget\\_310\\_output\\_0%3A0&views=Drinking-Water-Contaminants](https://experience.arcgis.com/experience/ed5953d89038431dbf4f22ab9abfe40d/page/Indicators/?data_id=widget_310_output_0%3A0&views=Drinking-Water-Contaminants)



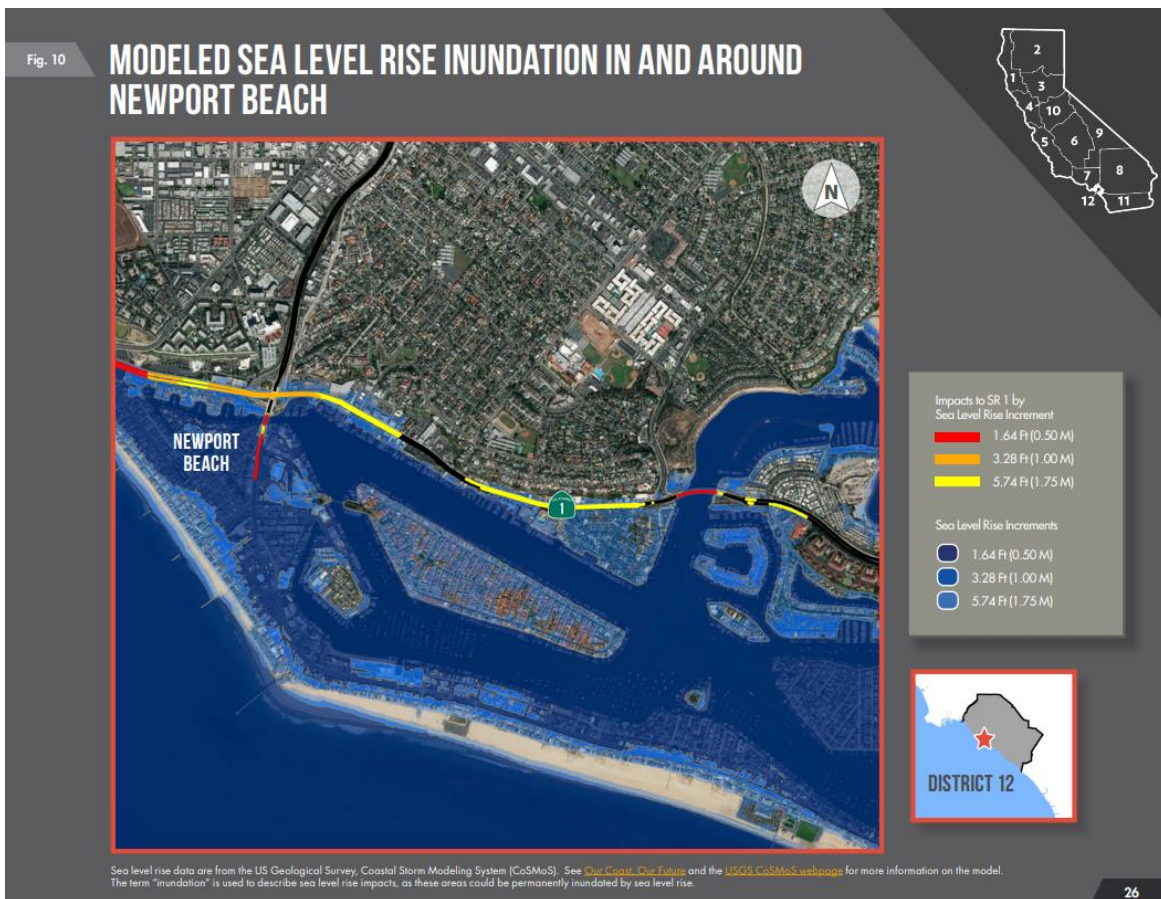
## Potential Impacts from Sea-Level Rise

Climate change threatens to bring a multitude of potential impacts across the state and nation including the potential for rising sea-levels and the associated coastal erosion. With over 40 miles of coastline, several Orange County communities, including disadvantaged communities in more inland regions, have some level of risk. Alongside risks to residential structures, several transportation systems are at-risk including state highways in Seal Beach, Newport Beach and near Moro Canyon as well as Amtrak's Pacific Surline – the coastal route between San Diego and San Luis Obispo which carries nearly 3 million passengers annually – has closed several times following landslides induced by rising sea levels.<sup>11</sup>

Sea-level rise and surges can serve to exacerbate tidal flooding and storm surges which may result in permanent inundation serving to impact much of the infrastructure along the coastline. According to a 2019 analysis by Caltrans, an increase in sea-level rise height of 1.64 feet would result in 2.8 centerline miles of state highways in Orange County being inundated, growing to 5.2 centerline miles at 3.28 feet of sea-level rise and 8.7 miles centerline miles at 5.74 feet of sea-level rise.<sup>12</sup> The following map from the Caltrans Climate Change Vulnerability Assessment highlights how sea-level rise would impact the communities in and around Newport Beach.

<sup>11</sup> <https://crosscut.com/environment/2023/05/when-it-comes-climate-change-amtrak-stuck-catch-22#:~:text=That's%20what%20happened%20when%20rising,following%20a%20landslide%20in%20April.>

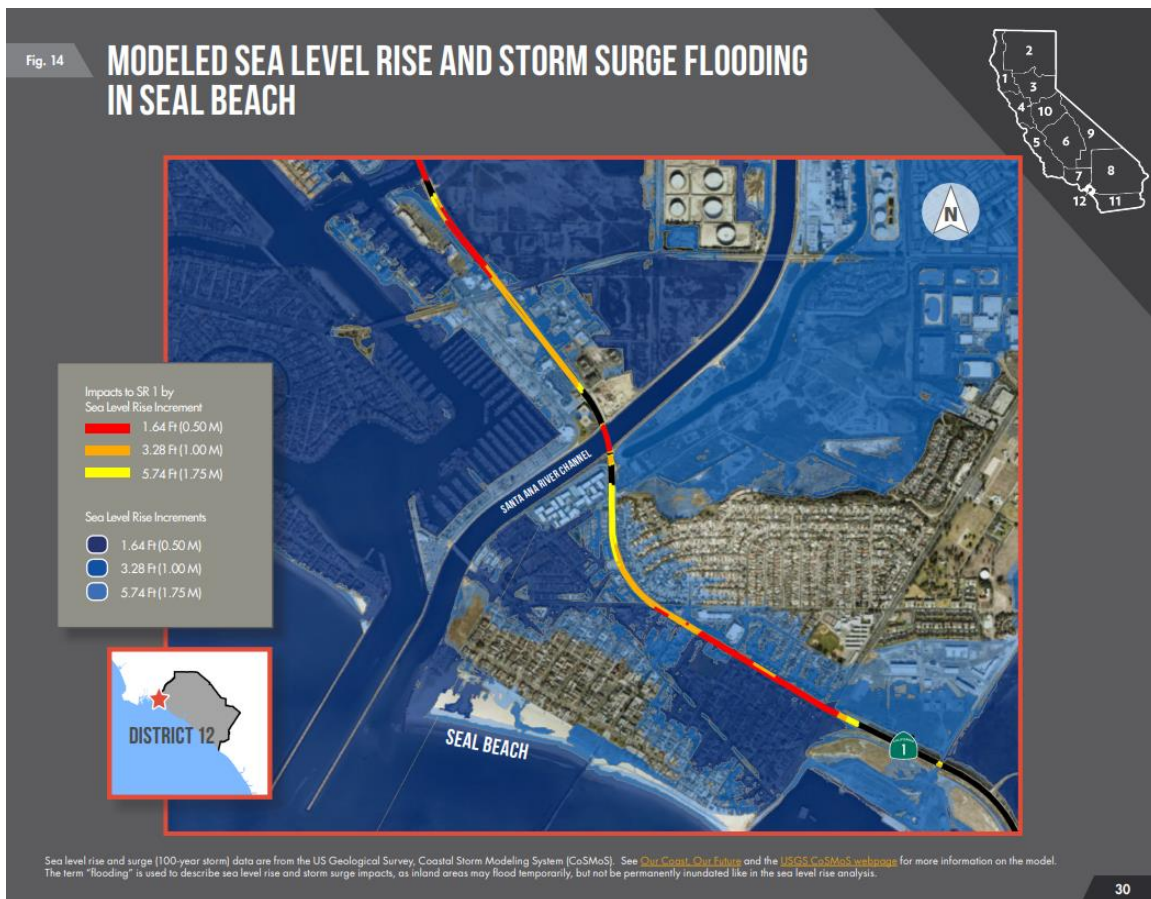
<sup>12</sup> <https://dot.ca.gov/-/media/dot-media/programs/transportation-planning/documents/2019-climate-change-vulnerability-assessments/ada-remediated/d12-summary-report-a11y.pdf>



With increased sea-level rise, storm surges and their associated damage can increase dramatically. Surge effects from storms can leave significant damage to not only roads but bridges and other coastal infrastructure and significantly increase the coastal erosion, landslides, shoreline retreat, and further increase the potential for flooding. When combining the expected impacts of sea-level rise with the impacts associated with a 100-year storm event, the centerline miles affected by a 1.64 foot sea-level rise jump to 3.7 miles, to 6.2 centerline miles with a 3.28 foot sea-level rise and 11.9 centerline miles of state highways affected with a 5.74 foot sea-level rise.

Providing additional mapping, Caltrans indicates that a stretch of State Route 1, Pacific Coast Highway, in Seal Beach would be under significant threat due to the combined sea-level rise and storm surges. Not only would transportation infrastructure be threatened but the multitude of businesses and residences would be as well, with many of these areas already seeing large efforts needed to clean up and clear damages from current storms.





On top of damage from sea-level rise and storm surges, coastal erosion or 'cliff retreat' also threatens infrastructure, residences and businesses in the region. While cliff retreats depend on several factors including the composition of soil and mitigating responses from state or local agencies, several portions of the county remain at-risk including a portion of highway in Huntington Beach and several areas between Conora Del Mar and Monarch Beach. While some communities have responded to cliff retreat with 'armoring,' this strategy has been shown to be a temporary solution which not only limits access to beaches but also can lead to erosion in neighboring areas.<sup>13</sup> According to Caltrans, the number of centerline miles of state highway under threat from cliff retreat driven by sea level rise would be 0.3 miles with a 1.64 foot sea-level rise, 0.7 miles with a 3.28 foot level rise and 1.0 miles with a 5.74 foot level rise.

Overall, sea-level rise in Orange County remains a significant threat which could have significant consequences for current and planned infrastructure, businesses and residences. While the county has already contended with environmental impacts to infrastructure, including emergency work in the cities of Anaheim, Tustin, and Orange due wildfire damage and repairs to SR 91 resulting from rock and landslides, the impacts associated with sea-level rise could be much more significant. It should also be noted that while many higher-income coastal communities will see the large impacts associated with sea-level rise, many disadvantaged communities will be at risk as well

<sup>13</sup> <https://dot.ca.gov/-/media/dot-media/programs/transportation-planning/documents/2019-climate-change-vulnerability-assessments/ada-remediated/d12-summary-report-a11y.pdf>

and may not have the financial ability to implement mitigation technologies or repair damages. As such, special consideration must be given to these disadvantaged communities to ensure they do not feel an outsized impact from sea-level rise.

## **Water Use and Conservation in Orange County**

Alongside record rainfall, California's 2023 snowpack is one of the largest ever recorded; the Department of Water Resources measured an April 2023 statewide snowpack snow water equivalent of 61.1 inches or 237 percent of the average for this date.<sup>27</sup> This figure has only been exceeded three times on record.

Despite strong recent rains caused by atmospheric rivers and a record snowpack in the Sierras, California continues to struggle with low groundwater in aquifers, declining water supply from the Colorado River, and the looming potential of another more severe drought in the next few years<sup>28</sup>. Additionally, while strong rains helped to fill reservoirs, they also causes catastrophic flash floods and mudslides, impacting communities and residents across the state. In the words of Department of Water Resources Director Karla Nemeth, "After the driest three years on record and devastating drought impacts to communities across the state, DWR has rapidly shifted to flood response and forecasting for the upcoming snowmelt. We have provided flood assistance to many communities who just a few months ago were facing severe drought impacts." It is important that local community leaders and policymakers understand not only how the climate is changing but understand how those changes will impact residents across the state.

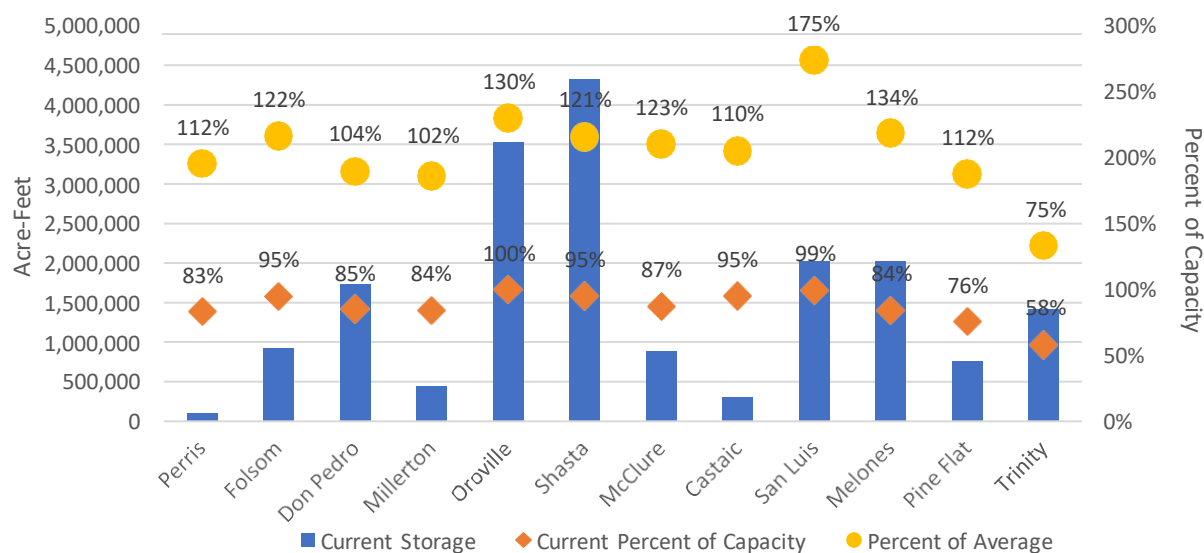
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<sup>27</sup> <https://water.ca.gov/News/News-Releases/2023/April-23/Snow-Survey-April-2023>

<sup>28</sup> <https://www.npr.org/2023/03/23/1165378214/3-reasons-why-californias-drought-isnt-really-over-despite-all-the-rain>

Overall, the majority of California’s largest reservoirs were well above their average water capacity as of June 2023 with the exception of the Trinity reservoir at 75 percent capacity. The Shasta reservoir, the state’s largest reservoir, stored 4.3 million acre-feet and was at 95 percent of current capacity while the Oroville reservoir was at 3.5 million acre-feet and at 100 percent capacity. Overall, five of California’s major reservoirs had water storage over 90 percent as of June 2023.

### Current Total Storage and Capacity for Major Reservoirs in California, June 25, 2023

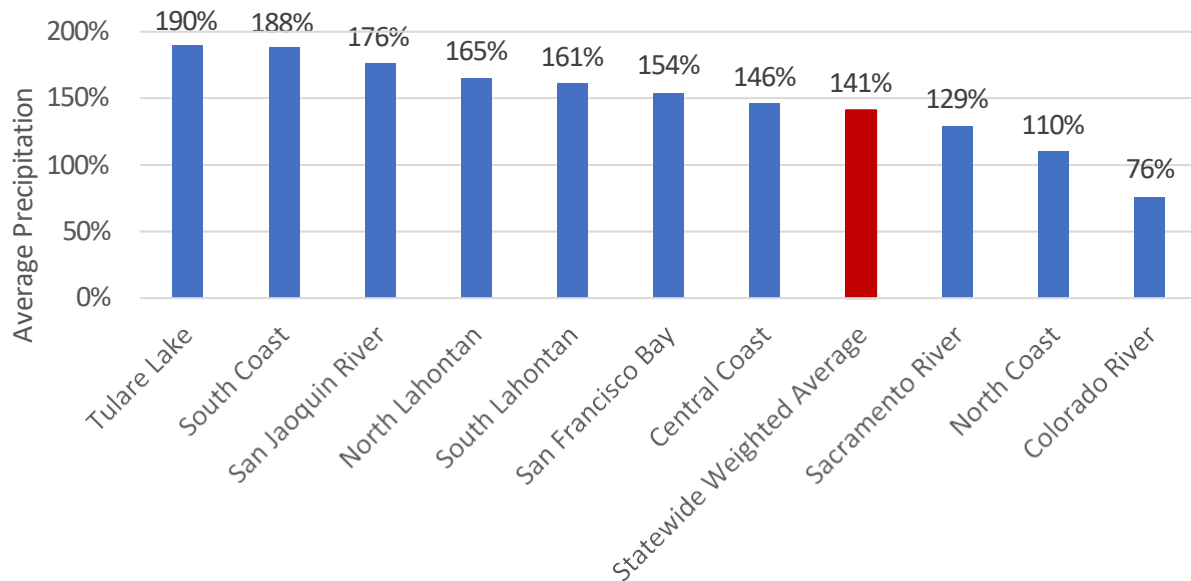


Source: California Department of Water Resources, Current Conditions for Major Reservoirs

In addition to the melting snowpack, significant levels of rain have been recorded across California, especially in northern and central parts of the state. For the water year measured from October 2022 to April 2023, total statewide average precipitation was 141 percent of its annual average. Tulare Lake’s rainfall was 190 percent of its annual average, while the South Coast’s was 188 percent and the San Joaquin River’s was 176 percent.

### Percent of Historic Average Precipitation by Hydrological Region in California, October 2022 – April 2023 Water Year





Source: California Department of Water Resources, Statewide Precipitation Data

Despite statewide risks, Orange County's water supply remains strong thanks to a number of key advantages most notably the Groundwater Replenishment System (GWRS), a state-of-the-art wastewater recycling and water purification project. A collaboration between the Orange County Water District (OCWD) and Orange County Sanitation District (OC San), it can produce up to 130 million gallons of water every day, enough to meet the needs of 1 million residents in north and central Orange County. As of 2023, the GWRS has produced more than 400 billion gallons of water.<sup>29</sup>

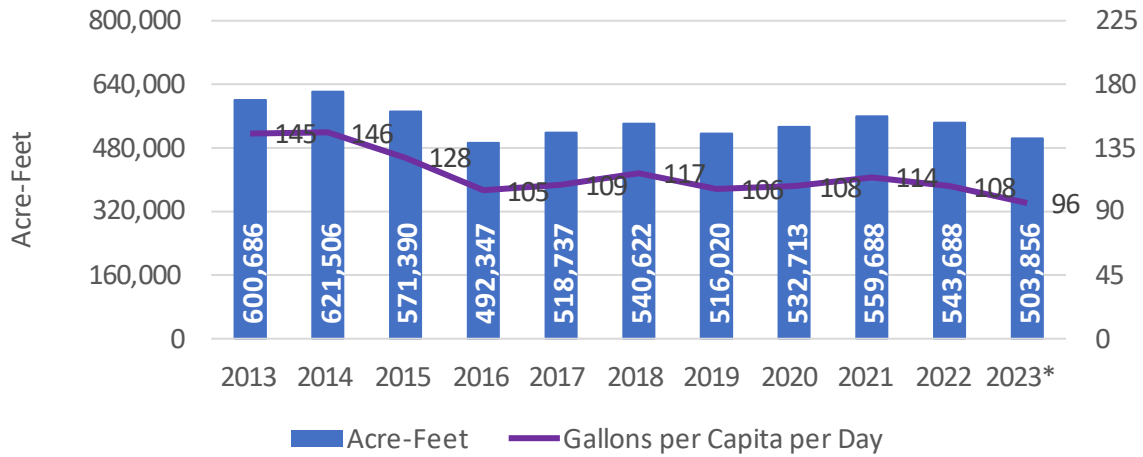
Overall, while OCWD relies heavily on groundwater, it also imports 15 percent of its water -- supplying north and central Orange County -- from the Colorado River and Sacramento-San Joaquin River Delta. Implementation of the GWRS allows the county to replace 134,000 annual acre-feet of water imports, including 60,000 from the Sacramento-San Joaquin River Delta.<sup>30</sup>

Water use in Orange County decreased from 108 gallons per capita per day (GPCD) in 2022 to 96 GPCD in 2023, a decline of 11.1 percent. As of March 2023, the Orange County water retailers with the highest water usage included East Orange County Water District at 121.6 GPCD, followed by Fountain Valley (94.3 GPCD) and Newport Beach (82.3 GPCD). Garden Grove had the lowest GPCD at 29.6, barely beating out Mesa Water District (34.8 GPCD) and Santa Ana (44.8 GPCD).

<sup>29</sup> <https://www.ocwd.com/gwrs/about-gwrs/>

<sup>30</sup> [https://www.waterboards.ca.gov/press\\_room/press\\_releases/2023/pr20230414-orange-county-replenishment.pdf](https://www.waterboards.ca.gov/press_room/press_releases/2023/pr20230414-orange-county-replenishment.pdf)

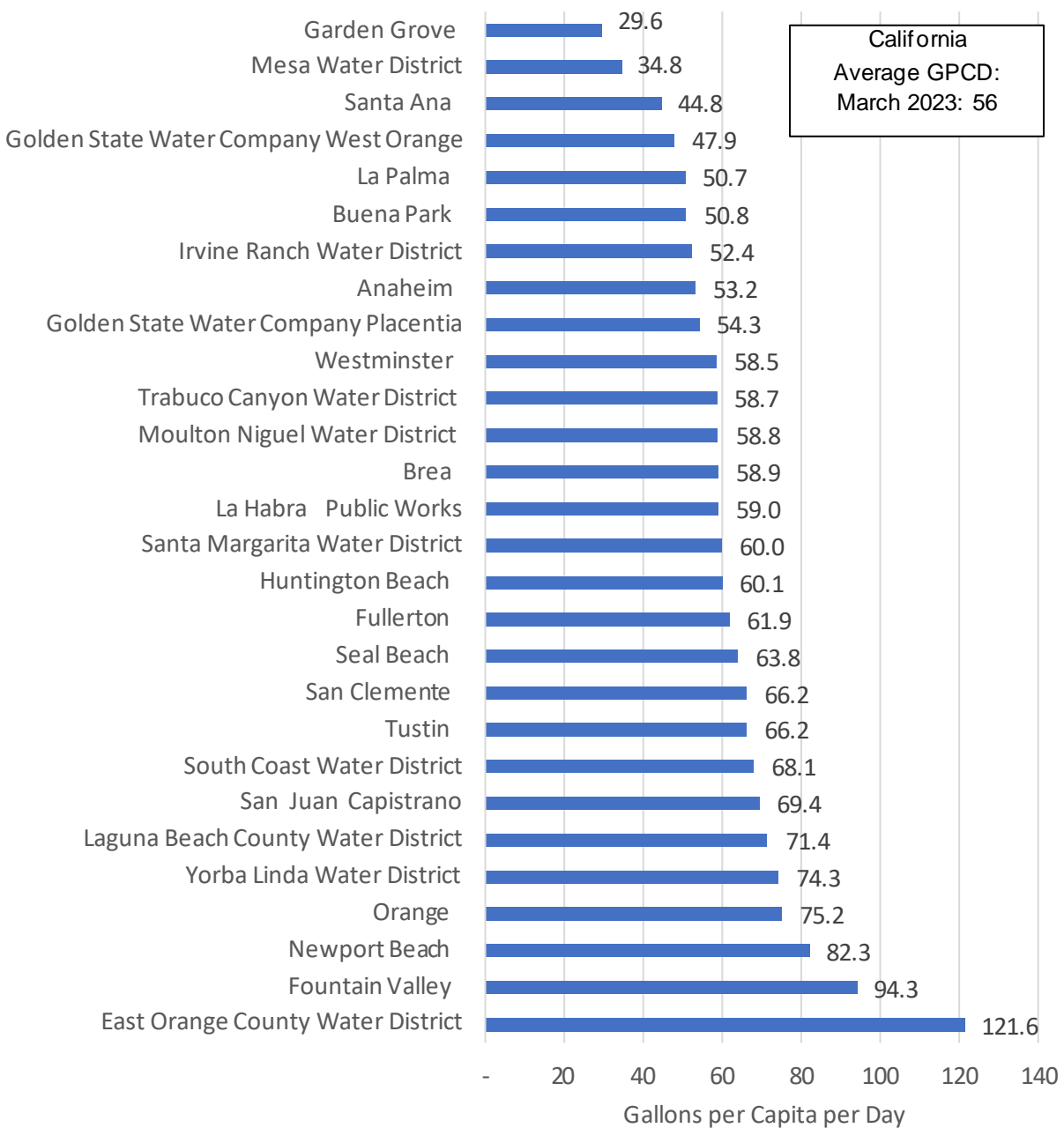
## Urban Water Usage in Acre-Feet and Gallons per Capita Per Day in Orange County, 2013-2023



Source: Municipal Water District of Orange County; \*Data for 2023 is based on end of year projections and may be subject to change or revision.

Overall, only 9 water retailers in Orange County had a lower GPCD than the statewide average of 56 in March 2023.

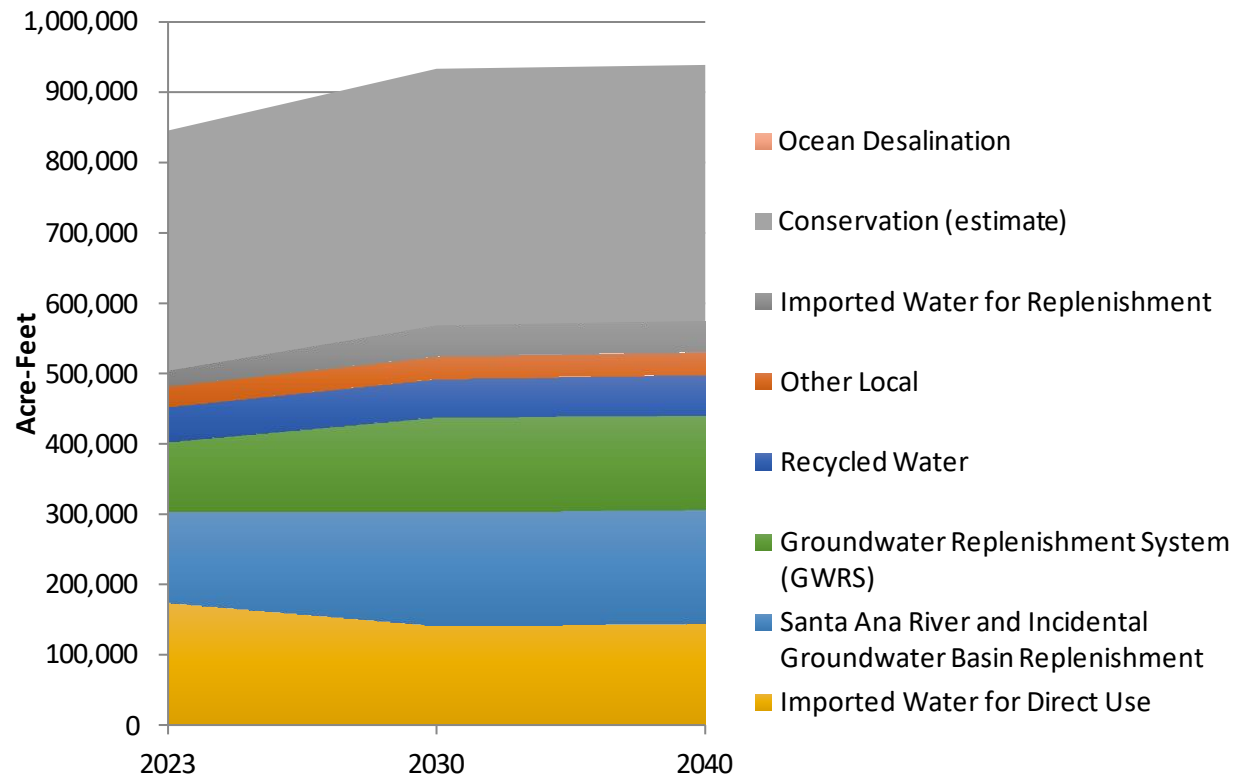
## Water Usage in Gallons per Capita per Day (GPCD) by Orange County Water Retailer, March 2023



Source: State Water Resources Control Board

Looking forward, water supply in Orange County is expected to remain healthy with conservation efforts climbing from 306,806 acre-feet in 2022 to 341,908 acre-feet in 2023, an increase of 11.4 percent. Water conservation is expected to increase in the next decade, reaching 365,277 acre-feet by 2030.

## Orange County Water Sources Projections, 2023-2040



Sources: Municipal Water District of Orange County; Orange County Water District

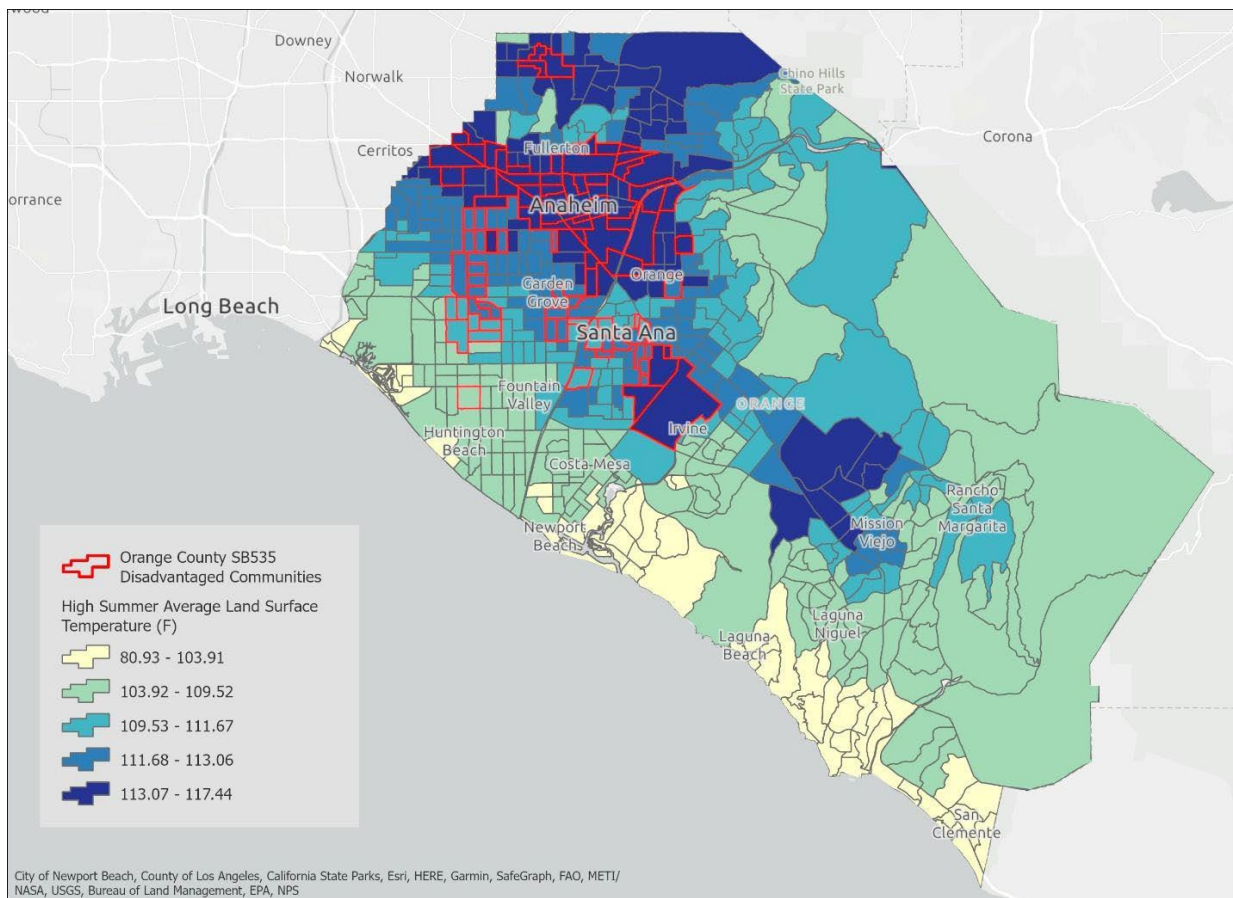
# Climate Vulnerabilities

Dr. Marlon Boarnet, University of Southern California

The disinvested communities, due to their geography and past patterns of segregation and under-investment, are more vulnerable to climate change. We illustrate this with information on heat in Orange County.

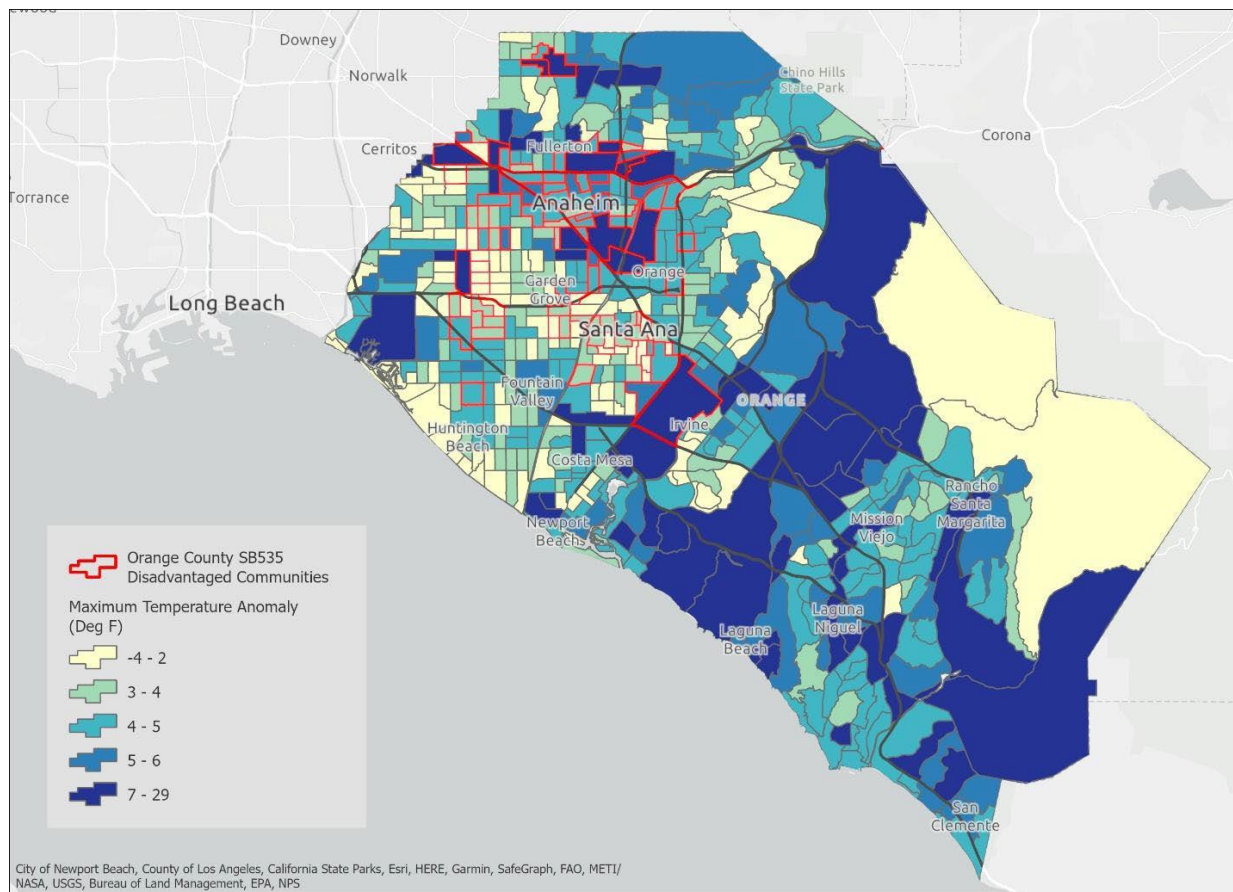
Figures 11 and 12 show, respectively, the high surface land temperature by census tract and the maximum summer heat anomaly (departure from county mean), for the years 2002-2020. Higher values indicate areas with more summer heat. The hottest parts of Orange County are inland locations, including several of the disinvested census tracts (outlined in red on Figures 11 and 12.) The locations of highest temperature anomaly are locations of largest departure from historic temperatures. Those locations include some disinvested communities, particularly in Anaheim, and also several locations in central and south county.

**Figure 11, Maximum Summer Surface Temperature in Orange County Census Tracts, degrees Fahrenheit, July-August, 2002-2020**



Source: NASA Moderate Resolution Imaging Spectroradiometer (MODIS) Land Surface Temperature and Emissivity

**Figure 12, Maximum Temperature Anomaly (departure from mean), degrees Fahrenheit, July-August, 2002-2020**



Source: NASA Moderate Resolution Imaging Spectroradiometer (MODIS) Land Surface Temperature and Emissivity

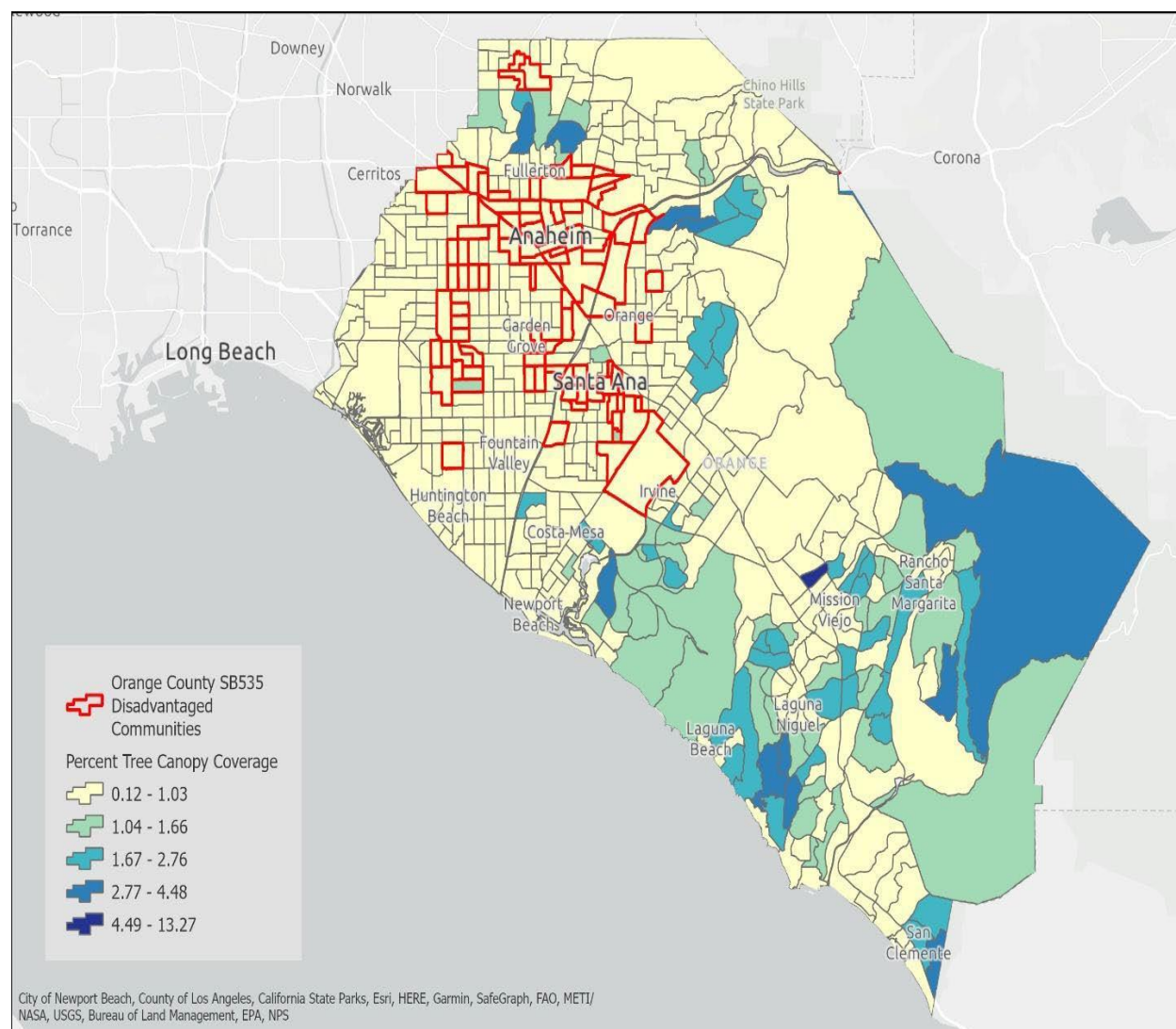
The disinvested communities, inland and in the more northern part of the county, are hotter than other locations in Orange County both due to geography and from patterns of disinvestment. The disinvested communities are locations with more concrete and fewer trees, creating heat island effects that contribute to hotter temperatures. Figure 13 shows the percent of land area with tree canopy in Orange County census tracts. The disinvested census tracts are all in the bottom quartile (bottom 25 percent) of tree canopy in the county. Figure 14 shows the percent of land area that is impervious surface – which includes paved highways, parking lots, sidewalks, and structures on land. The disinvested communities are typically in the top quartile of impervious surface – a category that ranges from 69.2 to 88.3 percent of land area covered by impervious surface.

The disinvested communities have limited tree canopy and larger amounts of impervious surface compared to the rest of Orange County. This contributes to hotter summers, exacerbating the effect of already warming summers inland and the warming effect of climate change.



Heat can contribute to poor health outcomes and death. The U.S. Environmental Protection Agency (EPA) notes that persons over age 65, under age 6, and with risk factors such as cardiovascular or respiratory disease are more vulnerable to heat-related death. According to the U.S. EPA, estimates of heat-related deaths in the U.S., each year, range from 600 deaths where heat is an underlying or contributing cause to 1,300 deaths per year from extreme heat.<sup>31</sup> The U.S. Centers for Disease Control (CDC) estimates that each year in the U.S. there are 67,512 emergency room visits related to heat.<sup>32</sup>

**Figure 13, Percent Tree Canopy Coverage**



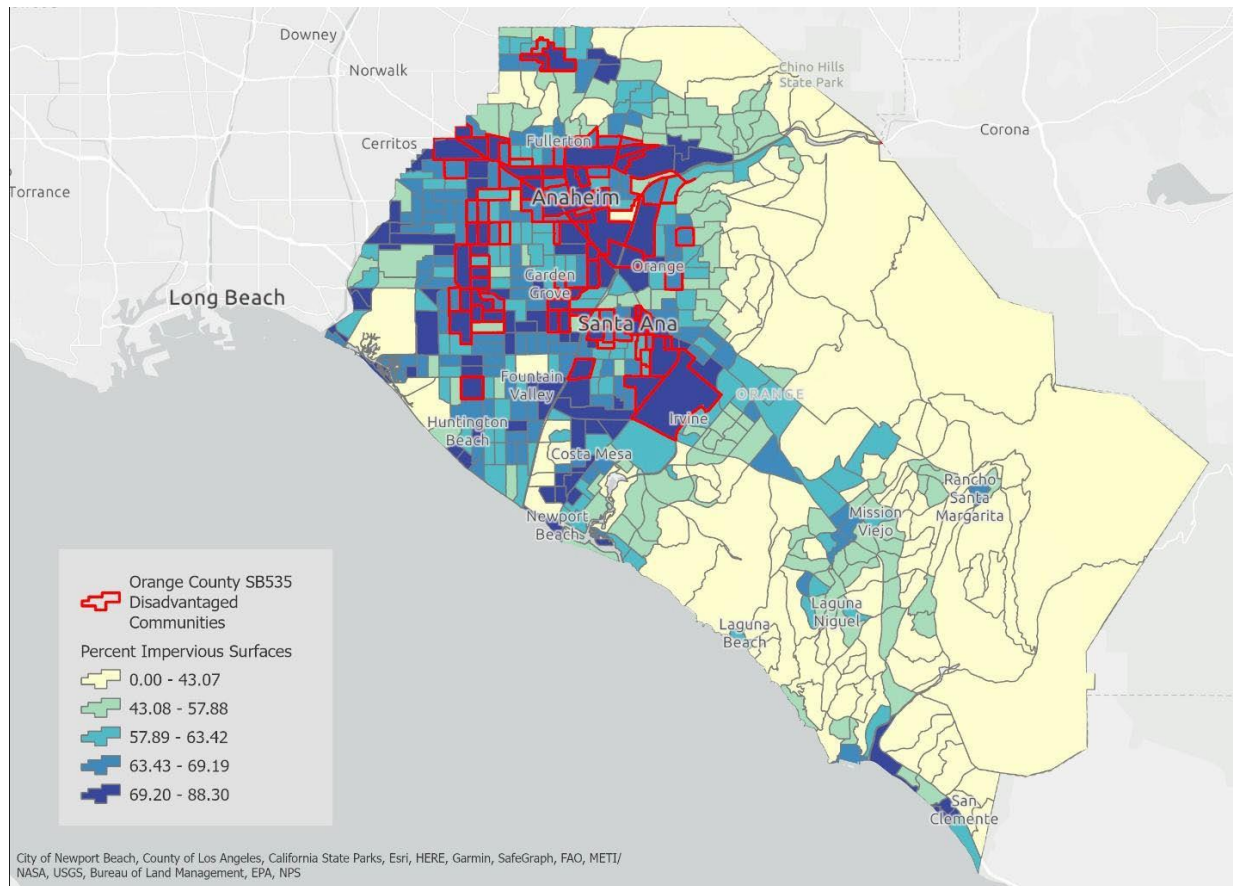
Source: National Land Cover Database, 2019

<sup>31</sup> U.S. Environmental Protection Agency, Climate Change Indicators: Heat-Related Deaths, available at <https://www.epa.gov/climate-indicators/climate-change-indicators-heat-related-deaths#ref18>.

<sup>32</sup> U.S. Centers for Disease Control and Prevention, Heat and Health Tracker, available at <https://ephtracking.cdc.gov/Applications/heatTracker/>.



**Figure 14, Percent Impervious Surface**



Source: National Land Cover Database, 2019

## Key Takeaways

Summarizing the findings in this section:

- Central and North Orange County, including the locations of disinvested census tracts, are near jobs but job access by transit is considerably lower than job access by car. Households that are reliant on the transit system can access fewer than 10 percent of the jobs that can be accessed via a car, comparing the same travel time by each travel mode.
- Improving the travel speed to/from transit stops, to approximately bicycle speed, can increase transit job access more than fourfold.
- Central and north county are concentrations of hotter temperatures (summertime highs can be 20 degrees F more inland than near coast), less tree canopy, and more impervious surface.
- The SB 535 disadvantaged (disinvested) communities are locations that are vulnerable to heat, heat islands, and in need of cooling centers and home cooling.

# Public Health Analysis

Dr. Marlon Boarnet, University of Southern California

## Public Health Analysis Major Key Points

1. Disadvantaged communities are closer to health care facilities (hospitals).
2. That physical access does not translate into access to health care resources.
  - a. 12.7% of persons in disadvantaged communities lack health insurance, compared to 6.6% in the balance of Orange County.
3. Resource disparities translate into disparities in health outcomes.
  - a. Life expectancy at birth varies by almost ten years across census tracts.
    - i. Mid-point of the highest quintile (coastal, upper income) is 85 years.
    - ii. Mid-point of lowest quintile (central, lower income) is 78.
  - b. Asthma visits per year (per 10,000 persons) ranges from 16 to 49 annual visits at the mid-point of the lowest and highest quintiles, again roughly coastal/upper income to central/lower income – a three-fold difference.

## Introduction

This section will analyze health disparities in Orange County, in relation to climate change, with an emphasis on disinvested communities. Two themes will emerge:

- The gaps in health outcomes in Orange County are consistent with longstanding national patterns in health disparities. Those gaps reflect structural barriers in access to healthcare and resources. Those gaps have been documented in the research literature even when controlling for income, education, and other factors that are related to health outcomes.
- The lack of access to healthcare is not a lack of physical access to resources. Disinvested communities are, by some measures, closer to locations of healthcare than is the balance of the county. Yet physical distance – i.e., living near a hospital – is not access. Disinvested communities have lower rates of insurance coverage and lower rates of healthcare utilization, reflecting more limited access to resources.

This section will proceed in the following steps. We will briefly discuss the health disparities literature, to provide context for our findings. Then we will map gaps in health outcomes across disinvested and non-disinvested communities. After that, we will present evidence of environmental gaps that affect health in disinvested communities. We will close with evidence of lack of access to healthcare in disinvested communities.

## Health Disparities

Literature exploring health disparities has well documented health outcomes and access to healthcare varies by race and ethnicity. Those disparities are evident even after controlling for factors that influence health outcomes and Healthcare access such as income, education, and age. One recent example is a study by Cullen et al.<sup>33</sup> The authors

reviewed the literature on 38 health conditions, including, for example, cancers, arthritis, obesity, and hemophilia. Cullen et al. (2022) found evidence that Blacks had higher incidences than non-Hispanic whites for 17 of the conditions and higher severity for 22 of the conditions. The authors also compared incidence and severity among Hispanics and non-Hispanic whites, finding that Hispanics had higher incidences than whites for 10 conditions and higher severity for 12 conditions. For 17 conditions, the studies did not have data that could illuminate a Hispanic/non-Hispanic white gap, indicating a need for more research. In no case did whites have higher incidences or severity of conditions than did Blacks or Hispanics. In short, in the Cullen et al. study the disparity went only in one direction – with Blacks and Hispanics having higher incidences and greater severity of disease.

That study reflects a broader trend. Health outcomes are generally worse for communities of color, reflecting lower access to care and structural barriers. The Institute of Medicine of the National Academies of Science (IOM/NAS) conducted a comprehensive overview of disparities in medical treatment by race and ethnicity in 2003.<sup>34</sup> The authors of that IOM/NAS report provide an overview that is compelling and which we quote below:

“Evidence of racial and ethnic disparities in healthcare is, with few exceptions, remarkably consistent across a range of illnesses and healthcare services. These disparities are associated with socioeconomic differences and tend to diminish significantly, and in a few cases, disappear altogether when socioeconomic factors are controlled. The majority of studies, however, find that racial and ethnic disparities remain even after adjustment for socioeconomic differences and other healthcare access related factors.”<sup>35</sup>

The IOM/NAS report reviewed over 100 studies, of which only two found no evidence of racial or ethnic disparities in care after adjusting for insurance status, disease severity, and other factors that could lead to differences across race or ethnicity.<sup>36</sup> Some examples of the disparities documented in the 2003 IOM/NAS report are:

- Blacks receive less treatment for pain compared to whites;<sup>37</sup>
- African-American patients present with more advanced cancers than whites;<sup>38</sup>
- Rates of hypertension and diabetes are higher among non-whites;<sup>39</sup>
- Black patients are 12% less likely than white patients to be activated on the kidney transplant list, controlling for confounding variables.<sup>40</sup>

Sadly, disparities in health outcomes and in access to healthcare are not isolated occurrences, and are not unique to specific locations within the U.S. Yet the Orange County pattern is important to understand, and we turn to that next.

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<sup>33</sup> Cullen, M.R.; Lemeshow, A.R.; Russo, L.J.; Barnes, D.M.; Ababio, Y.; Habtezion, A. Disease-Specific Health Disparities: A Targeted Review Focusing on Race and Ethnicity. *Healthcare* 2022, 10, 603. <https://doi.org/10.3390/healthcare1004060>

<sup>34</sup> B. Smedley, B. Stith, and A. Nelson. 2003. *Unequal Treatment: Confronting Racial and Ethnic Disparities in Health Care*. Washington, D.C. National Academies Press. <http://www.nap.edu/catalog/12875.html>.

<sup>35</sup> *Ibid.*, p. 5.

<sup>36</sup> *Ibid.*, p. 52.

<sup>37</sup> *Ibid.*, p. 291

<sup>38</sup> *Ibid.*, p. 305

<sup>39</sup> *Ibid.*, p. 315

<sup>40</sup> *Ibid.*, p. 333

## Gaps in Health Outcomes in Orange County

Life expectancy at birth, in years in Orange County, is shown in Table 1. The pattern of race/ethnicity gaps is not as pronounced as the national studies suggest. Yet later maps show that across disinvested and non-disinvested areas the life expectancy and health gaps are larger than reflected in Table 1.

**Tables 1: Life expectancy at birth, by race and ethnicity, and gender, in years, Orange County**

Life expectancy (Orange County)	82.1
American Indian/Alaska Native (2020)	84
Asian/Pacific Islander (2020)	87.9
Black (2020)	81.4
Hispanic (2020)	85
White (2020)	81.6
Male (2013)	79.7
Female (2013)	83.8

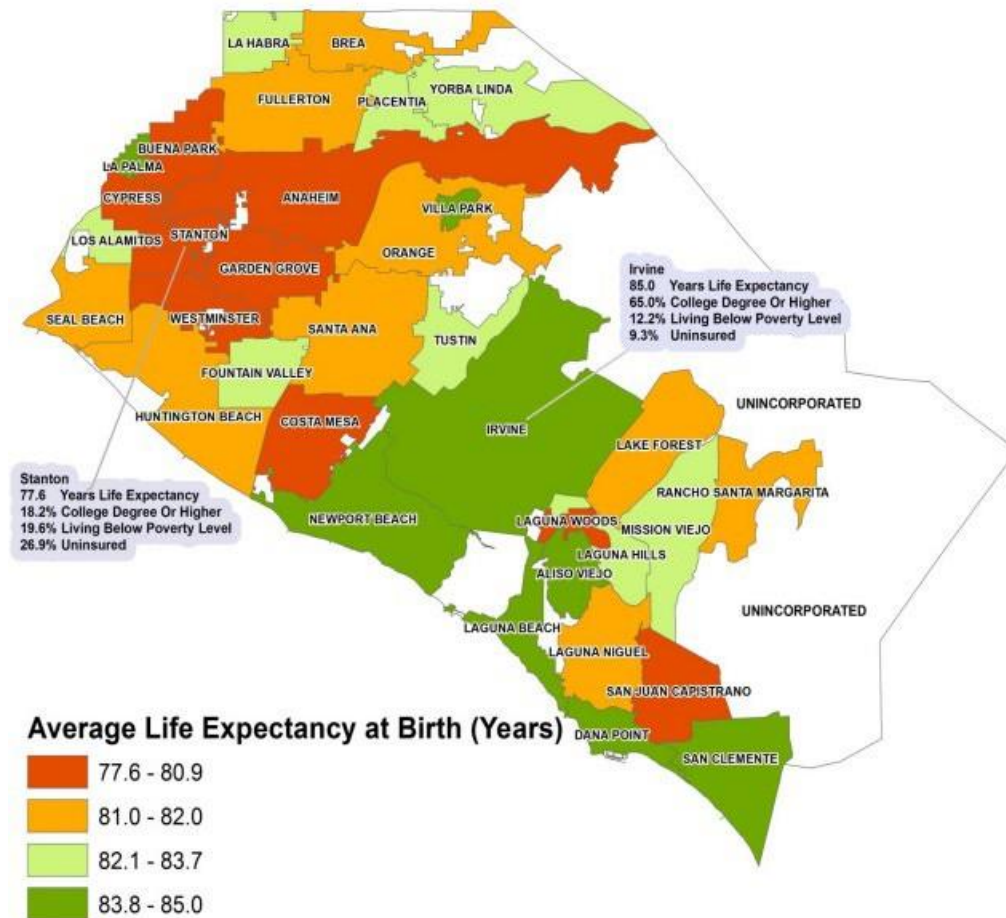
Data Sources: County Health Rankings: <https://www.countyhealthrankings.org/>,

Socioeconomic and location considerations throughout the state have shown to impact life expectancy, especially for individuals living in the lowest income census tracts. Findings (Schwandt H, 2022)<sup>41</sup> have shown that in 2020 and 2021 decreases in life expectancy among the lowest income census tracts within the state of California. When comparing these findings across general populations and racial and ethnic groups, the findings showed similar outcomes. This life expectancy impact among the lowest income percentile was demonstrated with a decrease of 3.79 years (75.90 to 72.11 years), compared to a decrease of only 0.64 years (from 87.42 to 86.78 years) experienced by the highest income percentile when compared with 2019 findings.

When examining life expectancy from a spatial impact, Orange County Health Care Agency provides the following average life expectancies in Orange County based on city of residence.

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<sup>41</sup> Schwandt H, Currie J, von Wachter T, Kowarski J, Chapman D, Woolf SH. Changes in the Relationship Between Income and Life Expectancy Before and During the COVID-19 Pandemic, California, 2015-2021. *JAMA*. 2022;328(4):360–366. doi:10.1001/jama.2022.10952



Source: "Life Expectancy in Orange County (2015)." Orange County Health Care Agency. Santa Ana, California, October 2015 <https://ochealthinfo.com/sites/hca/files/import/data/files/47656.pdf>

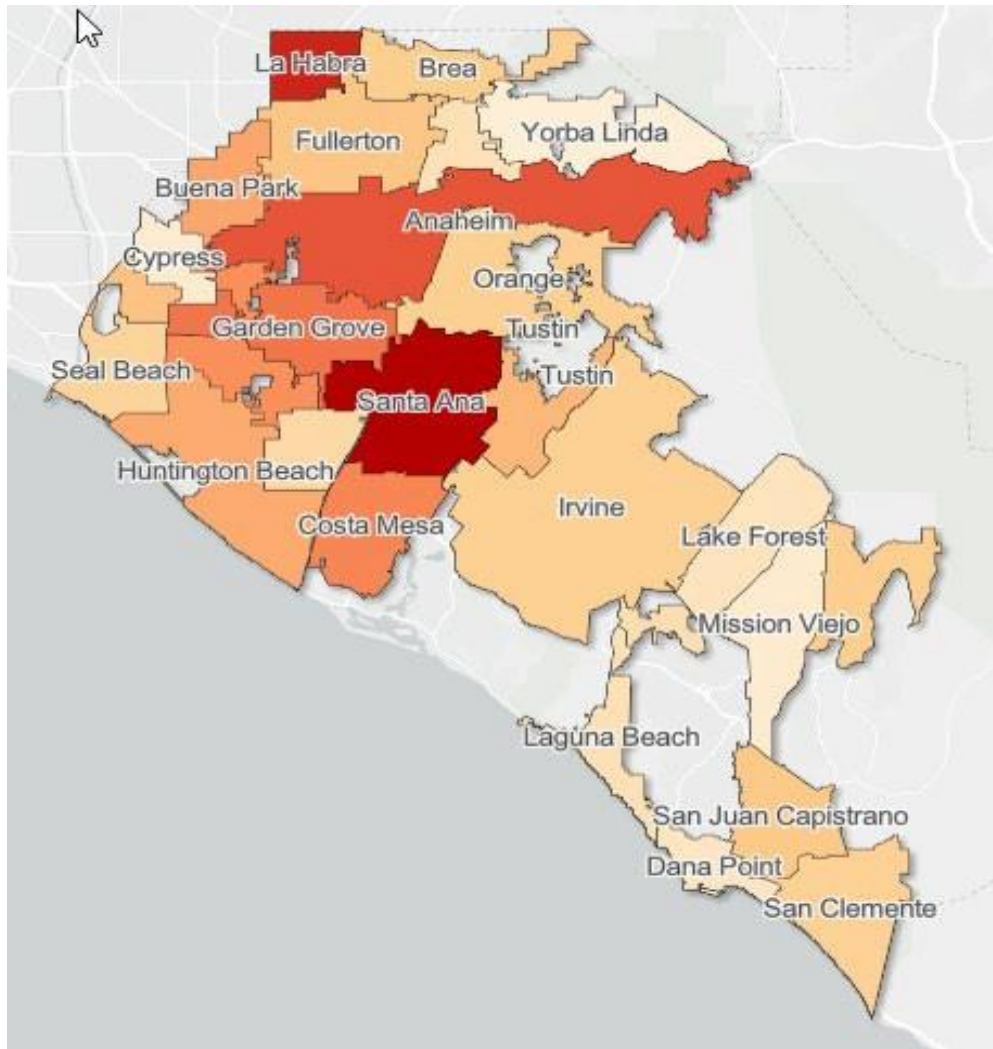
The visual references are informed by the chart on the following page.



CITY	Number of Deaths in 2013	Population	Mortality Rate per 100k	Age-Adjusted Mortality Rate	Avg. Life Expectancy at Birth	Change From 2010 to 2013
Irvine	763	229,539	332.4	437.9	85.0	1.1
Dana Point	210	33,541	626.1	432.8	84.9	2.3
Laguna Beach	147	24,465	600.9	443.7	84.8	4.0
Aliso Viejo	134	50,699	264.3	428.1	84.5	0.4
Newport Beach	667	86,657	769.7	473.3	84.4	0.9
San Clemente	406	73,689	551.0	517.3	84.0	2.6
Villa Park	57	5,917	963.3	577.4	83.8	1.8
La Palma	96	16,279	589.7	521.4	83.8	1.7
Los Alamitos	190	22,174	856.9	581.6	83.0	2.1
Yorba Linda	386	68,977	559.6	573.3	83.0	0.7
La Habra	373	68,825	542.0	516.3	82.8	2.6
Laguna Hills	267	29,383	908.7	619.6	82.4	1.0
Mission Viejo	734	94,766	774.5	590.2	82.4	0.1
Fountain Valley	436	56,793	767.7	578.2	82.2	1.1
Placentia	319	52,503	607.6	574.9	82.1	1.6
Tustin	382	83,062	459.9	596.2	82.1	2.0
Laguna Niguel	419	64,535	649.3	603.9	82.0	-1.1
Seal Beach	499	24,483	2038.1	578.2	82.0	-1.3
<b>Orange County</b>	<b>18,827</b>	<b>3,118,438</b>	<b>603.7</b>	<b>600.6</b>	<b>82.0</b>	<b>0.1</b>
Rancho Santa Margarita	155	44,816	345.9	571.6	81.9	-1.3
Fullerton	903	139,161	648.9	605.8	81.7	1.0
Huntington Beach	1,362	195,594	696.3	602.5	81.6	0.8
Lake Forest	393	72,578	541.5	625.6	81.5	-0.8
Brea	294	40,120	732.8	686.2	81.2	-0.1
Orange	888	145,253	611.3	647.8	81.1	1.7
Santa Ana	1,536	357,192	430.0	622.8	81.0	1.3
Costa Mesa	634	114,250	554.9	648.0	80.9	0.0
San Juan Capistrano	297	37,273	796.8	627.0	80.9	-1.8
Westminster	648	91,691	706.7	527.2	80.9	-0.9
Cypress	338	49,038	689.3	649.0	80.6	-0.7
Garden Grove	1,088	177,398	613.3	665.2	80.6	0.0
Laguna Woods	634	16,984	3732.9	655.2	80.3	1.5
Anaheim	2,036	367,602	553.9	674.7	80.2	0.0
Buena Park	543	81,467	666.5	721.5	79.0	-1.0
Stanton	244	30,455	801.2	835.0	77.6	-4.6

Source: "Life Expectancy in Orange County (2015)." Orange County Health Care Agency. Santa Ana, California, October 2015 <https://ochealthinfo.com/sites/hca/files/import/data/files/47656.pdf>

These findings and the impact of life expectancy by socioeconomic variance is further highlighted by the work done by the CERF research partners, Mapping Black California, through their work mapping disinvested census tracts by city in Orange County. By identifying higher percentages of disinvested communities by cities within Orange County, community characteristics identifying negative impacts on life expectancy are better defined. The map identifies city tracts of disinvested communities in light orange as below 4%, darker orange at 24% and those in red at 44 percent or greater.



The leading causes of death in Orange County are shown in Table 2. Some of those leading causes, for example heart and vascular disease and diabetes, are related to disparities in access to care, healthy food, and safe active living. Other leading causes of death, such as COVID-19, accidents, and liver disease, are at times more severe in under-resourced populations that lack an ability to shield themselves from disease and accident risk.

**Table 2: Major sources of mortality, Orange County**

Leading Causes of Death (Orange County)	Deaths	Rate Per 100,000
Diseases of heart	5,184	163.7
Malignant neoplasms	4,698	148.3
COVID-19	2,459	77.6
Alzheimer disease	1,665	52.6
Cerebrovascular diseases	1,372	43.3



Accidents (unintentional injuries)	1,159	36.6
Chronic lower respiratory diseases	871	27.5
Diabetes mellitus	665	21
Influenza and pneumonia	504	15.9
Chronic liver disease and cirrhosis	431	13.6
Nephritis, nephrotic syndrome and nephrosis	409	12.9
Parkinson disease	391	12.3
Essential hypertension and hypertensive renal disease	370	11.7
Intentional self-harm (suicide)	295	9.3
In situ neoplasms, benign neoplasms and neoplasms of uncertain or unknown behavior	105	3.3

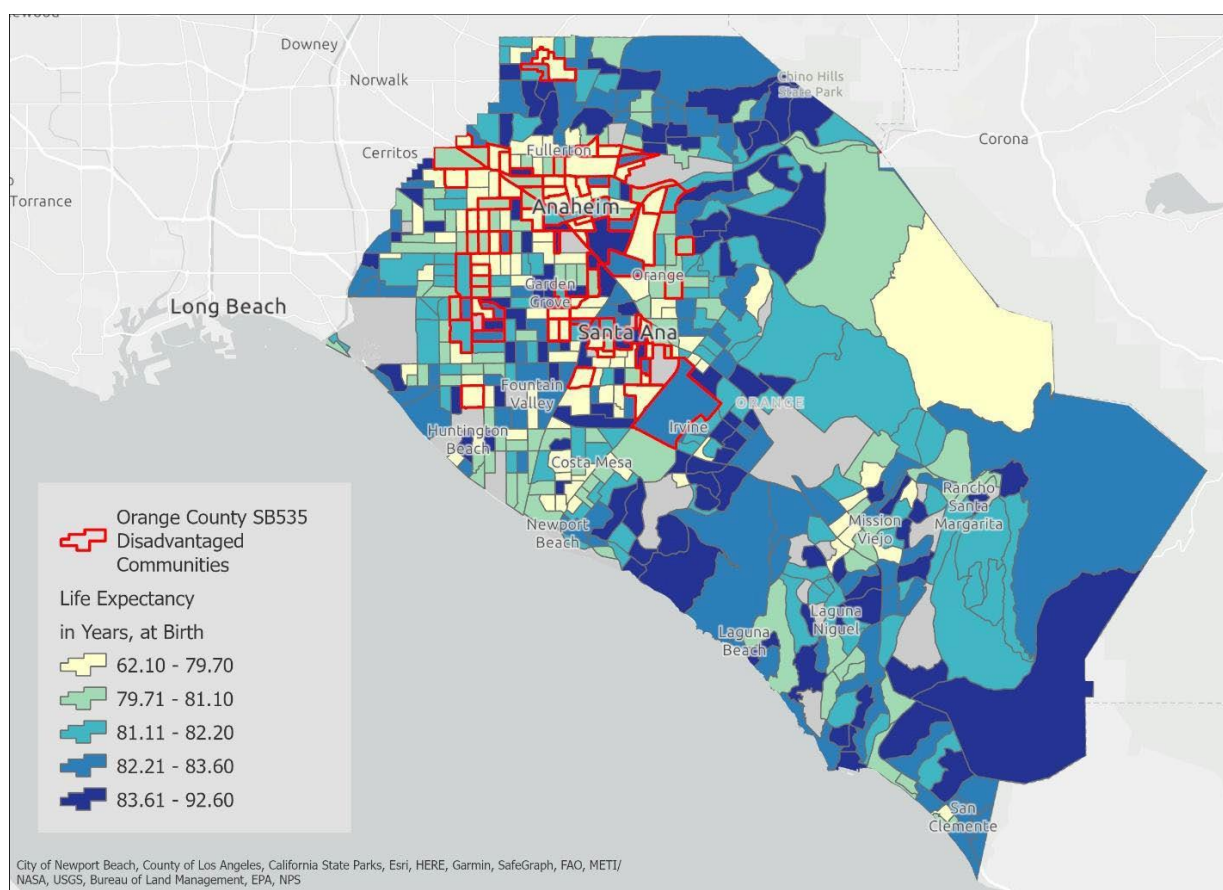
Data Sources: Centers for Disease Control and Prevention, Underlying Cause of Death, 2018-2021  
<https://wonder.cdc.gov/ucd-icd10-expanded.html>

There is a clear spatial pattern to the disparities in health outcomes, with disinvested communities faring worse on many indicators. Figure 1 shows life expectancy at birth, in quantiles, for Orange County census tracts. The lowest quintile tracts have a tract average that ranges from 62.1 to 79.1 years. The highest quintile tracts average from 83.61 to 92.6 years of life expectancy at birth. Note that the extreme values, both low and high, likely reflect unique demographic characteristics of a tract.<sup>42</sup> The gap – reflecting more than 10 years of life from the lowest to highest quintile – reflects a host of factors that include environmental impacts on health and access to health resources. The census tracts with the lowest life expectancy cluster near and in part overlap with the disinvested communities, which are outlined in red in Figure 1.

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<sup>42</sup> As an example, tracts with a large number of older residents, such as retirement communities, will have high life expectancy in part because life expectancy rises with age. In other words, conditional on living to be 85, a person's odds of living to be 90 are considerably higher than the odds of living to age 90 are at birth.

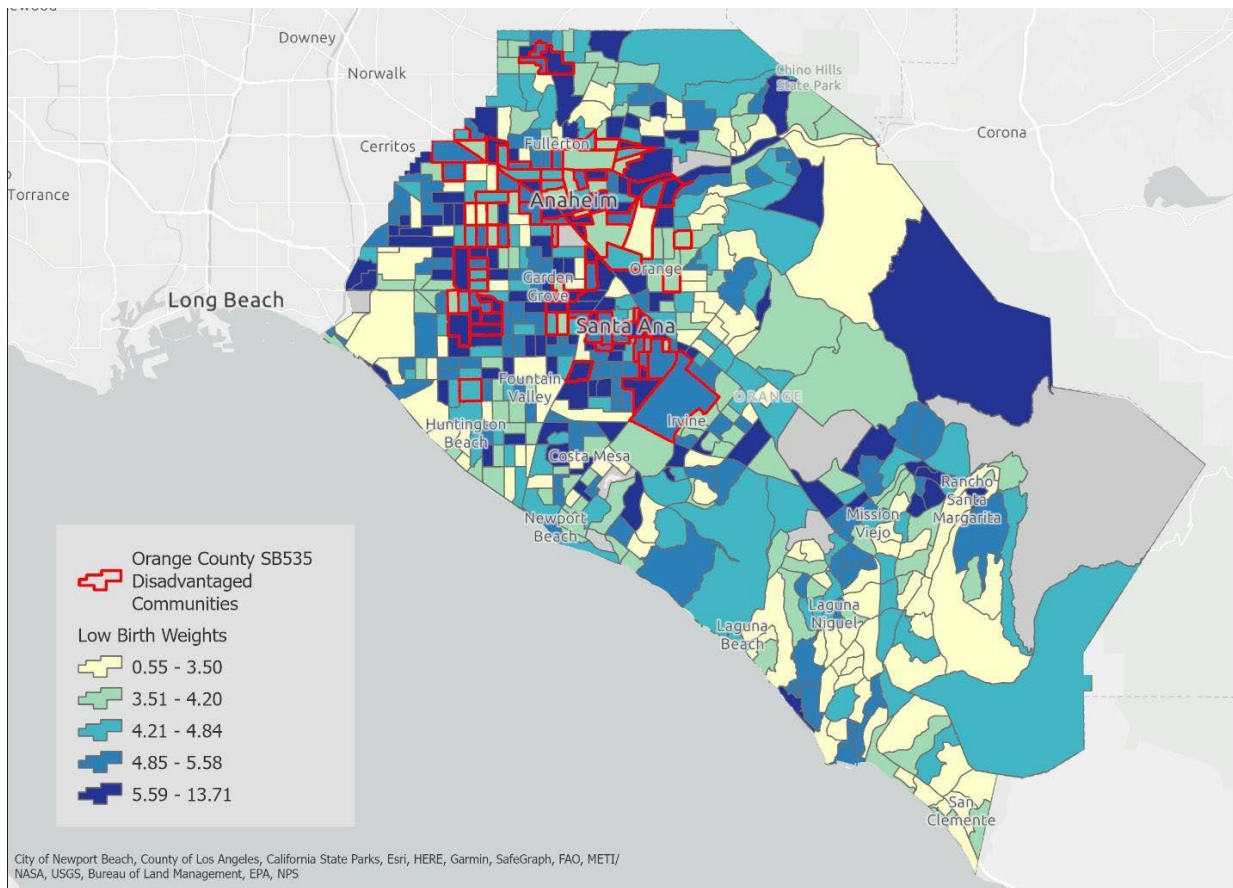
**Figure 1: Life Expectancy at Birth, in Years, by Census Tract**



Source: CDC Small-Area Life Expectancy Estimates Project (2010-2015)

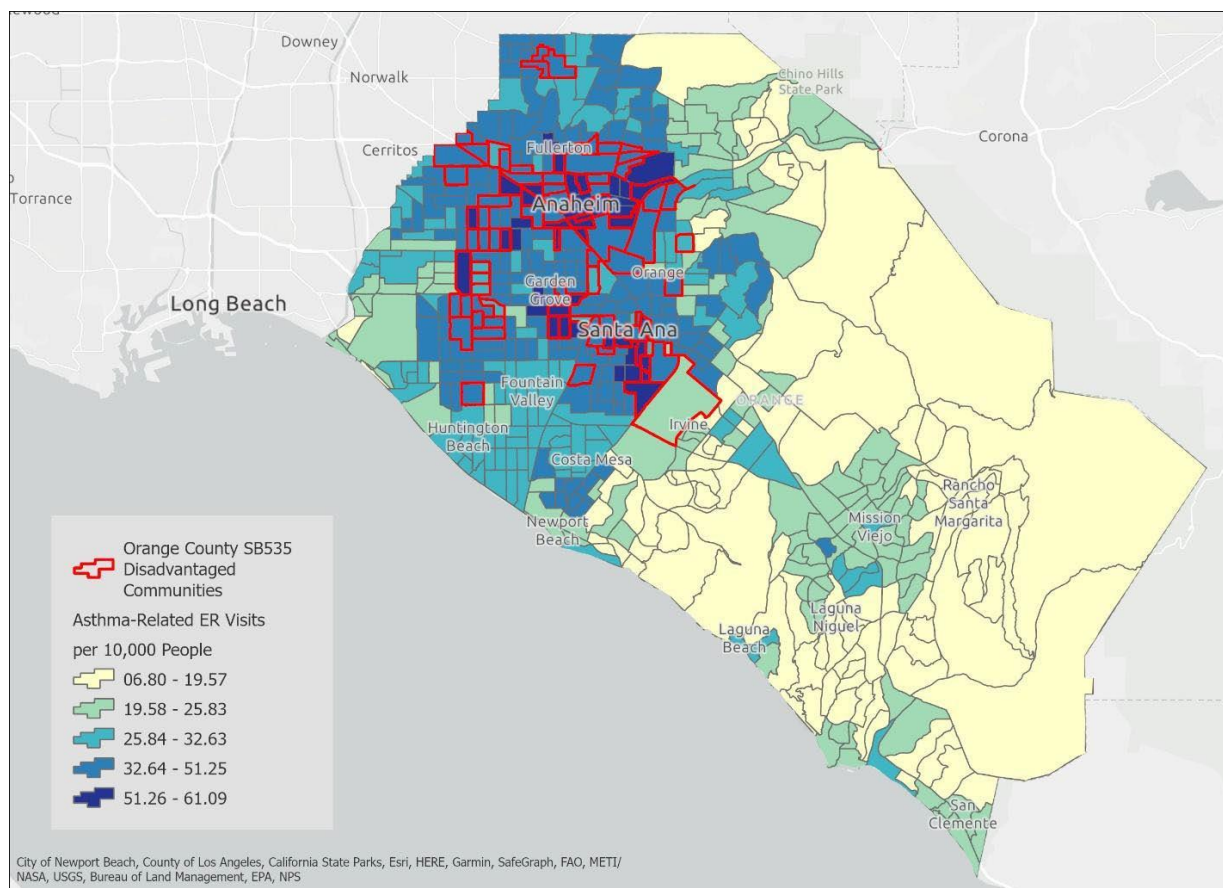
Figure 2 shows the percentage of births in a census tract that are low birth weight. The rates are higher in central and north county, again near and overlapping with the disinvested communities. Figure 3 shows asthma related emergency room (ER) admissions, per 10,000 persons. Figure 3 shows a strikingly higher incidence of asthma related ER admissions among the disinvested communities. Table 3 highlights the disparity in asthma admissions. Disinvested communities have rates of asthma related ER admissions that are almost double those in non-disinvested communities: 46.84 admissions per 10,000 persons in disinvested communities versus 28.11 admissions per 10,000 persons in non-disinvested communities. Lastly, Figure 4 shows obesity percentages mapped by census tract in Orange County, showing a similar spatial pattern of disparities.

**Figure 2: Percentage of Births That Are Low Birth Weight, by Census Tract**



Source: Cal EnviroScreen  
(2009-2015)

**Figure 3: Asthma Related Emergency Room Admissions per 10,000 Persons, by Census Tract**



Source: CalEnviroScreen (2015-2017)

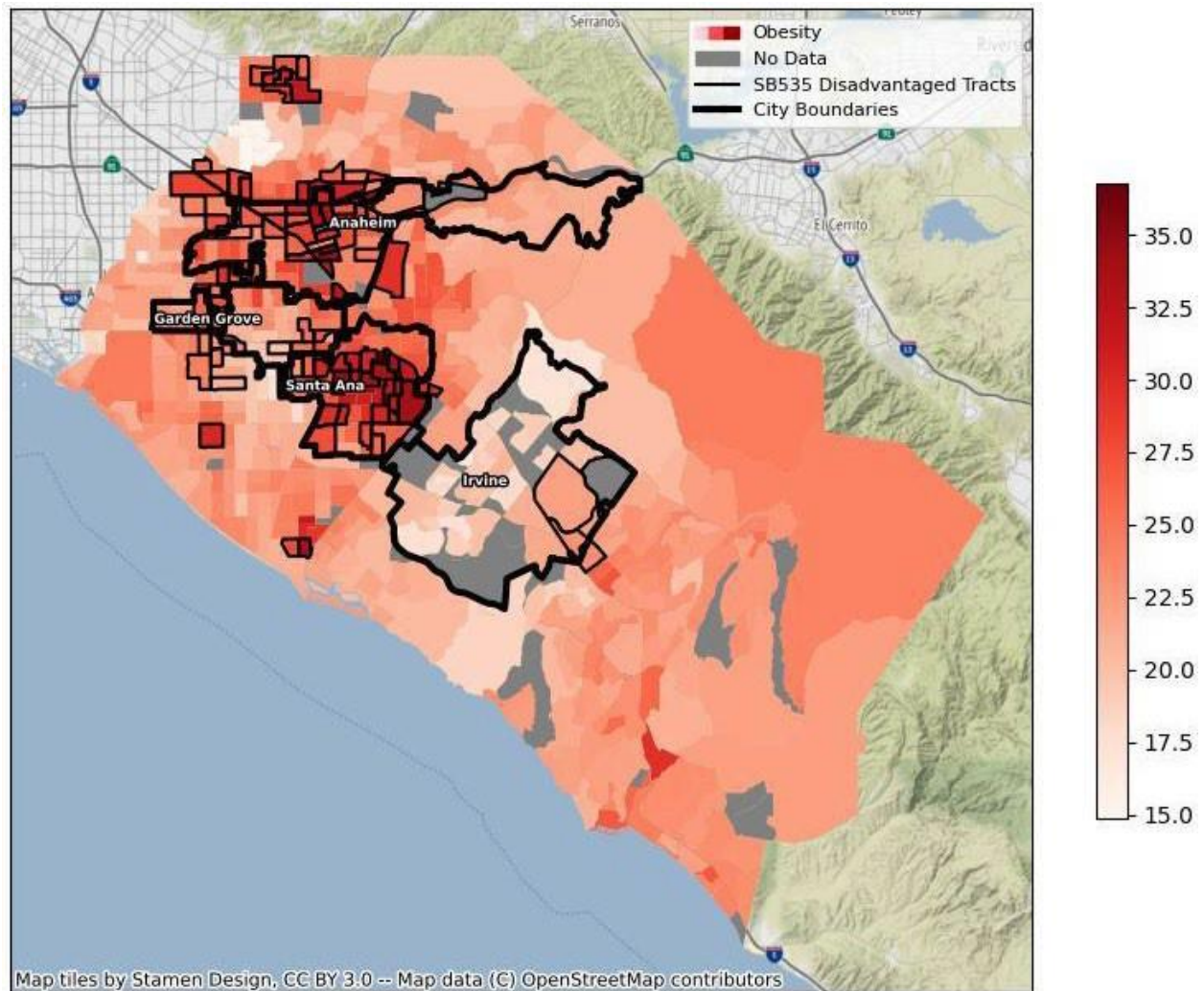
**Table 3: Asthma Related Emergency Room Admissions per 10,000 persons, Orange County, disinvested and non-disinvested communities (averages of census tract means)**

Category	Mean
Full County	31.05
Disinvested	46.84
Non-Disinvested	28.11

Source: CalEnviroScreen, 2015-2017



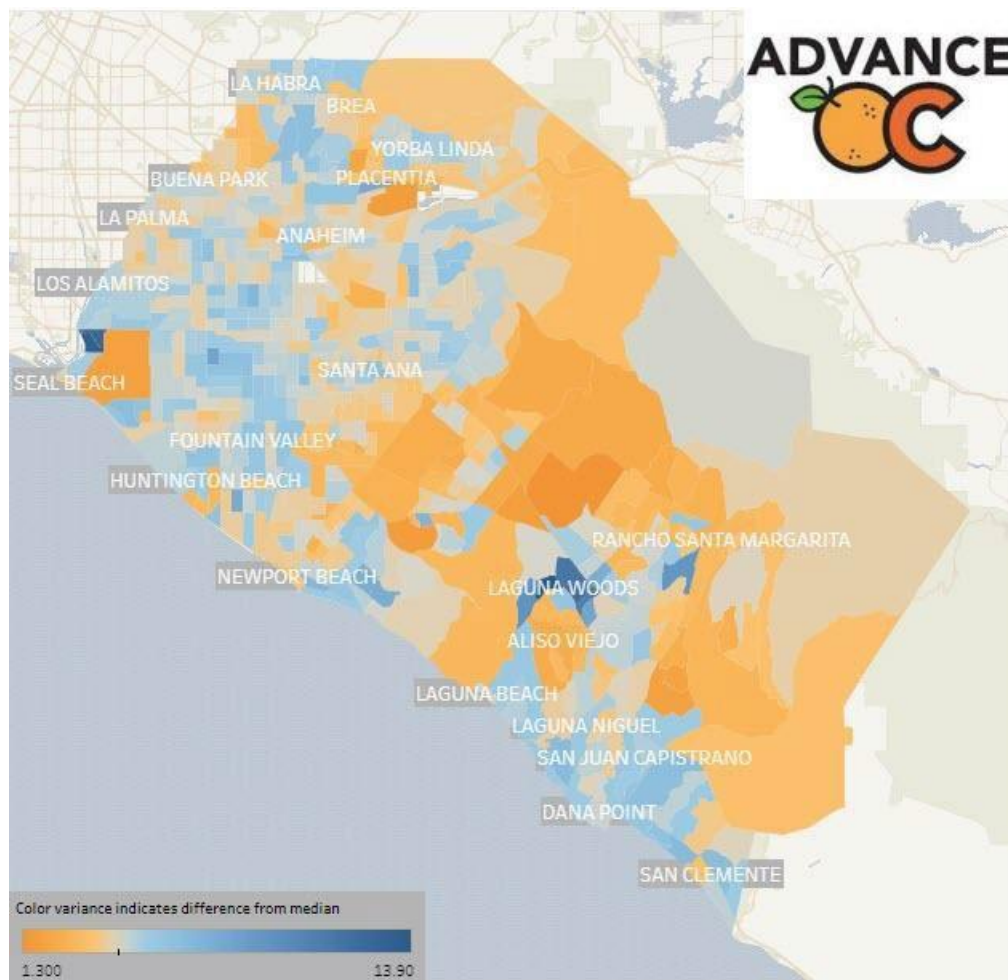
**Figure 4: Percentage of Population Classified as Obese in Orange County Among Adults Age 20 and Older, by Census Tract**



Source: CDC Behavioral Risk Factor Surveillance System (BRFSS) PLACES Estimate, 2020

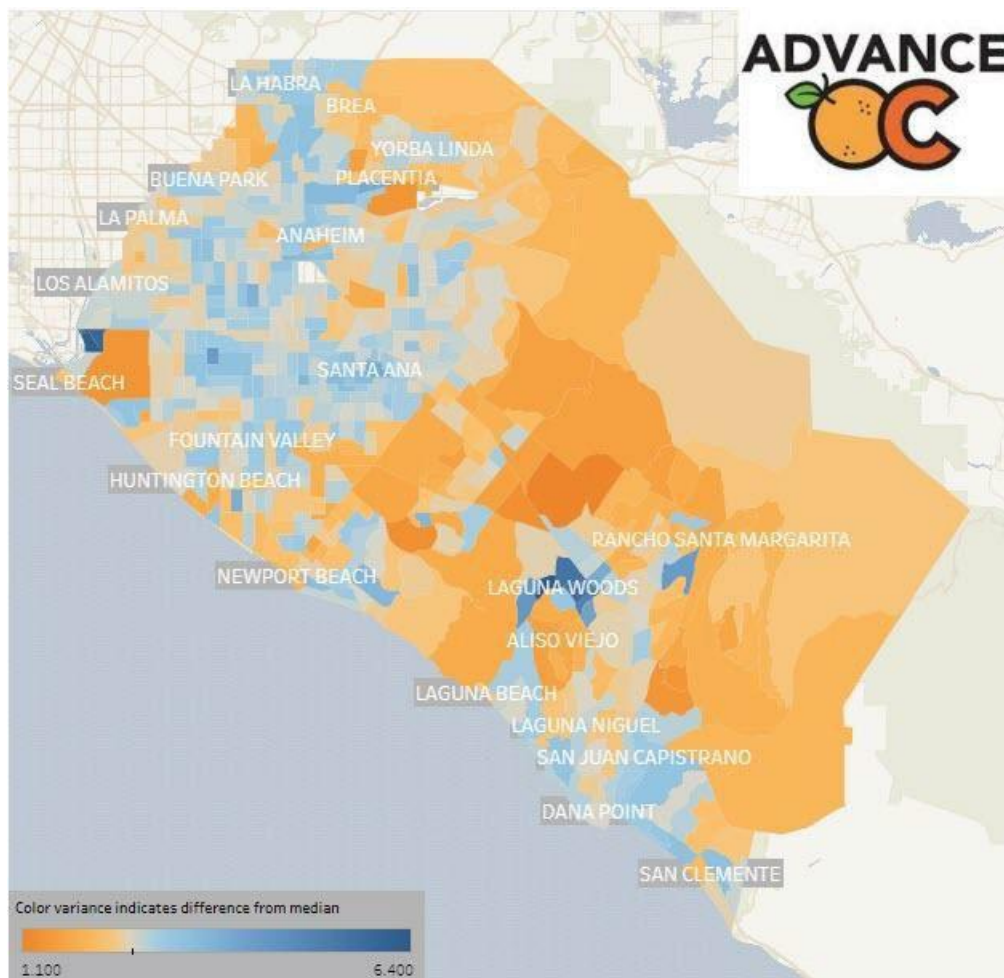
The pattern of disparities in health outcomes occurs across a broad range of diseases and health conditions. To illustrate the breadth of the disparities, Figures 5 through 8 show, respectively, maps of the incidence of coronary heart disease, kidney disease, diabetes, and mental health, all mapped by census tract in Orange County. The incidence of these conditions is higher in and near the disinvested communities, as shown in Figures 5-8. In each of Figures 5-8, the color variation shows departure from the Orange County median.

**Figure 5: Incidence of Coronary Heart Disease in Orange County, Variations by Census Tract**



Source: Advance OC (underlying data sources include SPI, CDC Places, American Community Survey, First 5 OC, CA Health Care Agency, and OC Opportunity Zone, compiled by Advance OC, at <https://www.advanceoc.com/orange-county-equity-map/>.)

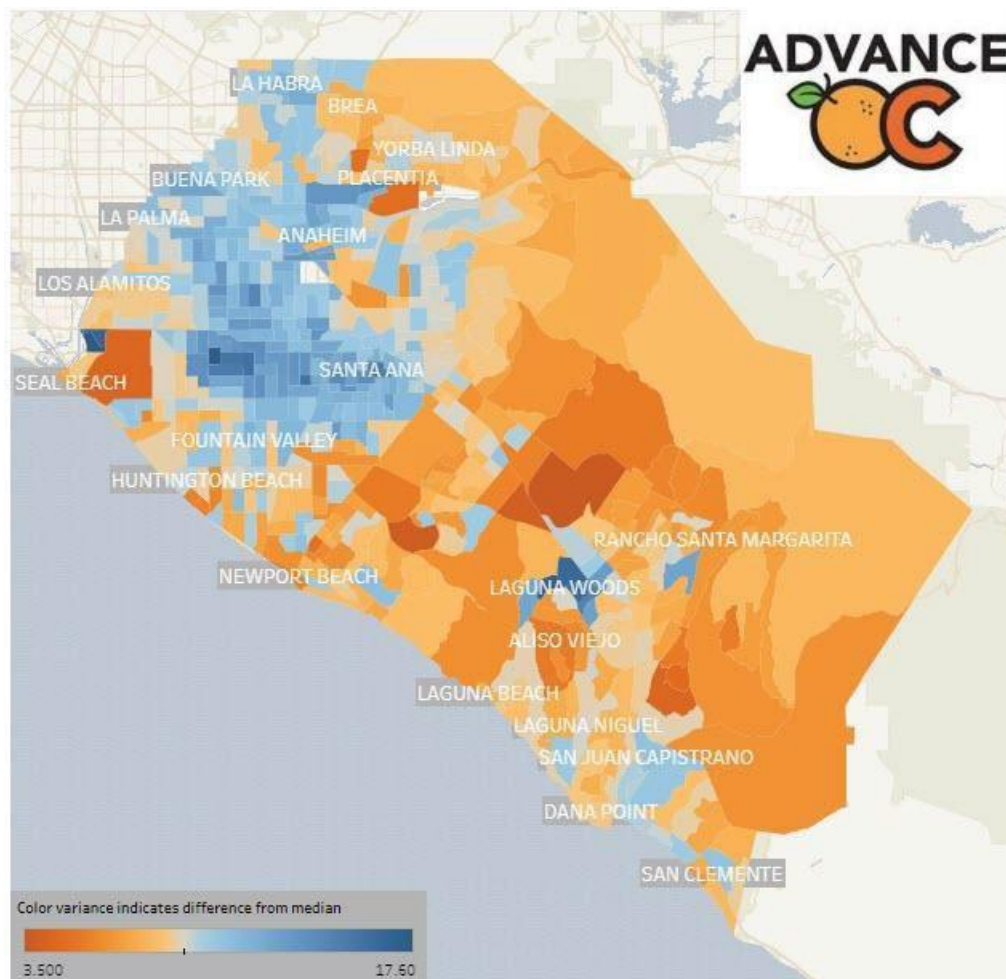
**Figure 6: Incidence of Chronic Kidney Disease in Orange County, Variations by Census Tract**



Source: Advance OC (underlying data sources include SPI, CDC Places, American Community Survey, First 5 OC, CA Health Care Agency, and OC Opportunity Zone, compiled by Advance OC, at <https://www.advanceoc.com/orange-county-equity-map/>.)

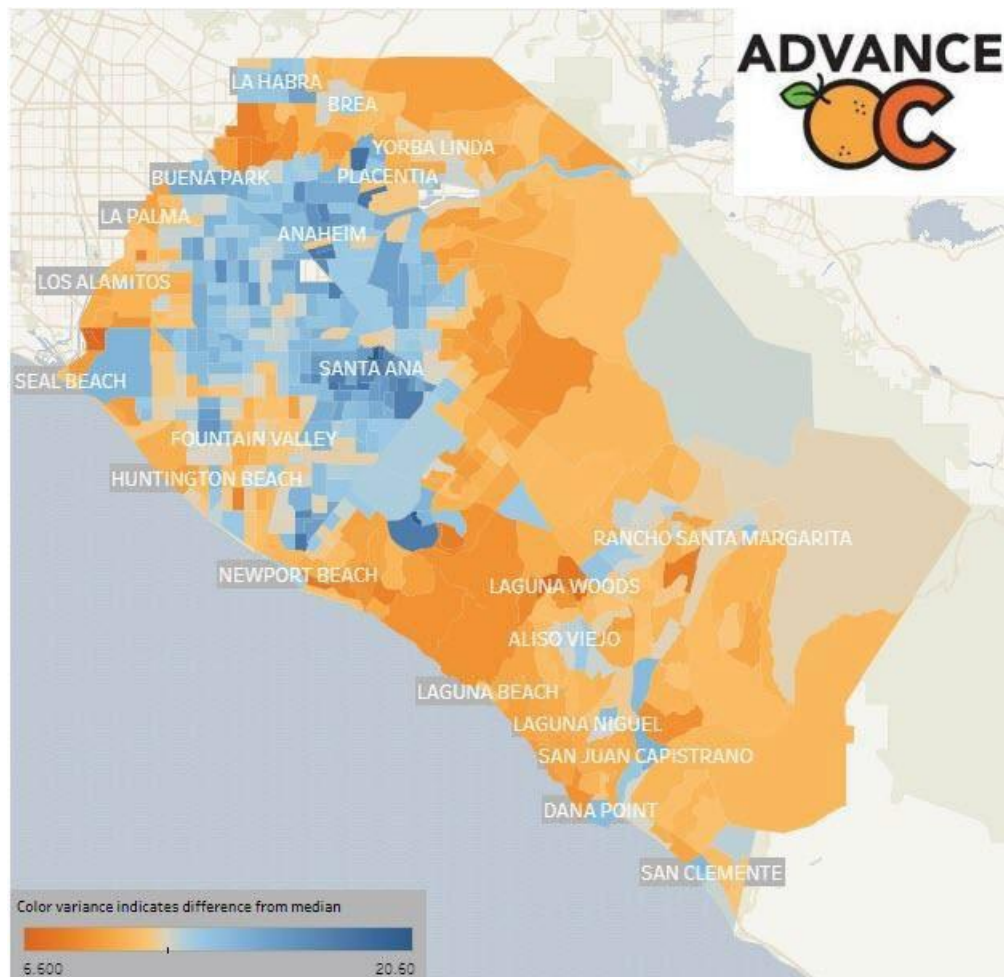


**Figure 7: Incidence of Diabetes in Orange County, Variations by Census Tract**



Source: Advance OC (underlying data sources include SPI, CDC Places, American Community Survey, First 5 OC, CA Health Care Agency, and OC Opportunity Zone, compiled by Advance OC, at <https://www.advanceoc.com/orange-county-equity-map/>.)

**Figure 8: Incidence of Residents with Mental Health Classified as “Not Good” for More Than 14 Days, Variations by Census Tract**



Source: Advance OC (underlying data sources include SPI, CDC Places, American Community Survey, First 5 OC, CA Health Care Agency, and OC Opportunity Zone, compiled by Advance OC, at <https://www.advanceoc.com/orange-county-equity-map/>.)

# Environmental and Sustainability Challenges

Dr. Marlon Boarnet, University of Southern California

There are many disparities in exposure to environmental pollutants. The literature has found disparate exposure by race to air pollution, toxic air releases from industrial sources, poor water quality, and noise, to name only a few environmental factors.<sup>43</sup> There are also disparities in exposure to beneficial environmental amenities, such as park space and healthy food.<sup>44</sup> We illustrate the pattern by mapping the concentration of PM 2.5, a category of airborne fine particulates, in Orange County. Air quality has been a concern in Southern California for decades. It should be noted that air quality can be impacted not only from industrial or commercial sources but also from wildfires as well. While wildfires within Orange County are rare, smoke from fires in the Southern Sierra can drift into the region 'air field' impacting air quality for miles around. With wildfires expected to increase in intensity and frequency, it is important that Orange County stakeholders, especially those in disinvested communities to begin employing mitigating strategies such as improved windows and air filters to help reduce the potential impact on their health.

The California Air Resources Board estimates that PM2.5 is associated with between 4,200 to 6,700 premature deaths from cardiopulmonary disease and disorders in California each year.<sup>45</sup>

Figure 9 shows the annual mean PM2.5 concentration by census tract in Orange County. The top quintile clusters in the far northern corner of the county. The census tracts in the top quintile of PM2.5 concentration, shaded in dark blue in Figure 9, all exceed the National Ambient Air Quality standard of 12 mg/m<sup>3</sup>, although not by a large margin. Several of the disinvested census tracts are in that top quintile, and only one disinvested tract is in the second quintile of PM2.5 concentration. No disinvested tract is in the bottom quintile of PM2.5 concentration.

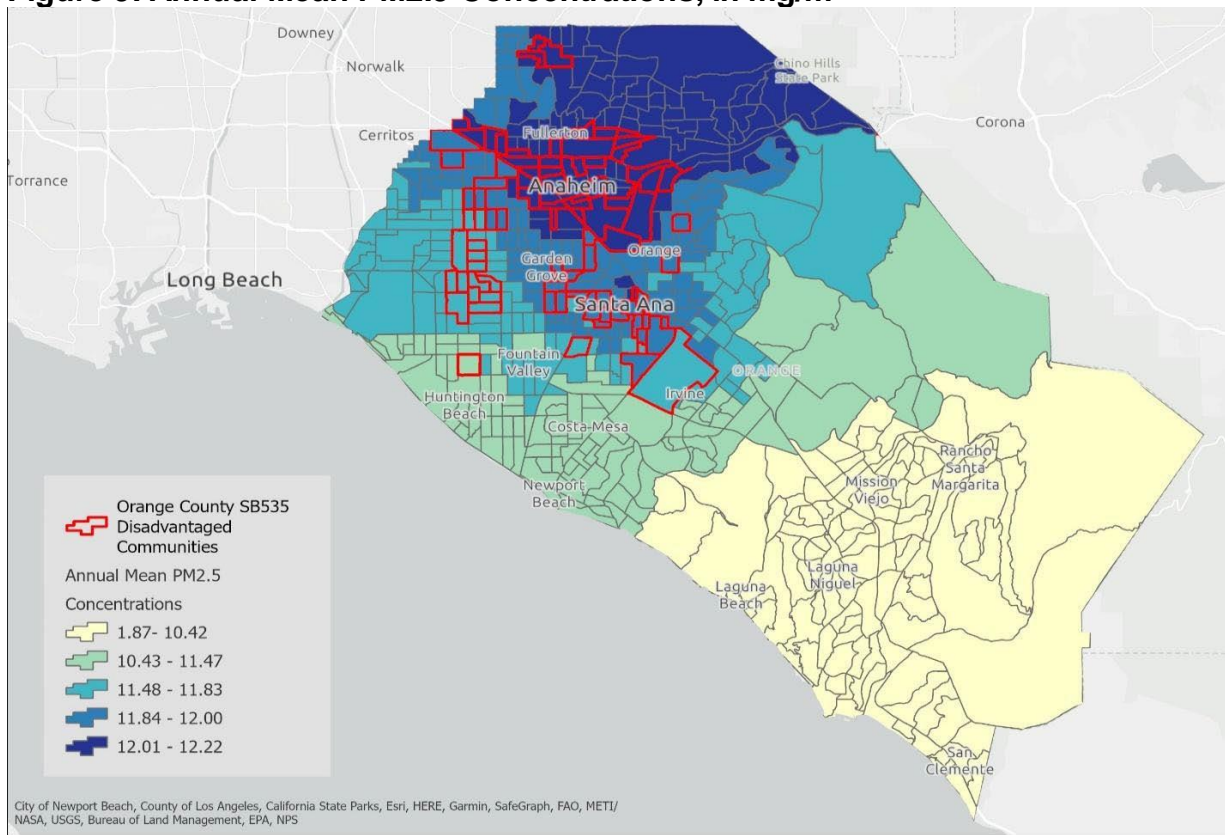
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<sup>43</sup> See, e.g., Paul Mohai, David Pellow, and J. Timmons Roberts, 2009. Environmental Justice. *Annu. Rev. Environ. Resour.* 34:405–30; Lara Cushing, John Faust, Laura Meehan August, Rose Cendak, Walker Wieland, and George Alexeeff. 2015. Racial/Ethnic Disparities in Cumulative Environmental Health Impacts in California: Evidence from a Statewide Environmental Justice Screening Tool (CalEnviroScreen 1.1). *American Journal of Public Health*, vol. 105, no. 11; Mona Ray. 2021. Environmental Justice: Segregation, Noise Pollution and Health Disparities near the Hartsfield-Jackson Airport Area in Atlanta. *Review of Black Political Economy*, vol. 50, issue 1.

<sup>44</sup> See, e.g., Urban green space, public health, and environmental justice: The challenge of making cities 'just green enough,' Jennifer R. Wolch, Jason Byrne, Joshua P. Newell, 2014, *Landscape and Urban Planning* vol. 125: pp. 234-244; Angela Hilmer, David Hilmer, and Jayna Dave. 2012. Neighborhood Disparities in Access to Healthy Foods and Their Effects on Environmental Justice. *American Journal of Public Health*, 102:1644-1654.

<sup>45</sup> See California Air Resources Board, Inhalable Particulate Matter and Health, <https://ww2.arb.ca.gov/resources/inhalable-particulate-matter-and-health#:~:text=An%20update%20to%20this%20analysis.causes%20per%20year%20in%20California>

**Figure 9: Annual Mean PM2.5 Concentrations, in mg/m<sup>3</sup>**



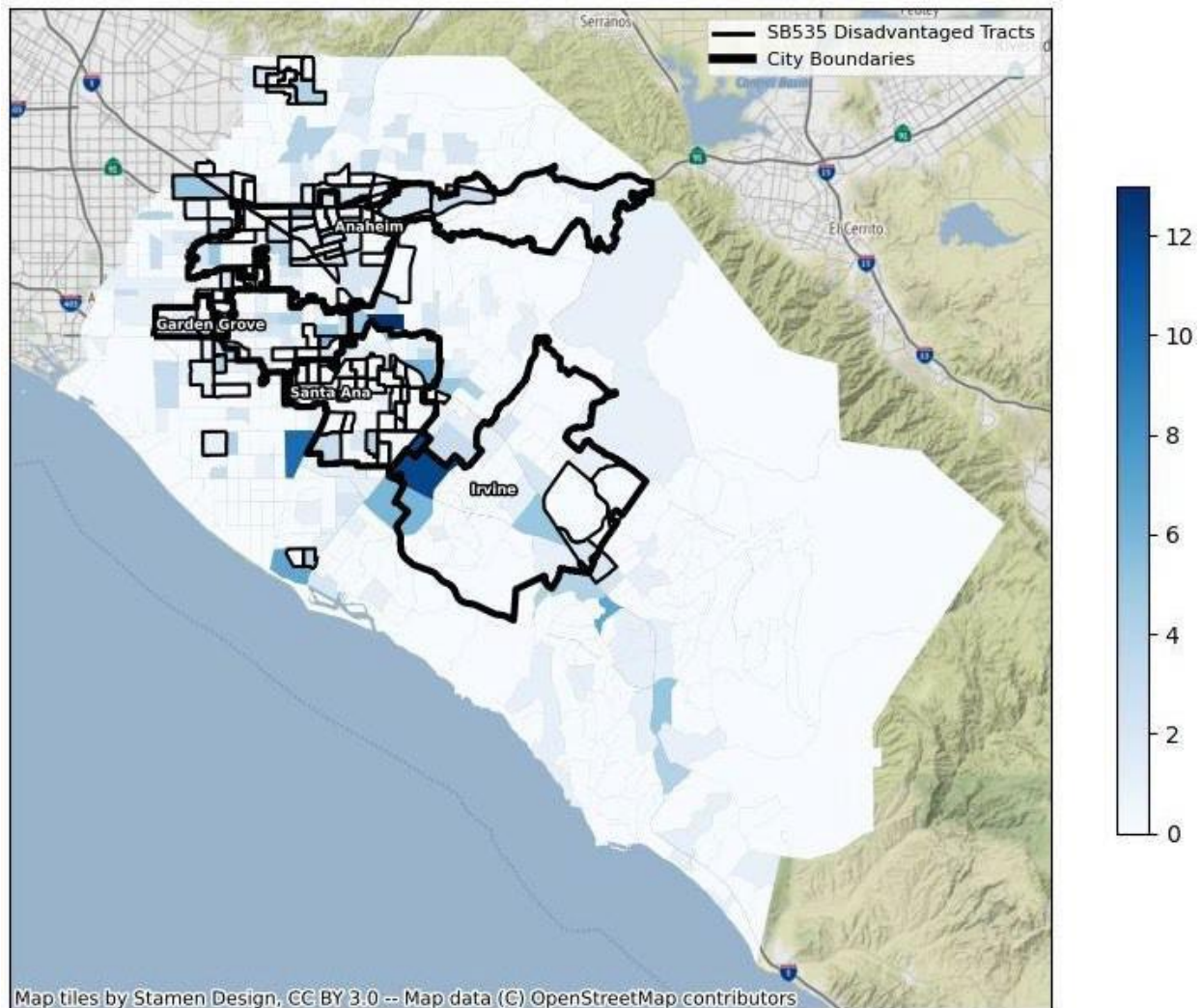
Source: CalEnviroScreen (2015-2017)

## Access to Healthcare

By at least one measure, shown in Figure 10, disinvested census tracts are closer to healthcare facilities than are other census tracts in the county. Figure 10 shows the number of healthcare facilities (hospital, mental health, rehab, surgical, etc.) in a census tract. Table 4 shows the number of healthcare facilities in disinvested and non-disinvested census tracts in the county. On average, disinvested census tracts have 0.81 Healthcare facilities, while non-disinvested tracts have 0.59 facilities. While the average per tract is higher in the disinvested tracts, note that the highest number of healthcare facilities is in non-disinvested communities such as Costa Mesa, Irvine, Newport Beach (see Figure 10.)



**Figure 10: Number of Healthcare Facilities (Hospital, Mental Health, Rehab, Surgical, etc.) by Census Tract**



Source: California Health and Human Services (2023)

**Table 4: Number of Healthcare Facilities (Hospital, Mental Health, Rehab, Surgical, etc.) by Census Tract**

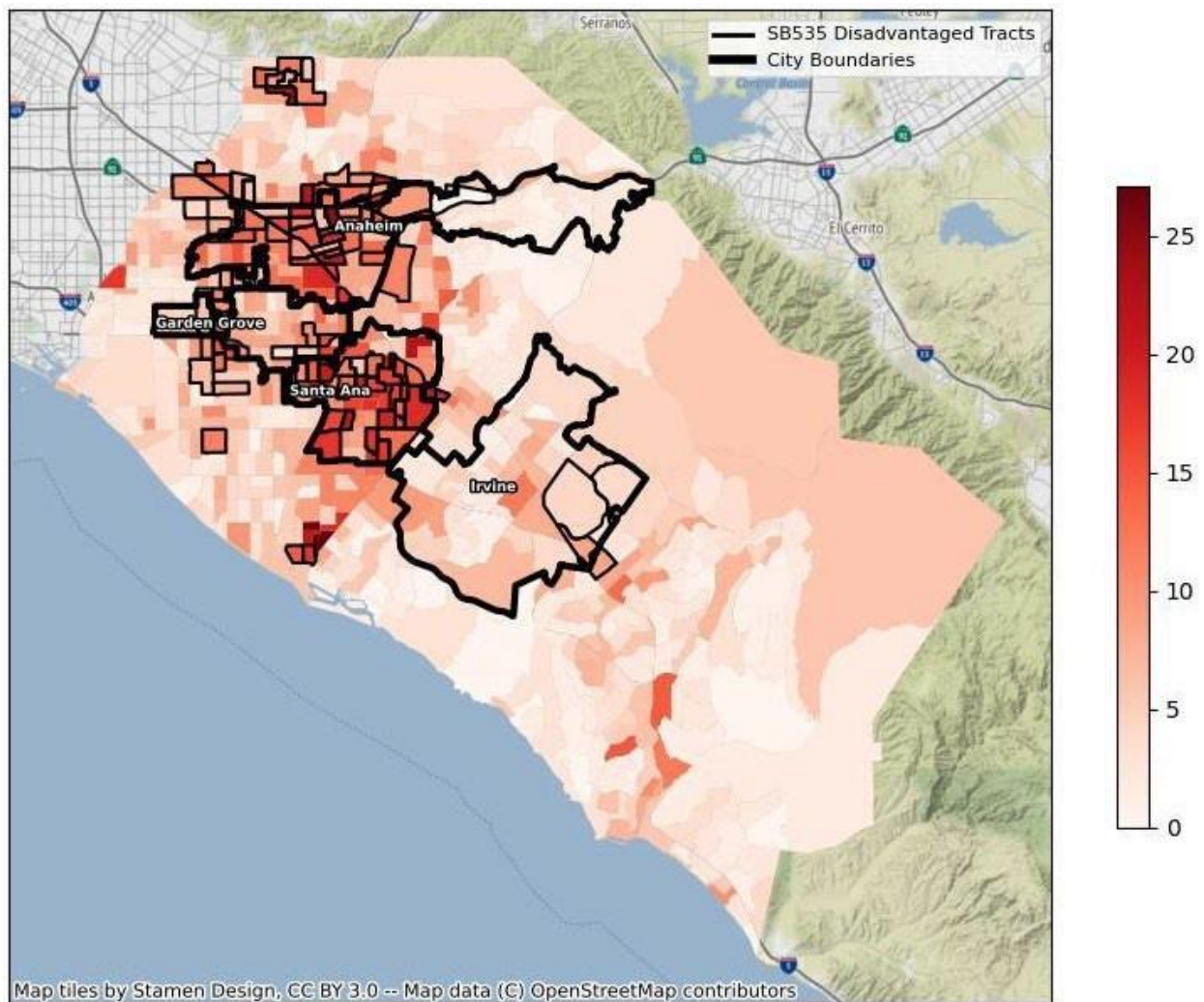
Category	Mean	Range
Full County	0.63	0.0-13.0
Disinvested	0.81	0.0-6.0
Non-Disinvested	0.59	0.0-13.0

Source: California Health and Human Services (2023)

While the counts of average number of healthcare facilities does not reveal clear disadvantage in disinvested communities, living near a Healthcare facility does not

translate into access to health care. Figure 11 shows the percentage of census tract residents who lack health insurance. The highest rates of uninsured persons are in Santa Ana, Anaheim, and in areas that include the disinvested communities. Disinvested census tracts have an average rate of persons who lack health insurance of 12.76 percent, while non-disinvested census tracts average 5.51 percent of residents without health insurance (Table 5).

**Figure 11: Percent of Persons Without Health Insurance, by Census Tract**



Source: American Community Survey 2017-2021

**Table 5: Percent of Persons without Health Insurance, by census tract, data source: American Community Survey 2017-2021**

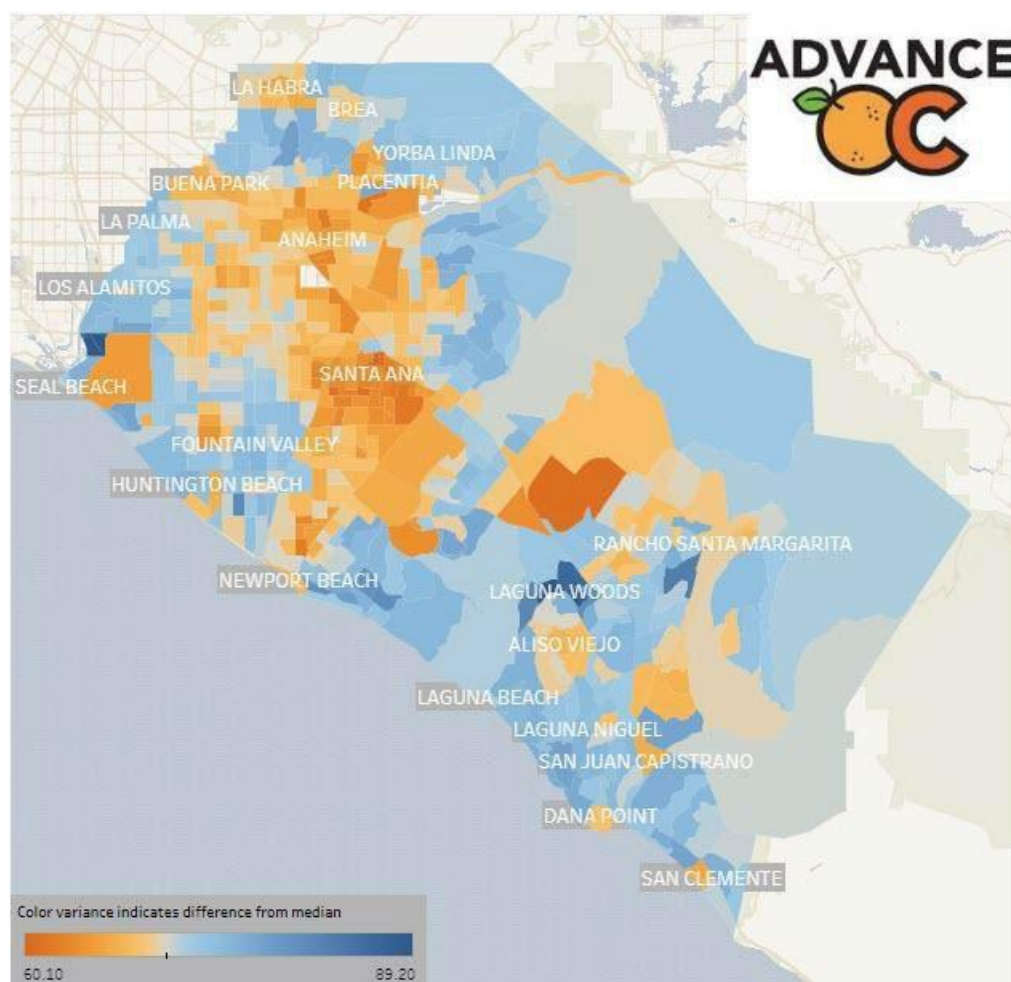
Category	Mean	Range
Full County	6.64	0.0-27.14
Disinvested	12.76	0.0-24.49
Non-Disinvested	5.51	0.0-27.14

Source: American Community Survey 2017-2021

Figure 12 shows the percent of census tract residents who visited a doctor in the past year for a routine checkup, using data compiled by Advance OC. The lowest rates of visits for a routine checkup are in the northern parts of the county, including locations in Santa Ana, Anaheim, and nearby locations that are in or near disinvested communities. On net, Figures 11 and 12 show that living near healthcare facilities does not translate into access to health care. Figures 1-8 show a broad range of health disparities that are evidence of larger rates of disadvantage in the disinvested communities.



**Figure 12: Percent of Persons who Visited a Doctor in the Past Year for a Routine Checkup, by Census Tract**



Source: Advance OC (underlying data sources include SPI, CDC Places, American Community Survey, First 5 OC, CA Health Care Agency, and OC Opportunity Zone, compiled by Advance OC, at <https://www.advanceoc.com/orange-county-equity-map/>.)

The health disparities documented in this report are tied to, and can cause, poorer economic outcomes. To some extent, the health disparities reflect limited economic resources associated with disinvestment. Yet those same health disparities likely widen economic gaps, leading to more sick days and increased need to take time from work due to illness or poor health.

Recent evidence has shown that air pollution and poor indoor air quality reduces worker productivity. A 2016 study of call center employees at China's largest travel agency showed that workers were 5 to 6 percent more productive when the Air Quality Index (AQI) was in the range of 0-50 (good) versus 150-200 (unhealthy).<sup>14</sup> Other studies of indoor air quality, which enrolled participants in China, India, Mexico, Thailand, the United Kingdom, and the United States, found

<sup>14</sup> Tom Y. Chang, Joshua Graff Zivin, Tal Gross, and Matthew Neidell, "Air Pollution Is Making Office Workers Less Productive," Harvard Business Review, 2016, available at <https://hbr.org/2016/09/air-pollution-is-making-office-workers-less-productive>.

similar results.<sup>15</sup>

The evidence indicates that exposure to poor air quality reduces worker productivity, creating an additional burden in disinvested communities with poor air quality. The studies are often of indoor air quality, suggesting that improved indoor air filter systems is one mitigation approach.

## Conclusion

The disparities in health access and health outcomes across disinvested and non-disinvested census tracts in Orange County reflect, in part, disparities that are common across the U.S. Yet the pattern of disparities also reflects factors specific to Orange County. Note the similarities between PM2.5 concentrations and the higher rate as asthma in the disinvested communities, suggesting a role for air quality. See Figure 9 for PM2.5 concentrations and Figure 3 for asthma incidence. Note, though, that previous research has documented that ambient outdoor air quality, while important, is only one of many factors related to asthma. Other factors include indoor air quality, ventilation, and presence or absence of insects and dust that trigger respiratory illness.<sup>46</sup> The points below provide an overview of the key findings.

- Disinvested communities, on average, are closer to healthcare facilities.
- That physical access does not translate into access to healthcare resources. Disinvested communities lag in rates of health insurance and in rates of routine checkup visits compared to non-disinvested communities.
- Concentrations of PM2.5, as a proxy for air quality generally, are higher in the northern corner of the county, near the northernmost disinvested communities.
- These resource disparities translate into disparities in health outcomes. Life expectancy at birth varies by more than ten years across the midpoints of quintiles of census tracts. Asthma visits per year (per 10,000 persons) are almost twice as high in disinvested communities.

Overall, these patterns reflect differences in resources, structural barriers, and concentrations of environmental pollutants that go back decades.

Considerations of dismantling persistent health inequities among racial and health disparities is crucial in determining success for the region in serving disinvested communities. Research<sup>474849</sup> shows that our success is contingent on supporting community informed systems, acknowledging the challenges of racial and gender bias in our Healthcare systems, and increased representation of our disinvested communities to support education, equitable care and holistic approaches. Closing these gaps will require a comprehensive focus on environmental factors and Healthcare access and resources.

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<sup>15</sup> Harvard T.H. Chan School of Public Health, 2021, "Office air quality may affect employees' cognition, productivity," available at <https://www.hsph.harvard.edu/news/press-releases/office-air-quality-may-affect-employees-cognition-productivity/>. This is a summary of "Associations between acute exposures to PM2.5 and carbon dioxide indoors and cognitive function in office workers: a multicountry longitudinal prospective observational study," Jose Guillermo Cedeño Laurent, Piers MacNaughton, Emily Jones, Anna S Young, Maya Bliss, Skye Flanigan, Jose Vallarino, Ling Jyh Chen, Xiaodong Cao, and Joseph G Allen, Environmental Research Letters, online September 9, 2021, doi: 10.1088/1748-9326/ac1bd8.

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<sup>46</sup> Interdisciplinary Planning for Healthier Communities: Findings from the Harlem Children's Zone Asthma Initiative, by Seth E. Spielman, Cynthia A. Golembeski, Mary E. Northridge, Roger D. Vaughan, Rachel Swaner, Betina Jean-Louis, Katherine Shoemaker, Sandra Klihr-Beall, Eric Polley, Linda F. Cushman, Benjamin Ortiz, Vincent E. Hutchinson, Stephen W. Nicholas, Terry Marx, Roger Hayes, Andrew Goodman and Elliott D. Sclar, *Journal of the American Planning Association*, vol. 72, no. 1, pp. 100-108, 2006.

<sup>47</sup> Cummings, L. & EVITARUS (2022). *Listening to Black Californians: How the Healthcare System Undermines Their Pursuit of Good Health*. California Healthcare Foundation. <https://www.chcf.org/wp-content/uploads/2022/09/LBCAExecSummary.pdf>

<sup>48</sup> López-Cevallos DF, Harvey SM, Warren JT. Medical mistrust, perceived discrimination, and satisfaction with Healthcare among young-adult rural latinos. *J Rural Health*. 2014 Fall;30(4):344-51. doi: 10.1111/jrh.12063. Epub 2014 Feb 27. PMID: 24576017.

<sup>49</sup> Bazargan M, Cobb S, Assari S. Discrimination and Medical Mistrust in a Racially and Ethnically Diverse Sample of California Adults. *Ann Fam Med*. 2021 Jan-Feb;19(1):4-15. doi: 10.1370/afm.2632. PMID: 33431385; PMCID: PMC7800756.

# Labor Market Analysis

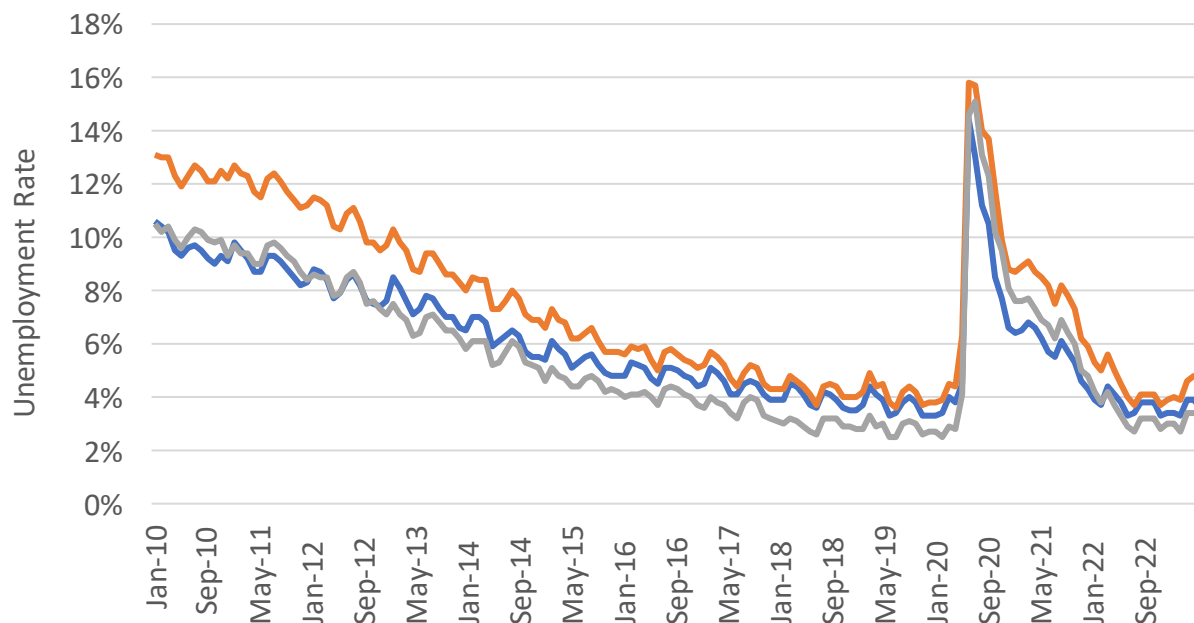
Dr. Robert Kleinhenz, California State University Long Beach

Dr. C.J. Bishop, Coast Community College District

## Labor Market Overview

Orange County has a long history of having a strong, resilient labor market with above average wages which has served to drive not only economic growth and activity but the regional quality-of-life as well. As of February 2023, Orange County's unemployment stood at 3.4 percent as of March 2023 remaining unchanged since January 2023. Prior to the onset of the COVID-19 pandemic, Orange County's unemployment rate measured 2.8 percent in February 2020 before rocketing up to 15.1 percent by May 2020 – the height of the pandemic. Despite this rapid rise, the regional unemployment rate would begin to rapidly decline as the regional and broader economies reopened and recovered. Orange County's unemployment rate returned to 2.7 percent in December 2022, serving to beat the pre-pandemic low before increasing again slightly to 3.4 percent in March 2023.

### Orange County, California and United States Unemployment Rates, 2010-2023

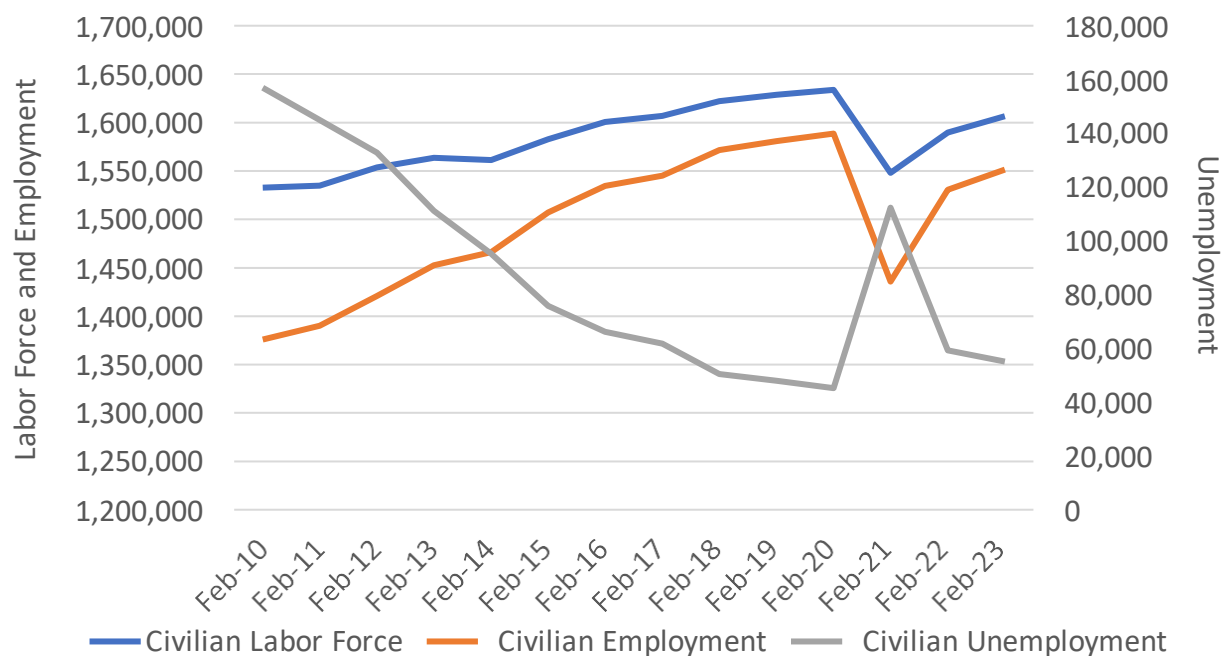


Source: California Employment Development Department

Despite the region's rapid recovery, the pandemic had significant impacts on the labor market. The overall labor force in Orange County peaked at 1,633,700 in February 2020

at the same time civilian employment reached 1,588,500 and the number of unemployed workers was 45,200. By February 2021, the labor force and civilian employment had declined by 5.2 percent and 9.6 percent, respectively while the number of unemployed workers grew by 148.5 percent to 112,300. As of February 2023, civilian unemployment (55,100) remains 21.9 percent above February 2020 totals while the labor force and civilian employment measures trail by 1.7 percent and 2.3 percent, respectively.

### Orange County Labor Force, Employment and Unemployment, 2010 - 2023



Source: California Employment Development Department

## Industry Employment

Over the past year, the industry to add the most employment was Accommodation and Food Services which added 8,700 jobs representing an increase of 5.4 percent, followed by Professional, Scientific and Technical Services which added 7,500 jobs (+5.4 percent) and Arts, Entertainment and Recreation which added 7,400 jobs (+15.9 percent). Two sectors in the region lost jobs over the past year including Finance and Insurance which shed 3,700 jobs (-4.8 percent) and Administrative and Support and Waste Remediation and Management Services which lost 2,500 jobs (-1.7 percent).

Since the pre-pandemic February 2020 totals, total nonfarm employment has completely recovered totaling 1,691,100 jobs as of February 2023, yet the recovery has been somewhat uneven. Only 5 industries have surpassed their pre-pandemic highs including Transportation, Warehousing and Utilities; Educational Services; Professional, Scientific

and Technical Services; Healthcare and Social Assistance; and Management of Companies and Enterprises.

### **Lasting Impacts COVID-19 to Orange County Industries**

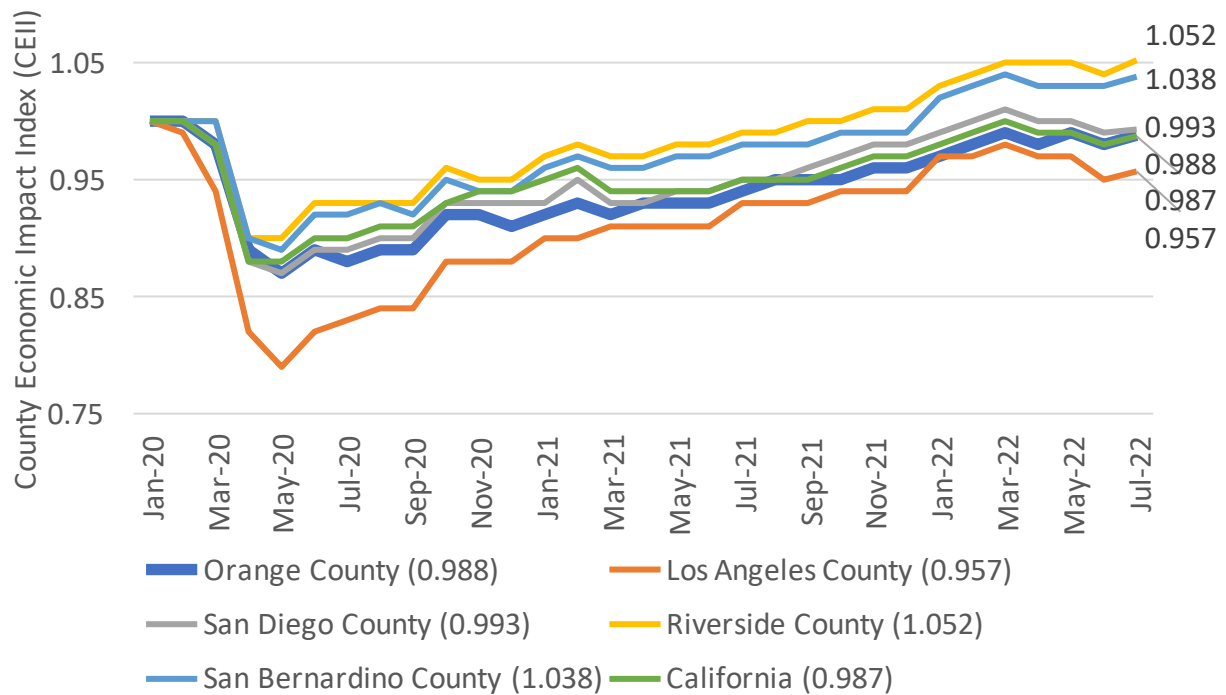
	<b>Feb-23</b>	<b>YoY Change</b>	<b>YoY Percent Change</b>	<b>Vs. February 2020</b>
Total Nonfarm	1,691,100	44,600	2.7%	100.5%
Accommodation and Food Services	169,500	8,700	5.4%	99.0%
Professional, Scientific & Technical Services	146,700	7,500	5.4%	107.9%
Arts, Entertainment, and Recreation	54,000	7,400	15.9%	98.9%
Healthcare and Social Assistance	217,300	6,700	3.2%	105.6%
Government	165,500	4,800	3.0%	98.5%
Retail Trade	148,000	3,600	2.5%	99.9%
Educational Services	38,300	3,200	9.1%	114.7%
Manufacturing	156,000	2,600	1.7%	98.1%
Transportation, Warehousing & Utilities	35,500	2,400	7.3%	117.5%
Other Services	52,900	1,300	2.5%	97.2%
Management of Companies and Enterprises	39,100	1,300	3.4%	101.6%
Construction	105,000	1,200	1.2%	98.7%
Wholesale Trade	76,500	100	0.1%	97.1%
Real Estate and Rental and Leasing	39,900	100	0.3%	98.3%
Information	24,700	-	0.0%	95.7%
Administrative Support / Waste Management	148,700	(2,500)	-1.7%	96.9%
Finance & Insurance	73,200	(3,700)	-4.8%	92.9%

Source: California Employment Development Department

Further highlighting not only Orange County's but Southern California's resilience and rebound from the depths of the COVID-19 pandemic, the County Economic Impact Index (CEII) developed by Argonne National Laboratory with support from the Economic Development Administration which tracks impacts to local economies from COVID-19. This metric compares the region's economic performance to its position in January 2020, before the pandemic hit. A score below 1 indicates the region is still lagging pre-pandemic highs while a score of 1 or above indicates it has completely recovered from or expanded over pre-pandemic highs.

As of July 2022, Riverside County had the highest CEII measured at 1.052 followed by San Bernardino County at 1.038 and San Diego County at 0.993. Orange County's index measured 0.988, just above the state-level index of 0.987.

## Orange County Economic Impact Index (CEII) – Local Area and State Average CEII, 2020-2022



Source: Argonne National Lab – National Economic Resilience Data

Over a longer time period, how Orange County's industries have evolved and grown is apparent below. From 2000 to February 2023, industries which have seen the largest absolute growth included Healthcare and Social Assistance which added 120,800 jobs, followed by Accommodation and Food Services (+58,300) and Professional, Scientific and Technical Services (+53,900). The industries with the largest percent growth over the same time period have been Healthcare and Social Assistance where employment increased by 125.2 percent, followed by Educational Services which increased by 114.0 percent and Arts, Entertainment and Recreation at 82.4 percent.

Since 2000, four industries have seen employment declines including Manufacturing which shrunk by 61,600 jobs or by 28.3 percent, followed by Information which lost 17,200 jobs or 41.1 percent of its total, Wholesale Trade which is down 3,300 jobs or 4.1 percent and Retail Trade which is only down 100 jobs or 0.1 percent.

These fluctuations in industry employment helps to inform how the region has grown and evolved over the past two decades. Following broader statewide and national trends which had been ongoing for decades, the region's Manufacturing sector has seen the largest decline in employment brought on as businesses continued to search for the lowest cost options – especially labor and real estate – both of which have been consistently increasing in the region. Orange County's residential and commercial real



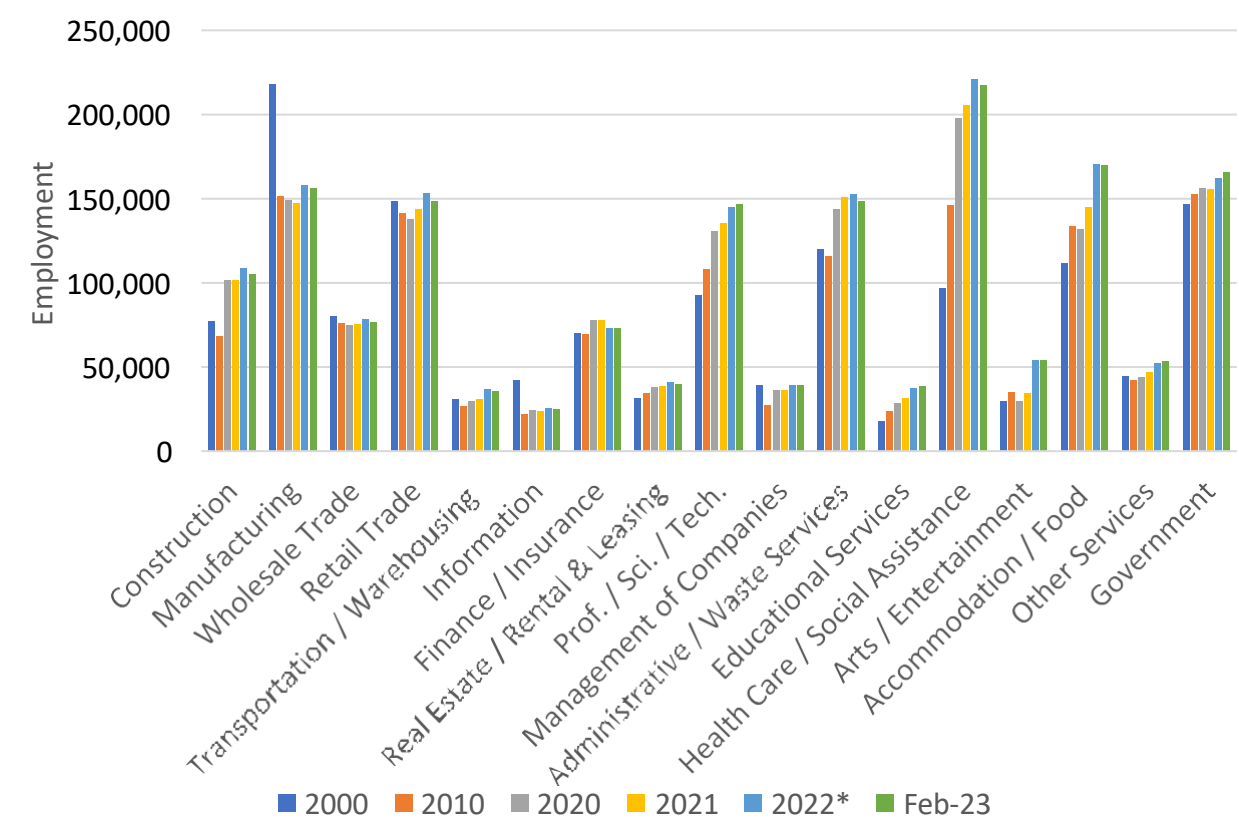
estate sectors rapidly expanded alongside the rapidly growing population and labor force, the Construction sector jumped from 77,100 in 2000 to 105,000 in February 2023, an increase of 27,900 jobs or 36.2 percent, despite the significant losses experienced in the 2008 recession which brought Construction employment down to 68,400 by 2010.

As the region attracted and produced well-educated and families and households, the region's Professional, Scientific and Technical Services industry expanded as more and more businesses moved into the region; industry employment grew from 92,800 to 146,700, an increase of 58.1 percent. Healthcare and Social Assistance which saw the largest absolute and percent increase of any sector in Orange County has been driven by the region's growing older population – especially Baby Boomers which have, and will continue, to be an increasingly large proportion of the population.

The rise in demand for healthcare services in Orange County and to a lesser degree, across the nation, has steadily increased over the past decade as residents have become increasingly older and therefore require a broader range of services. This can be seen in the rise of Home Health and Personal Care Aide occupations in Orange County which exploded from 12,543 in 2010 to 55,731 in 2022, an increase of 344 percent. Orange County has also seen an increase in Health Information Technologists and Medical Registrars which jumped by 100 percent over the same time period, as the Health IT sub-sector has gained momentum thanks to improved medical technologies. Overall, as the region's population continues to age, the Healthcare sector is expected to continue to expand and evolve.

Finally, having garnered a reputation as a hotspot for domestic and international tourists thanks to its 42-miles of beautiful coastline, world-class shopping centers such as South Coast Plaza and Fashion Island, and theme parks including Disneyland and California Adventure; Orange County's Accommodation and Food Services industry has added 58,300 jobs or grown by 52.4 percent.

Orange County Industry Employment, 2000 – February 2023

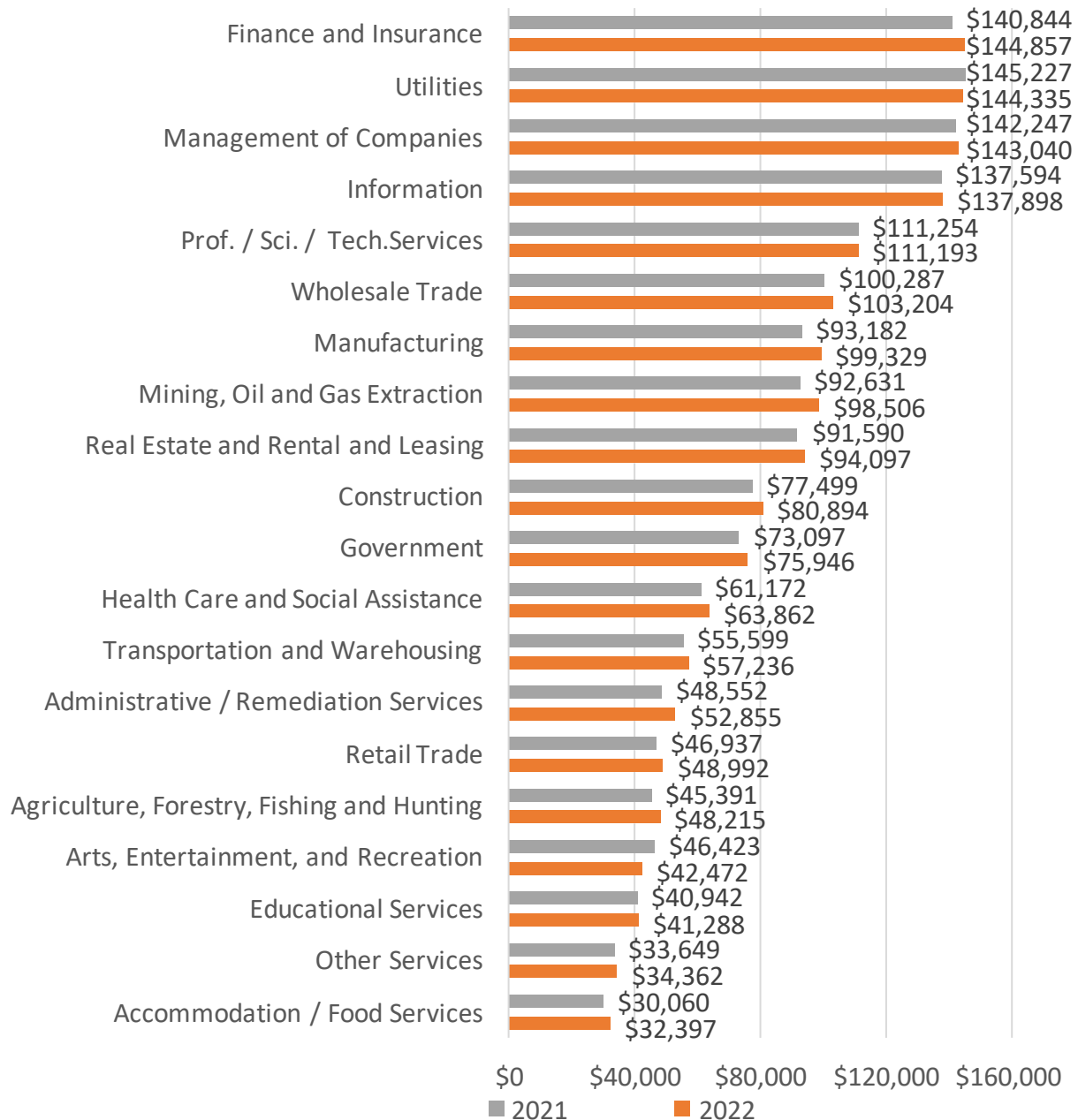


Source: Lightcast

## Orange County Industry Wages

Orange County's Finance and Insurance industry provided the highest average annual wages in 2022 at \$144,857, representing an increase of 2.8 percent over the prior year, followed by Utilities (\$144,335) and Management of Companies (\$143,040).

### Orange County Industry Wages, 2021-2022



Source: Lightcast

California Forward produces an additional wage measure that calculates the number of *higher wage* jobs in the state's regions as defined by California's Community Economic Resiliency Fund (CERF) initiative. A higher wage job is one that produces an income that meets or exceeds the cost of living for a household with one adult and two children. That income threshold is regionally adjusted to reflect the varying cost of living across California and was set by the United Way of California. By this metric, 24.5 percent of Orange County jobs were higher wage jobs, based on data from 2019. The average cost of living in Orange County was estimated at \$87,648 in 2019, \$10,093 or 11.5 percent higher than the average cost of living for the state as a whole, estimated at \$77,555 in the analysis.<sup>50</sup>

Union membership in California has consistently exceeded that of the U.S. since 1989. In 2021, the latest year for which data is available, 15.9 percent or 2.5 million of the 15.5 million wage and salary workers in California were members of a union, down slightly from 16.2 in 2020. By comparison, union members accounted for 10.3 percent of wage and salary workers nationally in 2021. Union membership in the state has generally increased since 2018, when it hit a recent low of 14.7 percent. Union membership peaked in 1989 at 18.9 percent.

While the pandemic served to disrupt and upend a number of businesses and industries, the behavior of the labor market also irreversibly shifted and continues to make its impact. Remote work, while already slowly growing pre-pandemic thanks to improved communication and collaboration services, exploded in popularity as business and offices closed in an attempt to reduce community spread of COVID-19. While initial adoption may have been rocky, the labor market quickly adapted to Zoom meetings and Dropbox folders. Over time, as many employees demonstrated increased productivity and, through reduced stress from not having to commute, being able to better take care of children, and having more time to themselves, an increased quality-of-life. As the pandemic subsided and businesses reopened, many organizations adopted hybrid work schedules where employees come into the office only 2 or 3 days a week.

This shift in the behavior and habits of workers will have long-reaching effects with potential impacts on the commercial real estate sector and the role of downtowns or centers in major cities. As more and more businesses adopt work from home or hybrid schedules their dependency on commercial real estate offices will decline. As vacancy rates increase and less and less workers commute into a downtown for work, ancillary businesses including retail shops such as restaurants will see less clientele – especially during the lunchtime hour. As the number of both workers and businesses needing physical space decline, once important downtowns and city-centers full of office buildings will need to strategize on how best to refit or repurpose these large structures. This shift will allow workers to live further from their place of work or, if working fully remote, to live wherever they want to. As such, cities, counties and states may begin to see new

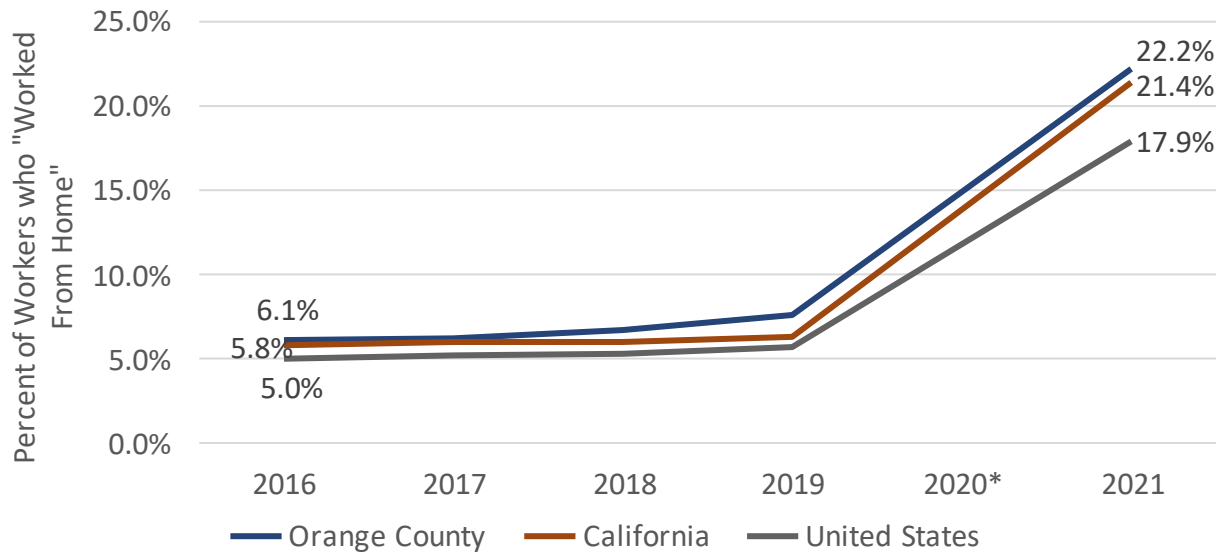
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<sup>50</sup> <https://cafwd.org/news/how-the-number-of-higher-wage-jobs-varies-across-californias-regions/>

population migration patterns less dependent on traditional locational factors as well as a shift in their revenue generating abilities – especially for property taxes.

The proportion of the population who worked from home in Orange County increased from 7.8 percent in 2019 to 22.2 percent in 2021.

### Proportion of Orange County Who Worked from Home, 2016-2021

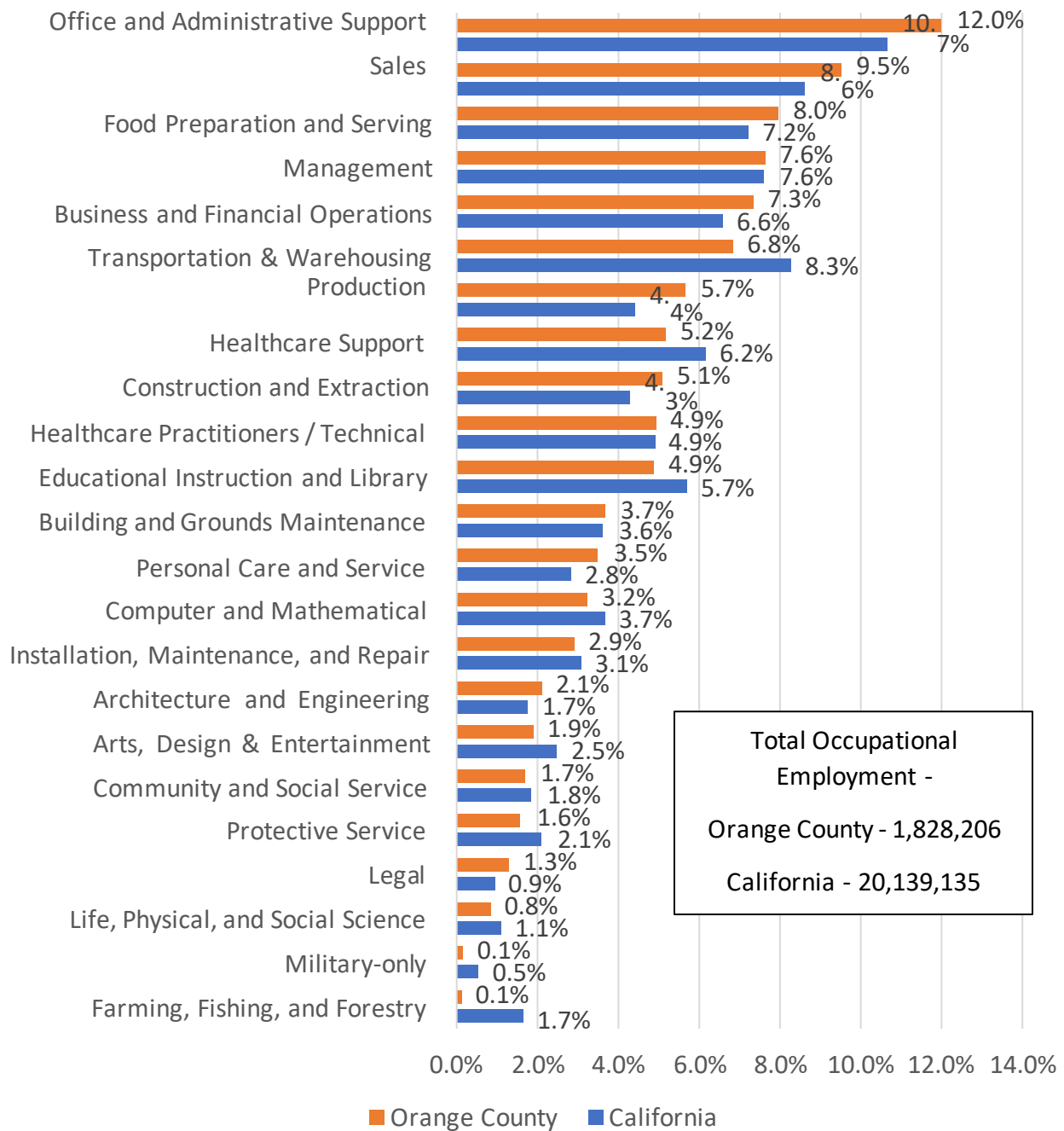


Source: U.S. Census Bureau, American Community Survey, 1-Year Estimates

## Occupational Employment

The largest occupational group in Orange County was Office and Administrative Support with 219,294 jobs in 2022 representing 12.0 percent of total occupations in the region followed by Sales and Related occupations representing 9.5 percent of total occupations and Food Preparation and Serving Related occupations at 8.0 percent of occupations. Over the past year, the occupational group to see the largest growth included Personal Care and Service occupations at 12.3 percent followed by Protective Service occupations (+10.1 percent) and Food Preparation and Serving Related occupations (+9.3 percent).

## Orange County and California Occupational Employment Distribution, 2022

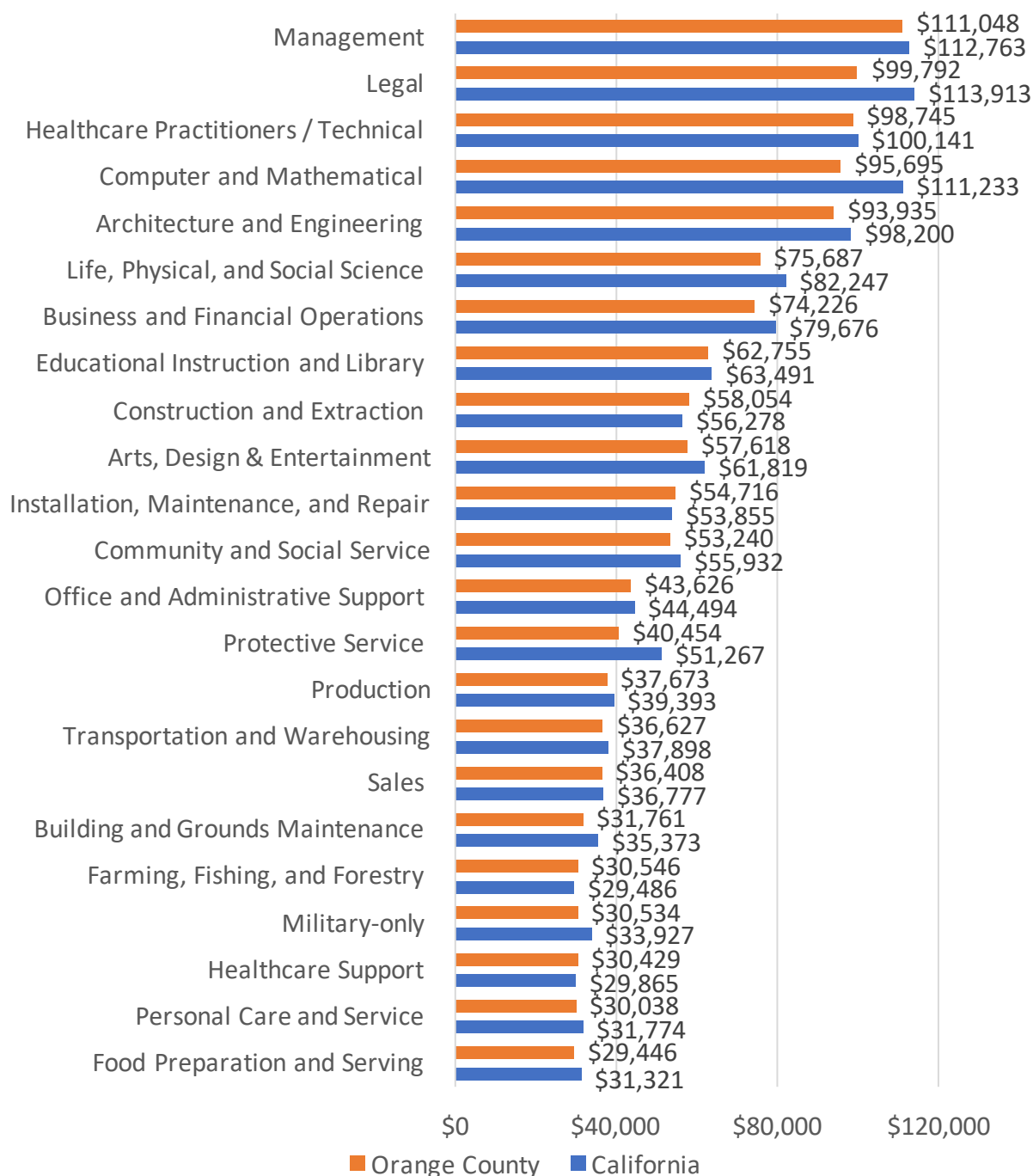


Source: Lightcast

Management occupations in Orange County had average annual wages of \$111,048, followed by Legal occupations at \$99,792 and Healthcare Practitioners and Technical occupations at \$98,745.



## Orange County and California Occupational Wages, 2021



Source: Lightcast

## Occupational Employment in Disinvested Communities

When comparing occupational employment distribution in the county, approximately 45 percent of occupations in Orange County are within the Management, Business, Science and Arts occupational group, compared to just 25 percent of residents in disinvested

communities. In comparison, Service occupations account for 22 percent of employment throughout the county, yet represent 24 percent of employment in disinvested communities. While certain service occupations represent important rungs in the career ladder which can impart valuable skills and knowledge for workers – especially young workers – certain Service occupations have, on average, comparably lower than average wages than Management, Business, Science, and Arts occupations. This highlights one of the primary issues impacting disinvested communities – reduced access to higher quality jobs which provide above average wages. This trend is also evident when comparing Orange County immigrant community employment distributions to immigrants living in disinvested communities.

### Occupational Groups in Orange County's Disadvantaged Communities

Occupation Groups	Orange County Overall % Distribution	Disinvested Orange County Overall % Distribution	OC Primarily Immigrant Communities % Distribution	OC Immigrant Disinvested Communities % Distribution
<i>Management, business, science, and arts occupations</i>	44.96%	25.04%	37.93%	24.33%
<i>Service occupations</i>	22.20%	23.81%	19.10%	23.85%
<i>Sales and office occupations</i>	16.30%	21.46%	21.39%	21.44%
<i>Production, transportation, and material moving occupations</i>	10.28%	18.63%	13.66%	18.92%
<i>Natural resources, construction, and maintenance occupations</i>	6.26%	11.06%	7.92%	11.23%

Orange County Overall % Distribution	OC Primarily Immigrant Communities % Distribution	OC Immigrant Disinvested Communities % Distribution
Management occupations <b>(12.88%)</b>	Office and administrative support occupations <b>(11.36%)</b>	Office and administrative support occupations <b>(17.26%)</b>
Sales and related occupations <b>(11.21%)</b>	Management occupations <b>(10.20%)</b>	Sales and related occupations <b>(14.10%)</b>
Office and administrative support occupations <b>(10.99%)</b>	Sales and related occupations <b>(10.13%)</b>	Food preparation and serving related occupations <b>(10.07%)</b>
Business and financial operations occupations <b>(7.30%)</b>	Business and financial operations occupations <b>(7.01%)</b>	Building and grounds cleaning and maintenance occupations <b>(9.77%)</b>
Educational instruction, and library occupations <b>(5.51%)</b>	Production occupations <b>(6.80%)</b>	Management occupations <b>(8.60%)</b>
Food preparation and	Food preparation and	Healthcare support

serving related occupations <b>(5.35%)</b>	serving related occupations <b>(5.43%)</b>	occupations <b>(6.79%)</b>
Production occupations <b>(5.12%)</b>	Building and grounds cleaning and maintenance occupations <b>(4.81%)</b>	Personal care and service occupations <b>(5.38%)</b>
Health diagnosing and treating practitioners and other technical occupations <b>(3.98%)</b>	Computer and mathematical occupations <b>(4.78%)</b>	Educational instruction, and library occupations <b>(5.07%)</b>
Computer and mathematical occupations <b>(3.88%)</b>	Construction and extraction occupations <b>(4.64%)</b>	Business and financial operations occupations <b>(5.00%)</b>
Construction and extraction occupations <b>(3.84%)</b>	Educational instruction, and library occupations <b>(3.90%)</b>	Computer and mathematical occupations <b>(3.57%)</b>

## **Top 10 Occupations in Disinvested Communities in Orange County**

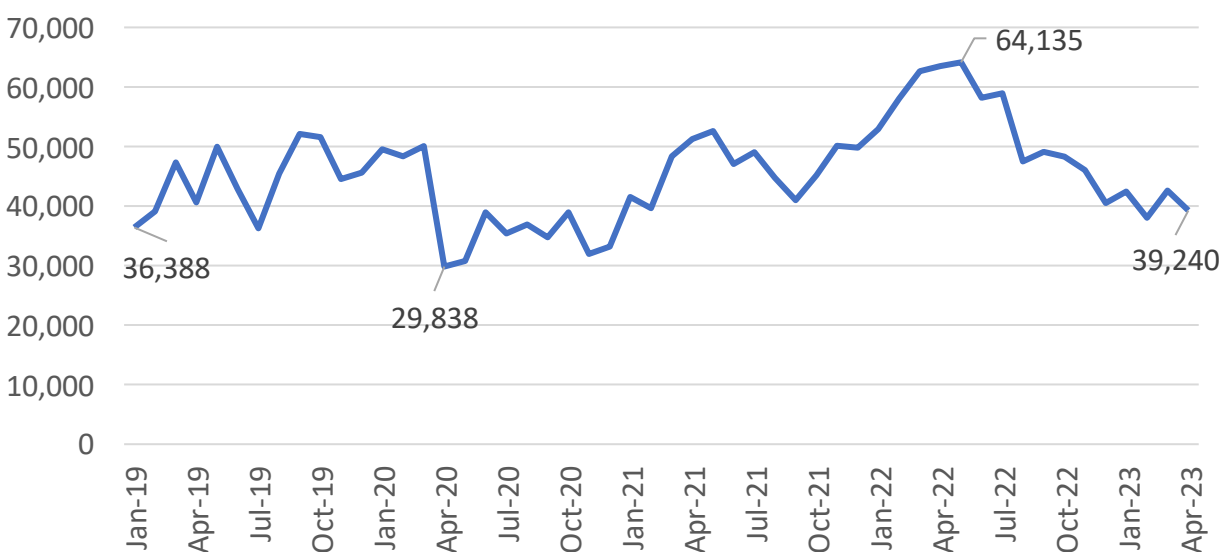
### **Top Occupations**

Office and administrative support occupations <b>(11.53%)</b>
Production occupations <b>(9.93%)</b>
Sales and related occupations <b>(9.93%)</b>
Food preparation and serving related occupations <b>(7.48%)</b>
Building and grounds cleaning and maintenance occupations <b>(7.41%)</b>
Construction and extraction occupations <b>(6.95%)</b>
Management occupations <b>(6.50%)</b>
Material moving occupations <b>(4.98%)</b>
Healthcare support occupations <b>(3.97%)</b>
Business and financial operations occupations <b>(3.86%)</b>

## Employment Demand and Job Postings

Orange County's diverse, resilient and well-paying labor market serves to attract both workers and businesses into the region. Demand to live and work in Orange County has served to drive housing demand and prices to record highs in recent months. From April 2022 to April 2023, there were a total of 662,395 unique job postings in the region, or an average of 50,953 per month, with a median advertised salary of \$48,512 and median post duration of 29 days. While job postings have rebounded 35.9 percent since a low of 38,117 in February 2023, job postings still remain 19.2 percent below the May 2022 job posting total of 64,135.

### Orange County Monthly Job Postings, January 2019 – April 2023



Source: Lightcast

The occupational group to see the most demand was Healthcare Practitioners and Technical occupations with 7,041 job postings in April 2023 providing an annual median advertised salary of \$93,568. Computer and Mathematical occupations saw the highest median advertised salary at \$105,344 while seeing 3,199 job postings in April 2023, a decline of 36 percent compared to April 2022. Only a few occupational groups actually saw job postings increased between April 2022 and April 2023 including Educational Instruction and Library occupations which grew from 1,173 to 1,548, an increase of 32.0 percent followed by Protective Service job postings which increased 14.4 percent and Architecture and Engineering job postings which increased 0.6 percent.

**Job Postings by Major Occupational Group in Orange County, April 2022 – April 2023**

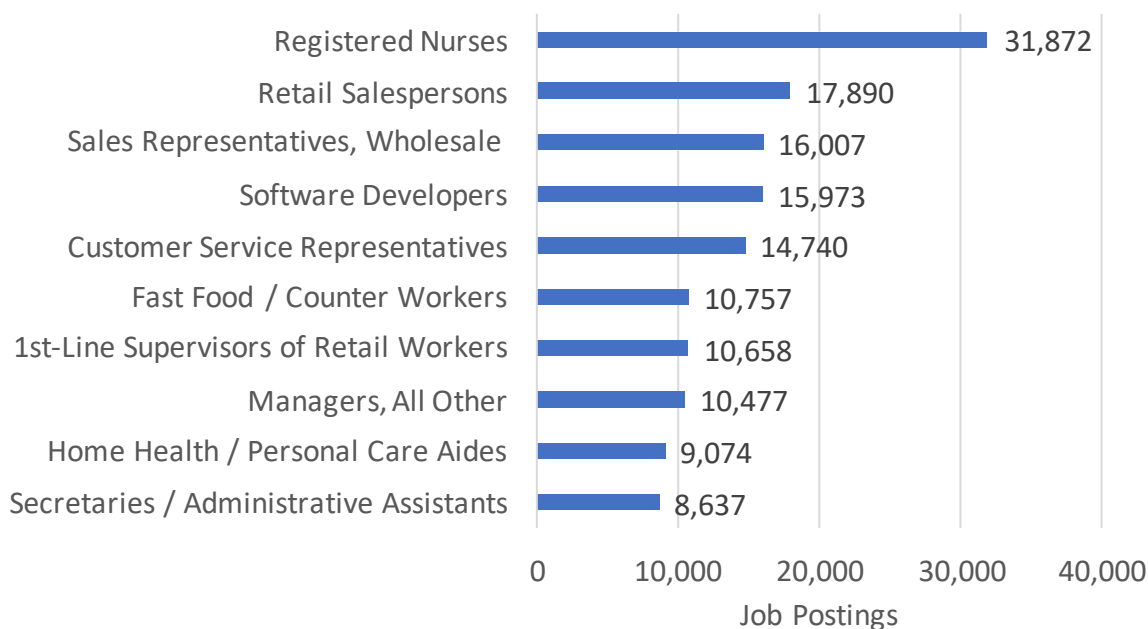
	April 2022 Job Postings	April 2023 Job Postings	Number of Competing Employers	Annual Median Advertised Salary	Total Number of Current Jobs
<b>Management</b>	6,909	5,660	9,062	\$89,984	139,692
<b>Business and Financial Operations</b>	5,107	3,369	8,154	\$70,016	134,237
<b>Computer and Mathematical</b>	5,000	3,199	6,359	\$105,344	58,980
<b>Architecture and Engineering</b>	1,809	1,820	2,972	\$85,376	38,450
<b>Life, Physical, and Social Science</b>	762	667	1,844	\$75,136	15,508
<b>Community and Social Service</b>	727	659	987	\$60,032	30,808
<b>Legal</b>	712	472	1,192	\$77,696	23,425
<b>Educational Instruction and Library</b>	1,173	1,548	1,618	\$45,696	89,283
<b>Arts, Design, Entertainment, Sports, Media</b>	1,379	853	2,816	\$45,696	34,748
<b>Healthcare Practitioners and Technical</b>	7,411	7,041	4,487	\$93,568	90,440
<b>Healthcare Support</b>	2,669	2,176	2,956	\$40,576	94,450
<b>Protective Service</b>	936	1,071	771	\$37,504	28,791
<b>Food Preparation and Serving Related</b>	3,856	3,106	2,654	\$35,456	145,395
<b>Building and Grounds Cleaning / Maintenance</b>	1,204	868	1,698	\$38,528	67,247
<b>Personal Care and Service</b>	1,158	928	1,557	\$40,064	63,676
<b>Sales and Related</b>	5,689	5,241	6,384	\$44,672	173,971
<b>Office and Administrative Support</b>	7,151	4,928	9,404	\$43,648	219,294
<b>Farming, Fishing, and Forestry</b>	25	16	82	\$38,528	2,289
<b>Construction and Extraction</b>	572	392	1,432	\$57,216	92,932
<b>Installation, Maintenance, and Repair</b>	1,730	1,406	3,799	\$50,048	53,468
<b>Production</b>	2,150	1,723	2,951	\$40,576	103,477

<b>Transportation and Material Moving</b>	3,042	1,826	3,491	\$38,528	124,994
<b>Military-only</b>	68	13	38	\$44,928	2,650
<b>Total Across All</b>	63,497	51,817	36,152	\$48,512	139,692

Source: Lightcast

The most in-demand occupation in Orange County was Registered Nurses with 31,872 job postings followed by Retail Salespersons (17,890) and Sales Representatives, Wholesale (16,007).

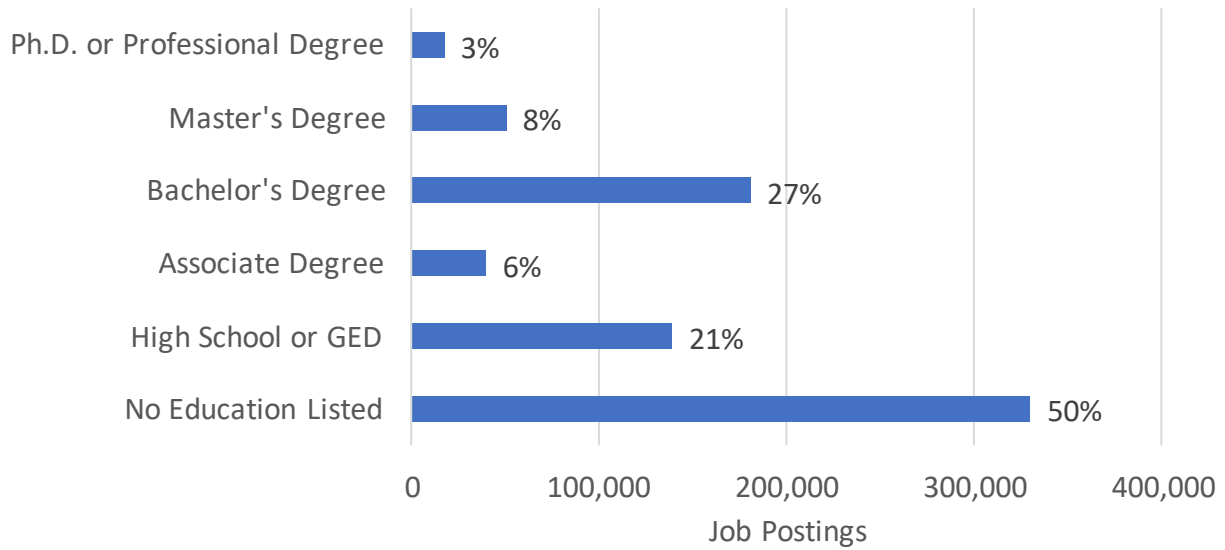
### Top 10 Occupations by Job Postings in Orange County, April 2022 - April 2023



Source: Lightcast

While the majority of job postings had no education listed, 27 percent required a Bachelor's degree or higher followed by 21 percent requiring a high school degree or GED and 8 percent required a Master's degree. Only 3 percent required a Ph.D. or Professional degree.

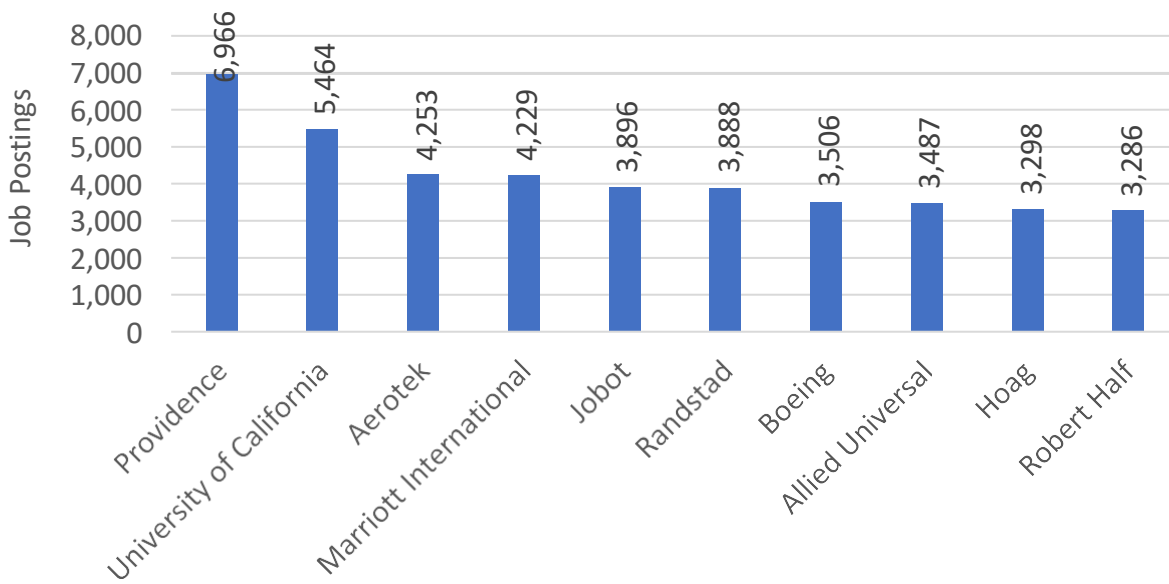
## Orange County Job Posting Educational Requirements, April 2022 – April 2023



Source: Lightcast

Over the past year, employers with the most job postings included Providence with 6,966 job postings, followed by University of California with 5,464 job postings and Aerotek with 4,253 job postings.

## Top Employers by Job Postings in Orange County, April 2022 – April 2023

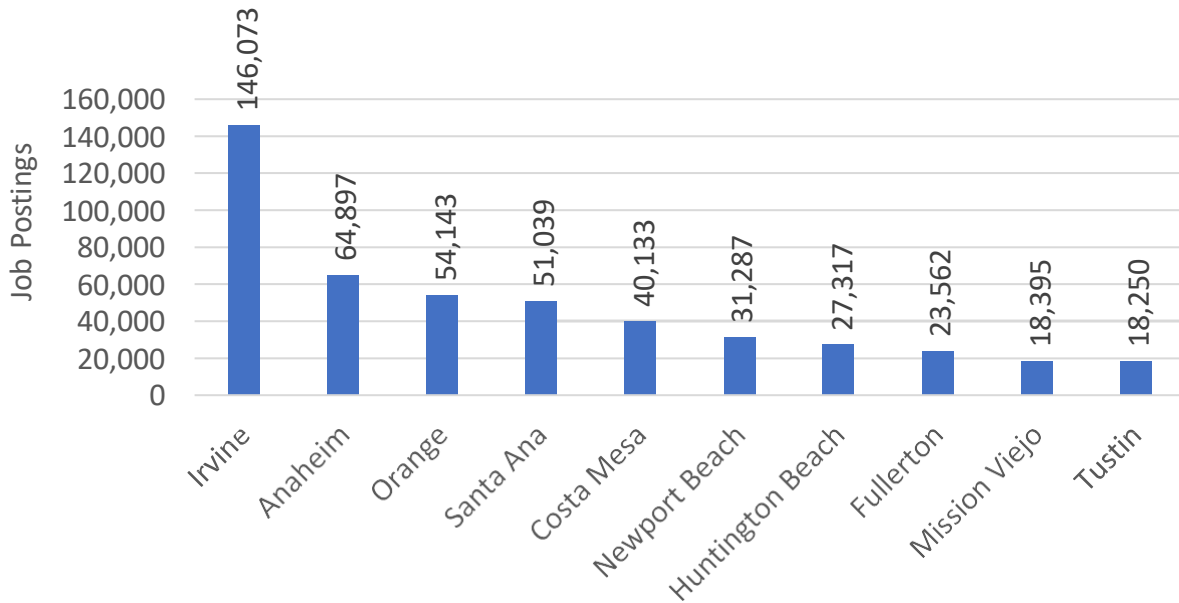


Source: Lightcast



The city of Irvine, which has evolved into the region’s primary business center, had the most job postings over the past year at 146,073 followed by Anaheim (64,897) and Orange (54,143).

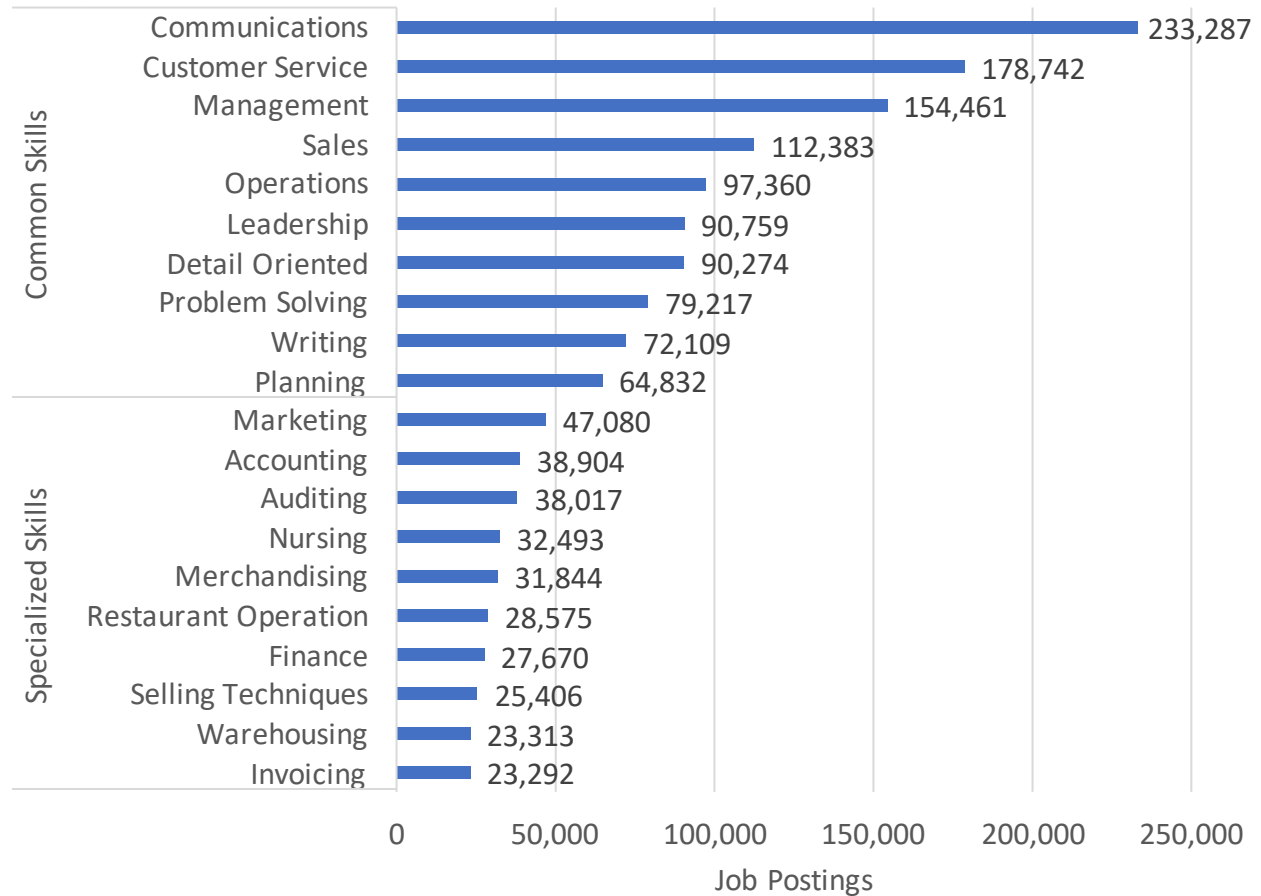
### Top Orange County Cities by Job Postings, April 2022- April 2023



Source: Lightcast

Orange County’s well-educated population has helped to drive its strong labor market, enabling it to be more resilient and rebound faster than many of its regional neighbors. Looking at both common and specialized skills demand in the region, Communications, Customer Service and Management were the most in-demand common skills, while Marketing, Accounting, and Auditing represented the most in-demand specialized skills.

## Orange County Job Postings by Common and Specialized Skills, April 2022 – April 2023



Source: Lightcast

## Orange County Industry and Employment Projections

Over the next decade, Orange County industries likely to see the most significant increase in employment includes Health Care, Utilities and Management of Companies. While current median wages for Health Care total \$63,146, median wages for Utilities employment totaled \$142,089 and for Management of Companies reached \$141,014 and highlights, importantly, the growth of high-wage industry sectors. On top of having the highest projected percent employment growth, Health Care is also expected to see the largest absolute growth in employment (+63,506 jobs), followed by Accommodation and Food Service (+26,492 jobs), and Professional, Scientific and Technical (+20,420 jobs). The significant growth associated with these industries reflects the regions strongest industries as well as projected demographic trends – with the rise in Health Care employment most likely related to the growing senior population in the county and their needs.

Looking at industry which are projected to contract, on a percentage basis, Agriculture is expected to shrink by 47 percent followed by Mining at 20 percent and Wholesale Trade at 9 percent. Orange County's Manufacturing industry is also expected to shed 7,071 jobs or 4 percent of its employment from 2022 to 2033.

### Industry Employment Projections, 2022 - 2033

Description	2022 Jobs	2033 Jobs	2022 - 2033 Change	2022 - 2033 % Change	Current Wages
Health Care	222,517	286,023	63,506	29%	\$63,146
Utilities	3,143	3,917	774	25%	\$142,089
Management of Companies	38,390	46,980	8,590	22%	\$141,014
Educational Services	42,175	50,444	8,269	20%	\$43,062
Arts, Entertainment, and Recreation	56,556	66,311	9,756	17%	\$41,816
Accommodation and Food Services	170,675	197,167	26,492	16%	\$32,566
Other Services	92,649	106,511	13,862	15%	\$36,917
Transportation and Warehousing	37,038	42,566	5,528	15%	\$57,900
Professional, Scientific, and Technical	164,663	185,082	20,420	12%	\$108,984
Government	162,928	181,949	19,021	12%	\$75,599
Administrative and Support	164,797	180,156	15,359	9%	\$52,816
Real Estate	50,780	54,955	4,175	8%	\$93,947
Construction	124,485	133,742	9,257	7%	\$83,172
Retail Trade	155,099	159,255	4,156	3%	\$48,085
Information	26,550	25,540	(1,011)	(4%)	\$135,420
Manufacturing	158,804	151,734	(7,071)	(4%)	\$97,789
Finance and Insurance	82,411	78,338	(4,073)	(5%)	\$142,242
Wholesale Trade	78,014	70,867	(7,147)	(9%)	\$102,641
Mining	342	274	(68)	(20%)	\$94,738
Agriculture	1,992	1,065	(928)	(47%)	\$47,672

Source: Lightcast

Further reflecting the expected increased demand for Health Care in the region, Home Health and Personal Care Aide occupations are projected to expand by 23,992 jobs or by 43 percent over the next decade. Lawyers, the occupations with the highest current annual median income at \$150,056 of the top 20 growth occupations is expected to add 2,006 jobs while Software Developers who currently average \$133,361 which are expected to grow by 3,869 jobs and Registered Nurses (\$125,582) are expected to increase by 4,783 jobs. In terms of which occupations in Orange County are likely to see the largest percent increase, Nuclear Engineer occupations are expected to increase by 89 percent, followed by Nurse Practitioners at 62 percent and Nuclear Technicians at 57 percent.

#### **Top 20 Occupations by Percent Growth in Orange County, 2022 – 2033**

Description	2022 Jobs	2033 Jobs	2022 - 2033 Change	2022 - 2033 % Change	Median Annual Earnings
Home Health and Personal Care Aides	55,731	79,722	23,992	43%	\$31,274
Fast Food and Counter Workers	39,663	46,828	7,165	18%	\$32,686
Janitors and Cleaners, Except Maids and Housekeeping Cleaners	32,381	38,448	6,067	19%	\$33,202
Cooks, Restaurant	14,649	19,663	5,014	34%	\$35,148
Registered Nurses	25,621	30,403	4,783	19%	\$125,582
Software Developers	18,179	22,048	3,869	21%	\$133,361
General and Operations Managers	28,262	31,406	3,143	11%	\$112,460
First-Line Supervisors of Food Preparation and Serving Workers	13,825	16,698	2,874	21%	\$39,849
Waiters and Waitresses	23,890	26,642	2,752	12%	\$29,863
Laborers and Freight, Stock, and Material Movers, Hand	33,158	35,853	2,694	8%	\$35,634
Postsecondary Teachers	18,708	21,344	2,636	14%	\$97,235
Maids and Housekeeping Cleaners	16,847	19,317	2,470	15%	\$34,312
Stockers and Order Fillers	24,347	26,772	2,425	10%	\$36,135
Medical Assistants	10,269	12,689	2,420	24%	\$40,028
Nursing Assistants	9,293	11,638	2,345	25%	\$40,447
Lawyers	12,719	14,725	2,006	16%	\$150,056
Maintenance and Repair Workers, General	14,813	16,816	2,004	14%	\$47,577
Retail Salespersons	32,343	34,322	1,979	6%	\$32,556
Security Guards	13,244	15,133	1,888	14%	\$36,796
Medical and Health Services Managers	4,312	6,153	1,841	43%	\$127,028

Source: Lightcast

In order to accelerate industry and occupational employment growth in the region, Orange County stakeholders and local community leaders must continually attract new investment into the region while crafting bold strategies to support established and emerging

industries while providing equal access to these occupations and industries. As such, moving forward, the region must remain focused on three primary goals:

1. Focuses on aligning and accelerating investments in infrastructure (e.g., housing, mobility, and transportation).
2. Develop a reindustrialization strategy that works to capture, concentrate and re-shores growth among various high-value industries (e.g., R&D, renewable energy production, biotech, manufacturing, industrial design, aerospace, etc.).
3. Design regional career pathways and skills based learning initiatives that further cultivates upstream investments in the talent pipeline, while enhancing access for displaced and/or marginalized workers across a number of sectors.

# **Orange County Economic and Employment Forecast**

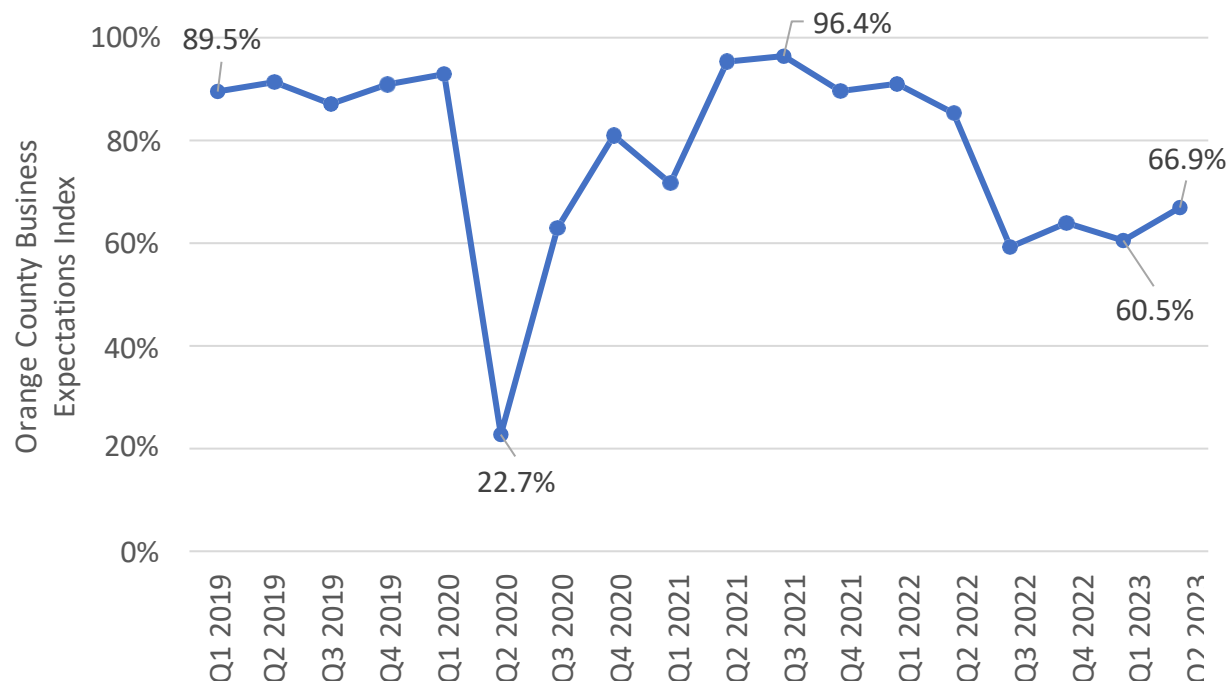
**Dr. Robert Kleinhenz, California State University Long Beach**

As global economies continue to wrestle with fluctuating levels of inflation and uncertainty, inflation in the United States peaked in mid-2022 and has edged down in the months since, indicating price relief for consumers may be on the horizon. Despite this, several major headwinds remain which could dramatically shift the course of recovery the country is currently on. Bank failures, cracks in commercial real estate, increased tensions overseas, and political turmoil all stand to impact how the country, and Orange County, will perform in the near-term.

With the Federal Reserve increasing interest rates to combat inflation, several banking institutions found themselves in a crisis as the value of their Treasury Bonds and long-term debt declined in value as investors were able to buy bonds at higher interest rates. With few deposits held in cash, banks were soon unable to process transactions as clients and customers began to withdraw funds. This process accelerated as weakness began to appear in the sector, and banks were forced to close. Silicon Valley Bank, Signature Bank, and First Republic Bank represent the three major bank failures in 2023. While the Federal Reserve made \$300 billion available to banks to help mitigate the liquidity crisis, putting recent interest rate strategies into question, the contagion continues to spread. This has dramatically impacted smaller, regional banks as clients and customers shifted deposits to larger, national institutions such as J.P. Morgan Chase. While many have drawn comparisons from this banking crisis to that of 2008, the fundamentals are inherently different and despite a forecasted recession in the near-term, the impacts on the national economy are expected to be more subdued.

The Orange County Business Expectations Index (OCBX) produced by the California State University, Fullerton (CSUF), surveys business executives on the current and short-term business environment in Orange County. A reading over 50 indicates expected future growth in the economy while a reading below 50 indicates an expected contraction. In the 2<sup>nd</sup> quarter of 2023, the OCBX measured 66.9 percent, a small increase over the score of 60.5 percent measured in Q1 2023 and well above the low of 22.7 percent measured in the second quarter of 2020, the depths of the COVID-19 pandemic.

## Orange County Business Expectations Index, Q1 2019 – Q2 2023



Source: California State University, Fullerton; Woods Center for Economic Analysis and Forecasting, College of Business and Economics, Orange County Business Expectations Index

The OCBX also revealed that only 18.6 percent of executives surveyed expected regional business activity to increase compared to 39 percent who expected to see it decline. The biggest concern according to 44.1 percent of Orange County executives continues to be inflation followed by labor/supply shortages (22.0 percent) and government deficits (10.2 percent). Overall, 32.2 percent of executives believed inflation will be between 4 and 5 percent in 2023 while 33.9 percent believe it will be between 5 and 6 percent and 13.6 percent believe it will be between 6 and 7 percent. Despite the recent bank failures, only 10.2 percent of executives believe the banking crisis will lead to a broad industry contagion compared to 50.8 percent who believe there will be some, limited systemic risk.

Alongside uncertainty in the financial sector, commercial real estate properties have also begun to exhibit some alarming trends. As the COVID-19 pandemic served to shutter businesses and keep residents at home, work-from-home or remote work saw explosive growth. While many expected productivity to decline, it actually increased while also providing workers with more free time and less stress from commuting. This has shed light on major potential cost saving strategies for employers. One of these major potential areas of cost reduction was for office space. While many expected a return to the office as the pandemic subsided, the benefits for both workers and employers were too glaring to ignore. Remote work and hybrid work schedules are here to stay.

As a result, many businesses are beginning to downsize dramatically leading to significant headaches for office properties as vacancy rates have started to climb.

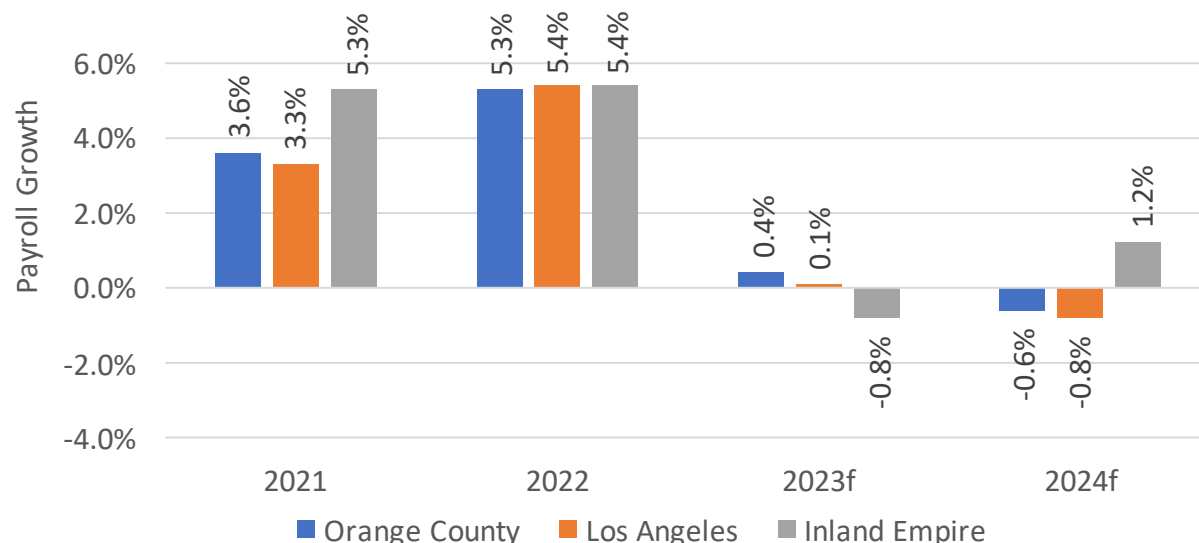


According to CBRE, as of the first quarter of 2023, the vacancy rate for office space in Orange County measured 13.6 percent, an increase of 4.2 percentage points over the vacancy rate of 9.4 percent measured in the fourth quarter of 2019 at the same time as average asking lease rates shrank from \$3.04 per square foot to \$2.87 per square foot. Alongside general challenges in increasing occupancy at a time when demand for office space is declining, property developers are also seeing increased stress.

At the national level, commercial real estate valuations have declined 18 percent compared to March 2022 and \$730 billion or 16 percent of outstanding commercial real estate mortgages are set to mature in 2023, 25 percent of which are office properties. This, combined with the disruptions in the financial sector, could have serious impacts on the national economy – especially in Orange County which currently has nearly 105 million square feet of office space.

Despite potential impacts from a disruption in commercial real estate, employment growth across Southern California job growth is expected to moderate considerably in 2023 and 2024 compared to previous years. While seeing payroll employment growth expand by 3.6 percent in 2021 and 5.3 percent in 2022, Orange County payroll employment growth is expected to drop to 0.4 percent in 2023 and will turn negative in 2024 at -0.6 percent. Orange County's payroll employment is expected to perform better than Los Angeles (0.1 percent) and the Inland Empire (-0.8 percent) in 2023 while Inland Empire is expected to see growth of 1.2 percent in 2024 compared to Orange County's -0.6 percent and Los Angeles's -0.8 percent. Additionally, it is forecasted that Orange County's unemployment rate will increase from 3.6 percent in 2023 to 4.2 percent in 2024 while median home prices are expected to fall another 5 percent in 2023 before rebounding slightly in 2024.

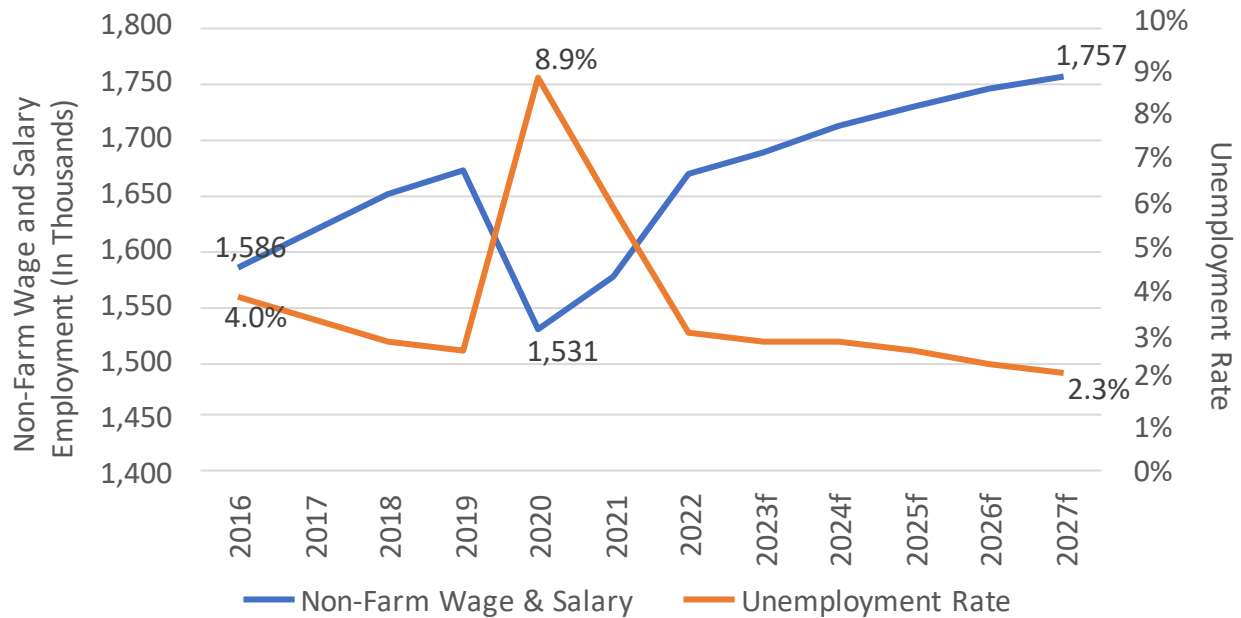
### Orange County, Los Angeles and Inland Empire Payroll Growth Forecasts, 2021-2024



Source: University of California, Fullerton; Woods Center for Economic Analysis and Forecasting, College of Business and Economics, Spring 2023 Economic Forecast Report

Looking over the next 5 years or so, the University of California, Los Angeles Anderson Forecast (UCLA Anderson) expects non-farm wage and salary employment to grow from 1,670,000 in 2022 to 1,757,000 in 2027, an increase of 87,000 jobs or 5.2 percent. Meanwhile, the unemployment rate of 3.2 percent measured in 2022 will gradually fall to 2.3 percent in 2027.

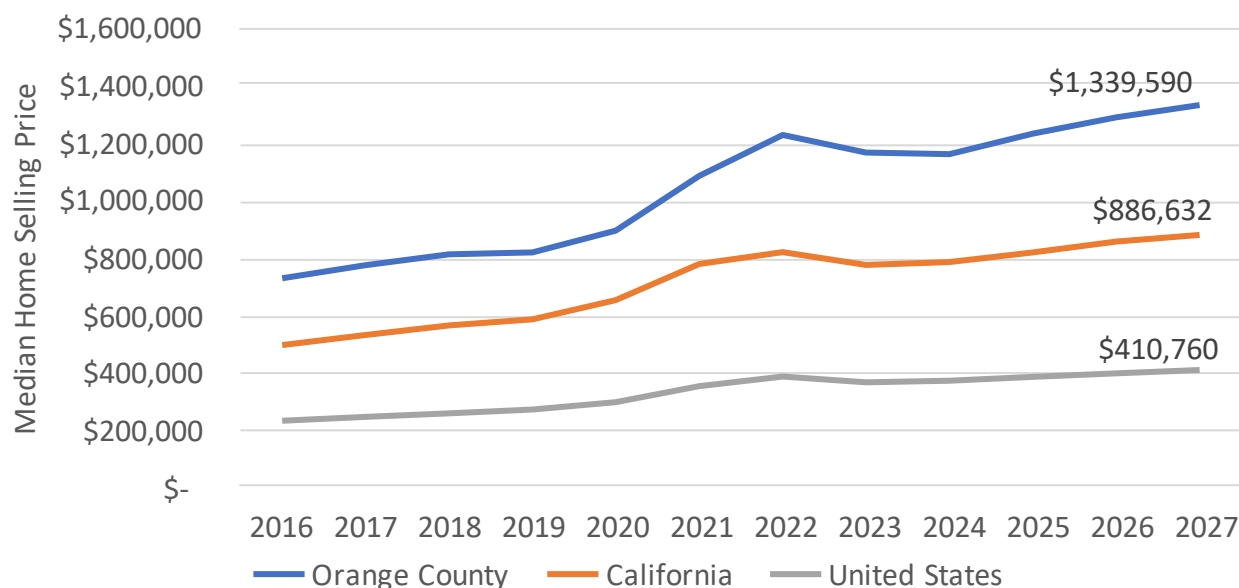
### Orange County Unemployment Rate Trend and Employment Forecast, 2016-2027



Source: UCLA Anderson Forecast, Orange County 2023

Similar to estimates by California State University, Fullerton, UCLA Anderson expects housing prices in Orange County to decline by 4.9 percent from \$1,235,032 in 2022 to \$1,174,083 and further by an additional 0.5 percent from 2023 to 2024. Similar trends are expected at the state and national level. Following 2024, prices are expected to gradually increase, rising to \$1,339,590 by 2027, an increase of 8.5 percent over 2022 prices.

## Orange County, California and United States Forecasted Median Home Selling Price, 2016-2027



Source: UCLA Anderson Forecast, Orange County 2023

According to the most recent OCBX, with a recession forecasted sometime in the next two years, 42.4 percent of executives see the recession being not as severe as in 2007-2009 while 45.8 percent see a ‘mild’ recession and 5.1 percent see a hard recession similar to 2007-2009. The majority, 45.8 percent see the recession happening in the 2<sup>nd</sup> half of 2023 while 13.6 percent indicate we are already in a recession. Considering this impending recession, it is important to understand which occupations provide the most stability to residents and to nurture growth within these sectors.

California Community Colleges Centers of Excellence recently identified 15 recession-stable occupations in Orange County. Building off analysis of ‘Great Recession-Stable Jobs,’ which included occupations that had limited job loss, increased job growth and steady annual job openings during and after the recession as well as wages of at least \$23.66 for a single adult (Good Job) or \$25.57 for a family with two working adults and one child (Family Supporting Job). It was also informed by analysis of “COVID-19 Pandemic Recession-Stable Jobs” which included similar metrics of change in jobs and wage limits, a list of “2023 Recession-Stable Jobs” has been created. These occupations were selected as they satisfy the limits and classifications imposed by both the Great Recession-Stable Jobs and COVID-19 Pandemic Recession-Stable Jobs.

These recession stable occupations included Registered Nurses which saw employment growth of 42 percent from 2005 to 2021, the highest amount of annual job openings at 1,772 and median hourly earnings of \$56.03, well above both the limits for being qualified as a “Good Job” or “Family Supporting Job”. Dentists, General was the occupation with the highest median annual earnings at \$78.65 while boasting employment growth of 136

percent from 2005 to 2021. Psychologists, All Other saw the largest job growth from 2005 to 2021, jumping 1,232 percent from 100 jobs in 2005 to 1,298 in 2021.

### 2023 Recession-Stable Jobs in Orange County

	<b>2021 Jobs</b>	<b>2005- 2021 Job Growth</b>	<b>Annual Openings (2007- 2021)</b>	<b>Median Hourly Earnings</b>
<b>Registered Nurses</b>	25,415	42%	1,772	\$56.03
<b>Managers, All Other</b>	14,386	115%	1,374	\$49.17
<b>Project Management Specialists</b>	9,518	84%	767	\$46.75
<b>Medical and Health Services Managers</b>	4,334	167%	378	\$52.76
<b>Administrative Services Managers</b>	3,572	60%	334	\$47.33
<b>Dental Hygienists</b>	3,543	98%	278	\$48.82
<b>Dentists, General</b>	2,979	136%	277	\$78.65
<b>Transportation, Storage, and Distribution Managers</b>	2,108	112%	191	\$48.76
<b>Education Administrators, K. through Secondary</b>	1,884	21%	169	\$47.02
<b>Education Administrators, Postsecondary</b>	1,726	54%	168	\$45.18
<b>Security and Fire Alarm System Installers</b>	1,659	91%	165	\$24.94
<b>Producers and Directors</b>	1,618	393%	178	\$33.05
<b>Physicians Assistants</b>	1,433	166%	109	\$53.49
<b>Psychologists, All Other</b>	1,332	1232%	148	\$27.31
<b>Facilities Managers</b>	1,298	71%	128	\$36.53

Source: California Community Colleges Centers of Excellence

### Orange County Top Recession Proof Jobs Look Forward

Informed by research done by the Center of Excellence for Labor Market Research for Orange County, the 15 Recession-Stable Jobs that were stable during both the Great Recession and COVID-19 Pandemic Recession are denoted with an asterisk (\*). Jobs included on U.S. News and World Report's 100 Best Jobs list are denoted with a caret (^). These jobs were then compared utilizing market demand change comparing 2022 jobs to advance job projections as well as earnings and Cost of Living consideration.

Description	2022 Jobs	2032 Jobs	2022 - 2032 Change	2022 - 2032 % Change	2022 Hires	2022 Separations
<b>Registered Nurses **^</b>	26,186	30,329	4,143	16.0%	8,052	7,627
<b>Managers, All Other*</b>	14,839	16,585	1,746	12.0%	3,732	3,429
<b>Medical and Health Services Managers **^</b>	4,552	6,160	1,609	35.0%	2,168	1,594
<b>Project Management Specialists*</b>	9,759	10,707	948	10.0%	4,935	4,431
<b>Dental Hygienists**^</b>	3,624	4,384	760	21.0%	1,359	1,188
<b>Dentists, General**^</b>	2,822	3,356	534	19.0%	268	207
<b>Physician Assistants**^</b>	1,499	1,975	475	32.0%	619	458
<b>Education Administrators, Kindergarten through Secondary*</b>	1,895	2,207	312	16.0%	567	448
<b>Education Administrators, Postsecondary*</b>	1,720	2,024	303	18.0%	546	471
<b>Administrative Services Managers*</b>	3,642	3,938	296	8.0%	1,609	1,473
<b>Psychologists, All Other**^</b>	1,310	1,604	294	22.0%	39	32
<b>Producers and Directors*</b>	1,772	2,022	249	14.0%	1,724	1,325
<b>Facilities Managers*</b>	1,360	1,526	166	12.0%	631	515
<b>Security and Fire Alarm Systems Installers*</b>	1,635	1,783	148	9.0%	1,180	1,124
<b>Transportation, Storage, and Distribution Managers*</b>	2,172	2,297	125	6.0%	845	774
	78,787	90,897	12,109	15.0%	28,272	25,098

Source: California Community Colleges Centers of Excellence

Description	Avg. Hourly Earnings	Median Hourly Earnings	Median Annual Earnings
<b>Registered Nurses **^</b>	\$54.03	\$56.00	\$116,478
<b>Managers, All Other*</b>	\$58.52	\$49.73	\$103,445

<b>Medical and Health Services Managers *^</b>	\$58.27	\$52.75	\$109,726
<b>Project Management Specialists*</b>	\$49.09	\$46.73	\$97,190
<b>Dental Hygienists*^</b>	\$51.55	\$48.82	\$101,540
<b>Dentists, General*^</b>	\$89.36	\$79.72	\$165,822
<b>Physician Assistants*^</b>	\$62.79	\$60.06	\$124,921
<b>Education Administrators, Kindergarten through Secondary*</b>	\$59.35	\$59.70	\$124,176
<b>Education Administrators, Postsecondary*</b>	\$58.63	\$57.74	\$120,089
<b>Administrative Services Managers*</b>	\$54.27	\$47.33	\$98,447
<b>Psychologists, All Other*^</b>	\$63.58	\$47.71	\$99,243
<b>Producers and Directors*</b>	\$61.37	\$54.07	\$112,469
<b>Facilities Managers*</b>	\$50.92	\$47.18	\$98,133
<b>Security and Fire Alarm Systems Installers*</b>	\$31.39	\$31.84	\$66,234
<b>Transportation, Storage, and Distribution Managers*</b>	\$52.71	\$48.73	\$101,358
	\$55.79		

Source: California Community Colleges Centers of Excellence

<b>Description</b>	<b>COL Adjusted Avg. Hourly Earnings</b>	<b>COL Adjusted Median Hourly Earnings</b>	<b>COL Adjusted Median Annual Earnings</b>
<b>Registered Nurses *^</b>	\$35.20	\$36.48	\$75,882
<b>Managers, All Other*</b>	\$38.12	\$32.40	\$67,391
<b>Medical and Health Services Managers *^</b>	\$37.96	\$34.37	\$71,483
<b>Project Management Specialists*</b>	\$31.98	\$30.44	\$63,316
<b>Dental Hygienists*^</b>	\$33.58	\$31.80	\$66,150
<b>Dentists, General*^</b>	\$58.22	\$51.94	\$108,027
<b>Physician Assistants*^</b>	\$40.91	\$39.13	\$81,382
<b>Education Administrators, Kindergarten through Secondary*</b>	\$38.66	\$38.89	\$80,896
<b>Education Administrators, Postsecondary*</b>	\$38.20	\$37.61	\$78,234
<b>Administrative Services Managers*</b>	\$35.36	\$30.83	\$64,135

<b>Psychologists, All Other*^</b>	\$41.42	\$31.08	\$64,653
<b>Producers and Directors*</b>	\$39.98	\$35.23	\$73,270
<b>Facilities Managers*</b>	\$33.17	\$30.74	\$63,930
<b>Security and Fire Alarm Systems Installers*</b>	\$20.45	\$20.74	\$43,149
<b>Transportation, Storage, and Distribution Managers*</b>	\$ 34.34	\$31.75	\$66,031

Source: California Community Colleges Centers of Excellence



# **AI/Automation Impacts on OC Labor Market: Challenges and Opportunities**

**Dr. Neil Sahota, University of California Irvine**

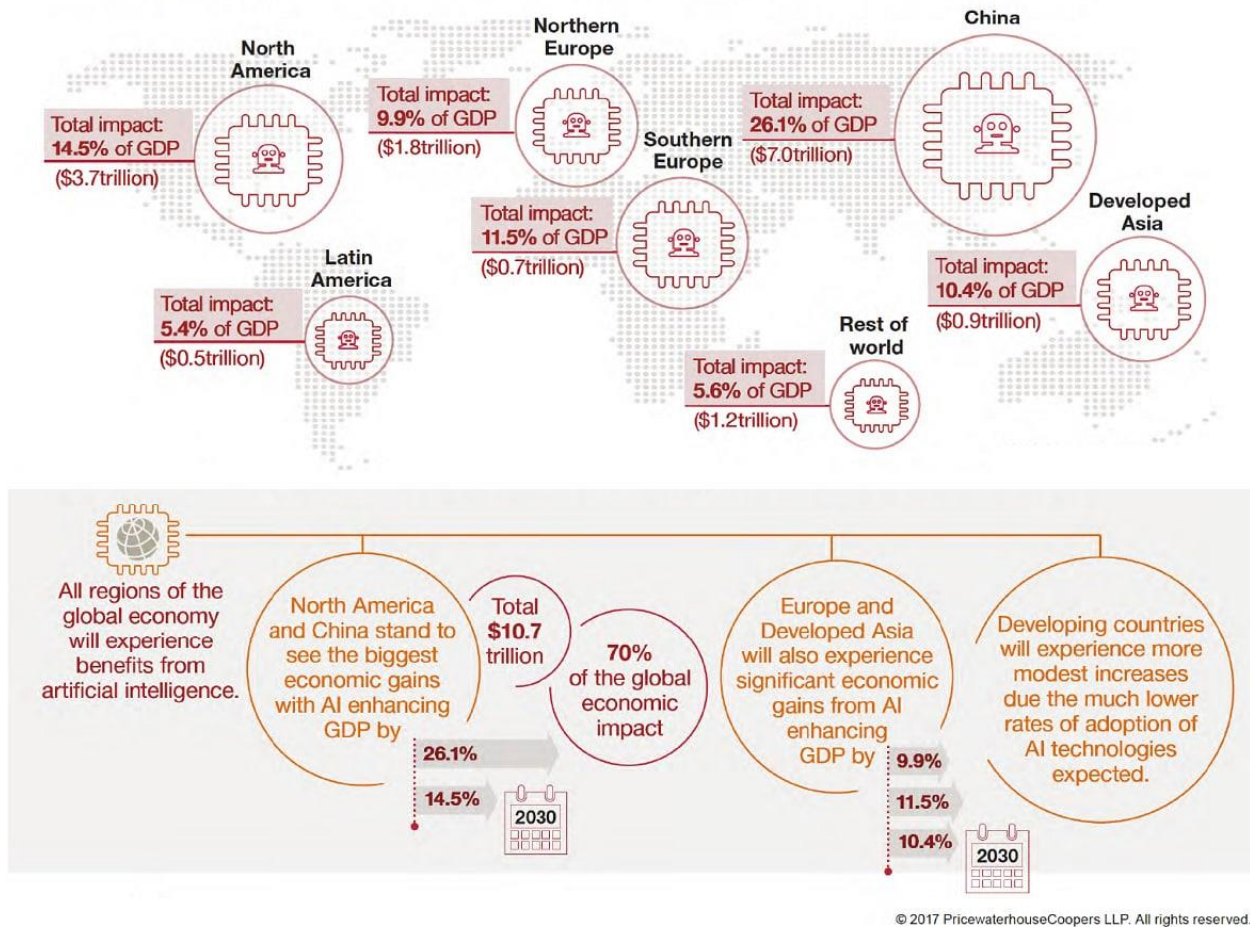
## **AI/Automation Impacts on OC Labor Market Major Key Points**

1. The AI/robotics automation is happening at an accelerated pace because of wage inflation and staffing shortages (2022: 30% of work tasks are automated; 2025: 50% of work tasks will be automated)
2. In the next 3 years, ~12M US workers (nearly 9% of the workforce) will need retraining based on AI's impact
3. Current workforce training and educational curriculum is not sufficiently focused on teach the skills for "new collar" jobs being created from AI/robotics, like Prompt Engineers.

## **Impact Overview**

According to a PwC study, artificial intelligence (AI) will be the great economic game changer by adding nearly \$15.7T to the global economy by 2030.<sup>1</sup> Moreover, PwC forecasts that local economies will see an average GDP boost of 26%. The graphic below breaks down the expected benefits based on macro regions.

## Sizing the prize – Which regions gain the most from AI?



This impact is already being felt today. Per the World Economic Forum (WEF), between 2020-2025, 85M jobs will be replaced by automated machines, with AI leading the way.<sup>2</sup> Already, the shift in work is being felt, especially as Covid-19 has accelerated the pace at which businesses are seeking automated solutions. Just in 2022, 30% of all work-related tasks were done by a machine, and WEF estimates that this will pass 50% by 2025. Based on these numbers and current trends in the workforce, a rapid change is occurring at a substantial volume. According to a recent IBM report, approximately 120M global workers (roughly 11.5M in the U.S.) will need retraining within the next three years.<sup>3</sup> Very few municipal and state government agencies have assessed the detailed impact of AI and robotics on their labor pools and development programs. “The world’s most advanced cities aren’t ready for the disruptions of artificial intelligence,” according to Oliver Wyman Management Consulting.<sup>4</sup>

Why does it seem like AI is bringing so much unexpected change to workforce development? It is a complex, multi-faceted challenge. Thus, the best place to start is understanding what AI is and is not.

## What is AI?

Essentially, AI is a machine that can perform tasks that require some level of cognitive evaluation without direct human operator. AI does this through machine learning algorithms, language models, and statistical analysis. In essence, AI is not programmed but rather trained by enterprises to perform certain work tasks, much like a organization would train a human worker. Thus, AI excels at activities that are routine and standardized. This ranges from taking an order at a restaurant to checking in a guest into a hotel to preparing and filing court documentation in response to a complaint. However, AI is not good at first-of-a-kind opportunities or threats, creativity, or intuition. Moreover, an AI system can only perform tasks that it was trained for, meaning, it cannot learn new job functions on its own or learn something that people are unable to teach.

## The AI Surprise Factor

AI is the third generation of computing. (First generation was simple calculation, and second generation was executing a software program.) This means the capabilities of machines have radically expanded; however, most people are still used to the second generation of computing. As such, many organizations underestimate what AI can do. Historically, computers have been about automation: performing an activity faster, cheaper, or with less errors. Thus, people often associate computer and robot automation with “blue collar jobs,” such as factory manufacturing. As a result, there is a *blind spot* for some organizations on what AI could *possibly do* that **understates** how AI can actually be applied. Today, there are AI systems performing many “white collar” job activities. There are AI tools developing legal case strategy, performing psychographic profiling and neurolinguistic analysis on customers, reading medical images, and even creating pieces of art. Moreover, these AI systems perform this work on a scale that no human can match. Consider IBM Watson which has read over 20M cancer research papers and assists doctors with diagnoses.<sup>5</sup> No human doctor could read that many research papers even if they devoted their life to only reading these papers.

In addition, while there are many activities humans are better than machines at doing, there are still quite a few tasks AI systems better than people that continue to surprise organizations. For example, the ability to read the emotional state of another person. AI can analyze word choice, inflection of a person’s voice, thousands of body language points, and do all this in real-time with a laser-like focus on the person. No human can match that. Moreover, from health assessments to police reports, the general consensus has been that the AI system is able to get more factually accurate information. A deeper analysis into these phenomena indicates that people feel more comfortable sharing with a machine than a human because they feel like they are not being judged.

Why is this important? These blind spots have triggered an underestimation of AI’s impact in several industries, particularly mental health, legal services, education, hospitality, and human resources. This has left some municipalities that are more heavily focused in these areas to greater risk than they realize.

## What AI Means for California Labor and Workforce Development

In 2023, the Writer's Guild of America (WGA), headquartered in Los Angeles and major membership in California, went on strike, a little earlier than expected. While calling for better pay and benefits, one of the WGA's chief demands is to prevent the use of AI to replace some of the work that they do. In January 2023, the explosion of ChatGPT from 10,000 active users to 100M+ active users suddenly made workforce automation very real for the WGA (which is believed to be a key consideration for striking earlier than expected.) This is just the tip of the iceberg for the impacts California will face.

At the California state level, there has been more focus on regulation, particularly with Assembly Bill No. 331 (AB331) and Senate Bill No. 721 (SB721.) AB331 focuses on regulated organizations using automated decision tools (ADTs) to make decision regarding an employee.<sup>6</sup> The goal is to provide transparency for people to understand how decisions were made about them. SB721 creates the California Interagency AI Working Group that would deliver a report on AI by the end 2029.<sup>7</sup> While each bill has value, neither of them focus on the rapidly changing labor markets and how to prepare people for the future of work.

This is alarming given the vulnerability of several major California industries that will be greatly impacted by AI and robotics within the next few years. The following chart<sup>7</sup> details the most recent break down of California industry by contribution to GDP.

**Chart 1 - 2020 California GDP by Industry**

	<b>2020 GDP (in millions) (current dollars)</b>	<b>Percent of GDP</b>
<i>All Industry Total</i>	\$3,007,187.7	100%
<i>Agriculture, Forestry, Fishing and Hunting</i>	\$46,819.3	1.50%
<i>Other Services</i>	\$51,440.7	1.70%
<i>Arts, Entertainment, Recreation, Accommodation, and Food Services</i>	\$101,478.7	3.30%
<i>Construction</i>	\$120,389.9	4.00%
<i>Educational and Health Services</i>	\$225,942.2	7.50%
<i>Information</i>	\$317,647.1	10.50%
<i>Government and Government Enterprises</i>	\$350,350.1	11.60%
<i>Manufacturing</i>	\$356,435.8	11.80%
<i>Professional and Business Services</i>	\$427,121.9	14.20%
<i>Trade, Transportation, and Utilities</i>	\$436,368.9	14.50%
<i>Finance, Insurance, Real Estate, Rental, and Leasing</i>	\$573,193.2	19.00%

Source: US Bureau of Economic Analysis [www.bea.gov](http://www.bea.gov)

Currently, every industry is leveraging AI to gain efficiency, improve service, and increase profit. The top three industries accelerating the use of AI are:

- Trade, transportation, and utilities
- Leisure and hospitality
- Education and health services

The following chart illustrates the job contributions by industry within California.<sup>8</sup>

***California Employment by Industry Sectors***

Description	2020	2021
<b>Civilian Labor Force</b>	18,931,100	18,923,200
<b>Civilian Employment</b>	16,996,700	17,541,900
<b>Civilian Unemployment</b>	1,934,500	1,381,200
<b>Civilian Unemployment Rate</b>	10.2%	7.3%
<b>Total, All Industries</b>	16,594,400	17,115,600
<b>Mining and Logging</b>	20,000	19,000
<b>Other Services</b>	477,400	500,700
<b>Information</b>	535,900	566,500
<b>Financial, Insurance, and Real Estate</b>	817,500	823,100
<b>Construction</b>	856,400	880,300
<b>Manufacturing</b>	1,264,400	1,273,200
<b>Leisure &amp; Hospitality</b>	1,483,900	1,632,600
<b>Government</b>	2,493,300	2,469,200
<b>Professional &amp; Business Services</b>	2,600,600	2,702,700
<b>Educational &amp; Health Services</b>	2,736,700	2,809,100
<b>Trade, Transportation &amp; Utilities</b>	2,901,900	3,031,700
Source: California Employment Development Department <a href="https://www.labormarketinfo.edd.ca.gov">https://www.labormarketinfo.edd.ca.gov</a>		

As of January 2023, about 18.5M Californians are employed. The top three industries impacted by AI represent nearly 7.5M Californians or 40% of the current labor force.

Let us consider a microcosm, such as the employment from Riverside County.<sup>9</sup>

**County: Riverside**

**Employed Civilian 16+ by Industry**

	Persons	% of Employed Civilian 16+ Population
<a href="#">Accommodation/Food Services</a>	87,906	8.06%
<a href="#">Admin/Spport/Waste Mgmt</a>	57,212	5.24%
<a href="#">Agriculture/Forest/Fish/Hunt</a>	12,345	1.13%
<a href="#">Entertainment/Rec Svcs</a>	31,351	2.87%
<a href="#">Construction</a>	101,485	9.30%
<a href="#">Educational Svcs</a>	94,121	8.63%
<a href="#">Fin/Insur/RE/Rent/Lse</a>	54,507	5.00%
<a href="#">Health Care/Soc Asst</a>	137,734	12.62%

<u>Information</u>	14,978	1.37%
<u>Mgmt of Companies</u>	709	0.06%
<u>Total Manufacturing</u>	95,198	8.73%
<u>Oth Svcs, Not Pub Admin</u>	56,784	5.20%
<u>Prof/Sci/Tech/Admin</u>	51,424	4.71%
<u>Public Administration</u>	56,439	5.17%
<u>Retail Trade</u>	134,419	12.32%
<u>Transport/Warehse/Utils</u>	74,579	6.84%
<u>Wholesale Trade</u>	29,856	2.74%

Based on our top three industries alone, Riverside could see nearly 48% of its workforce impacted. Moreover, an industry wide AI innovation could see Riverside find itself with greater than 10% automation in the existing labor market. Even with legislation like the WARN Act, the County would have a 60-day window to prepare for such a seismic shift in the workforce.

Seismic shifts have already happened in some fields. 25 percent of businesses surveyed by Resume Builder already use ChatGPT for some job tasks; approximately half have already replaced workers with ChatGPT. To quote McKinsey researchers, “for us and many executives we’ve spoken to recently, entering one prompt into ChatGPT, developed by OpenAI, was all it took to see the power of generative AI.”

ChatGPT is an example of a generative AI, which McKinsey researchers define as “large-scale, deep learning models trained on massive, broad, unstructured data sets (such as text and images) that cover many topics.”

Other examples of generative AI include Midjourney, Bard and DALL-E. Key business use cases include:

- Providing customer support;
- Marketing and sales, including writing ad copy and social media posts;
- Identifying defective products;
- Writing code or debugging code;
- Reviewing or even creating legal documents;
- Summarizing data; and
- Generating stock images.

Many of these use cases overlap with not just white-collar job activities but activities performed by highly skilled, highly educated professionals. For example, the authors of a recent McKinsey article titled “What Every CEO Should Know about Generative AI” note potential uses in both software development and the development of new medications.

While creating a new generative AI is prohibitively expensive and resource-intensive, fine-tuning an existing generative AI to a new application is much more accessible. ChatGPT, for instance, is a fine-tuned application of a foundation model called GPT 3.5, which has also been used for translation applications and even for the development of new protein sequences.



In an April 2023 article titled “Exploring Opportunities in the Generative AI Value Chain,” McKinsey researchers identify six key business opportunities in the emerging generative AI economy:

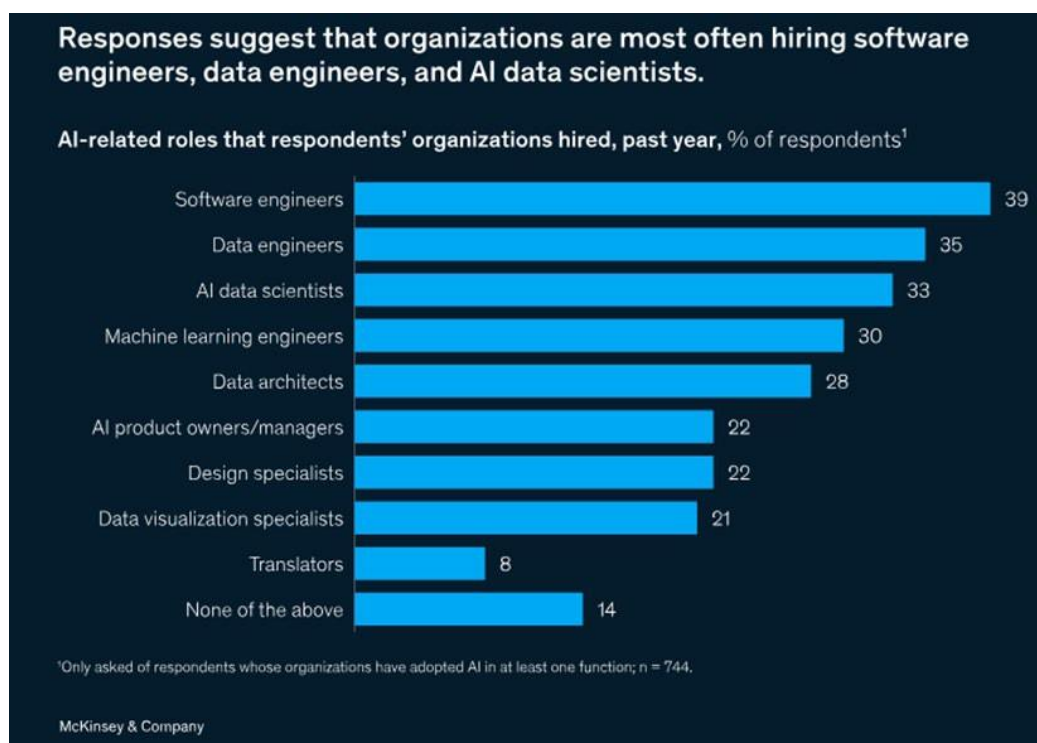
- Providing the computer hardware necessary to create and to train generative AIs;
- Provide cloud platforms for tailoring and fine-tuning generative AIs, thus opening up the field to smaller companies;
- Developing new foundation models that can be used for a variety of purposes, which requires significant investment;
- Developing and providing model hubs which can be fine-tuned for particular applications; and
- Providing end-user generative AI applications.

Examples of the latter include chatbots; analysis of customer interactions; content writing, as previously mentioned;

As McKinsey researchers have noted, further utilization of generative AI in business does create a number of challenges, including intellectual property issues, security issues, the possibility of misuse by bad actors and the possibility of generative AIs convincingly presenting false information.

A 2022 McKinsey article provides several insights into the AI-related labor market that complement CERF research on automation’s impacts on the job market.

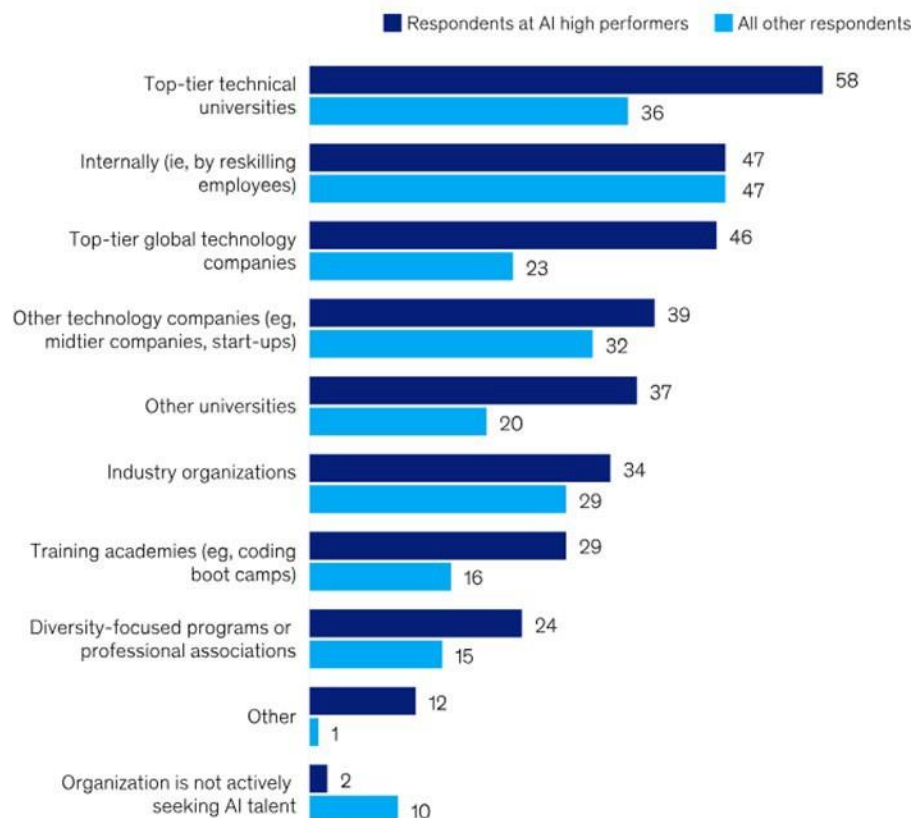
First, as seen below, the most frequently hired AI-related jobs are Software Engineers (hired by 39 percent of respondents over the past year), Data Engineers (35 percent) and AI Data Scientists (33 percent).





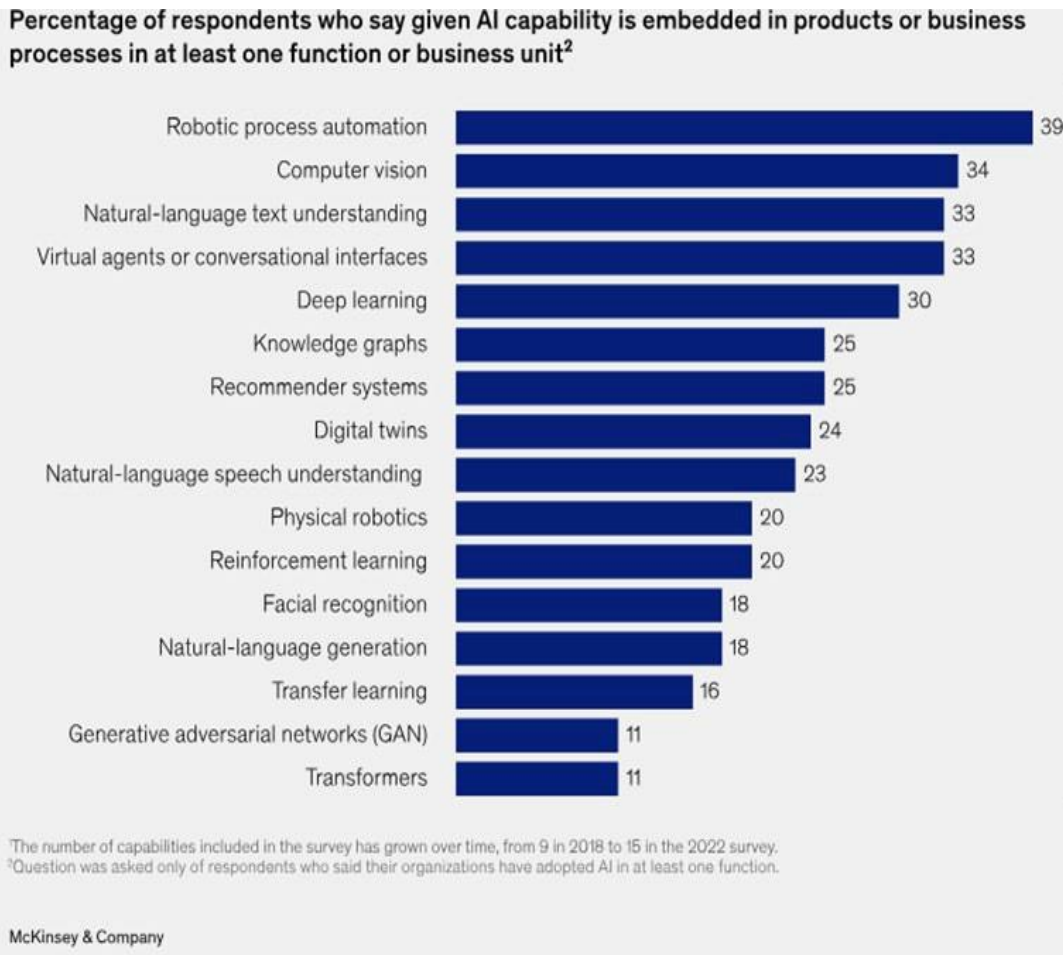
The following chart, which illustrates AI talent pipelines, shows that reskilling of existing employees is the second most utilized talent pipeline; it is a more common route of filling AI-related positions than top-tier global technology companies or non-elite technical universities. Equally important to note is the fact that only a small percentage of companies surveyed by McKinsey are uninterested in hiring AI-related talent. Only two percent of high-performing respondents identify themselves as “not actively seeking AI talent.”

**Sources that respondents' organizations are using for AI-related talent, % of respondents<sup>1</sup>**



<sup>1</sup>Only asked of respondents whose organizations have adopted AI in at least one function. For respondents at AI high performers, n = 51. For all other respondents, n = 413.

Finally, as seen below, businesses use AI for a wide variety of activities, from deep learning to physical robotics to physical recognition. In this 2022 survey, conducted months before ChatGPT became an internet phenomenon, 33 percent of respondents already reported using natural-language text understanding; this number has likely significantly increased over the past year with the availability of this new tool.



## Automation and AI Narrative

Like previous industrial revolutions, automation, AI and related technologies will have both positive and negative effects. A new generation of machines will efficiently perform less desirable tasks, strengthen collaborative efforts of individuals and teams, and most likely surpass human capabilities. This impact is undeniable, but growth and decline will impact industries and their associated occupations differently. In both instances, 'workers will need to acquire new skillsets; therefore, jobseekers, educators and workforce development professionals need to track which occupational categories are growing or declining.

According to McKinsey, this shift will impact over 2,000 work activities and 800 occupations, some of which will experience automation more intensely than others. Activities across these occupations range from improvement on data analytics to operational improvements to physical tasks. Their findings also identified a range of impact, with only 5 percent of occupations predicted to experience full automation, with

30 percent of the activities across 60 percent of the occupations having the possibility of being automated.

Within Orange County, the top 50 occupations at risk of automation (and associated industries) have been defined utilizing Lightcast's Automation Index. Lightcast's Automation Index analyzes the potential automation risk of occupations based on job task content—derived from O\*NET work activities. Combining that data with the Frey and Osborne findings at the occupation level, we identify which job tasks are 'at risk' and which are resilient. We also incorporate data to identify where occupations cluster in industries facing disruption, and where workers' skills mean their nearest job options are also facing automation risk. This is a 100-based index, meaning that occupations with an automation index above 100 have an above average risk of automation, while occupations with an automation index of below 100 have a below average risk of automation.

Industries within the region identified as having occupations most impacted by these changes include:

- Construction
- Arts, Entertainment, and Recreation
- Manufacturing
- Utilities
- Accommodation and Food Services
- Transportation and Warehousing

Below are the occupations associated with the identified industries based on the Automation Index.

<b>SOC</b>	<b>Description</b>	<b>Automation Index</b>
<b>47-2042</b>	Floor Layers, Except Carpet, Wood, and Hard Tiles	139.1
<b>47-3015</b>	Helpers--Pipelayers, Plumbers, Pipefitters, and Steamfitters	137.3
<b>47-2171</b>	Reinforcing Iron and Rebar Workers	137.2
<b>47-2053</b>	Terrazzo Workers and Finishers	137.0
<b>47-2142</b>	Paperhangers	136.9
<b>35-9021</b>	Dishwashers	136.4
<b>47-2141</b>	Painters, Construction and Maintenance	136.3
<b>47-3014</b>	Helpers--Painters, Paperhangers, Plasterers, and Stucco Masons	135.1
<b>27-2031</b>	Dancers	134.8
<b>47-3013</b>	Helpers--Electricians	134.7
<b>47-3016</b>	Helpers--Roofers	134.6

<b>47-3012</b>	Helpers--Carpenters	134.5
<b>47-2022</b>	Stonemasons	134.4
<b>35-2011</b>	Cooks, Fast Food	134.1
<b>47-2132</b>	Insulation Workers, Mechanical	133.9
<b>47-3011</b>	Helpers--Brickmasons, Blockmasons, Stonemasons	133.7
<b>47-2021</b>	Brickmasons and Blockmasons	133.5
<b>47-2081</b>	Drywall and Ceiling Tile Installers	132.7
<b>47-2082</b>	Tapers	132.5
<b>47-2221</b>	Structural Iron and Steel Workers	132.2
<b>47-2061</b>	Construction Laborers	131.9
<b>47-2043</b>	Floor Sanders and Finishers	131.2
<b>35-3023</b>	Fast Food and Counter Workers	130.8
<b>47-2181</b>	Roofers	130.8
<b>35-9011</b>	Dining Room and Cafeteria Attendants and Bartender Helpers	130.6
<b>51-2041</b>	Structural Metal Fabricators and Fitters	130.3
<b>47-2161</b>	Plasterers and Stucco Masons	130.1
<b>35-3031</b>	Waiters and Waitresses	129.8
<b>51-3023</b>	Slaughterers and Meat Packers	129.7
<b>47-3019</b>	Helpers, Construction Trades, All Other	129.4
<b>47-2041</b>	Carpet Installers	129.2
<b>47-2131</b>	Insulation Workers, Floor, Ceiling, and Wall	129.2
<b>35-2021</b>	Food Preparation Workers	129.1
<b>37-3011</b>	Landscaping and Groundskeeping Workers	129.1
<b>35-2015</b>	Cooks, Short Order	128.4
<b>47-2072</b>	Pile Driver Operators	128.2
<b>49-9094</b>	Locksmiths and Safe Repairers	127.8
<b>51-7031</b>	Model Makers, Wood	127.6
<b>47-2121</b>	Glaziers	127.1
<b>47-2051</b>	Cement Masons and Concrete Finishers	126.6
<b>51-4071</b>	Foundry Mold and Coremakers	126.5
<b>37-3012</b>	Pesticide Handlers, Sprayers, and Applicators, Vegetation	126.2
<b>47-2031</b>	Carpenters	125.9
<b>51-9031</b>	Cutters and Trimmers, Hand	125.6
<b>51-6042</b>	Shoe Machine Operators and Tenders	125.4
<b>49-9064</b>	Watch and Clock Repairers	125.1
<b>35-2014</b>	Cooks, Restaurant	125.0
<b>51-9197</b>	Tire Builders	125.0
<b>47-2151</b>	Pipelayers	124.9
<b>47-4031</b>	Fence Erectors	124.7

Alternatively, O\*NET has defined occupations based on their “degree of automation” which identifies occupations more aligned to benefit from automation of repetitive tasks, which can improve productivity and open up time for higher-level tasks.

Industries within the region identified as having occupations most likely to benefit by these changes include:

- Arts, Entertainment, and Recreation
- Government
- Professional, Scientific, and Technical Services
- Real Estate and Rental and Leasing
- Finance and Insurance
- Information
- Manufacturing
- Healthcare and Social Assistance

The chart below lists occupations with a high probability of automation.

<b>SOC Code</b>	<b>Occupation</b>
<b>41-3041.00</b>	Travel Agents
<b>43-5053.00</b>	Postal Service Mail Sorters, Processors, and Processing Machine Operators
<b>29-2011.00</b>	Medical and Clinical Laboratory Technologists
<b>51-8091.00</b>	Chemical Plant and System Operators
<b>43-2021.00</b>	Telephone Operators
<b>53-2021.00</b>	Air Traffic Controllers
<b>53-2011.00</b>	Airline Pilots, Copilots, and Flight Engineers
<b>43-4181.00</b>	Reservation and Transportation Ticket Agents and Travel Clerks
<b>51-8099.01</b>	Biofuels Processing Technicians
<b>51-9012.00</b>	Separating, Filtering, Clarifying, Precipitating, and Still Machine Setters, Operators, and Tenders
<b>13-1041.08</b>	Customs Brokers
<b>51-8093.00</b>	Petroleum Pump System Operators, Refinery Operators, and Gaugers
<b>11-3051.03</b>	Biofuels Production Managers
<b>17-3024.01</b>	Robotics Technicians
<b>39-3021.00</b>	Motion Picture Projectionists
<b>51-9161.00</b>	Computer Numerically Controlled Tool Operators
<b>33-3051.04</b>	Customs and Border Protection Officers
<b>51-4034.00</b>	Lathe and Turning Machine Tool Setters, Operators, and Tenders, Metal and Plastic
<b>51-8013.03</b>	Biomass Plant Technicians

<b>43-4011.00</b>	Brokerage Clerks
<b>51-6011.00</b>	Laundry and Dry-Cleaning Workers
<b>51-8021.00</b>	Stationary Engineers and Boiler Operators
<b>51-9041.00</b>	Extruding, Forming, Pressing, and Compacting Machine Setters, Operators, and Tenders
<b>51-3091.00</b>	Food and Tobacco Roasting, Baking, and Drying Machine Operators and Tenders
<b>13-1032.00</b>	Insurance Appraisers, Auto Damage
<b>51-9151.00</b>	Photographic Process Workers and Processing Machine Operators
<b>51-8092.00</b>	Gas Plant Operators
<b>43-9041.00</b>	Insurance Claims and Policy Processing Clerks
<b>13-2072.00</b>	Loan Officers
<b>51-4035.00</b>	Milling and Planing Machine Setters, Operators, and Tenders, Metal and Plastic
<b>51-9083.00</b>	Ophthalmic Laboratory Technicians
<b>51-6091.00</b>	Extruding and Forming Machine Setters, Operators, and Tenders, Synthetic and Glass Fibers
<b>29-2012.00</b>	Medical and Clinical Laboratory Technicians
<b>51-8013.00</b>	Power Plant Operators
<b>49-9099.01</b>	Geothermal Technicians
<b>51-5111.00</b>	Prepress Technicians and Workers
<b>53-7081.00</b>	Refuse and Recyclable Material Collectors
<b>41-9041.00</b>	Telemarketers
<b>13-2011.00</b>	Accountants and Auditors
<b>51-4041.00</b>	Machinists
<b>51-4081.00</b>	Multiple Machine Tool Setters, Operators, and Tenders, Metal and Plastic
<b>43-4141.00</b>	New Accounts Clerks
<b>51-8011.00</b>	Nuclear Power Reactor Operators
<b>11-3061.00</b>	Purchasing Managers
<b>13-2081.00</b>	Tax Examiners and Collectors, and Revenue Agents
<b>51-6061.00</b>	Textile Bleaching and Dyeing Machine Operators and Tenders
<b>23-2093.00</b>	Title Examiners, Abstractors, and Searchers
<b>13-1031.00</b>	Claims Adjusters, Examiners, and Investigators
<b>51-9193.00</b>	Cooling and Freezing Equipment Operators and Tenders
<b>13-2071.00</b>	Credit Counselors

As previously mentioned, the current AI-fueled industrial revolution has already begun to replace ‘white-collar’ work activities as well as ‘blue-collar’ work activities. Whether or not ChatGPT and other generative AIs possess true creativity, they are, in the words of McKinsey researchers, “taking technology into realms once thought to be reserved for humans.” In other words, now is the time for stakeholders across the entire economy to assess the challenges and opportunities of AI in the workplace.

## Other Country Responses to AI and Workforce Development

The State of California is not the only government agency looking at AI and robotics' impact to the workforce. Other countries have been tackling the issues, in some cases, for nearly a decade. Often, their approach is two-fold: 1) preparing for the future of work, and 2) leveraging AI and robotics as tools to provide workforce development services. With the latter item of tool development, Asia has advanced further than most European and North American government agencies. One key driver for this is the different mindset and cultural differences in how AI is regarded. In many Western cultures, artificial intelligence and robotics is often viewed as corruptible and positioned as human versus machine, such as the Terminator movies. In many Eastern cultures, though, AI has been viewed as helper and robots as a tool for people to use to solve problems, such as the movie Big Hero Number 6. Thus, there is much we can learn and use by what some of these other countries are doing to provide workforce development services.

### Singapore

After the robot Sophia was granted Saudi Arabian citizenship in 2017, it spurred Singapore's Institute of Technical Education (ITE) into action to develop curriculum around robotics and AI for students.<sup>10</sup> While much of the world was debating the issue of Sophia's "personhood," Singapore realized the criticality of these skills for the future workforce. As a result, they swiftly incorporate skill development focused on prompt engineering, visual recognition, large language models, and fairer AI (rooted in reducing implicit bias in decision making.) In addition, ITE cultivated partnerships with companies like NVIDIA to provide technical tools as well as subject matter expertise to train the teachers. Moreover, ITE invested in AI tool development to support this curriculum. For example, instructors have AI tools to help evaluate student skill development "on the fly." Meaning, rather than relying on traditional grading of assignments, the AI leverages video of the students applying the concepts on hands-on projects and marks the clips from video for instructor to review and evaluation.

Turning to the existing workforce, the Singapore government recognized that it has a small and aging workforce. To remain competitive, the Ministry of Manpower recognized that AI and robotic process automation would be essential for its businesses.<sup>11</sup> Thus, the Ministry took up a study to understand what activities machines are generally better at than people, and vice versa, what activities people are generally better at than machines. This yielded two important objectives for the government to focus their efforts on. First, where to focus investments such as government grants and research programs to help Singaporeans maintain, or even grow, their competitive advantages. Second, a more comprehensive understanding of which workers would require retraining in the future and which skills will enable them the best opportunities to get that job of tomorrow. Here as well, the Ministry of Manpower invested in AI and Big Data analytics to analyze and optimize the modified workforce development programs. Moreover, this enabled the Minister of Manpower and his team to align these programs with the more global trends towards [Industry 4.0](#).



Today, Singapore's projects and overall goals are outlined in the [Services and Digital Economy \(SDE\) Tech Roadmap](#). It serves as a blueprint for all the government agencies to coordinate their programs, like:

- *TechSkills Accelerator (TeSA) initiative* which helps the current workforce development key AI and robotics skills
- *AI Apprenticeship Program (AIAP)* which gives current and future workforce people hands on work experience
- *AI for Industry (AI4I)* which helps industry professionals learn basic AI skills for the digital economy
- *AI for Everyone (AI4E)* which helps people be savvy consumers of AI products and services

## **Canada**

According to the Future Skills Centre, 20% of Canadian jobs are at high risk because of AI automation and another 40% of Canadian jobs are at medium risk.<sup>12</sup> This was an eye opener for the Canadian government. While they recognize that new jobs would be created from the use of AI and robotics, the development and growth and development of these jobs was not a certainty unless it was nurtured. This is why the Canada has embraced hybrid intelligence: combining the strengths and capabilities of humans with abilities of machines to foster a workforce that is stronger than just people or machine. Thus, the Canadian government has adopted future of work plan dubbed [Canada's AI Augmented Workforce](#). This document serves as SWOT analysis for Canada's workforce as well as dive into the impacts of AI automation into several of its key industries and demographic groups, such as indigenous people. In complement to the AI Augmented Workforce document, Canada (in partnership with Microsoft) developed the [Building Canada's Future AI Workforce](#) document to layout the high level strategies to address the problems stated in the AI Augmented Workforce.

To make this future of hybrid intelligence a reality, Future Skills Centre is leading the charge to build an ecosystem of resources and partnerships across the workforce, government agencies, private industry, non-profits, and academia. This has turbo charged a series of workforce development projects like:

- *AI in Healthcare* in which the Future Skills Centre has partnered with The Michener Institute and invested over \$1.5M CAD for the next two years to train 5,000 healthcare professionals to build a workforce with the knowledge, skills, and capabilities to power AI enabled health practices, organizations, and systems
- *Women at Work* which focuses on AI's impact in industries like insurance where woman hold a majority of low skill jobs and may face retraining hurdles because of the under-representation in STEM fields; consequently, Future Skills Centre is partnering with Laval University and investing over \$1M CAD to study the problem and develop training pathways and career support for female workers who may be displaced into more future-facing jobs

- *Reskilling Displaced Retail Workers* in which Future Skills Center is partnering with Venture for Canada, Shopify, and several others to create two pathways for youth displaced from the retail sector: reskilling for sales-adjacent or customer success employment at Canadian technology companies or upskilling for IT/digital ventures for Canada-focused jobs with Canadian retailers<sup>13</sup>

## **SWOT Analysis**

While there are myriad of strengths, weakness, opportunities, and threats for the State of California, it is best to focus our attention and resources on the top three from each category.

### **Strengths**

1. [\*California AI Roadmap\*](#): In 2018, the State of California adopted an AI Roadmap. While it was an early report, it did provide a preliminary analysis on the workforce impacts from AI. In addition, it highlighted a commitment to two key goals: incorporating AI skill development into K-12 and higher education curriculum as well as a mandate for California agencies to leverage AI tools to provide public services. This initial roadmap has laid precedent for a solid foundation for California to build upon a more robust AI and robotics workforce development suite of programs.
2. *In-house Partnerships*: As a major hub for technology companies, the State of California has a major asset to develop strategic partnerships and tap into the knowledge of these companies to develop curriculum, provide training to our teachers, and augment the resources invested into California's workforce development.
3. *Thought leadership reputation*: There's much truth in the adage, "As California does, so does the rest of the United States." California has a strong reputation as a forward-thinking state and leader in policy, regulation, legislation, and public service programs. Many of the other states will be looking to see what California does, and this trust and credibility can be leverage in terms of garnering greater partnerships and resources from outside the state.

### **Weaknesses**

1. *Expectations management*: While most people would agree that AI and robotics will have a profound impact on workforce development, there is an expectation that these changes will happen in the long-term, like 7+ years. This is a time of rapid change, and it will only come faster. As a result, our sense of urgency is not as strong as it should be.
2. *Municipalities are not fully ready*: The government agencies closest to the local workforces are not fully ready. They lack some of the resources, data, or tools to conduct a robust analysis of the workforce impacts about to occur in the near future, let alone, develop the programs to combat these problems.
3. *Uneven impacts to the workforce*: Artificial intelligence and robot automation will impact the different regions of California very differently. Santa Clara County is overweighted with big tech and knowledge worker jobs, so the impacts here will

not be as profound as Riverside County which is overweighted with hospitality and transportation jobs (both of which are very susceptible to automation.) This unevenness could cause issues in allocating funds and resources for workforce development programs. Moreover, it can create challenges in that the strongest potential partners do not fully understand the workforce problems because they do not experience these problems.

## **Opportunities**

1. *Minimize existing workforce displacement:* With early action and strong partnership, the State of California can swiftly start retraining the most at-risk segments of its current workforce and minimize the number of workers who will be permanently displaced from future jobs.
2. *Define the future of work:* Through strategic planning, investment, and projects, California can shape how the workforce transformation will happen and where the jobs of tomorrow will be. Thus, rather than react to changes in the labor market, the State can steer how the future of work will look.
3. *Build a more diverse workforce:* As the future of work evolves, California can take note of some Canada's programs to help underserved populations. By taking a similar focus, local agencies can develop specialized training programs to create more equal opportunities for these communities and develop a more diverse workforce.

## **Threats**

1. *Rapid job loss:* Without a robust workforce development plan, investment, and programs, a sizeable portion of California labor force will be at-risk to AI automation. There are very real scenarios where municipalities could see the job losses at 10-15% in just 2-3 months. The resources are not available to handle such a swift shift in the labor market and will put severe strain on jobless benefits and worker training programs.
2. *Job migration:* The threat of job loss is sufficient enough that the labor market may see regional shifts based on job opportunities. If other states were to provide better workforce development programs and/or create a stronger feeling of job security, there is significant risk that a mass migration of workers could leave the State of California. A shortage of workers would be a huge impact to the tax base and might put sizeable pressure on wage inflation and quality of life within the state.
3. *Low retraining rates:* Each day that passes by the State faces an increased number of workers that need to be retrained as well as workers that cannot be retrained for future jobs. Currently, our educational system is preparing students for jobs that have a short life span. Meaning, the number of workers that will require reskilling in the future is growing. In conjunction, the existing workforce is also aging, which means there is a growing number of workers that will be too old or face life situations where retraining is not a viable option.

## **AI & Robotics Go-Forward Strategy**

To deal with the challenges stemming from the implementation of AI and robotics, our strategy must focus on two key areas: workforce development and infrastructure development. For each of these two focal points, each one has two key areas that we must develop. For work development, our efforts must include the future workforce as well as the current workforce. For infrastructure development, we must have a solid strategy on developing public service tools in support of our workforce development goals as well as build an ecosystem of partners to implement that programs and tools we will need.

### **AI Strategy**

To get ready for the impending AI and robotics wave, municipalities will need to have a robust plan on four key areas:

1. Future workforce development
2. Current workforce (re-)training
3. Public services tools
4. Ecosystem building

A strong strategy in each of these areas will minimize the weaknesses and threats many of these municipal communities are already facing. Moreover, it will also augment the strengths and exploit the opportunities these communities already have. One critical item to note, all four areas must be addressed to establish a successful strategy. While these areas will require investment of resources and funds, the investment to the overall municipality should be extraordinary given how much AI and robotics will contribute to the local GDP by 2030 (as outlined in the statistics above.)

## **Future Workforce Development**

Getting the students of today ready for the jobs of tomorrow is no easy task. Now, add in the complexity of *hyperchange* (change so rapid that we're experiencing monumental shifts constantly), and we face a short time horizon to create meaningful impact. This is why we need to forge a four-pronged approach.

First, we need to inject curriculum into the K-12 schools. The incorporation of Artificial Intelligence (AI) and robotics into the educational curriculum of is essential to equipping students with the skills and knowledge required to thrive in the future workforce. Moving into an era where machines are integral parts of our daily lives and the global economy, ensuring that the next generation is adept at navigating and innovating within this landscape is crucial.

Including AI and robotics in the K-12 curriculum fosters critical thinking, problem-solving skills, and creativity, which are all essential skills for any job in the future of work. Students will gain hands-on experience, leading to deeper understanding and retention of complex concepts. These subjects offer practical applications of mathematics, science, and technology, making learning engaging and relevant.

Furthermore, exposure to AI and robotics education promotes equity. All students, regardless of their socio-economic background, should have the opportunity to learn about and engage with these transformative technologies. This ensures that every child has the chance to participate in future job markets characterized by a high demand for emerging technology skills, especially in AI and robotics.

Incorporating AI and robotics into the K-12 curriculum aligns with California's commitment to innovation and technology. It fosters a learning environment where students are not just consumers of technology but also contributors to the field, ready to tackle future challenges. By adopting an educational framework that includes AI and robotics, California can lead the nation in producing a workforce that is competent, competitive, and equipped for the future.

Second, we must tailor this new curriculum into phased development aligned with each grade to build robust skills and knowledge as a continuous process. This provides a nuanced understanding of the varying cognitive, social, and emotional developmental stages of students. Therefore, AI education should be organized differently at each grade level to optimize learning outcomes, facilitate equitable access to technological education, and foster a robust understanding of AI's ethical, practical, and societal implications.

### **Cognitive Development:**

Children's cognitive abilities evolve significantly from kindergarten to twelfth grade. Younger children, in their formative years, are in the concrete operational stage of cognitive development, where experiential learning is most effective. AI curricula for lower grades should hence be centered around interactive and hands-on activities, utilizing robotics and visual programming to instill foundational concepts. As students advance to higher grades, transitioning into the formal operational stage, the curriculum can incorporate more complex topics like machine learning algorithms, data analysis, and AI ethics, tailored to their enhanced abstract thinking and reasoning skills.

### **Technological Literacy:**

Technological literacy is instrumental in the effective integration of AI education. Younger students should be introduced to basic digital literacy skills and foundational AI concepts. As students progress, the complexity of topics and the depth of engagement with technology should increase, covering intricate programming, ethical considerations, and real-world applications of AI. Ensuring that the curriculum aligns with students' technological literacy ensures not only comprehension but also the ability to innovate and adapt to evolving AI landscapes.

### **Ethical and Social Implications:**

The ethical and social implications of AI are vast and complex. Introducing these concepts should be gradual and age appropriate. In the middle grades, students can begin exploring topics related to privacy, bias, and decision-making in AI. High school students, with their advanced cognitive abilities, can delve into intricate discussions

about AI's role in society, including employment, security, and moral considerations, preparing them for informed participation in the digital economy and society.

The differentiated integration of AI education in California's K-12 schools is crucial for optimizing learning, ensuring equitable access, and fostering a comprehensive understanding of AI. By tailoring the curriculum to the distinct developmental stages of students, educators can nurture a generation that is not only adept at utilizing AI but is also ethical, innovative, and prepared to harness AI for societal advancement. This approach underscores the importance of a well-structured, flexible, and adaptive AI curriculum that evolves in tandem with students' developmental stages and the dynamic landscape of artificial intelligence.

Third, we need to inject curriculum into the colleges and universities. This is of paramount importance in fostering a globally competitive workforce, promoting innovation, and driving economic growth. The integration of these technologies in higher education will not only position California at the forefront of the technological revolution but will also ensure that graduates are well-equipped to tackle future societal and industrial challenges.

AI and robotics are ubiquitous in today's world, penetrating various sectors including healthcare, finance, and manufacturing. Consequently, there is a burgeoning demand for professionals skilled in these fields. Higher education institutions, by integrating AI and robotics into their curriculum, will produce graduates who are adept in these disciplines, thereby reducing the skills gap and meeting the labor market's demands.

Moreover, the inclusion of AI and robotics in university and college curricula will facilitate interdisciplinary learning. These technologies are not confined to computer science and engineering but have applications in fields as diverse as arts, social sciences, and humanities. Students will have opportunities to explore the convergence of AI and robotics with other disciplines, fostering a holistic and diversified learning experience.

Furthermore, California, being a global tech hub, stands to benefit immensely from a workforce proficient in AI. By weaving these subjects into the fabric of university education, the state will bolster its innovation ecosystem, attracting investments, and fostering the growth of startups and tech companies.

Thus, the integration of AI and robotics in California university curriculums is not just a necessity but a strategic imperative. It will empower students with the skills and knowledge requisite for the future, foster innovation, and sustain the state's economic and technological leadership globally.

Fourth, we need to align, dynamically, the focus of higher education with emerging industry workforce needs. The rapid evolution of AI and its pervasive impact on various industry sectors underscores the need for a responsive and adaptive educational system. Thus, California universities and colleges should develop a separate AI curriculum that is specifically tailored to meet the existing and emergent needs of the AI industry, facilitating a seamless transition of graduates into the workforce and contributing to economic growth and innovation.

## **Bridging the Skills Gap:**

A distinct curriculum based on industry needs will directly address the prevalent skills gap in workforce. By collaborating with industry stakeholders, universities can identify specific competencies, skills, and knowledge areas that are in high demand. A customized curriculum will produce graduates who are job-ready, reducing the time and resources that employers often invest in further training and development, and ensuring that the students are equipped with skills that are immediately applicable in real-world settings.

## **Dynamic Learning Experience:**

A tailored AI and robotics curriculum ensures that students are exposed to cutting-edge technologies, methodologies, and applications of AI. As AI technology is highly dynamic, the curriculum can be frequently updated to reflect innovations and advancements, ensuring that students are learning the most relevant and up-to-date content. This dynamic learning experience will not only enhance the quality of education but also increase the employability of graduates, aligning their skills with the contemporary needs of the AI industry.

## **Fostering Industry-Academia Collaboration:**

Developing a curriculum that mirrors industry needs fosters enhanced collaboration between academia and industry. Such partnerships can facilitate internships, workshops, and collaborative projects, offering students practical exposure and experiential learning opportunities. This symbiotic relationship can also lead to shared resources, research collaborations, and insights that enrich the educational experience and contribute to the advancement of AI technology and applications. This will be explored more in the ecosystem development strategy.

The development of a separate AI curriculum, tailored to industry workforce needs, is a strategic imperative for California universities and colleges to foster a competitive, skilled, and innovative workforce. By bridging the skills gap, offering a dynamic learning experience, and promoting industry-academia collaboration, such a customized curriculum will ensure that graduates are not only academically proficient but are also equipped with the practical and applied skills needed to drive innovation and growth in the AI sector. Consequently, California can fortify its position as a global leader in AI, underpinned by an educational system that is responsive, adaptive, and aligned with industry imperatives.

## **Define Baseline Skills**

The changing landscape of the workplace, driven by artificial intelligence, automation, and other technological innovations, underscores the need for a reevaluation of educational curricula<sup>14</sup>. California universities are tasked with the responsibility to equip students with skills that are responsive to the dynamic nature of the future work environment<sup>15</sup>. Thus, we need a baseline set of skills and knowledge that are imperative for California schools to integrate into their curricula, drawing on extensive literature,



published articles, and experiential learning. The aim is to enable students to seamlessly transition into and excel in the future workforce. Thus, we must focus on the following four baseline skills:

### **1. Technical Proficiency:**

There's an increasing demand for skills in data analytics, machine learning, and artificial intelligence.<sup>16</sup> Schools should impart technical skills, including programming, data analysis, and algorithmic thinking, to prepare students for careers in technology-driven workplaces.

### **2. Soft Skills:**

Bessen<sup>14</sup> emphasizes the growing importance of soft skills, including communication, creativity, and collaboration. Despite the automation of various tasks, human-centric skills remain invaluable in fostering innovation, problem-solving, and interpersonal relations.

### **3. Adaptability and Flexibility:**

Citing the work of Deming<sup>17</sup>, the ability to adapt to changing environments and learn new skills rapidly is essential. Schools should focus on fostering a culture of continuous learning and adaptability to prepare students for evolving job roles and responsibilities.

### **4. Ethical and Critical Thinking:**

Ethics, especially in the context of technology and AI, is a pivotal area of focus<sup>18</sup>. Students should be equipped with ethical reasoning and critical thinking skills to navigate the complex moral landscape of the future workplace.

Thus, California schools should focus on a balanced integration of technical proficiency, soft skills, adaptability, and ethical reasoning in their curricula to prepare students for the future of work. Aligning education with the evolving needs of the workplace will not only increase the employability of graduates but also ensure that they can contribute innovatively and effectively in a technology-driven economy.

## **Current Workforce Development**

The advent of AI and automation technologies has prompted significant shifts in job roles and employment structures<sup>16</sup>. Thus, we need to examine the job roles most vulnerable to automation and AI and proposes comprehensive strategies to initiate worker retraining programs. In California, particularly, a state renowned for its technological advancements, the need for strategic interventions to address workforce displacement is pressing<sup>19</sup>. Currently, these are the job sectors that will feel the most impact:

### **1. Manufacturing:**

According to a study by Chui, Manyika, and Miremadi<sup>19</sup>, manufacturing roles, especially those involving repetitive and predictable tasks, are highly susceptible to automation, necessitating targeted retraining programs for affected workers.

## **2. Retail:**

As per Bain & Company's report<sup>16</sup>, AI-driven technologies like self-checkout kiosks and online shopping algorithms are impacting retail jobs, underscoring the need for upskilling initiatives.

## **3. Transportation:**

Research by Frey and Osborne<sup>20</sup> highlighted that AI and autonomous vehicles pose a significant threat to jobs in the transportation sector.

To address these impacts, and future sector and industry sectors, we need to define and develop the following worker retraining strategies:

### **1. Skill Mapping:**

The California government can leverage data analytics to map the skills of affected workers to emerging job roles, aiding in the identification of skill gaps and training needs<sup>14</sup>.

### **2. Customized Training Programs:**

Creating tailored training programs that focus on transferrable skills and are aligned with the specific needs of different job roles and industries<sup>20</sup>.

### **3. Partnership with Tech Companies:**

Collaborating with tech giants and startups in California to gain insights into the skills and competencies needed in the AI-driven job market, ensuring retraining programs are relevant and effective<sup>16</sup>.

### **4. Policy Reforms:**

Implementing policies that support lifelong learning, upskilling, and reskilling, backed by financial incentives for both employers and workers to participate in retraining programs<sup>16</sup>.

AI's impact on job roles, especially in manufacturing, retail, and transportation, necessitates proactive measures by the California government to develop and implement worker retraining programs. By mapping skills, creating tailored training, fostering tech partnerships, and reforming policies, the state can mitigate AI-induced job displacements and facilitate smooth workforce transitions, ensuring economic stability and workforce adaptability in the AI era.

## **Mentoring Program**

The integration of AI into various sectors of the economy has rendered certain job roles redundant while concurrently creating new opportunities. This shift necessitates a comprehensive strategy to retrain and upskill the workforce. Thus, we should establish a mentorship program aimed at fostering skill development and knowledge transfer, enabling the workforce to adapt to AI-induced changes seamlessly.

With AI impacting job roles across sectors like manufacturing, retail, and transportation, there is a looming risk of widespread unemployment and skill obsolescence<sup>20</sup>. Government agencies bear a significant responsibility to mitigate this impact, requiring innovative, personalized, and efficient retraining initiatives. A mentorship program stands out as a solution, leveraging human connections to facilitate learning and adaptation. It combines personalized learning, experience sharing, and practical training, addressing not only skill acquisition but also the psychological and social aspects of transitioning to new job roles<sup>14</sup>.

To create a mentoring program, we need to execute three core steps:

1. *Identification of Mentors*: Engaging professionals proficient in AI and related fields, including those from tech companies, academia, and retired experts, to provide insights, guidance, and support.
2. *Matching Process*: Pairing mentors with mentees based on skill needs, career interests, and industry sectors to ensure relevance and effectiveness.
3. *Customized Learning Paths*: Developing individualized learning plans that focus on skill development, knowledge transfer, and adaptation to new job roles.

For implementation, we must employ the following activities:

1. *Collaboration*: Partnering with tech companies, educational institutions, and non-profits to garner support, resources, and expertise.
2. *Policy Support*: Creating policies that incentivize participation, ensuring legal and structural support for the program's effective implementation.
3. *Monitoring & Evaluation*: Regularly evaluating the program's effectiveness, adapting strategies to meet evolving needs and challenges.

Implemented correctly, the mentoring program should yield the following benefits:

1. *Personalized Learning*: Offering tailored learning experiences, addressing specific needs, and fostering deeper connections.
2. *Reduced Transition Time*: Accelerating the transition of the workforce to new job roles, mitigating prolonged unemployment.
3. *Community Building*: Creating a community of learners and experts, fostering networking, and collaboration.

The value of mentorship in workforce development cannot be underscored. This mentorship program is not just a skill development initiative but also a platform for building networks, sharing experiences, and fostering innovation. California government agencies, by endorsing and implementing this proposal, can facilitate a smooth, human-centered transition for the workforce affected by AI, ensuring that the state remains resilient, competitive, and innovative in the face of rapid technological advancements.

## **California Government Agency AI Tool Development**

AI's potential to revolutionize workforce development is significant, yet largely untapped<sup>21</sup>. California, with its diverse workforce, faces the challenge of providing tailored services to cater to the diversity in demographics and regional needs. AI offers an opportunity to develop personalized, flexible, and efficient workforce development programs. The following are AI tool opportunities to provide enhanced workforce development services:

### **AI-Driven Personalized Learning Platforms:**

Adaptive learning platform utilizes AI to deliver customized learning experiences based on individual's learning styles, pace, and preferences<sup>22</sup>. California agencies can develop similar platforms offering personalized skill development courses catering to varied learning needs across age groups.

### **Virtual Reality (VR) Training Modules:**

VR-based training has demonstrated efficacy in enhancing learning retention and engagement<sup>23</sup>. Implementing VR modules can offer immersive learning experiences, especially beneficial for technical and vocational training.

### **AI-Based Career Advising Systems:**

Various studies highlight AI systems like IBM's Watson that provides career advice by analyzing individuals' skills, interests, and career goals. Such systems can be integral in guiding people through career transitions and developments.

### **Automated Skill Assessment Tools:**

Tools like Vervoe use AI to evaluate job applicants' skills through automated assessments<sup>24</sup>. California can utilize similar AI assessments to identify skill gaps and recommend appropriate training and development programs.

### **AI-Enhanced Job Matching Platforms:**

Platforms like Pymetrics employ AI algorithms to match candidates' emotional and cognitive abilities with company profiles<sup>25</sup>. A state-level implementation can streamline the job search process, making it efficient and tailored.

In developing these tools, California must also factor in the following three considerations:

1. Customization: Ensuring AI tools are tailored to cater to the distinct learning, training, and employment needs of diverse age demographics<sup>21</sup>.
2. Accessibility: Making AI tools accessible, ensuring inclusivity for individuals with disabilities and those with limited access to technology.
3. Ethical Considerations: Addressing privacy, bias, and ethical concerns associated with AI, ensuring fairness and transparency in AI applications.

AI presents an unprecedented opportunity for California government agencies to enhance workforce development services. By integrating AI-driven personalized learning platforms, VR training modules, career advising systems, skill assessment tools, and job matching platforms, the state can offer customized, efficient, and effective

services, ensuring that its diverse population are properly engaged and equipped to navigate the evolving job landscape.

### **Build a California Workforce Development Ecosystem**

The adage “*it takes a village*” holds true for workforce development. Because of the rapid and massive impacts of AI and robotics, we need a lot of resources and expertise to stay ahead of the curve. This is where the power of ecosystems can be a huge boon to California’s strategy and implementation. The following outlines a high-level framework for California to create such an ecosystem.

#### **Vision:**

To establish California as a global leader in AI-driven workforce development by fostering collaboration across academia, government agencies, NGOs, non-profits, private industry, and venture capital.

#### **Strategic Objectives:**

1. Promote cross-sectoral collaboration and partnerships.
2. Ensure equitable and inclusive access to AI resources and opportunities.
3. Foster innovation and drive economic growth through AI-enhanced workforce solutions.

#### **Implementation Steps:**

1. *Establish a Centralized Coordinating Entity*
  - a. Objective: To facilitate collaboration, resource allocation, and strategic direction.
  - b. Actions:
    - i. Develop a state-sponsored AI Workforce Council that includes representatives from all sectors.
    - ii. Designate a clear governance structure, roles, and responsibilities.
2. *Collaborate with Academia*
  - a. Objective: Harness research and talent from academic institutions.
  - b. Actions:
    - i. Form partnerships with California universities to drive AI research tailored to workforce needs.
    - ii. Launch joint certification programs that align with industry requirements.
    - iii. Establish internships and co-op programs to promote hands-on learning.
3. *Engage Private Industry and Venture Capital*
  - a. Objective: Foster innovation and ensure AI applications align with market needs.
  - b. Actions:
    - i. Facilitate public-private partnerships for technology development and implementation.
    - ii. Attract venture capital investments for AI start-ups focused on workforce development.

- iii. Organize annual AI workforce summits to showcase advancements and foster networking.
- 4. *Strengthen Government Agency Involvement*
  - a. Objective: Ensure policy support and legal frameworks for AI-driven workforce initiatives.
  - b. Actions:
    - i. Develop policies that incentivize AI advancements in workforce development.
    - ii. Allocate funding for research, infrastructure, and implementation.
    - iii. Ensure ethical considerations and data privacy in AI applications.
- 5. *Engage NGOs and Non-profits*
  - a. Objective: Ensure equity, inclusivity, and widespread dissemination of AI-driven opportunities.
  - b. Actions:
    - i. Partner with NGOs to reach underserved communities.
    - ii. Collaborate with non-profits to design programs that cater to diverse populations.
    - iii. Offer grants and support to organizations that promote AI literacy and skill development.
- 6. *Infrastructure Development*
  - a. Objective: Establish a robust technological and physical infrastructure.
  - b. Actions:
    - i. Build AI research and innovation hubs across California.
    - ii. Upgrade digital infrastructure to support advanced AI applications.
    - iii. Ensure state-wide accessibility to AI resources and tools.
- 7. *Continuous Monitoring and Feedback Loop*
  - a. Objective: Ensure the ecosystem remains relevant, effective, and agile.
  - b. Actions:
    - i. Implement a state-wide AI dashboard to track progress, challenges, and opportunities.
    - ii. Establish a feedback mechanism involving all stakeholders.
    - iii. Regularly update strategies based on data-driven insights and changing workforce dynamics.
- 8. *Promote Ethical AI Development*
  - a. Objective: Ensure AI applications are ethical, unbiased, and transparent.
  - b. Actions:
    - i. Establish an Ethics Committee within the AI Workforce Council.
    - ii. Develop guidelines and frameworks for ethical AI in workforce development.
    - iii. Promote regular audits and assessments of AI applications.

Building a robust AI ecosystem for workforce development in California requires a comprehensive, multi-stakeholder approach. By leveraging the strengths of academia, government agencies, NGOs, non-profits, private industry, and venture capital, California can create a resilient, adaptable, and inclusive workforce, ready to thrive in an AI-driven future.

## Conclusion

How can Orange County best respond to the labor market impacts of AI and automation, especially as generative AI continues to perform more and more ‘human’ tasks?

Regional policymakers, educators and other policymakers should take three main points into consideration.

First, the past several centuries have seen wave after wave of new technologies that have completely transformed both the workplace and daily life, from the Industrial Revolution of the 18th and early 19th centuries to the 20th century’s incredible new methods of transportation and communication to the game-changing impact of the internet on almost every industry.

These various revolutions have tremendously improved workplace safety by automating some of the dangerous work activities; robots have been used for bomb disposal for decades. These revolutions have also automated many routine, repetitive tasks; once-common job positions such as elevator operators and telephone switchboard operators have completely disappeared.

Like previous technological changes, the expanded use of generative AI and other emerging technologies in the workplace will free human workers to perform more creative, challenging, and impactful work tasks. In other words, a more automated workplace will give human beings more time to address the most complex challenges facing the community.

Second, and on a related note, while ChatGPT and similar generative AI will likely begin to perform many of the work tasks previously performed by paralegals and medical scribes, they are still a long way away from replacing lawyers or doctors. In this context, Orange County’s highly educated population becomes even more of a strategic advantage. In general, automation potential has a negative correlation with education; as seen above, job categories with the highest automation potential include Floorlayers, Reinforcing Iron and Rebar Workers, Paperhangers and Dishwashers.

Of course, as previously mentioned, generative AI has the potential to perform tasks traditionally performed by highly educated professionals, such as providing mental health services. Nonetheless, highly-skilled jobs – which usually involve significant educational requirements – remain the most resistant to automation, with even the most advance generative AI taking over routine tasks. Therefore, non-medical professionals also need think about working “top of license,” or, in other words, focusing on performing the highest- level job tasks they are qualified for.

Finally, county educators and other involved stakeholders need to consider the best ways to prepare students not for rote tasks but instead for the kinds of value-adding tasks that will remain vital in an increasingly automated workplace – tasks involving strategic think, long-term planning, interpersonal communication, creativity and other key non-automatable skills.



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# UCI Labor Center Orange County Worker Profile

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## UCI Labor Center CERF Research Major Key Points

1. The majority of workers in OC do not hold good jobs. More than 60 percent of workers do not hold a job that provides employer-sponsored healthcare, offers full-time, full-year employment, and pays the MIT living wage required to support a household of two working adults and one child. This definition of a “good job” is less comprehensive than the State of California’s definition of a “quality job,” indicating that an even greater percentage of workers in Orange County fall short of quality employment.
2. The largest three industries employing Orange County workers are middle-paying industries: Health Care and Social Assistance (15% of all county employment), Education Services (12%), and Manufacturing (11%). These industries have median wages that fall above the MIT living wage threshold. Among the next three largest industries, two are low-paying (Retail Trade, 10%; Accommodation and Food Services, 6%) and one is high paying (Professional, Scientific, Technical Services, 9.5%).
3. Union wage premiums are significant and a critical determinant of a worker holding a good job. In 2021, workers with union jobs earned 55% more than their non-union counterparts. Unionization likely contributes to the higher median wages in many of Orange County’s middle-paying industries such as education, healthcare, and construction. Unionization also makes a difference in lower-paying industries. Even workers in these industries have good jobs when covered by a union, e.g., grocery clerks (retail industry) and hotel housekeepers (accommodation and food services).

## June 30, 2023

The UCI Labor Center’s analysis of labor market trends is informed by a worker-centered approach. We focus on workers as the level of analysis. For example, we analyze workers’ wages as opposed to household income. We also focus on key worker characteristics, such as gender, race, and ethnicity. Part I of our report analyzes employment levels and changes in Orange County between 2019 and 2021 as well as workers’ median wages by gender, race, industry, and occupation. Part II analyzes unionization levels and union wage differentials in Orange County, to the extent afforded by available data.

## Part I

Part I utilizes Census data from the American Community Survey, or ACS. The most recently available Census data comes from a yearly one-percent sample. The size of Orange County provides researchers with a robust annual sample of detailed individual-level data, allowing analysis of individual worker characteristics such as gender, race, occupation, and wages.<sup>51</sup> The granularity of this detailed information about individuals at the county level is traded off against geography: we cannot locate where these individuals live at a fine geographic scale such as the neighborhood. We analyze 2019 and 2021 data, capturing a snapshot of the workforce before the pandemic and again on the heels of the pandemic. More recent 2022 data will be released in September 2023, providing more information about Orange County's trajectory of labor market recovery.

### **Total Employment in Orange County**

2019 total employment	2,037,217
2021 total employment	1,964,746
Change	-72,471

Source: U.S. Census Bureau, American Community Survey, 1-year estimates, 2019, 2021<sup>52</sup>

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<sup>51</sup> An additional value of the Census is that it includes vulnerable communities and individuals. Although challenges with undercounting continue, the Census has made progress on reaching vulnerable communities through outreach efforts in partnership with community-based organizations over the past two decades.

<sup>52</sup> Sample selection: civilian wage/salary workers aged 18-64 who reside in non-group quarters in Orange County. Outliers, i.e., persons with hourly wages below 50 cents or above \$100 in 1989 dollars (adjusted by the [CPI-U-RS](#) consumer price index), were removed from the analysis (source: [EPI](#)).

In 2019, Orange County supported just over two million workers. Due to the impact of COVID-19, the number of employed workers declined to 1.96 million by 2021, a contraction of 3.6 percent. The 2021 data reveal a labor market in recovery but not fully rebounded to pre-COVID-19 levels.

### Employment Change by Gender, 2019-2021

	2019		2021		2019-2021 change	
	N	%	n	%	n	%
Men	1,059,762	52.0	1,029,398	52.4	-30,364	-2.9
Women	977,455	48.0	935,348	47.6	-42,107	-4.3

Source: U.S. Census Bureau, American Community Survey, 1-year estimates, 2019, 2021

The pandemic exerted a gendered impact on employment. Between 2019 and 2021, women experienced greater job losses than men. Women's employment decreased by 4.3 percent compared to 2.9 percent for men. As a result, men slightly increased their share of the workforce between 2019 and 2021 (from 52.0 to 52.4 percent) while women's share decreased by three times as much (48.0 to 47.6 percent), or 0.4 percentage points compared to 1.3 percentage points.

### Employment Change by Race/Ethnicity, 2019-2021

	2019		2021		2019-2021 change	
	n	%	n	%	n	%
White	941,529	46.2	868,866	44.2	-72,663	-7.7
Latinx	592,045	29.1	560,647	28.5	-31,398	-5.3
API	332,631	16.3	338,114	17.2	5,483	1.6
Black	118,790	5.8	120,781	6.1	1,991	1.7
Other	52,222	2.6	76,338	3.9	24,116	46.2

Source: U.S. Census Bureau, American Community Survey, 1-year estimates, 2019, 2021

Orange County's workforce is racially diverse. White workers comprise the largest segment of the workforce, followed by Latinx workers. In 2019, white workers held 46.2 percent of all jobs, Latinx workers 29.1 percent, Asian Pacific Islanders (API) 16.3 percent, Blacks at 5.8 percent, and Other (American Indian, Alaska Native, and workers who selected two or more racial identities) at 2.6 percent.

Both white and Latinx workers declined as a share of the workforce in 2021. White employment decreased by 7.7 percent between 2019 and 2021; Latinx employment by 5.3 percent. Significantly, the share of workers who identify with two or more racial identities increased by 46.2 percent. Our analysis cannot attribute these changes to underlying causes. The decreases in white and Latinx workers could be due to workers losing jobs, or workers leaving the region.

### Employment Change by Occupation, 2019-2021

	2019		2021		2019-2021 change	
	n	%	n	%	n	%
Office and Administrative Support	232,237	11.4	215,385	11.0	-16,852	-7.3
Management	228,924	11.2	247,339	12.6	18,415	8.0
Sales and Related	202,124	9.9	176,282	9.0	-25,842	-12.8
Educational Instruction and Library	145,611	7.2	157,513	8.0	11,902	8.2
Business and Financial Operations	138,723	6.8	151,857	7.7	13,134	9.5
Healthcare Practitioners and Technical	130,318	6.4	140,333	7.1	10,015	7.7
Food Preparation and Serving Related	120,595	5.9	95,549	4.9	-25,046	-20.8
Transportation and Material Moving	109,619	5.4	109,884	5.6	265	0.2
Production	101,112	5.0	86,643	4.4	-14,469	-14.3
Construction and Extraction	90,799	4.5	72,081	3.7	-18,718	-20.6
Computer and Mathematical	72,650	3.6	82,237	4.2	9,587	13.2
Healthcare Support	63,495	3.1	61,660	3.1	-1,835	-2.9
Building & Grounds Cleaning, Maintenance	61,206	3.0	51,912	2.6	-9,294	-15.2
Architecture and Engineering	52,745	2.6	59,242	3.0	6,497	12.3
Installation, Maintenance, Repair	52,168	2.6	39,671	2.0	-12,497	-24.0
Protective Service	51,180	2.5	48,085	2.5	-3,095	-6.1
Personal Care and Service	50,923	2.5	35,226	1.8	-15,697	-30.8
Arts, Design, Entertainment, Sports, Media	41,819	2.1	40,826	2.1	-993	-2.4
Legal	32,809	1.6	29,689	1.5	-3,120	-9.5
Community and Social Service	31,483	1.6	33,377	1.7	1,894	6.0
Life, Physical, and Social Science	19,145	0.9	22,416	1.1	3,271	17.1
Farming, Fishing, and Forestry	7,532	0.4	7,539	0.4	7	0.1
<b>All Employment</b>	<b>2,037,217</b>	<b>100.0</b>	<b>1,964,746</b>	<b>100.0</b>	<b>-72,471</b>	<b>-3.6</b>

Source: U.S. Census Bureau, American Community Survey, 1-year estimates, 2019, 2021

A high degree of variation in job loss and gain across occupations underlies the overall contraction of the Orange County labor market. The following four occupations experienced the greatest employment losses (highlighted in orange): Personal Care and Service (30.8 percent decrease); Installation, Maintenance, Repair (24 percent), Food Preparation and Serving Related (20.8 percent), and Construction and Extraction (20.6 percent). The impact of the pandemic on Personal Care and Service occupations is notable; nearly one-third of workers in these occupations lost their jobs. Examples of specific occupations in this category include childcare workers, manicurists, hair stylists, and fitness trainers and instructors.

The following four occupations experienced the largest growth (highlighted in green): Life, Physical, and Social Science (17.1 percent increase), Computer and Mathematical (13.2 percent), Architecture and Engineering (12.3 percent), and Business and Financial Operations (9.5 percent).

### Employment Change by Industry, 2019-2021

	2019		2021		2019-2021 change	
	n	%	n	%	n	%
Health Care and Social Assistance	278,652	13.7	287,619	14.6	8,967	3.2
Educational services	223,246	11.0	229,482	11.7	6,236	2.8
Manufacturing	209,059	10.3	212,630	10.8	3,571	1.7
Retail Trade	206,775	10.2	192,807	9.8	-13,968	-6.8
Accommodation and Food Services	162,366	8.0	125,308	6.4	-37,058	-22.8
Professional, Scientific, Technical Services	161,869	8.0	186,082	9.5	24,213	15.0
Finance and Insurance	128,119	6.3	119,117	6.1	-9,002	-7.0
Construction	120,893	5.9	103,510	5.3	-17,383	-14.4
Public Administration	82,175	4.0	85,745	4.4	3,570	4.3
Administrative & support, waste management services	80,990	4.0	73,203	3.7	-7,787	-9.6
Transportation and Warehousing	74,590	3.7	81,900	4.2	7,310	9.8
Other Services, Except Public Administration	74,476	3.7	64,909	3.3	-9,567	-12.9
Wholesale Trade	66,488	3.3	56,450	2.9	-10,038	-15.1
Arts, Entertainment, Recreation	47,061	2.3	37,697	1.9	-9,364	-19.9
Information	45,181	2.2	40,287	2.1	-4,894	-10.8
Real Estate, Rental, Leasing	43,237	2.1	37,954	1.9	-5,283	-12.2
Utilities	16,511	0.8	13,150	0.7	-3,361	-20.4
Agriculture, Forestry, Fishing, Hunting	10,704	0.5	11,661	0.6	957	8.9
Management of companies and enterprises	2,452	0.1	2,923	0.2	471	19.2
Mining, Quarrying, Oil and Gas Extraction	2,373	0.1	2,312	0.1	-61	-2.6
<b>Total</b>	<b>2,037,217</b>	<b>100.0</b>	<b>1,964,746</b>	<b>100.0</b>	<b>-72,471</b>	<b>-3.6</b>

Source: U.S. Census Bureau, American Community Survey, 1-year estimates, 2019, 2021

The table above reports employment levels and rates of change between 2019 and 2021 by industry. Health Care and Social Assistance is Orange County's single largest

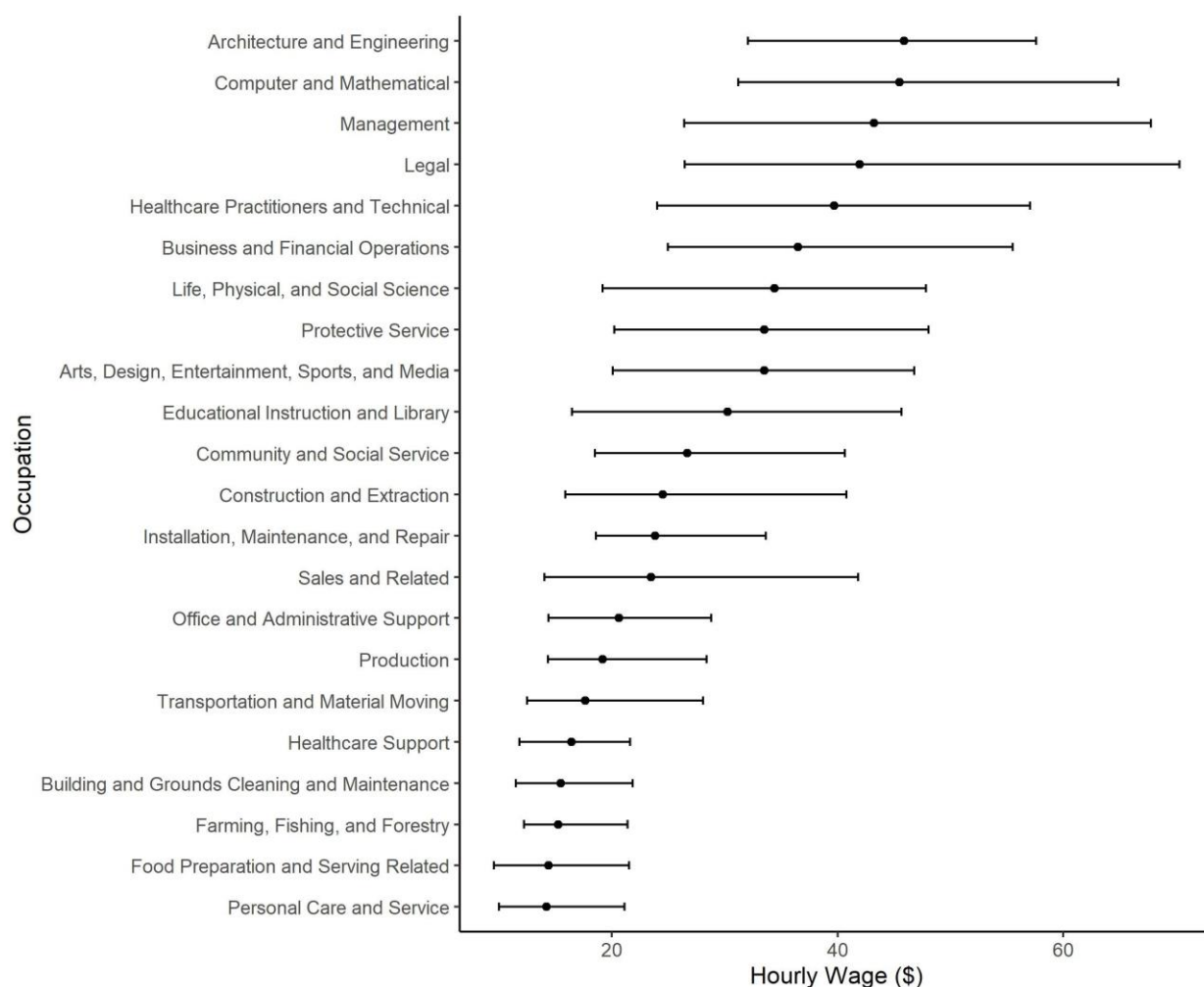


employment industry, comprising nearly 15 percent of all jobs in 2021. Educational Services is the second largest jobs industry, employing nearly 12 percent of all workers. Manufacturing and Retail Trade round out the top four employment industries. Combined, these four industries employed nearly half of the Orange County workforce in 2021 (47 percent).

Between 2019 and 2021, the three industries that experienced the greatest rates of growth (highlighted in green) are: Management of Companies and Enterprises (19.2 percent; but note very small absolute numbers of workers); Professional, Scientific, and Technical Services (15 percent); and Transportation and Warehousing (9.8 percent).

The three industries that experienced significant declines in employment (highlighted in orange) are: Accommodations and Food Services (22.8 percent decrease); Utilities (20.4 percent); and Arts, Entertainment, and Recreation (19.9 percent).

## Hourly Wage by Occupation, 2021



Source: U.S. Census Bureau, American Community Survey, 1-year estimates, 2021

This chart ranks occupations by median hourly wage from highest to lowest, top to bottom, marked by a dot. Half of all workers earn above the median wage; half earn below. This chart also illustrates the spread of wages within an occupation, marked by a line. The left tick mark of the line indicates wages at the 25<sup>th</sup> percentile of the distribution of all wages; the right tick mark of the line indicates the 75<sup>th</sup> percentile. One-quarter of all workers earn a wage lower than the 25<sup>th</sup> percentile; three-quarters earn above. Similarly, one-quarter of all workers earn a wage higher than the 75<sup>th</sup> percentile; three-quarters earn below. Longer lines indicate a high degree of variability in wages for that occupation. Shorter lines indicate more similarity among workers' wages, referred to as "wage compression."

Top-paying occupations include: Engineering, Computer, Management, Legal, and Finance. Middle-paying occupations include: Protective Services, Education, Social Services, Construction.

The lowest paying occupations include: Healthcare Support, Building Maintenance, Landscaping, Food Preparation, and Personal Care and Services.

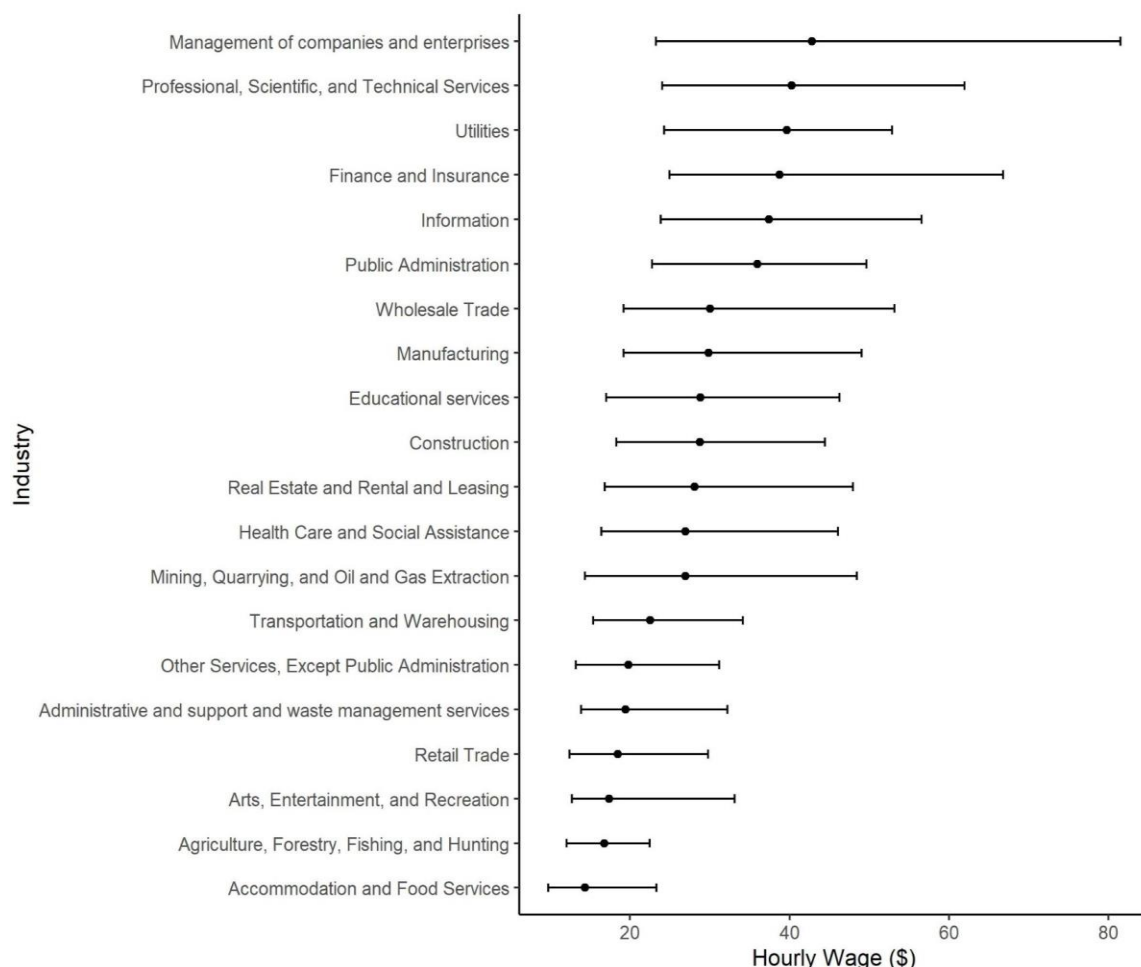
### Hourly Wage by Occupation, 2021

	<b>% emp</b>	<b>Median</b>	<b>25th</b>	<b>75th</b>
<b>Management</b>	<b>12.6</b>	<b>\$43.22</b>	<b>\$26.41</b>	<b>\$67.76</b>
Office and Administrative Support	11.0	\$20.64	\$14.41	\$28.81
<b>Sales and Related</b>	<b>9.0</b>	<b>\$23.48</b>	<b>\$14.02</b>	<b>\$41.83</b>
Educational Instruction and Library	8.0	\$30.25	\$16.48	\$45.65
<b>Business and Financial Operations</b>	<b>7.7</b>	<b>\$36.49</b>	<b>\$24.98</b>	<b>\$55.52</b>
Healthcare Practitioners and Technical	7.1	\$39.70	\$24.01	\$57.06
<b>Transportation and Material Moving</b>	<b>5.6</b>	<b>\$17.64</b>	<b>\$12.50</b>	<b>\$28.10</b>
Food Preparation and Serving Related	4.9	\$14.41	\$9.59	\$21.56
<b>Production</b>	<b>4.4</b>	<b>\$19.21</b>	<b>\$14.35</b>	<b>\$28.40</b>
Computer and Mathematical	4.2	\$45.49	\$31.23	\$64.88
<b>Construction and Extraction</b>	<b>3.7</b>	<b>\$24.52</b>	<b>\$15.91</b>	<b>\$40.77</b>
Healthcare Support	3.1	\$16.41	\$11.81	\$21.62
<b>Architecture and Engineering</b>	<b>3.0</b>	<b>\$45.91</b>	<b>\$32.07</b>	<b>\$57.58</b>
Building & Grounds Cleaning & Maintenance	2.6	\$15.50	\$11.53	\$21.84
<b>Protective Service</b>	<b>2.5</b>	<b>\$33.49</b>	<b>\$20.22</b>	<b>\$48.05</b>
Arts, Design, Entertainment, Sports, Media	2.1	\$33.49	\$20.10	\$46.78
<b>Installation, Maintenance, and Repair</b>	<b>2.0</b>	<b>\$23.85</b>	<b>\$18.60</b>	<b>\$33.63</b>
Personal Care and Service	1.8	\$14.22	\$10.03	\$21.15
<b>Community and Social Service</b>	<b>1.7</b>	<b>\$26.68</b>	<b>\$18.51</b>	<b>\$40.67</b>
Legal	1.5	\$41.96	\$26.48	\$70.32
<b>Life, Physical, and Social Science</b>	<b>1.1</b>	<b>\$34.40</b>	<b>\$19.19</b>	<b>\$47.83</b>
Farming, Fishing, and Forestry	0.4	\$15.27	\$12.24	\$21.42

Source: U.S. Census Bureau, American Community Survey, 1-year estimates, 2021

This table ranks occupations by employment size. It contains the same information presented in the previous chart with the addition of an occupation's share of the Orange County workforce (percent emp) and specific wage rates at the median (50<sup>th</sup> percentile), 25<sup>th</sup> percentile, and 75<sup>th</sup> percentile—the latter two marking the lower and upper bounds of the middle 50 percent of workers' hourly earnings in an occupation.

## Hourly Wage by Industry, 2021



Source: U.S. Census Bureau, American Community Survey, 1-year estimates, 2021

This chart ranks industries by median hourly wage from highest to lowest, top to bottom, marked by a dot. Half of all workers earn above the median wage; half earn below. This chart also illustrates the spread of wages within an industry, marked by a line. The left tick mark of the line indicates wages at the 25<sup>th</sup> percentile of the distribution of all wages; the right tick mark of the line indicates the 75<sup>th</sup> percentile. One-quarter of all workers earn a wage lower than the 25<sup>th</sup> percentile; three-quarters earn above. Similarly, one-quarter of all workers earn a wage higher than the 75<sup>th</sup> percentile; three-quarters earn below. Longer lines indicate a high degree of variability in wages for that industry. Shorter lines indicate more similarity among workers' wages, referred to as "wage compression."

Top-paying industries include: Management of Companies, Finance, and Public Administration.

Middle-paying industries include: Wholesale Trade, Education, Construction, and Health Care.

The lowest paying industries include: Administrative Support Services, Retail, Arts and Entertainment, and Accommodation and Food Services.

### Hourly Wage by Industry, 2021

	<b>% emp</b>	<b>Median</b>	<b>25th</b>	<b>75th</b>
<b>Health Care and Social Assistance</b>	<b>14.6</b>	<b>\$26.98</b>	<b>\$16.40</b>	<b>\$46.08</b>
Educational services	11.7	\$28.84	\$17.00	\$46.24
<b>Manufacturing</b>	<b>10.8</b>	<b>\$29.86</b>	<b>\$19.21</b>	<b>\$49.04</b>
Retail Trade	9.8	\$18.44	\$12.39	\$29.80
<b>Professional, Scientific, Technical Services</b>	<b>9.5</b>	<b>\$40.28</b>	<b>\$24.04</b>	<b>\$61.94</b>
Accommodation and Food Services	6.4	\$14.35	\$9.73	\$23.34
<b>Finance and Insurance</b>	<b>6.1</b>	<b>\$38.77</b>	<b>\$24.97</b>	<b>\$66.80</b>
Construction	5.3	\$28.75	\$18.26	\$44.45
<b>Public Administration</b>	<b>4.4</b>	<b>\$35.98</b>	<b>\$22.77</b>	<b>\$49.64</b>
Transportation and Warehousing	4.2	\$22.52	\$15.38	\$34.12
<b>Administrative &amp; support, waste management services</b>	<b>3.7</b>	<b>\$19.41</b>	<b>\$13.90</b>	<b>\$32.19</b>
Other Services, Except Public Administration	3.3	\$19.81	\$13.18	\$31.19
<b>Wholesale Trade</b>	<b>2.9</b>	<b>\$30.05</b>	<b>\$19.18</b>	<b>\$53.15</b>
Information	2.1	\$37.43	\$23.83	\$56.54
<b>Real Estate, Rental and Leasing</b>	<b>1.9</b>	<b>\$28.10</b>	<b>\$16.82</b>	<b>\$47.98</b>
Arts, Entertainment, and Recreation	1.9	\$17.40	\$12.71	\$33.12
<b>Utilities</b>	<b>0.7</b>	<b>\$39.66</b>	<b>\$24.27</b>	<b>\$52.88</b>
Agriculture, Forestry, Fishing, Hunting	0.6	\$16.75	\$12.06	\$22.45
<b>Management of companies &amp; enterprises</b>	<b>0.2</b>	<b>\$42.79</b>	<b>\$23.27</b>	<b>\$81.52</b>
Mining, Quarrying, Oil and Gas Extraction	0.1	\$26.92	\$14.33	\$48.43

Source: U.S. Census Bureau, American Community Survey, 1-year estimates, 2021

This table ranks industries by employment size. It contains the same information presented in the previous chart with the addition of an industry's share of the Orange County workforce (percent emp) and specific wage rates at the median (50<sup>th</sup> percentile), 25<sup>th</sup> percentile, and 75<sup>th</sup> percentile—the latter two marking the lower and upper bounds of the middle 50 percent of workers' hourly earnings in an industry. Note the small absolute number of workers in some of the highest paying industries.

### Good Jobs

In this section, we identify workers with “good jobs” in Orange County. Consistent with Bay Area CERF researchers, we define workers with “good jobs” as those who:

1. Earn a living wage, or \$23.66 for a single adult and \$25.58 for a household of two working adults and one child, according to the Massachusetts Institute of Technology (MIT) Living Wage Calculator
2. Receive employer-sponsored health care
3. Have a full-time (30 hours/week) and full-year appointment (50 weeks or more)

We adopted these criteria to leverage publicly available data, the American Community Survey 1-Year estimates for 2021, and begin to measure the heterogeneity of working conditions by gender, race, occupation, and industry. The State of California states the following about “High Quality Jobs”:

*Job quality varies across industry, occupation, and region. Indicators of high quality jobs include family-sustaining wages, clearly defined routes to advancement into higher wage jobs, benefits (like paid sick and vacation), adequate hours and predictable schedules, access to training, occupational health and safety, worker representation or right to organize, and no employer or subcontractor record of wage theft or other violations of labor law. High quality jobs bring sustainable income to the region.*

No single dataset includes all of the criteria included in the State of California’s definition of “high quality jobs.” The three criteria we utilize—living wage, health care, full-time employment—serve as a floor for good jobs; high quality jobs as defined above would offer even more benefits to workers.

## Living Wage

According to the Living Wage Calculator (MIT, 2023), the living wage in Orange County is \$23.66 an hour for a single adult with no children and \$25.57 for two adults and one child, assuming that both adults are working.<sup>53</sup> A living wage is defined as the hourly pay necessary to cover basic family expenses plus all relevant taxes. Basic family expenses refer to food costs, childcare, housing, transportation, other necessities, broadband, and “civic engagement”, which includes education and entertainment. The likely cost of rental housing was derived from the U.S. Department of Housing & Urban Development (HUD) Fair Market Rents (FMR) estimates, assuming that a single adult household would rent a single occupancy unit (zero bedrooms) and a two adult plus one child household would rent a two-bedroom apartment. The National Low Income Housing Coalition (NLIHC) also used HUD’s FMR estimates to estimate the two-bedroom housing wage for Orange County at \$48.83, or what a household needs to earn to afford a two-bedroom

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<sup>53</sup> Nadeau A., and Glasmeier, A. (2023). *Living Wage Calculator User’s Guide / Technical Notes*, Massachusetts Institute of Technology Department of Urban Studies and Planning, accessed 6/30/2023. <https://livingwage.mit.edu/resources/Living-Wage-Users-Guide-Technical-Documentation-2023-02-01.pdf>

apartment.<sup>54</sup> Fair Market Rents are “estimates of 40th percentile gross rents for standard quality units within a metropolitan area or nonmetropolitan county.”<sup>55</sup>

## Good Jobs for a Single Adult

### Good Jobs for a Single Adult by Gender, 2021

	All Jobs	Good Jobs	% Good Jobs
All Workers	1,964,746	833,447	42.4
Men	1,028,398	481,971	46.9
Women	935,348	351,476	37.6

Source: U.S. Census Bureau, American Community Survey, 1-year estimates

We define a good job for a single adult using the MIT living wage required to support a single adult in addition to the good-job criteria of providing employer-sponsored healthcare and offering full-time, full-year employment.

We estimate that 833,447 workers in Orange County had good jobs that would support a single adult in 2021, or 42 percent of all workers in Orange County. Men are more likely than women to hold these good jobs: 47 percent of men had good jobs compared to 38 percent of women.

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<sup>54</sup> Aurand, A., Pish, M., Rafi, I., Yentel, D. (2023). *Out of Reach: The High Cost of Housing*. The National Low-Income Housing Coalition (NLIHC), accessed 6/30/2023.

[https://nlihc.org/sites/default/files/or/California\\_2023\\_OOR.pdf](https://nlihc.org/sites/default/files/or/California_2023_OOR.pdf)

<sup>55</sup> *Fair Market Rents (FMR)*, US Department of Housing & Urban Development (HUD) Office of Policy Development and Research, accessed 6/30/2023. <https://www.huduser.gov/portal/datasets/fmr.html>



## Good Jobs for A Single Adult

### Good Jobs for a Single Adult by Race and Ethnicity, 2021

	All Jobs	Good Jobs	% Good Jobs
White	868,866	443,955	51.1
Latinx	560,647	140,603	25.1
API	338,114	166,909	49.4
American Indian & Alaska Native	58,597	27,306	46.6
Black	120,781	46,738	38.7
Other	17,741	7,948	44.8

Source: U.S. Census Bureau, American Community Survey, 1-year estimates

This table depicts racial and ethnic disparities in employment in good jobs. The percentages above represent the proportion of workers in each racial or ethnic category that hold a good job that can support a single adult. Over half of non-Hispanic white workers have good jobs, compared to only a quarter of Latinx workers.

## Good Jobs for a Two-Adult and One-Child Household

### Good Jobs for Two Adults and One Child by Gender, 2021

	All Jobs	Good Jobs	% Good Jobs
All Workers	1,964,746	770,180	39.2
Men	1,028,398	447,353	43.5
Women	935,348	323,630	34.6

Source: U.S. Census Bureau, American Community Survey, 1-year estimates

We define a good job for two adults and one child using the MIT living wage required to support a household of two working adults and one child in addition to the good-job criteria of providing employer-sponsored healthcare and offering full-time, full-year employment.

Using this definition of a good job, over 770,690 workers in Orange County held good jobs, or 39.2 percent of all workers in Orange County. This is about 60,000 workers less than the definition of a good job using the living wage for a single adult with no children.

Men are still more likely to hold good jobs under this definition: 43.5 percent of men compared to 34.6 percent of women. The gender gap is also similar. Men are 9 percentage points more likely than women to have good jobs using both types of living wages.

### Good Jobs for Two Adults and One Child by Race and Ethnicity, 2021

	All Jobs	Good Jobs	% Good Jobs
White	868,866	416,187	47.9
Latinx	560,647	124,464	22.2
API	338,114	156,547	46.3
American Indian & Alaska Native	58,597	25,665	43.8
Black	120,781	39,737	32.9
Other	17,741	7,682	43.3

Source: U.S. Census Bureau, American Community Survey, 1-year estimates

All racial and ethnic groups hold fewer good jobs needed to support a household of two working adults and one child compared to the definition using a living wage for a single adult. White workers are the most likely to have good jobs, followed by Asian Pacific Islander, American Indian and Alaska Native, Other, Black, and Latinx workers. Just over one-in-five Latinx workers hold a good job required to support a household of two working adults and one child.

## Good Jobs for Two Adults and One Child by Occupation, 2021

	<b>n</b>	<b>% of occ</b>
<b>Architecture and Engineering</b>	<b>45,086</b>	<b>76.1</b>
Computer and Mathematical	56,807	69.1
<b>Management</b>	<b>159,475</b>	<b>64.5</b>
Legal	18,696	63.0
<b>Business and Financial Operations</b>	<b>94,114</b>	<b>62.0</b>
Life, Physical, and Social Science	12,438	55.5
<b>Healthcare Practitioners and Technical</b>	<b>76,224</b>	<b>54.3</b>
Protective Service	23,705	49.3
<b>Arts, Design, Entertainment, Sports, Media</b>	<b>18,101</b>	<b>44.3</b>
Educational Instruction and Library	61,935	39.3
<b>Community and Social Service</b>	<b>12,880</b>	<b>38.6</b>
Installation, Maintenance, and Repair	14,031	35.4
<b>Construction and Extraction</b>	<b>23,681</b>	<b>32.9</b>
Sales and Related	56,676	32.2
<b>Office and Administrative Support</b>	<b>53,432</b>	<b>24.8</b>
Production	16,737	19.3
<b>Transportation and Material Moving</b>	<b>17,551</b>	<b>16.0</b>
Building & Grounds Cleaning & Maintenance	3,681	7.1
<b>Healthcare Support</b>	<b>2,598</b>	<b>4.2</b>
Personal Care and Service	1,232	3.5
<b>Food Preparation and Serving Related</b>	<b>1,552</b>	<b>1.6</b>
Farming, Fishing, and Forestry	58	0.8

Source: U.S. Census Bureau, American Community Survey, 1-year estimates, 2021

Almost two-thirds of workers in management occupations have good jobs – many of these occupations are associated with higher hourly wages. Jobs that pay higher hourly wages are also more likely to offer employer-sponsored health insurance and full-time, full-year employment. Other occupations that have higher rates of “good jobs” are: Business and Financial operation, Computer and mathematical, Architecture and engineering, and Life, physical and social sciences. On the other hand, personal care and service, and food preparation and serving related occupations have very low rates of good jobs – 3.5 and 1.6 percent respectively. A little over a third of workers in Installation, Maintenance, and Repair, and Construction and Extraction have good jobs.

## Good Jobs for Two Adults and One Child by Industry, 2021

	n	% of ind
<b>Management of Companies &amp; Enterprises</b>	<b>1,959</b>	<b>67.0</b>
Utilities	8,789	66.8
<b>Finance and Insurance</b>	<b>78,416</b>	<b>65.8</b>
Public Administration	50,430	58.8
<b>Professional, Scientific, Technical Services</b>	<b>108,151</b>	<b>58.1</b>
Information	22,601	56.1
<b>Mining, Quarrying, Oil and Gas Extraction</b>	<b>1,166</b>	<b>50.4</b>
Wholesale Trade	27,067	48.0
<b>Manufacturing</b>	<b>101,940</b>	<b>47.9</b>
Educational services	92,726	40.4
<b>Construction</b>	<b>41,460</b>	<b>40.1</b>
Health Care and Social Assistance	112,906	39.3
<b>Real Estate and Rental and Leasing</b>	<b>14,445</b>	<b>38.1</b>
Transportation and Warehousing	24,940	30.5
<b>Retail Trade</b>	<b>41,582</b>	<b>21.6</b>
Administrative & Support, Waste Management Services	15,654	21.4
<b>Other Services, Except Public Administration</b>	<b>13,382</b>	<b>20.6</b>
Arts, Entertainment, and Recreation	5,284	14.0
<b>Agriculture, Forestry, Fishing, and Hunting</b>	<b>879</b>	<b>7.5</b>
Accommodation and Food Services	6,913	5.5

Source: U.S. Census Bureau, American Community Survey, 1-year estimates, 2021

Workers employed in the industry of Management of Companies and Enterprises are most likely to have good jobs, over two-thirds. However, the absolute number of workers employed in this industry is very small (fewer than 2,000 workers). Workers in the utilities sector have a high rate of good jobs as well – also over two-thirds. Workers in Accommodation and Food Services have the lowest rate of employment in good jobs (5.5 percent). Workers in the Arts, Entertainment, and Recreation industry have the second lowest rate of employment in good jobs at 14 percent.

## Part II: Unionization and Union Wage Differentials

In Part II, we analyze unionization levels and union wage differentials in Orange County, to the extent afforded by available data.

The only publicly available source of union membership and union coverage data is the Current Population Survey, a nation-wide monthly household survey carried out by the Bureau of Labor Statistics. The CPS contains a question for workers about union membership and employment in a job covered by a union contract. The CPS is a timely source of labor market data. The frequency of the survey is made possible by a sophisticated random sampling method that results in much smaller sample sizes than the American Community Survey (ACS). As a result, estimates at the county level come with larger margins of error than the ACS. Further, small counts disallow many disaggregated cross-tabulations. For example, we are unable to estimate union density at the occupation or industry level.

### Unionization in Orange County, 2019 and 2021

Union density decreased in Orange County between 2019 and 2021. In 2019, 15 percent of all workers who were members of a union or covered by a union contract. In 2021, this percentage had dropped to 11 percent.<sup>56</sup>

### Union Wage Differentials, 2019 and 2021

In 2019, union wages were 30 percent higher than non-union wages. In 2021, union wages were 55 percent higher than non-union wages. These are median wages for all workers, across all industries in OC. Contraction in union employment likely pushed the union wage rate up in 2021 because although there were fewer unionized workers in 2021, those with higher wages remained.

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<sup>56</sup> All CPS analyses in Part II utilize the [Outgoing Rotation Group/ Earner Study](#) (from IPUMS CPS). [EARNWT](#) earnings weight variable used for weighting hourly wage and union variables in CPS data analysis.

## Union Wage Differentials by Sector, 2021

	<b>Non-union</b>	<b>Union</b>	<b>% difference</b>
Construction	\$18.25	\$26.45	44.9%
Transportation & Warehousing	\$15.75	\$28.50	81.0%
Educational Services	\$19.87	\$24.00	20.8%
Retail Trade	\$14.25	\$17.45	22.5%

Source: Current Population Survey, Outgoing Rotation Group, 2021

We report union and non-union median wages for a few key sectors with sufficient sample sizes. The union wage differential is highest in Transportation & Warehousing: union wages are 81 percent higher than non-union wages. Construction has the second highest differential with union jobs paying 45 percent more than non-union jobs.

## Union Wage Differentials by Job

We gathered data for three case-study jobs in Orange County, requesting union contracts from Orange County unions that specify wage rates for specific jobs. We selected jobs for which a comparison job exists in the ACS. These jobs were identified by locating a specific occupation within a specific industry. The three case-study jobs are:

- Licensed Vocational Nurses
- Hotel Housekeepers
- Grocery Cashiers

Union wage rates were sourced from current collective bargaining agreements covering workers in Orange County. We compared these to the Orange County median wage rates for the same jobs using the 2021 ACS 1-year data sample. These overall Orange County median wage rates include union and non-union workers (no union variable exists in the ACS).

### **Union Wage Differentials: Licensed Vocational Nurses**

Union wage rates for Licensed Vocational Nurses were provided by SEIU-UHW. We calculated the median union wage across four current collective bargaining contracts at Kaiser, Anaheim Global Medical Center, Chapman Global Medical Center, and South Coast Global Medical Center.

Union median hourly wage = \$41.43

OC median hourly wage, 2021 = \$27.40\*

\*All LVNs in Orange County (union + non-union)

### **Union Wage Differentials: Hotel Housekeepers**

Union hourly wage rates for Hotel Housekeepers were provided by Unite Here Local 11.

Disney hotels = \$23.50

Anaheim Hilton & Sheraton Park = \$21.00

Irvine union hotels, Balboa Bay, Laguna Cliffs = \$18.00

OC median hourly wage, 2021 = \$15.60\*

\*All hotel housekeepers in Orange County (union + non-union)

### **Union Wage Differentials: Grocery Cashiers/Food Clerks**

Union hourly wage rates for Grocery Cashiers/Food Clerks were provided by UFCW 324.

Vons & Albertson's entry-level wage, 2021 = \$15.40

Vons & Albertson's entry-level wage, 2023 = \$16.25

Vons & Albertson's top-level wage, 2021 = \$22.50

Vons & Albertson's top-level wage, 2023 = \$25.50

OC median hourly wage, 2021 = \$15.19\*

\*All grocery cashiers in Orange County (union + non-union)



# Industry Cluster Analysis

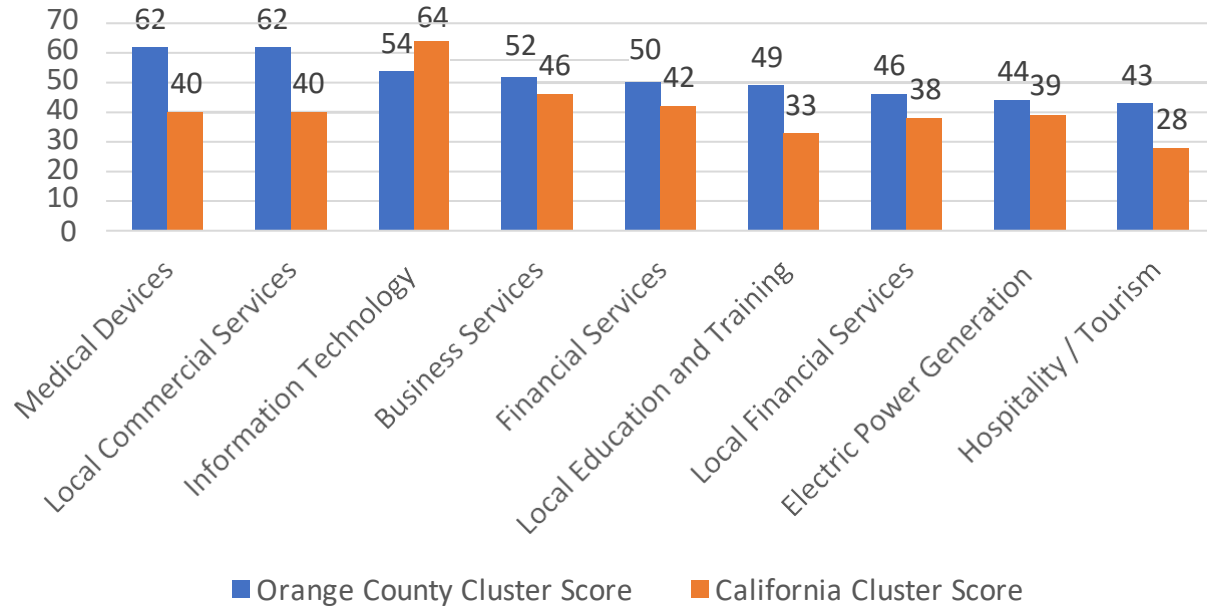
**Dr. Robert Kleinhenz, California State University Long Beach Dr.  
C.J. Bishop, Coast Community College District**

Industry clusters are identified as regional concentrations of related businesses and industries that possess strong local linkages that enable increased coordination and collaboration, leading to increased efficiency and economic activity, and can accelerate growth. Regional specializations and increased economic activity often serve to attract more businesses within industry clusters. This also gives rise to deep pools of well-qualified, specialized, and well-educated workers in the region which helps drive labor and firm productivity. Additionally, as local linkages between businesses grow, so do linkages between businesses and local academic institutions that drive research and development efforts. With partnerships between the private sector and academic institutions, industry clusters can become drivers of innovation as well. Examples of well-known industry clusters include Hollywood's movie and entertainment industry, the Bay Area's high-tech and information sector, Silicon Valley's computer and semiconductor production, or Detroit's once booming auto industry.

## Industry Cluster Scores

Orange County's top industry clusters include Medical Devices with a cluster score of 62 which is tied with Local Commercial Services and followed by Information Technology with a score of 54. Cluster scores are based on a 100-point scale and are compared to the relative performance of other clusters in the region. Orange County's average cluster score is 32.

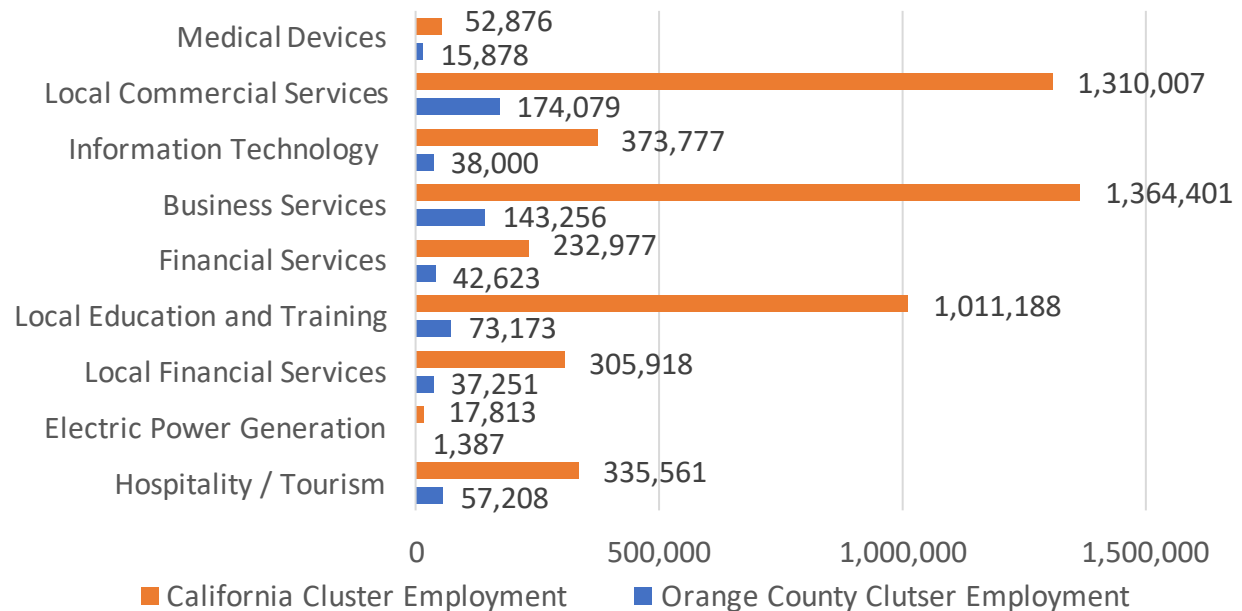
## Orange County and California Industry Clusters, 2022



Source: Lightcast, U.S. Cluster Mapping

Looking at employment within these industry clusters, Orange County represented 30.0 percent of total state Medical Devices employment, 18.3 percent of Local Education and Training employment, and 17.0 percent of Hospitality and Tourism employment, far exceeding its share of statewide nonfarm employment at 8.3 percent.

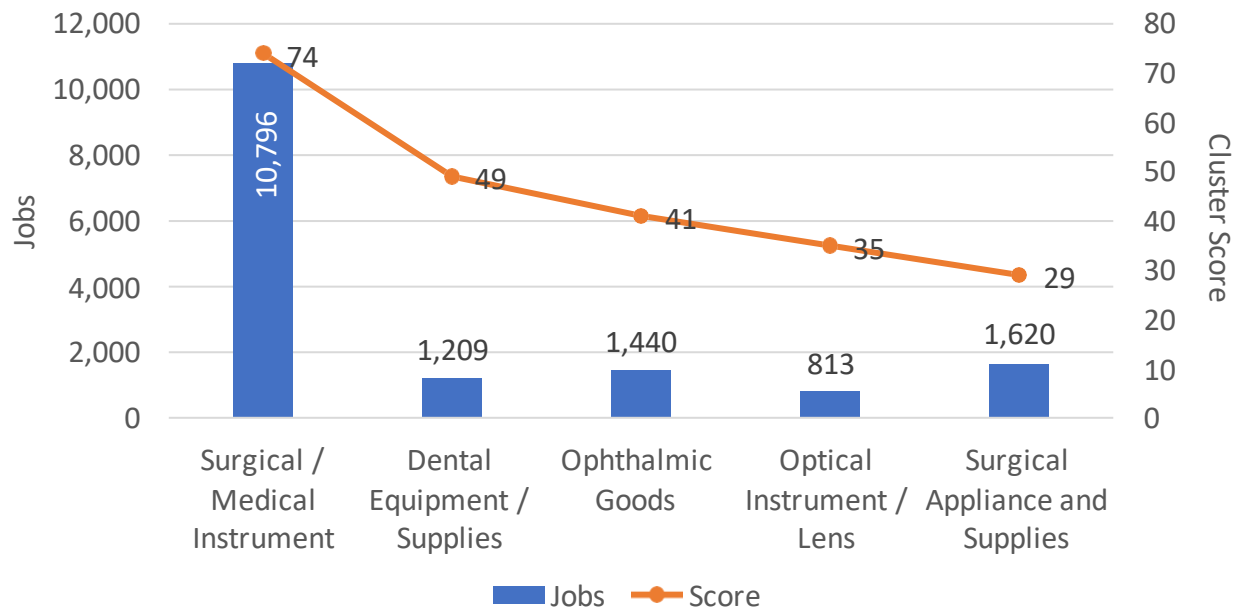
## Orange County and California Industry Cluster Employment, 2022



Source: Lightcast, U.S. Cluster Mapping

The Medical Device industry cluster had a total employment of 15,878 in 2022. The top sector was Surgical and Medical Instrument Manufacturing holding the lion's share of cluster employment at 10,796 or 68.0 percent and an overall cluster score of 74. Dental Equipment and Supplies Manufacturing had the second highest cluster score at 49 with employment of 1,209, while Surgical Appliance and Supplies Manufacturing had a cluster score of 29 and the second highest employment count at 1,620.

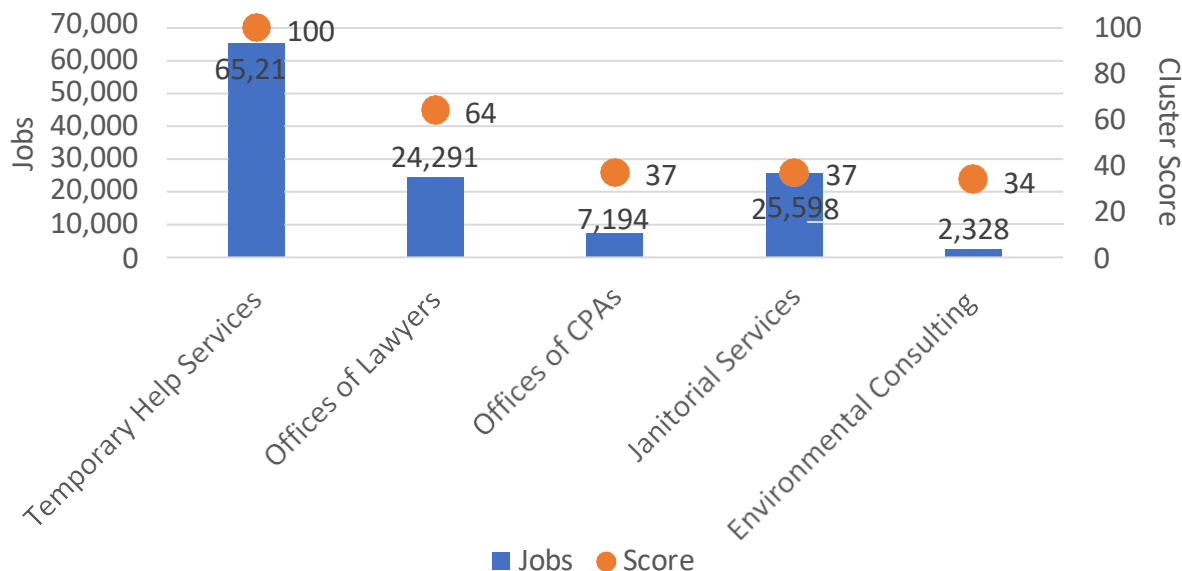
## Medical Device Industry Cluster in Orange County, 2022



Source: Lightcast

Local Commercial Services, also with a cluster score of 62 compared to a state cluster score of 40, had a total of 174,079 jobs in 2022. A large share of this cluster is Temporary Help Services with a cluster score of 100 and employment of 65,214, implying fluid labor market conditions as county employers sought to fill positions in the aftermath of the pandemic. Offices of lawyers had the second highest cluster score at 64 followed by Office of Certified Public Accountants (CPAs) and Janitorial Services, both with cluster scores of 37. With an average cluster score of 32 at the overall county-level, the five sectors denoted below are all more concentrated than average in Orange County.

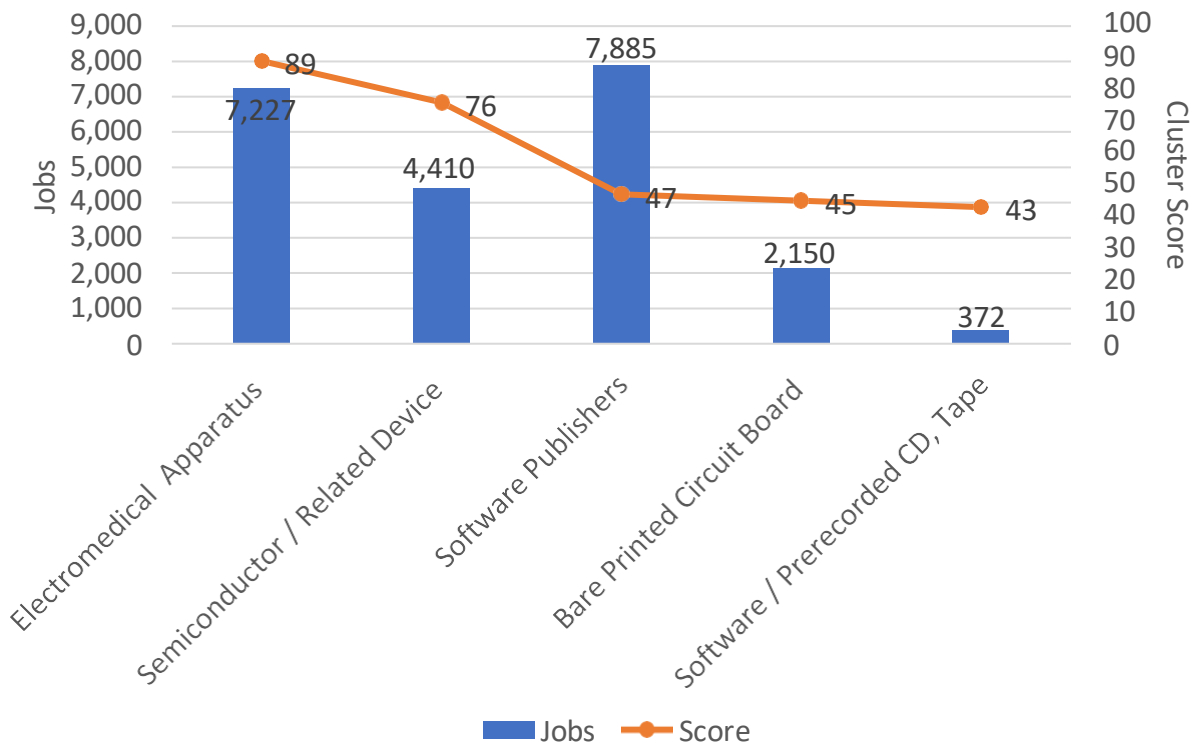
## Local Commercial Services Industry Cluster in Orange County, 2022



Source: Lightcast

With an overall cluster score of 54 compared to the state at 64, Information Technology in Orange County represents a total of 38,000 jobs. Subsectors with the highest cluster scores included Electromedical and Electrotherapeutic Apparatus Manufacturing with a score of 89 and representing 19.0 percent of the broader industry cluster employment followed by Semiconductor and Related Device Manufacturing with a score of 76 (11.6 percent of sector employment) and Software Publishers with a score of 47 (20.8 percent of sector employment).

## Information Technology Industry Cluster in Orange County, 2022



Source: Lightcast

It is important to distinguish between the county's group of traded industry clusters, its group of local industry clusters, and the contributions each group makes to the economy and county overall. Traded clusters such as medical devices, information technology, financial services, and hospitality/tourism produce goods and services with markets that extend beyond the county itself. They are a source of economic growth, expanding the economic pie for the county economy, its residents, and local government through job and income creation. By comparison, local industry clusters produce goods and services that mainly serve county residents and businesses. Examples include healthcare, retail trade, restaurants, and local entertainment. In addition to serving residents through the services and amenities they provide, traded clusters also give communities their identities through the spaces in which they operate and the experiences they create.

Traded and local industry clusters make somewhat different contributions to the overall economy. Local clusters have more jobs, while traded clusters contribute more to gross regional product, that is, the value of economic activity in the county. Traded clusters tend to have fewer jobs, but they tend to pay higher wages and salaries. As these wages are spent, they create spillovers to local clusters, driving job and income growth in the overall economy.

## Top Orange County Traded and Local Industry Clusters

Traded Industry Clusters		Local Industry Clusters	
	Rank in US		Rank in US
Medical Devices	1	Local Real Estate, Construction and Development	4
Printing Services	3	Local Household Goods and Services	4
Lighting and Electrical Equipment	3	Industrial Products and Services	4
Apparel	3	Local Motor Vehicle Products and Services	5
Recreational and Small Electric Goods	3	Local Health Services	6
Financial Services	4	Local Commercial Services	6
Communications Equipment and Services	4	Local Retailing of Clothing and General Merchandise	6
Hospitality and Tourism	5	Personal Services (Non-Medical)	7
Information Technology and Electrical Instruments	5	Entertainment and Median	7

Source: U.S. Cluster Mapping

## Orange County Industry Sector Analysis by City

Informed by the Centers of Excellence's Orange County Sector Analysis Project, eight priority sectors and employment within the associated industries were mapped across Orange County at both the census tract and city level. Utilizing Lightcast data, the below findings identify representation within these priority sectors of where we find the largest representation of jobs for 2022 and the projected number of jobs in 203.

The priority sectors explored include:

- Advanced Manufacturing
- Advanced Transportation and Logistics
- Business and Entrepreneurship
- Energy, Construction, and Utilities
- Health
- Information & Communication Technologies (ICT) and Digital Media
- Life Sciences and Biotechnology
- Retail, Hospitality, and Tourism



Beginning with a summary throughout the county, the below table provides insight into the priority industries representation.

<b>Industry</b>	<b>2022 Jobs</b>	<b>2032 Jobs</b>
<b>Advanced Manufacturing</b>	28,902	27,419
<b>Advanced Transportation and Logistics</b>	30,241	30,545
<b>Business and Entrepreneurship</b>	158,244	167,844
<b>Energy, Construction, and Utilities</b>	485,554	526,894
<b>Health</b>	123,851	146,866
<b>Information &amp; Communication Technologies (ICT) and Digital Media</b>	36,447	42,818
<b>Life Sciences and Biotechnology</b>	19,938	23,713
<b>Retail, Hospitality, and Tourism</b>	390,579	453,784

Source: Lightcast

The following tables provide insight into the top 5 cities by category of 2022 jobs and 2032 jobs by the priority industry sectors.

#### **Advanced Manufacturing**

<b>Top 5 Cities</b>	<b>2022 Jobs</b>	<b>% Distribution</b>
<b>Anaheim</b>	4,895	12.26%
<b>Irvine</b>	3,600	9.02%
<b>Huntington Beach</b>	3,229	8.09%
<b>Lake Forest</b>	3,011	7.54%
<b>Fullerton</b>	2,107	5.28%

<b>Top 5 Cities</b>	<b>2032 Jobs</b>	<b>% Distribution</b>
<b>Anaheim</b>	4,895	12.26%
<b>Irvine</b>	3,600	9.02%
<b>Huntington Beach</b>	3,229	8.09%
<b>Lake Forest</b>	3,011	7.54%
<b>Fullerton</b>	2,107	5.28%

#### **Advanced Transportation and Logistics**

<b>Top 5 Cities</b>	<b>2022 Jobs</b>	<b>% Distribution</b>
<b>Anaheim</b>	5,434	11.48%
<b>Fullerton</b>	5,186	10.96%
<b>Irvine</b>	4,574	9.67%
<b>Newport Beach</b>	3,694	7.81%
<b>Brea</b>	3,351	7.08%

<b>Top 5 Cities</b>	<b>2032 Jobs</b>	<b>% Distribution</b>
Anaheim	6,194	12.67%
Fullerton	5,266	10.77%
Irvine	4,780	9.77%
Newport Beach	4,047	8.28%
Brea	3,641	7.45%

### **Business and Entrepreneurship**

<b>Top 5 Cities</b>	<b>2022 Jobs</b>	<b>% Distribution</b>
Irvine	34,167	14.82%
Newport Beach	28,050	12.16%
Costa Mesa	15,848	6.87%
Anaheim	13,971	6.06%
Santa Ana	12,549	5.44%

<b>Top 5 Cities</b>	<b>2032 Jobs</b>	<b>% Distribution</b>
Irvine	36,558	15.05%
Newport Beach	29,688	12.23%
Costa Mesa	16,869	6.95%
Anaheim	14,698	6.05%
Santa Ana	13,451	5.54%

### **Energy, Construction, and Utilities**

<b>Top 5 Cities</b>	<b>2022 Jobs</b>	<b>% Distribution</b>
Irvine	77,513	11.04%
Anaheim	67,344	9.59%
Newport Beach	53,669	7.64%
Santa Ana	51,433	7.33%
Costa Mesa	46,305	6.60%

<b>Top 5 Cities</b>	<b>2032 Jobs</b>	<b>% Distribution</b>
Irvine	83,896	11.04%
Anaheim	71,650	9.43%
Newport Beach	58,376	7.68%
Santa Ana	56,544	7.44%
Costa Mesa	50,304	6.62%

### **Health**

<b>Top 5 Cities</b>	<b>2022 Jobs</b>	<b>% Distribution</b>
Anaheim	14,762	8.67%
Newport Beach	12,682	7.45%
Costa Mesa	11,554	6.78%
Santa Ana	10,779	6.33%
Irvine	9,737	5.72%

<b>Top 5 Cities</b>	<b>2032 Jobs</b>	<b>% Distribution</b>
Anaheim	17,493	8.60%
Newport Beach	15,621	7.68%
Costa Mesa	14,112	6.94%
Santa Ana	12,562	6.18%
Irvine	11,150	5.48%

### **Information & Communication Technologies (ICT) and Digital Media**

<b>Top 5 Cities</b>	<b>2022 Jobs</b>	<b>% Distribution</b>
Irvine	10,009	21.59%
Newport Beach	3,552	7.66%
Costa Mesa	3,091	6.67%
Lake Forest	2,992	6.45%
Aliso Viejo	2,729	5.89%

<b>Top 5 Cities</b>	<b>2032 Jobs</b>	<b>% Distribution</b>
Irvine	11,535	20.68%
Newport Beach	4,138	7.42%
Costa Mesa	3,592	6.44%
Lake Forest	3,586	6.43%
Aliso Viejo	3,187	5.71%

### **Life Sciences and Biotechnology**

<b>Top 5 Cities</b>	<b>2022 Jobs</b>	<b>% Distribution</b>
Irvine	3,371	14.52%
Lake Forest	2,824	12.16%
Newport Beach	1,951	8.40%
Costa Mesa	1,951	8.40%
Anaheim	1,538	6.62%

<b>Top 5 Cities</b>	<b>2032 Jobs</b>	<b>% Distribution</b>
<b>Irvine</b>	4,050	14.59%
<b>Lake Forest</b>	3,048	10.98%
<b>Costa Mesa</b>	2,409	8.68%
<b>Newport Beach</b>	2,405	8.67%
<b>Anaheim</b>	2,175	7.84%

### **Retail, Hospitality, and Tourism**

<b>Top 5 Cities</b>	<b>2022 Jobs</b>	<b>% Distribution</b>
<b>Anaheim</b>	81,635	15.05%
<b>Newport Beach</b>	30,838	5.68%
<b>Irvine</b>	27,591	5.09%
<b>Santa Ana</b>	26,481	4.88%
<b>Huntington Beach</b>	24,606	4.54%

<b>Top 5 Cities</b>	<b>2032 Jobs</b>	<b>% Distribution</b>
<b>Anaheim</b>	99,136	15.68%
<b>Newport Beach</b>	36,514	5.77%
<b>Irvine</b>	31,990	5.06%
<b>Santa Ana</b>	29,707	4.70%
<b>Costa Mesa</b>	28,259	4.47%

## **Location Quotient Analysis**

Another way to assess regional concentrations and industry clusters is through Location Quotients (LQs). Location quotients measure the strength of regional industry specializations relative to the national economy. If an industry's LQ equals 1, the concentration of the industry in the region is the same as that of the nation. If an LQ exceeds 1, the region has a larger industry concentration relative to the nation, while an LQ below 1 implies that the region has a smaller industry concentration relative to the nation. For example, if a region's industry employment accounts for 5 percent of total regional jobs but only 1 percent of jobs nationally, then that industry would have an LQ of 5 indicating that industry employment is 5 times more concentrated in the region compared to the nation as a whole. Location quotients can help identify highly specialized sectors to leverage while also helping to highlight sectors which require additional support to thrive.

At the broad industry level, Orange County's Arts, Entertainment and Recreation industry had the highest location quotient (1.76), indicating this sector to be 1.76 times more

concentrated than the national average, with total employment of 51,306 and average annual wages of \$42,943. The Management of Companies and Enterprises sector, with the third highest location quotient of 1.41 had the highest average annual wage at \$146,218 while Healthcare and Social Assistance, the industry with the largest employment base at 222,490 had a location quotient of 0.96, signifying that this sector in Orange County has a slightly smaller presence compared to the nation as a whole.

### Orange County Industries by Location Quotient, 2022

	Employment	Average Annual Wage	Location Quotient
<b>Arts, Entertainment, and Recreation</b>	51,306	\$42,943	1.76
<b>Real Estate and Rental and Leasing</b>	52,293	\$93,671	1.65
<b>Management of Companies and Enterprises</b>	37,361	\$146,218	1.41
<b>Administrative / Support / Waste Remediation Services</b>	159,645	\$51,603	1.40
<b>Professional, Scientific, and Technical Services</b>	166,701	\$110,754	1.30
<b>Construction</b>	130,772	\$79,214	1.25
<b>Wholesale Trade</b>	77,789	\$103,172	1.19
<b>Finance and Insurance</b>	88,318	\$144,027	1.17
<b>Other Services (except Public Administration)</b>	103,533	\$33,924	1.13
<b>Accommodation and Food Services</b>	162,220	\$31,707	1.11
<b>Manufacturing</b>	153,450	\$97,348	1.09
<b>Healthcare And Social Assistance</b>	222,490	\$62,617	0.96
<b>Retail Trade</b>	155,811	\$48,339	0.87
<b>Educational Services</b>	38,897	\$41,028	0.81
<b>Information</b>	25,388	\$135,978	0.74
<b>Government</b>	161,997	\$74,511	0.61
<b>Utilities</b>	3,043	\$138,577	0.50
<b>Transportation and Warehousing</b>	34,601	\$57,068	0.44
<b>Agriculture, Forestry, Fishing and Hunting</b>	2,065	\$46,551	0.09
<b>Mining, Quarrying, and Oil and Gas Extraction</b>	417	\$95,930	0.07

Source: Lightcast

Looking at a more granular level, and at more representative and well-known industry clusters in the region, Amusement and Theme Parks boasted an LQ of 12.81, reflecting the Disneyland, California Adventure, and Knotts Berry Farm theme parks in the city of Anaheim. This highlights the county's well-known Tourism sector, which is supported not

only by world-class theme parks, but also by luxury retail destinations. Several industries in the table below are related to the region's Medical Device cluster as well including Electromedical / Electrotherapeutic Apparatus Manufacturing, Surgical and Medical Instrument Manufacturing and Surgical and Medical Instrument Manufacturing.

**Orange County Top 20 Detailed Industries by Location Quotient, 2022**

	<b>Employment</b>	<b>Average Annual Wage</b>	<b>Location Quotient</b>
<b>Amusement and Theme Parks</b>	25,718	\$38,637	12.81
<b>Other Apparel Knitting Mills</b>	300	\$78,501	9.60
<b>Dental Laboratories</b>	5,403	\$59,887	9.38
<b>Nonferrous Forging</b>	666	\$67,988	9.19
<b>Electromedical / Electrotherapeutic Apparatus</b>	7,227	\$171,422	8.64
<b>Industrial Design Services</b>	1,877	\$182,922	8.23
<b>Men's and Boys' Cut and Sew Apparel Manufacturing</b>	1,620	\$84,323	7.38
<b>Bare Printed Circuit Board Manufacturing</b>	2,150	\$69,155	7.36
<b>Surgical and Medical Instrument Manufacturing</b>	10,796	\$112,598	7.02
<b>Fluid Power Pump and Motor Manufacturing</b>	1,360	\$123,980	6.80
<b>Dental Equipment and Supplies Manufacturing</b>	1,209	\$116,196	6.78
<b>Plumbing Fixture Fitting and Trim Manufacturing</b>	875	\$70,465	6.48
<b>Other Lighting Equipment Manufacturing</b>	469	\$83,946	6.05
<b>Ophthalmic Goods Manufacturing</b>	1,440	\$74,571	5.46
<b>Military Armored Vehicle, Tank, and Tank Component</b>	522	\$81,700	5.43
<b>Nail Salons</b>	15,841	\$23,660	5.39
<b>Guided Missile and Space Vehicle Manufacturing</b>	4,270	\$164,169	5.39
<b>Electronic Connector Manufacturing</b>	1,308	\$67,336	5.32
<b>Computer Terminal/ Equipment Manufacturing</b>	1,790	\$105,425	5.03
<b>Bolt, Nut, Screw, Rivet, and Washer Manufacturing</b>	1,810	\$79,765	4.78

Source: Lightcast

With the exception of Nail Salons, the remaining industries among the top 20 are traded industries whose markets extend beyond county boundaries to other parts of California, the nation, or even the world.

## **Emergence of New Clusters**

As advances in artificial intelligence (AI) and other technologies move forward, they will affect nearly every industry in the county economy, some more than others. Given the synergies that exist across firms and the workforce in a region's leading industry clusters, new industries may likely emerge from and evolve alongside the county's current leading industries. Whether their emergence occurs or not depends on the extent to which private and public resources are devoted to the research and development, and to the extent needed, infrastructure investment, that are required launch and grow new industries and industry clusters.

In Orange County, new industries and industry clusters will likely be tied to the county's existing strengths in:

- Health care, given the aging population of the county;
- Education, given the county's prominent education institutions;
- High value added manufacturing such as medical devices and aerospace/defense; and
- Financial and real estate related services including fintech.

## **Future of the Orange County Economy: Impacts of Trends and Structural Changes**

The future of the Orange County economy will be shaped by many forces, including demographic trends, workforce trends, technological change, and policy changes. Developments in the area of artificial intelligence (AI) may be garnering much attention at present, but other long-term trends such as the aging population, changes in the composition and importance of industries, technological changes in personal and freight transportation such as driverless vehicles, and changes in land use such as increasing population densities and the continued shift from production of goods to production of services, will all influence future economic and workforce trends for Orange County. A detailed discussion on the county economy 10 or 20 years in the future is beyond the scope of this project. This section will identify and discuss some long term changes that will affect the trajectory of the county economy in the coming decades.

### **Demographics**

Recent and future demographic changes have been documented elsewhere in the report. They will bring significant changes to the Orange County economy. The first of these is the changing age distribution of the population. The share of the population that is 65 years and older will grow substantially in the next decade. Better health care will generally increase the longevity of Orange County residents, as well. These trends will drive growth in the health care sector over the next decade or more. Significant changes will occur elsewhere in the economy, for example:



- increase in the demand for public transit and use of such private transportation services as Uber and Lyft
- growth in senior oriented health, fitness and entertainment
- increased reliance on “handyman” and other on-demand services

At the other end of the age spectrum, the share of the population that is entering the workforce will experience little, if any, growth, resulting from demographic trends over the past two decades). Like so much of California, negative net migration trends from other states and countries imply that Orange County must generally rely on a homegrown workforce in the coming years and continue to draw working commuters from the inland region of Southern California. Over the next decade or more, the number of individuals entering the labor force will fall short of the number leaving the labor force due to retirements. Work shortages that appeared during the pandemic, were due in part to the pandemic itself, but also stemmed from the fact that the number of persons leaving the labor force pipeline due to retirements (mainly the large Boomer generation) exceed the number of persons entering the pipeline (smaller Gen Z and Gen alpha cohorts). These demographic patterns will continue long after the effects of the pandemic have faded.

In brief, the high-powered Orange County economy may face worker shortages, driving wage increases and increased reliance on automation. This may be offset to some degree by anticipating the workforce needs of the 21<sup>st</sup> century economy and ensuring that there are adequate education, training, and skills-development opportunities for members of the workforce.

### **Structural Changes in Orange County Economy**

The Orange County economy has evolved and changed over time. For example, manufacturing accounted for 16 percent of all jobs in the county in 2000 but just 9 percent in 2022, while jobs in health care and social assistance grew from 7 percent to 13 percent of total nonfarm employment. Painting the picture in broad strokes, as the sectors of the county economy evolve, some occupations become obsolete even as new occupations emerge. And many occupations will not disappear but will become redefined as the tasks and functions change over time.

In looking at the major industries and industry clusters of the Orange County economy, services will generally grow at the expense of goods-related industries. For example, manufacturing will be at the forefront of automation, putting manufacturing jobs in general at risk. (The exception will be high-skill jobs in high value-added industries that may not readily be replaced.) Extraction industries such as oil and gas already employ small numbers of workers, but those numbers may likewise decline as reliance on the industry declines.

On the other hand, anticipated growth in health care services will lead to increasing job opportunities in health-related occupations. Not all service sectors will see growth. For example, security industry jobs will also be in jeopardy to the extent that the security industry relies increasingly on technological advances in surveillance and security. Similarly, restaurant servers are already seeing their roles change with the advent of automated order entry and similar developments. The same will occur for automotive

mechanics, as vehicles move from gas-power to electric/battery operations and alternative fuels.

## **Environmental Impact Considerations**

Economists rely heavily on such fundamentals as job and income growth, the mix of industries and sources of economic growth, and assessment of economic efficiency to evaluate the performance of a local economy over time. A more nuanced approach to measuring and evaluating local economic performance may include environmental considerations.

Many market and non-market economic activities give rise to so-called negative externalities, which are negative consequences or costs of a transaction between two parties (buyer and seller) that are borne by a third party. For example, a car owner buys fuel (buyer) from a gasoline station (seller), and the use of that fuel creates tailpipe emissions that may affect others adversely by causing respiratory or other health problems and more generally by causing air pollution (third party).

Given its location in Southern California and on the California coast, several government agencies and regulatory bodies exist to address environmental externalities that arise as a result of economic and business activity in Orange County. In general, environmental externalities are under the purview of the California Environmental Protection Agency (Cal EPA). The California Air Resources Board (CARB), a department within Cal EPA, is generally responsible for mobile sources of emissions while the South Coast Air Quality Management District (AQMD) is responsible for nonmobile emissions sources in the urban portion of the four-county Southern California region, consisting of Orange, Los Angeles, Riverside, and San Bernardino counties. The California Coastal Commission has jurisdiction over the county coastline. More specifically, local jurisdictions and community-based organizations increasingly emphasize the environmental justice aspect of environmental externalities, which generally occur when poor or marginalized communities are harmed by hazardous waste, resource extraction, and other land or resource uses that give rise to externalities.

# SWOT Analysis

## Dr. Wallace Walrod, Orange County Business Council

As part of creating an effective Community Economic Resilience Fund strategy for Orange County, building a strong Strength, Weakness, Opportunity, and Threats (SWOT) Analysis helps provide a high-level view of the current economic, demographic and social landscape in the region. A SWOT analysis is a technique for identifying and analyzing strengths (S), weaknesses (W), opportunities (O) and threats (T) and is an important element in the CEDS report as it helps in determining economic development priorities and strategies by taking into account internal and external factors currently impacting various communities in the region.

A SWOT analysis highlights regional and local strengths to understand one's origin and how it can be leveraged to increase their positive impacts. Highlighting weaknesses, on the other hand, allows policymakers and stakeholders to create more focused and targeted solutions aimed at eliminating these weaknesses. Both strengths and weaknesses are internal factors that local policymakers and stakeholders have some control over and can be leveraged or improved through strategic policies. For example, Orange County strengths include strong industry clusters and diverse and well-educated population, while weaknesses include a lack of workforce housing and labor force gaps in certain high-growth industries.

Opportunities and threats, on the other hand, are external factors with the potential to amplify strengths or exacerbate weaknesses. The SWOT analysis for Orange County is highlighted below and attempts to highlight the general trends currently impacting Orange County.

### Strengths

Orange County has a broad range of regional strengths which have helped drive its economic growth and success in recent years. These regional strengths have been cultivated over a number of years by local and regional stakeholders and policymakers and have enabled the region to prosper and grow into the economic powerhouse it is today.

**An Increasingly Diverse Population** – As Orange County's population has evolved over the past several decades, driven early-on by a combination of domestic and international migration, it has become increasingly more diverse with growing levels of Asian, Latino/Hispanic, and Middle Eastern communities and the beneficial global connections these communities bring to the table that contribute to Orange County's diverse, vibrant economy. This increased diversity has culturally enriched several regions of the county resulting in unique retail stores and experiences and also leads to international

connections that help increase international trade and attract international businesses and entrepreneurs. This diversity also serves to help promote and drive innovation attracting new businesses and workers into the region. With the regional population declining over the past several years, ensuring and supporting increased diversity will not only help continue cultural growth and business innovation but may also help in reversing the population trend. International students at universities such as UC Irvine are also a key driver of the increasing amount of global trade that Orange County enjoys.

**Highly-Education and Qualified Workforce** – With one of the highest proportions of residents 25 and older with a Bachelor's degree or higher in Southern California, Orange County has attracted, retained and cultivated a highly educated and qualified workforce. This labor force has, in-turn, attracted world-class business institutions into the region while also creating and supporting nationally recognized industry clusters which have further driven regional innovation and entrepreneurship. With educational attainment strongly correlated to wage growth and quality-of-life improvements, this regional strength will continue to be a major asset for both businesses and residents.

**Central Geographic Location in Southern California and on the Pacific Rim** – Orange County's unique geographic location, not only underscored by its 42-miles of beautiful coastline, but in between two major population centers – Los Angeles and San Diego – with a comprehensive transportation road and rail network, offers significant advantages to the region. South of two of the largest ports in the nation, Port of Los Angeles and Port of Long Beach, and with proximity to the Inland Empire which has seen significant industrial and commercial growth recently, as well as a short drive from San Diego's strong biomedical and defense clusters – Orange County's geographic location provides a number of dramatic advantages the region can continue to draw on, such as access to regional economic development assets, resources, and workforce talent. Orange County's location also benefits from Pacific Rim proximity and connections that bring global trade benefits.

**Highly Interconnected Transportation Infrastructure** – Supporting a number of Orange County industries and sectors, Orange County's comprehensive freeway and highway system provide high degrees of connectivity both within and to neighboring markets. Located south of two of the largest international trade ports in the nation, the Port of Long Beach and Port of Los Angeles and with access to a strong rail network, Orange County's international trade has benefitted greatly. With proximity to Los Angeles International Airport and its own, locally cherished, John Wayne Airport, both businesses and visitors have and will continue to leverage the region's highly interconnected transportation infrastructure.

**World-Class Educational and Research Institutions** – Chapman University, California State University, Fullerton (CSUF) and University of California, Irvine (UCI) represent the three largest universities in the region supporting its highly-educated and qualified workforce. With over 80,000 students enrolled in 2022, these universities provide a steady pipeline of workers to the local and neighboring economies. These universities also

promote and support important linkages to the business community where collaborative programs enable students to gain hands-on industry experience better preparing them for entry into the labor market. Orange County also has a robust community college system serving over 200,000 students per year at 10 campuses. These linkages between business and academia foster important relationships which help drive labor market growth and entrepreneurship. Additionally, recognized as one of the nation's top research universities, UCI has cultivated a world-class research institution which leverages dramatic academic resources with students, teachers, entrepreneurs, innovators, and investors to effectively create a strong and growing startup ecosystem.

**World-Famous Tourist Attractions** – Orange County has long been recognized as a tourist destination thanks to its beautiful beaches which host the annual US Open of Surfing, Disneyland which attracts an annual average of over 18 million visitors per year, and luxury shopping destinations including South Coast Plaza, which commands the second highest sales-volume at \$800 per square foot, and Fashion Island located in the heart of Irvine. As such, the region serves to attract a broad range of visitors from families with young children to retirees looking to take advantage of the warmer winter months. Orange County generated \$14.8 billion in travel-related spending in 2022, up from \$10.8 billion in 2021 which supported approximately 125,000 jobs in the region.<sup>57</sup> As the economy continues to recover from the pandemic-related recession, California's tourism industry already on course to reach \$154.4 billion in 2023, 107 percent of its 2019 totals.<sup>58</sup>

**Consistently Lowest Unemployment Rate in the Region** – With such a highly educated, innovative and entrepreneurial workforce, Orange County has long been a standout performer in the Southern California region as it concerns employment. With its unemployment rate consistently below national, state and regional neighboring county rates, Orange County has continually attracted more workers into the region – with 180,377 more workers commuting into the region than commuting out<sup>59</sup> - helping to highlight the high level of economic activity associated with the region.

**High Levels of Internet Connectivity** – The importance of a high-speed internet connection was made evident during the pandemic-related lockdowns where both workers and students had to adopt remote work strategies to continue their work. While many employees have returned to work in the office, many hybrid and fully remote work programs continue suggesting high internet connectivity may serve a role in attracting and retaining this remote workforce. According to Broadbandnow.com, Orange County has one of the highest levels of high-speed broadband internet coverage in the state at 99.9 percent and this, combined with the continued high quality of life and significant recreational opportunities, may help to reverse population trends.

**Strong and Concentrated Industry Clusters** – Industry clusters provide increased levels of economic growth and activity due to the close linkages that exist between

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<sup>57</sup> <https://industry.visitcalifornia.com/research/economic-impact?sort=county&region=Orange>

<sup>58</sup> <https://industry.visitcalifornia.com/research/travel-forecast>

<sup>59</sup> <https://onthemap.ces.census.gov/>

complimentary and supplementary businesses within a given geographic region. Increased job creation, above-average wages, improved specialization, and high levels of competition and collaboration are all hallmarks of successful industry clusters. As such, Orange County's medical device manufacturing, information technology and analytical instruments, financial services, and hospitality and tourism sectors will continue to help support and drive economic growth in the region.

**Diverse, Well-Rounded Economy** – Orange County's labor market and economy are resilient and able to rebound from downturns, not only due to its focused and specialized industry clusters, but also thanks to the diversity of its industry sectors which provides gainful employment opportunities to individuals at all skill and income levels. This industry diversification protects the regions and its workers and residents from disruptions or shocks which may be focused in one sector.

**Orange County's Groundwater Replenishment System (GWRS)** – Despite a record snowpack and rainfall in the region recently, water supply and drought remain a constant concern for Orange County and its residents. In response to growing water concerns, the Groundwater Replenishment System, a joint project between the Orange County Water District (OCWD) and the Orange County Sanitation District (OC San), is the world's largest water purification system for indirect potable reuse capable of producing up to 130 million gallons of high-quality water everyday. As of its 15<sup>th</sup> anniversary in 2020, the facility had produced more than 400 billion gallons of water. Orange County has a history of wise water management and has greatly reduced per-capita water consumption in recent years.

## **Weaknesses**

While many of the weaknesses currently impacting Orange County reflect broader state and national trends, a few are unique to the region. These weaknesses have been impacting the region for some time and, while a number of programs and initiatives have been introduced to mitigate their impacts, are expected to continue to impact the region in the short term.

**Lack of Unified Regional Vision Means Having to Better Tell Orange County's Story** – Cities in Orange County vary greatly in their population demographics, labor markets, industries, and in their expected goals or future milestones. As a result, crafting a unified regional vision for the county has become increasingly difficult. While the region does publish a Comprehensive Economic Development Strategy (CEDS) which helps to guide economic development and management programs, individual cities must contend with their own challenges, many of which may not be shared across the region. However, a strength of Orange County is its ability to bring a diverse group of stakeholders together to sit at the same table and get involved, such as during the CERF initiative, makes

Orange County strong and more unified and cohesive with a greater ability to undertake positive change.

**Legacy Perceptions of Orange County** – Orange County is often seen as a wealthy, non-diverse region when the reality is often quite the opposite. This causes organizations in need to lose out on funding or partnership opportunities based on these legacy perceptions; especially CBOs in the social sector attempting to work with philanthropic institutions outside of the county that are unfamiliar with the real needs of Orange County's disinvested communities.

**Labor Force Gap** – Despite strong linkages between academia and industry, a disconnect has formed between employee skills and employer expectations resulting in inefficiencies in the labor market and reducing the ability for employers to find qualified employees to fill open positions. As the world of work continues to evolve, employees are required to have a healthy combination of technical and common skills allowing them to undertake complicated tasks, effectively collaborate with team members, and serve to clients. Employers indicate this mix of hard and soft skills difficult to find in young workers which has led to open positions remaining unfilled serving to drag economic growth and activity. As collaborative efforts between academia and industry continue to work together to shrink this gap additional focus should be placed on supporting and improving on-the-job training where employers can better mold and develop their workers helping to not only reduce the skills gap but also reduce employee turnover and improve economic activity.

**Impact of AI/Automation** – Recent wage inflation and staffing shortages across the nation have served to accelerate the research and adoption of various artificial intelligence or automated software and processes. It is estimated that 30 percent of work tasks are currently automated as of 2022, a rate which will grow to 50 percent by 2025 which will require approximately 12 million jobs or nearly 9 percent of the workforce to undergo retraining.

**Housing Gap - Low-Income and Affordable Housing Options** – Demand to both live and work in Orange County has consistently remained high serving to push the cost of housing in the region to new highs in 2023. As a result, low-income or affordable housing options have become increasingly sought after as wage growth failed to keep pace with housing cost growth. This lack of low-income housing has pushed an increasingly large number of residents out of the county to lower cost regions such as the Inland Empire or out of the state entirely as this has become a statewide problem as well. This housing burden has been especially hard for all but upper middle- and high-income households. This has been a significant contributor to the region's declining population with domestic migration turning negative and net foreign migration seeing consistent annual declines.

**Decreasing Availability of Land for New Construction** – One major contributor to the cost of housing in Orange County is the declining availability of open land for new construction. With considerably less land area than its regional neighbors, Orange County

already has one of the highest populations densities per square mile in Southern California. As such, innovative developers must begin to look into repurposing existing, inefficient structures and developments into in-demand housing units. These strategies were discussed in detail in “Inside Orange County’s Retail E-Volution” a report published by the Orange County Business Council detailing how growing e-commerce trends have created opportunities for converting old brick-and-mortar retail into housing. A strategy which should be revisited as pandemic-induced remote work or hybrid work models call into question the necessity of so much office space.

**Increasingly High Cost of Living** – With the global economy left in turmoil following the depths of the COVID-19 pandemic which resulted in dramatic supply chain disruptions and rising inflation rates, the cost-of-living has rapidly increased across many economies in recent years. Combined with Orange County’s increasingly costly rent and housing prices, this has placed significant financial stress on many families and households resulting in increased out-migration and a decrease in new residents – especially young families. If left unchecked, this high cost-of-living will continue to alienate new and existing residents putting the region’s labor market and quality-of-life in jeopardy.

**Child Care Supply and Cost** – The cost of childcare, not just in Orange County but nationwide, has been steadily climbing over the past several years with California having the third most expensive care by state in the nation<sup>60</sup> putting additional financial pressure on families, especially single-parent households. Additionally, childcare has grown to be one of the biggest expenses families will face with the average annual cost reaching \$16,495 or \$1,412 per month in the state<sup>61</sup>. As above average inflation continues to impact households across the nation, creating policies or strategies to help bring down the cost through an increase in childcare availability would have dramatic benefits across the economy, not only as families are able to save money, but it could help more workers – especially women – to return to the workforce.

**Vulnerability to Natural Disasters** – Orange County, much like many portions of Southern California, is vulnerable to a number of natural disasters including floods, fires, landslides, drought and earthquakes. Despite significant planning, these events can still occur unexpectedly and have devastating impacts on residents and economic activity. Many agencies such as the Orange County Health Care Agency and ReadyOC provide a number of disaster preparedness resources online for residents to review and educate themselves with in the event of any major natural disaster. This is especially important as insurance carriers are increasingly eliminating or not renewing policies for housing in certain regions due to increased risk such as flooding or wildfires including State Farm and Allstate who paused insurance policies in California due to wildfires and increased construction costs.<sup>62</sup> Since new home insurance policies are required for home

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<sup>60</sup> <https://www.epi.org/child-care-costs-in-the-united-states/#/CA>

<sup>61</sup> Ibid

<sup>62</sup> <https://apnews.com/article/california-wildfire-insurance-e31bef0ed7eeddcde096a5b8f2c1768f>



purchases, if unaddressed, could dramatically impact housing supply and demand across the state.

**Environmental/Sustainability Challenges** – Similar to other coastal regions, Orange County’s aging and undersized infrastructure and urban development combined with impacts of climate change have created a number of environmental challenges for the region including heatwaves, air pollution, flood risks, and coastal erosion. While adoption of more sustainable products, services and technologies have been increasing in recent years, considerable progress must still be made in order to achieve many statewide and regional sustainability goals.

**Uneven Outcomes** – While Orange County is able to achieve better outcomes in terms of higher education, employment, wages, and prosperity when compared to broader statewide averages; this prosperity is not evenly distributed across county racial or ethnic groups. Without addressing these disparities, the county risks leaving behind a large portion of its residents serving to further hinder overall regional economic growth and competitiveness.

**Climate and Environmental Impacts Not Evenly Distributed** – While communities in central and northern Orange County are close to job hotspots, their comparative lack of public transportation often means long commutes and thus additional air pollution. Furthermore, compared to the rest of the county these areas have higher concentrations of hotter temperatures (summer time highs can be 20 degrees F more inland than near coast), less tree canopy, and more impervious concrete and asphalt surfaces. Therefore, these communities – including many SB535 disinvested communities – are heat islands disproportionately vulnerable to heatwaves. They thus require additional investments in cooling centers and home cooling.

**Public Health Impacts on Disinvested Communities** – Despite often being physically closer to hospitals, Orange County’s disinvested communities have less healthcare access than the rest of the county. 12.7% of disinvested community residents lack health insurance, compared to 6.6% of overall county residents. The county’s disinvestment communities have significantly worse health outcomes; Orange County life expectancy can vary by as much as ten years across census tracts, with the highest expectancies in coastal communities. Disinvestment communities and surrounding areas have three times as many annual asthma-related hospital visits as wealthier coastal communities.

**Digital Divide** – The COVID-19 pandemic proved that computers with reliable internet access are not luxuries but instead necessities for work and education. Broadband internet access is critical infrastructure for the economy as a whole, affecting students, jobseekers and businesses of all sizes, including every business reliant on apps such as Apple Pay. As with childcare, a lack of internet access decreases economic activity. Additionally, lack of internet access can also hinder broader community participation between residents as cities and community events are increasingly migrating all their

services online – which can be especially limiting for older adults who may not have adopted cell phones or email address too quickly.

**Potential Infrastructure Issues** – Statewide efforts to encourage electric vehicle adoption will put further pressure on the state’s electrical grid, which could have knock-on effects on other industries. Additionally, as more and more residents adopt electric vehicles, this will require significantly more charging stations in public areas as well as within homes. Also converting traditional gasoline stations to EV charging stations may prove more complicated and expensive than anticipated due to environmental mitigation requirements. Other potential infrastructure issues include the county’s lack of public transportation and, as previously mentioned, the need to expand broadband access.

## Opportunities

Opportunities in Orange County reflect potential achievable benefits in leveraging regional strengths to take advantage of broader statewide, national and even global trends. These opportunities will require significant efforts from local and regional policymakers and stakeholders yet if properly cultivated will not only increase economic growth and activity but also will help to further drive the regional quality-of-life ensuring Orange County remains a destination to live and work for decades to come.

**Elevate Disinvested Communities** – The pace of regional economic growth and activity will in some part rest on the county’s ability to provide education and training opportunities for members in these communities through nontraditional pathways such as apprenticeships. As these communities are able to better grow and prosper, not only will they be able to participate more fully in the county’s future growth, but they will also help to contribute and accelerate it, helping to benefit residents across the region.

**Develop an Overall Regional Competitiveness Strategy** – By focusing on aligning and accelerating investments in infrastructure with the goal of driving economic growth and development throughout the region, Orange County may be able to maximize its economic activity and prosperity more efficiently. By considering trends in housing, population migrations, consumer preferences and transportation needs in a comprehensive strategy, the region may be better able to reach its goals or milestones.

**Promote Innovation and Entrepreneurship** – The close ties between Orange County businesses and local academia represents significant existing and potential opportunities for the region as this continued collaboration helps to foster an environment of innovation and entrepreneurship. Institutions and programs such as UCI’s The Cove, a 100,000 square foot facility built specifically as a location for entrepreneurs to connect, share, and grow with access to a broad set of tools and resources and exposure to potential partners and advisors. Alongside The Cove, Orange County also has a number of incubators and

accelerators such as OCTANe further helping to better support and grow the region's entrepreneurial community.

**Leveraging Shifting Age and Ethnic Demographics** – As Orange County's population has grown and evolved it has seen rising proportion of Asian and Hispanic or Latino communities as well as an increasing proportion of older adults ready to enter retirement. Supporting increased diversity and improved equity among Orange County demographic groups helps improve the quality-of-life for all residents in the region. Increasing and better supporting women-owned, minority-owned, and minority-women-owned businesses in the region helps better distribute economic growth and enables a broader swath of residents to improve their quality-of-life. Additionally, Healthcare and Social Assistance has become one of the dominant sectors in the region, a sector which is likely to see continued growth as the regional populations grows older and requires additional services. The regional specialization in Medical Devices also suggests the region will be uniquely suited to support its older populations.

**Leverage Existing and Emerging Industry Clusters** – As industry clusters helps to foster increased levels of employment, economic activity, and innovation, ensuring these sectors are properly supported and able to maximize their regional benefits. Orange County's Medical Device industry includes nationally recognized organizations such as Edwards Lifesciences, Applied Medical, Johnson & Johnson, Braun, Medtronic, and Abbvie supported by academic programs including University of California, Irvine's Department of Biomedical Engineering which included over 550 undergraduate students, over 130 graduate students, with over \$47.3 million in research expenditures in 2020-2021.<sup>63</sup> Additionally, it is equally important to support smaller, emerging industry clusters so that they may more easily form and grow. As adoption of electric vehicles and environmental responsibilities grow, Orange County may be unique positioned to become a national leader in advanced transportation and renewable energy.

**Build Economic Resilience** – In the face of multiple economic downturns, Orange County has consistently been able to rebound quicker than many of its regional neighbors. Further enhancing the region's economic resilience to ensure disruptions to industries are short-lived would help ensure more consistent economic growth.

**Build a Strong, Inclusive Economy Through Education and Job Creation** – As Orange County's population continues to grow and evolve, it should prioritize creating strong and effective pathways and programs to higher education and gainful employment opportunities. Supporting and increasing partnerships between private industry and academia to craft postsecondary programs and training pathways to better equip individuals with the skills, knowledge, and qualifications needed to fill open and emerging occupations in the region. This will not only better prepare individuals for their professional careers but will also serve to help close the skills gap currently impacting the labor market.

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<sup>63</sup> <https://engineering.uci.edu/files/2020-21-bme-facts-and-figures.pdf>

**Reindustrialization Strategy** – Orange County is already home to several high-value manufacturing industries which help drive economic development such as Medical Devices, Biotechnology, or Aerospace and Defense. Additive manufacturing is a key emerging sector. Formulating a strategy that works to capture concentrate and re-shore these and similar other high value industries can help to further drive regional economic activity and competitiveness. Orange County needs to remain competitive from a regulatory standpoint for the manufacturing industry to thrive.

**Attract and Retain World-Class Employers** – Orange County is home to over 30 nationally-recognized organizations, each with a net worth over \$1 billion. They include Alteryx, Inc, Boeing, Disney, CoreLogic, Masimo Corporation, Edwards Lifesciences Corporation, Vizio, and Viant Technologies. A number of these firms are headquartered here in Orange County. Continuing to ensure these organizations are able to thrive while continuing to attract world-class employers will not only improve the regional labor market but help to solidify the region as an economic powerhouse of Southern California.

**Regional Career Pathways and Skills-Based Learning Initiative** – Further helping to address the skills gap or mismatch currently impacting the labor market, crafting solid career pathways for young professionals to follow supported by skills-based learning initiatives helps to strengthen the regions labor talent pipeline while also improving access to these occupations for displaced or marginalized workers across a multitude of industries. Focusing on enhancing partnerships between industry and academia will better shape and inform these programs on existing and emerging technologies and processes allowing individuals to be better prepared to fill these positions.

**Transform Higher Education** – Just as Orange County's population is evolving, so should academia to better reflect the needs of its students. Students include not just young adults, but non-English speakers, adult learners, people with dependents, undocumented persons, formerly incarcerated individuals and other marginalized communities; and improving their ability to access relevant, flexible educational opportunities would help contribute to broader regional economic growth and competitiveness.

**Career Technical Education and Apprenticeships** – Career Technical Education (CTE) and the building trades are programs offered to students of all ages and provide students with the academic and technical skills to succeed in skilled crafts or trades. While significant emphasis has been placed on four-year traditional academic institutions in recent years, demand for trades workers has remained consistently high, providing, in many cases, high wage occupations with significant benefits. A great example are the building trades with various curriculum and trainings surrounding apprenticeships. With federal funded infrastructure projects coming through the pipeline, building trade apprenticeships are a great opportunity for Orange County to create new skilled construction workers to take advantage of these good paying jobs. With the increased cost of traditional universities continuing to climb pricing many students out, marketing and communicating the benefit of these occupations through the enhancement of CTE

programs throughout the county could help drive employment growth in these sectors providing a different pathway to career success and further helping to drive economic prosperity across the region.

**Addressing OC's Child Care Weakness** – A lack of affordable childcare has become a significant economic challenge for Orange County. According to First 5 OC, one in five working Orange County parents and guardians show up late to work due to gaps in childcare. One in six regularly leave work early due to a lack of childcare, while one in ten choose to leave their jobs and one in eleven reduce their hours in order to take care of their children. This lack of childcare, in other words, is a significant drag on productivity and labor force participation; addressing this issue by ensuring a sufficient supply of affordable, accessible childcare would have positive effects across the county economy. Furthermore, childcare is also a vital investment in the county's future because of the important role it plays in child development.

**Further Water Management Innovation** – Orange County has long had world-class water infrastructure, exemplified by the Orange County Water District/Orange County Sanitation District's 2008 Stockholm Industry Water Award. Further investment in water recycling and other innovative water-related technologies could create major long-term dividends.

## Threats

**Declining Population** – Orange County has seen its population fall from 3,186,989 in 2020 to 3,137,164 in 2023, a decline of nearly 50,000 residents. Similar to statewide trends, Orange County's prohibitively expensive housing market and lack of affordable housing options have been deterrents to many young professionals and families, driving them to find more affordable alternatives. Combined with an aging population, this puts at risk one of the region's competitive advantages, namely its deep pool of highly educated and qualified pool from which employers can fill open positions.

**Increasing Older Population** – While an increasing proportion of older residents imply market growth for the county's Healthcare and Health Sciences industries, it also brings with some concerning trends. As the number of working age residents declines and the dependency ratio increases, additional stress will be placed on the labor market and the fiscal strength of local and regional governments. With a strong, well-educated labor market historically being a primary competitive advantage of the region, preserving this advantage will be crucial for the future growth of the area. Additionally, with many residents aging in place, housing turnover in the region may continue to slow, thereby reducing the supply of available homes on the market and keeping housing prices high.

**Affordability and High Cost of Living** – With housing prices near all-time highs considerably higher than those of nearby counties, and due to a lack of affordable housing

options, many residents are opting to move to lower cost regions in nearby counties or out of state altogether. If these trends persist, without a mirrored increase in wages and salaries, affordability concerns will continue to impact the region.

**Poverty Rates and Homelessness** – With affordability concerns and the cost-of-living remaining high, more and more families are at-risk of falling below the poverty line, or worse, becoming homeless. While many programs and support services are available to unhoused populations in Orange County, ensuring more and more individuals are not left behind should remain the primary goal of regional stakeholders and policy makers.

**Barriers to Entry/Regulatory Environment** – Long known for its stringent regulatory environment which was made more apparent in how states handled the COVID-19 pandemic, many businesses have cited the regulations as major barriers to entry in the state. While California and Orange County remain premier destinations to both live and work, future growth could be hampered by increased business regulations, at the state level as well as the local level.

**Mental Health Trends** – Mental health trends, especially for younger members of the population, became exacerbated during the pandemic with mental health-related emergency department visits among children aged 12 to 17 increased 31 percent from 2019 to 2020 across the nation.<sup>64</sup> There is evidence that these mental health problems continue to linger with issues, especially among individuals from racial/ethnic minority groups, mothers and pregnant people, those experiencing financial, housing, or food insecurity, children, people with disabilities and Healthcare or public health workers.<sup>65</sup>

**Automation's Impact on Occupation and Career Ladders** – McDonalds recently announced the test of an automated restaurant location in Fort Worth, Texas complete with touchscreens and conveyor belts, with the goal of improving speed and accuracy.<sup>66</sup> While it still employs a team to cook the meals, there is no face-to-face customer interaction. Wendy's, a large fast-food chain with nearly 6,000 restaurants across the nation, recently announced it was partnering with Google to test an AI chatbot able to take orders at drive-thru<sup>67</sup> indicating many of these jobs could be at risk of replacement in the near future. These jobs, typically filled by young workers or individuals entering the labor force for the first-time, represent important rungs on the career ladder which impart valuable experience and soft skills such as teamwork and communication. The absence of these valuable skill building opportunities will have unknown effects on young workers, potentially slowing their career progression. Additionally, teachers from high school to graduate-level programs are having to contend with students leveraging AI chatbots to complete their work – primarily written assignments and essays. As new and emerging technologies continue to impact the world of work, local stakeholders and policymakers

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<sup>64</sup> <https://www.ucihealth.org/blog/2021/09/mental-health-crisis-for-kids>

<sup>65</sup> <https://www.ocregister.com/2023/04/24/study-pandemic-related-mental-health-issues-linger/>

<sup>66</sup> <https://www.theguardian.com/business/2022/dec/23/mcdonalds-automated-workers-fort-worth-texas>

<sup>67</sup> <https://www.theguardian.com/us-news/2023/may/10/wendys-ai-chatbot-drive-thru>

must be cognizant of how these technologies could impact the labor market and broader economy.

**AI Workforce Training Lagging** – The rapidly advancing artificial intelligence (AI) sector requires new workforce training and academic curriculums to better prepare workers. These “new collar” jobs, such as Prompt Engineers, require specialized training and qualifications which have not yet been adequately developed in the region. In order to capitalize on this emerging sector, additional focus will have to be put on properly educating workers to fill these positions.

**Water Supply Uncertainty** – Despite a record snow fall in the past year, climate changes trends indicate that the state will be under a continued threat of drought going forward. Orange County water agencies such as the Municipal water District of Orange County (MWDOC) indicate the region’s water supply will remain adequate for years to come, but there is an ongoing imperative to adopt water conservation strategies that may affect the lifestyles of Orange County residents along with business decisions among the county’s employers. While MWDOC recently rescinded its call for voluntary 15 percent water savings due to a record-setting wet season, conditions are likely to change as summer approaches.

**Climate and Urban Sustainability Challenges** – The region and large parts of the state are increasingly at risk of heat waves, air pollution, floods, coastal erosion, and drought as well as impacts from increased urban development and outdated infrastructure. While increased water and power conservation measures may provide short-term relief, additional strategies, such as increasing reliance on renewable energy technologies, may be required to maintain the quality of life in the region while also meeting these challenges arise.

**Coastal Erosion** – Recent heavy rains in the region have resulted in structures being red-tagged and landslides in communities such as San Clemente and the Newport Back Bay. Adding to concerns from rain, estimates indicate Southern California beaches could see increased erosion as climate change spurs rising sea levels.<sup>68</sup> Many luxury homes atop coastal bluffs face significant threats from potential erosion and landslides as well as rising tides which chip away at those bluffs. Erosion could even threaten Amtrack passenger service through San Clemente where officials indicated they would study its potential impacts as part of their own coastal erosion resilience framework.

**Shifting Commercial Real Estate Trends** – The combination of remote work or hybrid work schedules, along with recent interest rate increases, have created significant headwinds for the commercial real estate sector. Office occupancy rates have improved since the worst days of the pandemic, but remain well below pre-pandemic levels. As clients rethink their needs for expansive office space due to reduced head counts in the office, demand for office space will fall short of pre-pandemic levels and vacancy rates are likely to remain elevated. As such, lease renewals are likely to see significant

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<sup>68</sup> <https://voiceofoc.org/2023/03/rainstorms-put-new-focus-on-an-orange-county-coastline-washing-away/>

changes, which will affect the cost of office space. When market conditions such as these are combined with the higher cost of debt through Federal Reserve interest rate increases, the result is downward pressure on commercial property prices (the price of existing commercial properties with the Green Street Commercial Property Price Index has decreased 15 percent since property prices spiked a year ago<sup>69</sup>, and difficulty in securing financing for new construction.

**Potential Future Natural Disasters** - Future earthquakes, wildfires, floods, landslides and other disasters have potential implications for infrastructure, construction, transportation and other key sectors. Heat waves, air pollution, flood risk, and coastal erosion caused by aging infrastructure, urban development, habitat change, drought, and climate change are significant.

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<sup>69</sup> <https://www.greenstreet.com/insights/CPPI>



## Appendix A: HRTC Research Presentations 3 Key Points

April 14, 2023

### **Dr. Richard Matthew, UC Irvine**

1. The combination of aging and undersized infrastructure, urban development and climate change has catalyzed significant and growing environmental challenges in Orange County including heat waves, air pollution, flood risk and coastal erosion including beach loss
2. Coastal erosion cannot be reversed and several areas in Orange County are in danger of generating large economic, recreational, and ecological losses soon
3. Technology developed at UCI can model complex coastal dynamics, identify hot spots and trends, and help communities develop efficient solutions tailored to their specific contexts and values.

### **Victor Negrete, Southern California Association of Governments Dr. Richard Matthew, UC Irvine**

1. SCAG is developing data tools and resources, including a Job Quality Index, to help the region monitor its progress towards a more resilient, inclusive economy.
2. SCAG is supporting the regional economy by developing toolkits for public agencies and anchor institutions to expand contracting and supply-chain opportunities for woman- and minority-owned businesses.
3. SCAG is working to expand access to family-supporting jobs by identifying pathways, as well as barriers, to economic opportunity with a focus on disadvantaged communities.

April 28, 2023

### **Dr. Neil Sahota, UC Irvine**

1. The AI/robotics automation is happening at an accelerated pace because of wage inflation and staffing shortages (2022: 30% of work tasks are automated; 2025: 50% of work tasks will be automated)
2. In the next 3 years, ~12M US workers (nearly 9% of the workforce) will need retraining based on AI's impact
3. Current workforce training and educational curriculum is not sufficiently focused on teach the skills for "new collar" jobs being created from AI/robotics, like Prompt Engineers.

### **Dr. Su Jin Jez, California Competes**

1. Orange County residents overall achieve better outcomes in terms of higher education attainment, work, and prosperity when compared to statewide averages. This suggests that the County has a strong foundation for economic growth and success, but a closer examination of the data reveals that this success is not evenly distributed across the County. Without addressing these disparities, Orange County risks leaving behind significant portions of its population, which could ultimately hinder the County's overall economic and social development.
2. To build a strong, inclusive economy, decision-makers must prioritize creating effective pathways and programs to and through higher education and onto better job opportunities. By engaging employers to support crafting postsecondary and training pathways that equip individuals with the skills and knowledge they need to succeed in the workforce, Orange County can help to close the opportunity gap and ensure that residents are prepared for the jobs of today and tomorrow. This can also ensure that the skills and knowledge that residents gain are aligned with the needs of local businesses and

industries.

3. Transforming higher education to meet the needs of today's students, including adult learners, people with dependents, formerly incarcerated individuals, and those from marginalized communities, presents a significant opportunity for building a more equitable and competitive society. By expanding access to relevant and flexible educational opportunities, decision-makers can unlock new sources of talent and potential, leading to a more prosperous future for all.

### **Matt Horton, Milken Institute**

1. Focuses on aligning and accelerating investments in infrastructure (e.g., housing, mobility, and transportation),
2. Develop a reindustrialization strategy that works to capture, concentrate and re-shores growth among various high-value industries (e.g., R&D, renewable energy production, biotech, manufacturing, industrial design, aerospace, etc.),
3. Design regional career pathways and skills-based learning initiatives that further cultivates upstream investments in the talent pipeline, while enhancing access for displaced and/or marginalized workers across a number of sectors.

May 12, 2023

### **Dr. Robert Kleinhenz**

1. Orange County is a large prosperous economy that has demonstrated a history of resilience and is well-positioned to succeed over the next several years
2. The county faces two large challenges in the next several years: labor force gap and housing gap
3. The county's ability to lift up disinvested communities will depend in part on its ability to provide education and training opportunities for members of these communities, enabling them to participate more fully in the county's future growth.

May 26, 2023

### **Dr. Marlon Boarnet**

#### **Climate and Environmental Impact Analysis, Takeaways**

1. Central/North County are near jobs, but job access by transit is weaker (by 10% or less) than job access by car.
2. Central/North County are concentrations of hotter temperatures (summertime highs can be 20 degrees F more inland than near coast), less tree canopy, and more impervious surface.
3. The SB 535 disadvantaged (disinvested) communities are locations that are vulnerable to heat, heat islands, and in need of cooling centers and home cooling.

#### **Public Health Analysis, Takeaways**

1. Disadvantaged communities are closer to health care facilities (hospitals)
2. That physical access does not translate into access to health care resources
  - 12.7% of persons in disadvantaged communities lack health insurance, compared to 6.6% in the balance of Orange County
3. Resource disparities translate into disparities in health outcomes
  - Life expectancy at birth varies by almost ten years across census tracts.
    - Mid-point of the highest quintile (coastal, upper income) is 85 years
    - Mid-point of lowest quintile (central, lower income) is 78
  - Asthma visits per year (per 10,000 persons) ranges from 16 to 49 annual visits at the mid-

point of the lowest and highest quintiles, again roughly coastal/upper income to central/lower income – a three-fold difference.

June 30, 2023

## Mapping Black California / Voice Media Ventures

### Disinvested Communities Breakdown

1. At risk communities in the OC area are centralized around Asian and Hispanic Communities in the Anaheim, Garden Grove, and Santa Ana sphere of influence.
2. These communities on average make well below the median income of \$95,280, in most areas the combined income of people colors is still significantly less than their white neighbors, even when they make up the majority of the population.
3. Disadvantaged areas are also marked as being in the top 25% in CalEnviroScreen 3.0 census tracts with high amounts of pollution and exposure to elements with high correlation to adverse health effects.

### Equity and Inclusiveness

1. 1 in 10 Orange County residents reside in poverty with the highest rates centered around high minority population zones. A third of the region's children live in homes that report income below the federal poverty line with high concentrations in high minority areas. Residents living in poverty face significantly limited opportunities for upward mobility, economically stunting a region whose population skews more and more majority minority.
2. Countywide homeownership barely outpaces renting at 57%. Most low-wage workers in the region are not likely to find affordable rental housing. Increasing rental cost burdens matched with low wage job growth inhibits renters from purchasing and keeping homes.
3. Orange County has many adult residents with less than a high school degree. Attainment varies widely by ethnicity; only 9 percent of Latino immigrants have a bachelor's degree or higher, while 53% have less than a high school degree. African Americans, Native Americans, and Pacific Islanders lag far behind in educational attainment as well. This is heavily influenced by high rates of "Disconnected Youth" among African Americans (17%) and Latinos (12%).

### COVID-19 Pandemic

1. Native Hawaiians and Pacific Islanders were four times more likely to contract COVID-19 than the groups with the lowest rates. Latinx and American Indians and Alaska Natives were twice as likely to contract COVID-19 than the groups with the lowest rates.
2. Native Hawaiians and Pacific Islanders were four times more likely to contract COVID-19 than the groups with the lowest rates. Latinx and American Indians and Alaska Natives were twice as likely to contract COVID-19 than the groups with the lowest rates.
3. Low scoring, low ranking Vital Conditions areas are also centered around the previously outline disinvested areas; poor Pre-COVID vitality indicators directly aligned with areas that struggle to be economically self-sustaining. The Index shows how economic relief allocations can account for race and place by individual impact area. It identifies communities most at risk of being disproportionately impacted by the long-term economic risks associated with Covid-19.

July 18, 2023

**V. Parks & Y. Kim**

**UCI Labor Center CERF Research Takeaways**

1. The majority of workers in OC do not hold good jobs. More than 60 percent of workers do not hold a job that provides employer-sponsored healthcare, offers full-time, full-year employment, and pays the MIT living wage required to support a household of two working adults and one child. This definition of a “good job” is less comprehensive than the State of California’s definition of a “quality job,” indicating that an even greater percentage of workers in Orange County fall short of quality employment.
2. The largest three industries employing Orange County workers are middle-paying industries: Health Care and Social Assistance (15% of all county employment), Education Services (12%), and Manufacturing (11%). These industries have median wages that fall above the MIT living wage threshold. Among the next three largest industries, two are low-paying (Retail Trade, 10%; Accommodation and Food Services, 6%) and one is high paying (Professional, Scientific, Technical Services, 9.5%).
3. Union wage premiums are significant and a critical determinant of a worker holding a good job. In 2021, workers with union jobs earned 55% more than their non-union counterparts. Unionization likely contributes to the higher median wages in many of Orange County’s middle-paying industries such as education, healthcare, and construction. Unionization also makes a difference in lower-paying industries. Even workers in these industries have good jobs when covered by a union, e.g., grocery clerks (retail industry) and hotel housekeepers (accommodation and food services).

## Appendix B: Orange County History Timeline

Orange County has been home to indigenous populations for thousands of years. Portions of what is now Orange County are the ancestral homelands of the Tongva and Acjachemen people. Pre-18<sup>th</sup> century: Native American tribes including the Tongva, Juaneño, and Luiseño occupy modern-day Orange County. Major villages include Acjacheme, near the present-day Mission San Juan Capistrano; Hutuknga in modern-day Anaheim; and Putiidum near modern-day JSerra Catholic High School.

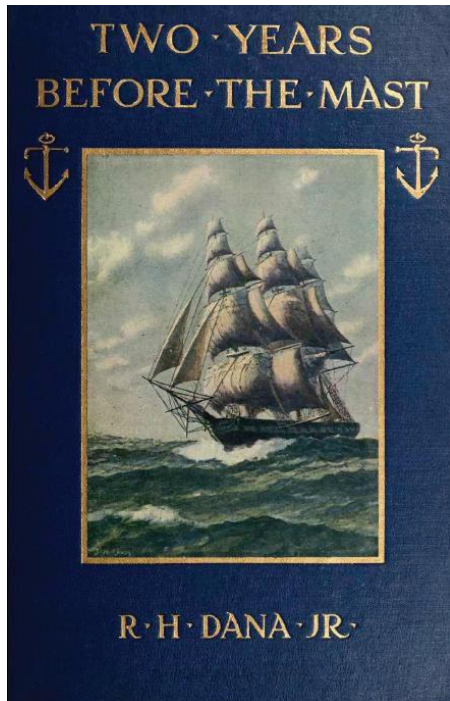
1769: Spanish colonists first arrive.



1776: Mission San Juan Capistrano founded.

1784: The Spanish Empire grants a large land concession to soldier Manuel Nieto; the 167,000-acre Rancho Los Nietos includes what would become southern Los Angeles County and northern Orange County.

1821: Mexico gains independence from Spain.



1833: Richard Henry Dana, the namesake of Dana Point, and the brig *Pilgrim* sail into today's Dana Point Harbor.

1834: José Figueroa, governor of the Mexican territory of Alta California, divides Rancho Los Nietos into six smaller ranchos.

1846: Almost all of what became Orange County is granted to ranchers by the Mexican government.

1846-1848: Mexican-American War. Modern-day California is ceded to the United States.

1849: The California Gold Rush attracts thousands of immigrants from around the world.



1850: California gains statehood. The future Orange County becomes part of newly-formed Los Angeles County.

1850s: Santa Ana farmer William Wolfskill cultivates the first Valencia oranges.



1857-1859: German immigrants found the city of Anaheim.

1861: Hesperian College (later Chapman University) founded.

1864: James Irvine and two other investors buy the 48,800-acre Rancho San Joaquin, their first major purchase in what would become Orange County.

1868: After several further purchases, the Irvine Ranch encompasses 93,000 acres.





1876: City of Anaheim incorporated.



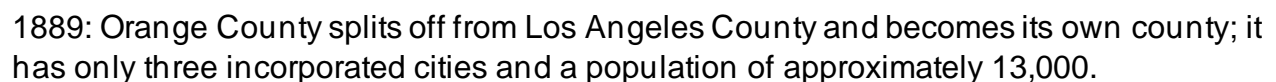
First American

Courtesy of First American Historical Collection | [www.FirstAm.com/HistoryOC](http://www.FirstAm.com/HistoryOC)

1880: Oil is discovered in the Brea Olinda Oil Field, near what would become the cities of Brea and Fullerton. California's first oil field, it would have more than 100 oil wells by 1912 and would produce approximately 20% of the world's oil supply in the early 1920s.



1886: City of Santa Ana incorporated.



1905: The Santa Ana Daily Register (later the Orange County Register) publishes its first issue.

1920s: Duke Kahanamoku popularizes surfing in Southern California. His impact is commemorated by a life-size statue in Huntington Beach.

1921: Huntington Beach's 59 oil wells produce a significant proportion of the global oil supply.

1927: The Metropolitan Water District is formed, bringing water to Southern California that fuels future growth. City of Laguna Beach is incorporated and becomes known as an artists' colony, a hotspot of California Impressionism.

1930: Orange County produces more than 15 percent of the nation's Valencia orange crop.

1933: Orange County Water District formed to protect the county's groundwater supply.

1935: The Hoover Dam is completed; it will power the growth of Southern California.

1940: Walter Knott adds a ghost town to entertain guests waiting in line for meals at his successful Buena Park roadside restaurant. Knott's Berry Farm would go on to become one of the United States' top ten most popular theme parks, attracting more than 3.6 million guests in 2021.



1941-1945: World War II transforms Orange County. The United States military establishes more than a dozen bases in the county, including the Santa Ana Naval Air Station whose National Register of Historic Places-listed blimp hangars remain regional landmarks. Other key military installations include the El Toro Marine Corps Air Station, the Naval Ammunition and Net Depot Seal Beach (later the Seal Beach Naval Weapons Station) and the Los Alamitos Naval Air Station (later the Joint Forces Training Base - Los Alamitos).

1942: The United States Army Air Corps opens the 1,336-acre Santa Ana Army Air Base, home of the 81<sup>st</sup> Flying Training Wing. The base was deactivated after the war and

transformed into John Wayne Airport, Orange County College and the OC Fair & Events Center.

1947: In *Mendez et al v. Westminster School District of Orange County et al*, the Ninth District Court of Appeals rules against racially segregated schools in Orange County; the five Orange County families involved strike a significant blow against the doctrine of separate but equal.



 First American

Courtesy of First American Historical Collection | [www.FirstAm.com/HistoryOC](http://www.FirstAm.com/HistoryOC)

1955: Disneyland opens.

1957: California State University, Fullerton founded.

1958: The Santa Ana Freeway (Interstate 5) is completed.

1963: Orange County's population reaches 1 million. The Colorado River Aqueduct expand the county's water supply.



1965: University of California, Irvine founded.

1969: Orange County native Richard Nixon becomes the 37<sup>th</sup> president of the United States. The Apollo 11 mission lands Neil Armstrong and Buzz Aldrin on the moon; Apollo 11's rocket boosters were built by North American Rockwell in Seal Beach and McDonnell Douglas in Huntington Beach.

1973: Skylab, the first American space station, is launched. Its rocket was built by McDonnell Douglas in Huntington Beach.

1975: The city of Saigon, South Vietnam falls to northern Vietnamese forces. Approximately 130,000 Vietnamese refugees find asylum in the United States, 50,000 of which are sent to Camp Pendleton.

1975-1980: Approximately 18,000 Vietnamese refugees move to six Orange County cities: Westminster, Santa Ana, Garden Grove, Anaheim, Costa Mesa and Huntington Beach.

1979: 44,000 Vietnamese refugees, known as the boat people, arrive in Orange County. Memorials in Santa Ana and Westminster commemorate refugees who died while fleeing political and ethnic persecution.





Image from [City of Westminster website](#)

1980s: Hundreds of thousands of Vietnamese refugees arrive in Orange County; the majority settle in Little Saigon, which straddles Westminster and Garden Grove and contains the largest Vietnamese population outside of Vietnam.

1981: Orange County's population reaches two million.

1984: Taiwanese immigrant entrepreneur Roger H. Chen opens the first 99 Ranch Market in Buena Park. As of 2023, the grocery store chain includes more than 50 stores across 11 states.

1988: Victor and Janie Tsao found Linksys in Irvine. The City of Mission Viejo is incorporated. Chinese-Brazilian immigrants Wing Lam, Eduardo Lee and Renato "Mingo" Lee found Wahoo's Fish Taco.

1989: Chinese immigrant entrepreneur Charlie Zhang opens the first Pick Up Stix in Rancho Santa Margarita; the restaurant chain has since grown to approximately fifty locations. Iranian immigrant Joe E. Kiana founds medical device manufacturer Massimo Corporation in Irvine.



1991: Six government transportation agencies combine to form the Orange County Transportation Authority.

1994: When rogue treasurer Robert L. Citron's investments go bad, the County of Orange files for federal protection in what was at the time the largest municipal bankruptcy in American history.

1996: The \$7.4 billion Orange County Pool Settlement, one of the largest bankruptcy settlements in American history, is approved, lifting the county out of bankruptcy. However, the county will pay bankruptcy-related debt payments for over a decade.



2001: Disney California Adventure opens.

2002: Pao Fa Temple opens in Irvine.

2003: Orange County's population reaches three million.

2004: Plans to develop the historic Rancho Mission Viejo approved by Orange County Supervisors.

- The Islamic Center of Irvine (ICOI) opens.

2006: Approximately 40,000 acres of Irvine Ranch Open Space are designated as a National Natural Landmark.

2006: Yogurtland, founded by Phillip and Michelle Chang, opens its first location in Fullerton. Yogurtland has since grown to more than 230 locations in eight countries.

2007: The County of Orange makes its final payments on the 1994 bankruptcy filings.

2020: The COVID-19 pandemic disrupts every aspect of life in Orange County, including its world-famous Tourism and Hospitality sector. Hundreds of thousands of county students, from kindergarteners to PhD candidates, and their instructors transition overnight from in-person to online instruction. Orange County stakeholders, especially small business owners, demonstrate tremendous resolve to serve their customers and staying afloat.

2021: UCI overtakes Disney as the county's largest employer.

2020s: Like the rest of the state, Orange County begins to lose population for the first time in its history.





## Appendix C: Orange County Center of Excellence: OC Occupational Assessment

## **Recession-Stable, Good Job, and Family-Supporting Definitions**

### **Recession-Stable Jobs**

Recession-Stable Jobs are those that met the criteria to be considered both a Great Recession-Stable Job and a COVID-19 Pandemic Recession-Stable Job, as defined below.

### **Great Recession-Stable Jobs**

Great Recession-Stable Jobs are those which have met the following criteria for employment, annual job openings, and wages between 2005 and 2019:

- **Employment** – Less than 7.4% employment decline between 2005 and 2009, as well as greater than 21.4% employment growth between 2010 and 2019.
- **Annual Job Openings** – Annual openings at or above the median during the Great Recession (2007-2009), as well as at or above the median between 2010 and 2019.
- **Wages** – Entry-level hourly earnings are at or above the MIT Living Wage for a single adult: \$23.66.

### **COVID-19 Pandemic Recession-Stable Jobs**

COVID-19 Pandemic Recession-Stable Jobs are those which have met the following three criteria for employment, annual job openings, and wages between 2019 and 2021:

- **Employment** – Less than 8% employment decline between 2019 and 2020, as well as greater than 3.5% employment growth between 2020 and 2021.
- **Annual Job Openings** – Annual openings at or above the median during the COVID-19 Pandemic Recession (2019-2020), as well as at or above the median between 2020 and 2021.
- **Wages** – Entry-level hourly earnings are at or above the MIT Living Wage for a single adult: \$23.66.

### **Good Jobs and Family-Supporting Jobs**

"Good jobs" are those that are considered a Recession-Stable, Great Recession-Stable and/or COVID-19 Pandemic-Stable Job and have entry-level earnings at or above the MIT Living Wage of \$23.66 for a single adult.

An analysis of Census data shows that the average household size in Orange County is two adults and one child. Therefore, family-supporting jobs meet the good job criteria but have entry-level earnings at or above the MIT Living Wage of \$25.57 for a family with two working adults and one child.<sup>1</sup>

### **U.S. News and World Report 100 Best Jobs**

Recession-Stable Jobs, Great Recession-Stable Jobs, and COVID-19 Pandemic Recession-Stable Jobs were compared to U.S. News and World Report's 100 Best Jobs of 2023.<sup>2</sup> U.S. News considers several factors in its Best Jobs rankings, including projected growth, salary, stress level, and work-life balance.

<sup>1</sup> MIT Living Wage for Orange County, CA, accessed April 14, 2023, <https://livingwage.mit.edu/counties/06059>.

<sup>2</sup> "100 Best Jobs," U.S. News and World Report, accessed April 14, 2023, <https://money.usnews.com/careers/best-jobs/rankings/the-100-best-jobs>.

## Recession-Stable Jobs

For more information regarding each occupation, including descriptions, related job titles, and more, visit the O\*NET website.<sup>3</sup>

## Recession-Stable Jobs

The 15 Recession-Stable Jobs identified are provided in **Exhibit 1** below. Jobs that were stable during both the Great Recession and COVID-19 Pandemic Recession are denoted with an asterisk (\*). Jobs included on U.S. News and World Report's 100 Best Jobs list are denoted with a caret (^). Jobs that are considered a "good job" but not a "family supporting job" are highlighted in gray.

**Exhibit 1: Recession-Stable Jobs in Orange County**

SOC	Occupation	Typical Entry Level Education	2005 Jobs	2021 Jobs	2005 - 2021 % Employment Change	Annual Openings (2007-2021)	Entry-Level Hourly Earnings (25th Percentile)	Median Hourly Earnings	Good Job (MIT Living Wage \$23.66)	Family Supporting Job (MIT Living Wage \$25.57)
29-1141	Registered Nurses*^	Bachelor's degree	17,913	25,415	42%	1,772	\$46.02	\$56.03	☑	☑
11-9199	Managers, All Other*	Bachelor's degree	6,692	14,386	115%	1,374	\$26.87	\$49.17	☑	☑
13-1082	Project Management Specialists*	Bachelor's degree	5,180	9,518	84%	767	\$34.69	\$46.75	☑	☑
11-9111	Medical and Health Services Managers*^	Bachelor's degree	1,626	4,334	167%	378	\$35.12	\$52.76	☑	☑
11-3012	Administrative Services Managers*	Bachelor's degree	2,227	3,572	60%	334	\$37.60	\$47.33	☑	☑
29-1292	Dental Hygienists*^	Associate degree	1,788	3,543	98%	278	\$48.77	\$48.82	☑	☑
29-1021	Dentists, General*^	Doctoral or professional degree	1,262	2,979	136%	277	\$34.95	\$78.65	☑	☑
11-3071	Transportation, Storage, and Distribution Managers*	High school diploma or equivalent	994	2,108	112%	191	\$36.39	\$48.76	☑	☑
11-9032	Education Administrators, Kindergarten through Secondary*	Master's degree	1,562	1,884	21%	169	\$47.02	\$59.53	☑	☑

<sup>3</sup> O\*NET OnLine, accessed March 7, 2023, <https://www.onetonline.org/>. May 2023

**Exhibit 1: Recession-Stable Jobs in Orange County**

SOC	Occupation	Typical Entry Level Education	2005 Jobs	2021 Jobs	2005 - 2021 % Employment Change	Annual Openings (2007-2021)	Entry-Level Hourly Earnings (25th Percentile)	Median Hourly Earnings	Good Job (MIT Living Wage \$23.66)	Family Supporting Job (MIT Living Wage \$25.57)
11-9033	Education Administrators, Postsecondary*	Master's degree	1,122	1,726	54%	168	\$45.18	\$57.90	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
49-2098	Security and Fire Alarm Systems Installers*	High school diploma or equivalent	869	1,659	91%	165	\$24.94	\$31.84	<input checked="" type="checkbox"/>	
27-2012	Producers and Directors*	Bachelor's degree	328	1,618	393%	178	\$33.05	\$54.41	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
29-1071	Physician Assistants* <sup>^</sup>	Master's degree	540	1,433	166%	109	\$53.49	\$59.99	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
19-3039	Psychologists, All Other* <sup>^</sup>	Master's degree	100	1,332	1232%	148	\$27.31	\$45.70	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
11-3013	Facilities Managers*	Bachelor's degree	757	1,298	71%	128	\$36.53	\$47.21	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>

**Researcher's Note:**

**Recession-Stable Jobs met the following criteria:** **Employment** – Less than 7.4% employment decline between 2005 and 2009, as well as greater than 21.4% employment growth between 2010 and 2019 AND less than 8% employment decline between 2019 and 2020, as well as greater than 3.5% employment growth between 2020 and 2021. **Annual Job Openings** – Annual openings at or above the median during the Great Recession (2007-2009), as well as at or above the median between 2010 and 2019 AND annual openings at or above the median during the COVID-19 Pandemic Recession (2019-2020), as well as at or above the median between 2020 and 2021. **Wages** – Entry-level hourly earnings are at or above \$23.66

\*Great Recession and COVID-19 Pandemic-Stable Job

<sup>^</sup>U.S. News and World Report Best 100 Jobs



### Great Recession-Stable Jobs

The 33 Great Recession-Stable Jobs identified are provided in [Exhibit 2](#) below. Jobs that were stable during both the Great Recession and COVID-19 Pandemic Recession are denoted with an asterisk (\*). Jobs included on U.S. News and World Report's 100 Best Jobs list are denoted with a caret (^). Jobs that are considered a "good job" but not a "family supporting job" are highlighted in gray.

**Exhibit 2: Great Recession-Stable Jobs in Orange County**

SOC	Occupation	Typical Entry Level Education	2005 Jobs	2019 Jobs	2005 - 2019 % Employment Change	Annual Openings (2007-2009)	Annual Openings (2010-2019)	Entry-Level Hourly Earnings (25th Percentile)	Median Hourly Earnings	Good Job (MIT Living Wage \$23.66)	Family Supporting Job (MIT Living Wage \$25.57)
29-1141	Registered Nurses*^	Bachelor's degree	17,913	24,993	40%	1,068	1,832	\$46.02	\$56.03	☑	☑
13-1111	Management Analysts^	Bachelor's degree	6,863	13,491	97%	850	1,483	\$29.25	\$44.64	☑	☑
11-9199	Managers, All Other*	Bachelor's degree	6,692	12,947	93%	780	1,424	\$26.87	\$49.17	☑	☑
11-2022	Sales Managers^	Bachelor's degree	6,492	8,993	39%	620	941	\$37.54	\$60.10	☑	☑
13-1082	Project Management Specialists*	Bachelor's degree	5,180	7,281	41%	397	686	\$34.69	\$46.75	☑	☑
11-9021	Construction Managers^	Bachelor's degree	5,856	7,008	20%	469	744	\$25.30	\$40.10	☑	
17-2051	Civil Engineers	Bachelor's degree	3,989	6,146	54%	387	617	\$37.65	\$48.33	☑	☑
13-1041	Compliance Officers	Bachelor's degree	1,984	4,145	109%	183	458	\$29.17	\$37.80	☑	☑
11-9111	Medical and Health Services Managers*^	Bachelor's degree	1,626	3,525	117%	305	350	\$35.12	\$52.76	☑	☑
11-3012	Administrative Services Managers*	Bachelor's degree	2,227	3,351	50%	212	347	\$37.60	\$47.33	☑	☑
17-2112	Industrial Engineers	Bachelor's degree	2,292	3,290	44%	255	278	\$39.07	\$49.56	☑	☑
29-1051	Pharmacists^	Doctoral or professional degree	1,934	3,260	69%	109	240	\$61.01	\$63.21	☑	☑
29-1123	Physical Therapists^	Doctoral or professional degree	1,454	3,069	111%	175	257	\$31.36	\$47.51	☑	☑

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**Exhibit 2: Great Recession-Stable Jobs in Orange County**

SOC	Occupation	Typical Entry Level Education	2005 Jobs	2019 Jobs	2005 - 2019 % Employment Change	Annual Openings (2007-2009)	Annual Openings (2010-2019)	Entry-Level Hourly Earnings (25th Percentile)	Median Hourly Earnings	Good Job (MIT Living Wage \$23.66)	Family Supporting Job (MIT Living Wage \$25.57)
21-1012	Educational, Guidance, and Career Counselors and Advisors <sup>^</sup>	Master's degree	2,094	2,987	43%	296	360	\$27.52	\$35.15	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
29-1021	Dentists, General <sup>*,^</sup>	Doctoral or professional degree	1,262	2,908	130%	91	359	\$34.95	\$78.65	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
29-1292	Dental Hygienists <sup>*,^</sup>	Associate degree	1,788	2,734	53%	170	236	\$48.77	\$48.82	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
13-1081	Logisticians <sup>^</sup>	Bachelor's degree	996	2,349	136%	115	268	\$30.04	\$38.45	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
13-2099	Financial Specialists, All Other	Bachelor's degree	1,491	2,049	37%	129	184	\$27.23	\$35.64	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
29-1127	Speech-Language Pathologists <sup>^</sup>	Master's degree	703	1,896	170%	152	186	\$35.06	\$46.37	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
11-9032	Education Administrators, Kindergarten through Secondary <sup>*</sup>	Master's degree	1,562	1,871	20%	121	174	\$47.02	\$59.53	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
11-9151	Social and Community Service Managers <sup>^</sup>	Bachelor's degree	939	1,823	94%	134	307	\$27.81	\$35.57	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
11-3071	Transportation, Storage, and Distribution Managers <sup>*</sup>	High school diploma or equivalent	994	1,820	83%	80	204	\$36.39	\$48.76	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
21-1023	Mental Health and Substance Abuse Social Workers	Master's degree	786	1,638	108%	109	200	\$23.67	\$35.41	<input checked="" type="checkbox"/>	
11-9033	Education Administrators, Postsecondary <sup>*</sup>	Master's degree	1,122	1,513	35%	110	164	\$45.18	\$57.90	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
27-2012	Producers and Directors <sup>*</sup>	Bachelor's degree	328	1,385	322%	147	179	\$33.05	\$54.41	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>

**Exhibit 2: Great Recession-Stable Jobs in Orange County**

SOC	Occupation	Typical Entry Level Education	2005 Jobs	2019 Jobs	2005 - 2019 % Employment Change	Annual Openings (2007-2009)	Annual Openings (2010-2019)	Entry-Level Hourly Earnings (25th Percentile)	Median Hourly Earnings	Good Job (MIT Living Wage \$23.66)	Family Supporting Job (MIT Living Wage \$25.57)
29-1122	Occupational Therapists <sup>^</sup>	Master's degree	713	1,285	80%	111	109	\$41.15	\$47.99	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
49-2098	Security and Fire Alarm Systems Installers*	High school diploma or equivalent	869	1,236	42%	143	138	\$24.94	\$31.84	<input checked="" type="checkbox"/>	<input type="checkbox"/>
11-3013	Facilities Managers*	Bachelor's degree	757	1,226	62%	79	133	\$36.53	\$47.21	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
19-3039	Psychologists, All Other* <sup>^</sup>	Master's degree	100	1,119	1,019%	357	97	\$27.31	\$45.70	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
29-1071	Physician Assistants* <sup>^</sup>	Master's degree	540	1,064	97%	66	95	\$53.49	\$59.99	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
15-2031	Operations Research Analysts <sup>^</sup>	Bachelor's degree	389	961	147%	100	160	\$29.58	\$41.12	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
17-2081	Environmental Engineers <sup>^</sup>	Bachelor's degree	438	808	84%	79	78	\$37.23	\$48.04	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
31-2021	Physical Therapist Assistants <sup>^</sup>	Associate degree	391	704	80%	92	93	\$30.31	\$37.61	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>

**Researcher's Note:**

**Great Recession-Stable Jobs met the following criteria:** **Employment** – Less than 7.4% employment decline between 2005 and 2009, as well as greater than 21.4% employment growth between 2010 and 2019. **Annual Job Openings** – Annual openings at or above the median during the Great Recession (2007-2009), as well as at or above the median between 2010 and 2019. **Wages** – Entry-level hourly earnings are at or above \$23.66

\*Great Recession and COVID-19 Pandemic-Stable Job

<sup>^</sup>U.S. News and World Report Best 100 Jobs

### COVID-19 Pandemic Recession-Stable Jobs

The 54 COVID-19 Pandemic Recession-Stable Jobs identified are provided in [Exhibit 3](#) below. Jobs that were stable during both the Great Recession and COVID-19 Pandemic Recession are denoted with an asterisk (\*). Jobs included on U.S. News and World Report's 100 Best Jobs list are denoted with a caret (^). Jobs that are considered a "good job" but not a "family supporting job" are highlighted in gray.

**Exhibit 3: COVID-19 Pandemic Recession-Stable Jobs in Orange County**

SOC	Occupation	Typical Entry Level Education	2019 Jobs	2021 Jobs	2019 - 2021 % Employment Change	Annual Openings (2019-2020)	Annual Openings (2020-2021)	Entry-Level Hourly Earnings (25th Percentile)	Median Hourly Earnings	Good Job (MIT Living Wage \$23.66)	Family Supporting Job (MIT Living Wage \$25.57)
11-1021	General and Operations Managers <sup>^</sup>	Bachelor's degree	26,680	30,246	13%	2,193	7,587	\$36.80	\$51.15	☑	☑
29-1141	Registered Nurses <sup>*,^</sup>	Bachelor's degree	24,993	25,415	2%	1,305	2,645	\$46.02	\$56.03	☑	☑
23-1011	Lawyers <sup>^</sup>	Doctoral or professional degree	16,040	17,615	10%	1,713	1,458	\$38.87	\$63.93	☑	☑
11-9199	Managers, All Other <sup>*</sup>	Bachelor's degree	12,947	14,386	11%	964	2,540	\$26.87	\$49.17	☑	☑
11-3031	Financial Managers <sup>^</sup>	Bachelor's degree	11,819	12,439	5%	913	1,391	\$46.64	\$69.76	☑	☑
25-2021	Elementary School Teachers, Except Special Education <sup>^</sup>	Bachelor's degree	11,239	12,014	7%	875	1,927	\$29.71	\$46.26	☑	☑
13-1082	Project Management Specialists <sup>*</sup>	Bachelor's degree	7,281	9,518	31%	1,141	2,274	\$34.69	\$46.75	☑	☑
13-1071	Human Resources Specialists	Bachelor's degree	8,134	9,229	13%	893	1,797	\$27.45	\$34.47	☑	☑
47-1011	First-Line Supervisors of Construction Trades and Extraction Workers	High school diploma or equivalent	7,975	8,492	6%	827	1,631	\$28.61	\$38.40	☑	☑
15-1299	Computer Occupations, All Other	Bachelor's degree	7,692	7,975	4%	680	1,141	\$27.55	\$37.17	☑	☑



**Exhibit 3: COVID-19 Pandemic Recession-Stable Jobs in Orange County**

SOC	Occupation	Typical Entry Level Education	2019 Jobs	2021 Jobs	2019 - 2021 % Employment Change	Annual Openings (2019-2020)	Annual Openings (2020-2021)	Entry-Level Hourly Earnings (25th Percentile)	Median Hourly Earnings	Good Job (MIT Living Wage \$23.66)	Family Supporting Job (MIT Living Wage \$25.57)
11-3021	Computer and Information Systems Managers <sup>^</sup>	Bachelor's degree	6,766	7,649	13%	829	1,066	\$59.31	\$76.67	☑	☑
13-2052	Personal Financial Advisors <sup>^</sup>	Bachelor's degree	5,338	6,721	26%	729	1,449	\$25.74	\$42.40	☑	☑
11-1011	Chief Executives	Bachelor's degree	4,321	4,482	4%	298	565	\$50.30	\$95.05	☑	☑
11-9111	Medical and Health Services Managers <sup>^</sup>	Bachelor's degree	3,525	4,334	23%	446	913	\$35.12	\$52.76	☑	☑
49-1011	First-Line Supervisors of Mechanics, Installers, and Repairers	High school diploma or equivalent	3,865	4,037	4%	340	715	\$30.89	\$39.68	☑	☑
11-3012	Administrative Services Managers <sup>*</sup>	Bachelor's degree	3,351	3,572	7%	270	597	\$37.60	\$47.33	☑	☑
29-1292	Dental Hygienists <sup>^</sup>	Associate degree	2,734	3,543	30%	179	1,061	\$48.77	\$48.82	☑	☑
17-2071	Electrical Engineers	Bachelor's degree	3,166	3,516	11%	354	493	\$46.71	\$60.19	☑	☑
13-1051	Cost Estimators	Bachelor's degree	3,239	3,443	6%	288	671	\$24.73	\$32.77	☑	☑
25-2022	Middle School Teachers, Except Special and Career/Technical Education <sup>^</sup>	Bachelor's degree	2,669	3,046	14%	226	542	\$30.50	\$47.03	☑	☑
29-1021	Dentists, General <sup>^</sup>	Doctoral or professional degree	2,908	2,979	2%	115	314	\$34.95	\$78.65	☑	☑
11-3121	Human Resources Managers	Bachelor's degree	2,363	2,624	11%	242	404	\$46.26	\$61.44	☑	☑
11-3051	Industrial Production Managers	Bachelor's degree	2,551	2,610	2%	171	400	\$38.86	\$50.10	☑	☑

**Exhibit 3: COVID-19 Pandemic Recession-Stable Jobs in Orange County**

SOC	Occupation	Typical Entry Level Education	2019 Jobs	2021 Jobs	2019 - 2021 % Employment Change	Annual Openings (2019-2020)	Annual Openings (2020-2021)	Entry-Level Hourly Earnings (25th Percentile)	Median Hourly Earnings	Good Job (MIT Living Wage \$23.66)	Family Supporting Job (MIT Living Wage \$25.57)
47-2073	Operating Engineers and Other Construction Equipment Operators	High school diploma or equivalent	2,347	2,422	3%	262	349	\$28.59	\$37.60	☑	☑
17-3011	Architectural and Civil Drafters	Associate degree	1,915	2,244	17%	238	523	\$24.20	\$30.39	☑	
11-3071	Transportation, Storage, and Distribution Managers*	High school diploma or equivalent	1,820	2,108	16%	135	474	\$36.39	\$48.76	☑	☑
15-1241	Computer Network Architects^	Bachelor's degree	1,695	1,953	15%	194	270	\$37.50	\$52.69	☑	☑
11-9032	Education Administrators, Kindergarten through Secondary*	Master's degree	1,871	1,884	1%	158	279	\$47.02	\$59.53	☑	☑
11-9033	Education Administrators, Postsecondary*	Master's degree	1,513	1,726	14%	121	379	\$45.18	\$57.90	☑	☑
29-2034	Radiologic Technologists and Technicians	Associate degree	1,485	1,714	15%	108	360	\$29.56	\$38.75	☑	☑
49-2098	Security and Fire Alarm Systems Installers*	High school diploma or equivalent	1,236	1,659	34%	141	533	\$24.94	\$31.84	☑	
27-2012	Producers and Directors*	Bachelor's degree	1,385	1,618	17%	138	376	\$33.05	\$54.41	☑	☑
29-1171	Nurse Practitioners^	Master's degree	1,208	1,531	27%	165	290	\$61.33	\$64.11	☑	☑
29-1071	Physician Assistants*^	Master's degree	1,064	1,433	35%	188	306	\$53.49	\$59.99	☑	☑
25-2052	Special Education Teachers,	Bachelor's degree	1,120	1,429	28%	129	346	\$29.19	\$37.73	☑	☑

May 2023

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**Exhibit 3: COVID-19 Pandemic Recession-Stable Jobs in Orange County**

SOC	Occupation	Typical Entry Level Education	2019 Jobs	2021 Jobs	2019 - 2021 % Employment Change	Annual Openings (2019-2020)	Annual Openings (2020-2021)	Entry-Level Hourly Earnings (25th Percentile)	Median Hourly Earnings	Good Job (MIT Living Wage \$23.66)	Family Supporting Job (MIT Living Wage \$25.57)
	Kindergarten and Elementary School <sup>A</sup>										
29-1041	Optometrists <sup>A</sup>	Doctoral or professional degree	1,064	1,387	30%	122	268	\$43.67	\$60.81	☑	☑
11-9039	Education Administrators, All Other	Bachelor's degree	1,206	1,374	14%	93	329	\$34.20	\$44.47	☑	☑
19-3039	Psychologists, All Other <sup>A</sup>	Master's degree	1,119	1,332	19%	193	173	\$27.31	\$45.70	☑	☑
11-3013	Facilities Managers*	Bachelor's degree	1,226	1,298	6%	100	233	\$36.53	\$47.21	☑	☑
13-2028	Property Appraisers and Assessors	Bachelor's degree	1,032	1,239	20%	197	186	\$24.24	\$35.56	☑	
27-1011	Art Directors	Bachelor's degree	1,029	1,227	19%	212	259	\$31.11	\$49.28	☑	☑
15-2051	Data Scientists <sup>A</sup>	Bachelor's degree	778	1,179	52%	184	335	\$36.93	\$55.03	☑	☑
15-1212	Information Security Analysts <sup>A</sup>	Bachelor's degree	933	1,161	24%	149	218	\$44.48	\$56.23	☑	☑
15-1243	Database Architects	Bachelor's degree	854	1,119	31%	211	188	\$35.51	\$35.51	☑	☑
33-3012	Correctional Officers and Jailers	High school diploma or equivalent	769	1,038	35%	255	173	\$28.99	\$35.17	☑	☑
19-3033	Clinical and Counseling Psychologists <sup>A</sup>	Doctoral or professional degree	911	1,031	13%	102	139	\$33.88	\$56.91	☑	☑
25-2012	Kindergarten Teachers, Except Special Education <sup>A</sup>	Bachelor's degree	734	930	27%	118	229	\$36.20	\$46.86	☑	☑
49-9062	Medical Equipment Repairers	Associate degree	758	913	21%	104	212	\$24.61	\$32.18	☑	
15-1242	Database Administrators <sup>A</sup>	Bachelor's degree	613	839	37%	162	161	\$34.14	\$46.13	☑	☑

May 2023

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**Exhibit 3: COVID-19 Pandemic Recession-Stable Jobs in Orange County**

SOC	Occupation	Typical Entry Level Education	2019 Jobs	2021 Jobs	2019 - 2021 % Employment Change	Annual Openings (2019-2020)	Annual Openings (2020-2021)	Entry-Level Hourly Earnings (25th Percentile)	Median Hourly Earnings	Good Job (MIT Living Wage \$23.66)	Family Supporting Job (MIT Living Wage \$25.57)
29-2032	Diagnostic Medical Sonographers <sup>^</sup>	Associate degree	679	821	21%	82	159	\$38.74	\$48.69	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
11-9179	Personal Service Managers, All Other	Bachelor's degree	592	805	36%	77	235	\$27.16	\$27.16	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
33-1012	First-Line Supervisors of Police and Detectives	High school diploma or equivalent	455	649	43%	99	159	\$58.35	\$72.60	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
47-2071	Paving, Surfacing, and Tamping Equipment Operators	High school diploma or equivalent	283	430	52%	89	124	\$29.62	\$39.20	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
29-1218	Obstetricians and Gynecologists <sup>^</sup>	Doctoral or professional degree	182	347	91%	75	103	\$81.51	\$124.28	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>

**Researcher's Note:**

**COVID-19 Pandemic-Stable Jobs met the following criteria:** **Employment** – Less than 8% employment decline between 2019 and 2020, as well as greater than 3.5% employment growth between 2020 and 2021. **Annual Job Openings** – Annual openings at or above the median during the COVID-19 Pandemic Recession (2019-2020), as well as at or above the median between 2020 and 2021. **Wages** – Entry-level hourly earnings are at or above \$20.63.

\*Great Recession and COVID-19 Pandemic-Stable Job

<sup>^</sup>U.S. News and World Report Best 100 Jobs

This Occupational Assessment was conducted in support of the Southern California Association of Government (SCAG) Labor Market Information to support Subregional Implementation Plans. For more information, please contact the Orange County Center of Excellence:

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## Appendix 3: SCAG and OC Center of Excellence

Labor Market Information to Support Subregional Implementation Plans: *Orange County Occupational Assessment*

# Labor Market Information to Support Subregional Implementation Plans: *Orange County Occupational Assessment* May 2023

Prepared for: Southern California Association of Governments (SCAG)

Prepared by: Orange County Center of Excellence





## Good Jobs & Family Supporting Jobs: Definitions

- **Good Jobs:** Are those that are considered a Recession-Stable, Great Recession-Stable and/or COVID-19 Pandemic-Stable Job and have entry-level earnings at or above the MIT Living Wage of \$23.66 for a single adult.
- **Family Supporting Jobs:** An analysis of Census data shows that the average household size in Orange County is two adults and one child. Therefore, family-supporting jobs meet the good job criteria but have entry-level earnings at or above the MIT Living Wage of \$25.57 for a family with two working adults and one child.

[MIT Living Wage for Orange County, CA](#), accessed April 14, 2023



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## U.S. News and World Report: 100 Best Jobs

- Recession-Stable Jobs, Great Recession-Stable Jobs, and COVID-19 Pandemic Recession-Stable Jobs were compared to U.S. News and World Report's 100 Best Jobs of 2023
- U.S. News considers several factors in its Best Jobs rankings, including:
  - Projected Growth
  - Salary
  - Stress Level
  - Work-life Balance

["100 Best Jobs," U.S. News and World Report](#), accessed April 14, 2023



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## 2023 Recession-Stable Jobs: Methodology

- 15 Recession-Stable Jobs in Orange County
  - 6 of which are also included in U.S. News and World Report Best Jobs
- Recession-Stable Jobs are those that met the criteria to be considered **both** a **Great Recession-Stable Job** and a **COVID-19 Pandemic Recession-Stable Job**, as defined in the following slides

## Exhibit 1: Recession-Stable Jobs

SOC	Occupation	Typical Entry Level Education	2005 Jobs	2021 Jobs	2005 - 2021 % Employment Change	Annual Openings (2007-2021)	Entry-Level Hourly Earnings (25th Percentile)	Median Hourly Earnings	Good Job (MIT Living Wage \$23.66)	Family Supporting Job (MIT Living Wage \$25.57)
29-1141	Registered Nurses* <sup>A</sup>	Bachelor's degree	17,913	25,415	42%	1,772	\$46.02	\$56.03	☑	☑
11-9199	Managers, All Other*	Bachelor's degree	6,692	14,386	115%	1,374	\$26.87	\$49.17	☑	☑
13-1082	Project Management Specialists*	Bachelor's degree	5,180	9,518	84%	767	\$34.69	\$46.75	☑	☑
11-9111	Medical and Health Services Managers* <sup>A</sup>	Bachelor's degree	1,626	4,334	167%	378	\$35.12	\$52.76	☑	☑
11-3012	Administrative Services Managers*	Bachelor's degree	2,227	3,572	60%	334	\$37.60	\$47.33	☑	☑
29-1292	Dental Hygienists* <sup>A</sup>	Associate degree	1,788	3,543	98%	278	\$48.77	\$48.82	☑	☑
29-1021	Dentists, General* <sup>A</sup>	Doctoral or professional degree	1,262	2,979	136%	277	\$34.95	\$78.65	☑	☑
11-3071	Transportation, Storage, and Distribution Managers*	High school diploma or equivalent	994	2,108	112%	191	\$36.39	\$48.76	☑	☑

Exhibit 1: Recession-Stable Jobs in Orange County

SOC	Occupation	Typical Entry Level Education	2005 Jobs	2021 Jobs	2005 - 2021 % Employment Change	Annual Openings (2007-2021)	Entry-Level Hourly Earnings (25th Percentile)	Median Hourly Earnings	Good Job (MIT Living Wage \$23.66)	Family Supporting Job (MIT Living Wage \$25.57)
11-9032	Education Administrators, Kindergarten through Secondary*	Master's degree	1,562	1,884	21%	169	\$47.02	\$59.53	☑	☑
11-9033	Education Administrators, Postsecondary*	Master's degree	1,122	1,726	54%	168	\$45.18	\$57.90	☑	☑
49-2098	Security and Fire Alarm Systems Installers*	High school diploma or equivalent	869	1,659	91%	165	\$24.94	\$31.84	☑	
27-2012	Producers and Directors*	Bachelor's degree	328	1,618	393%	178	\$33.05	\$54.41	☑	☑
29-1071	Physician Assistants* <sup>A</sup>	Master's degree	540	1,433	166%	109	\$53.49	\$59.99	☑	☑
19-3039	Psychologists, All Other* <sup>A</sup>	Master's degree	100	1,332	1232%	148	\$27.31	\$45.70	☑	☑
11-3013	Facilities Managers*	Bachelor's degree	757	1,298	71%	128	\$36.53	\$47.21	☑	☑

**Researcher's Note:**

**Recession-Stable Jobs** met the following criteria: **Employment** – Less than 7.4% employment decline between 2005 and 2009, as well as greater than 21.4% employment growth between 2010 and 2019 AND less than 8% employment decline between 2019 and 2020, as well as greater than 3.5% employment growth between 2020 and 2021. **Annual Job Openings** – Annual openings at or above the median during the Great Recession (2007-2009), as well as at or above the median between 2010 and 2019 AND annual openings at or above the median during the COVID-19 Pandemic Recession (2019-2020), as well as at or above the median between 2020 and 2021. **Wages** – Entry-level hourly earnings are at or above \$23.66

\*Great Recession and COVID-19 Pandemic-Stable Job

<sup>A</sup>U.S. News and World Report Best 100 Jobs

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## 2023 Great Recession-Stable Jobs: Methodology

- 33 Great Recession-Stable Jobs in Orange County
  - 19 of which are also included in U.S. News and World Report Best 100 Jobs
- **Employment** – Less than 7.4% employment decline between 2005 and 2009, as well as greater than 21.4% employment growth between 2010 and 2019.
- **Annual Job Openings** – Annual openings at or above the median during the Great Recession (2007-2009), as well as at or above the median between 2010 and 2019.
- **Wages** – Entry-level hourly earnings are at or above MIT Living Wage for a single adult: \$23.66 (Good Job) or \$25.57 for a family with two working adults and one child (Family Supporting Job).



## Exhibit 2: Great Recession-Stable Jobs

SOC	Occupation	Typical Entry Level Education	2005 Jobs	2019 Jobs	2005 - 2019 % Employment Change	Annual Openings (2007-2009)	Annual Openings (2010-2019)	Entry-Level Hourly Earnings (25th Percentile)	Median Hourly Earnings	Good Job (MIT Living Wage \$23.66)	Family Supporting Job (MIT Living Wage \$25.57)
29-1141	Registered Nurses* <sup>A</sup>	Bachelor's degree	17,913	24,993	40%	1,068	1,832	\$46.02	\$56.03	☑	☑
13-1111	Management Analysts <sup>A</sup>	Bachelor's degree	6,863	13,491	97%	850	1,483	\$29.25	\$44.64	☑	☑
11-9199	Managers, All Other*	Bachelor's degree	6,692	12,947	93%	780	1,424	\$26.87	\$49.17	☑	☑
11-2022	Sales Managers <sup>A</sup>	Bachelor's degree	6,492	8,993	39%	620	941	\$37.54	\$60.10	☑	☑
13-1082	Project Management Specialists*	Bachelor's degree	5,180	7,281	41%	397	686	\$34.69	\$46.75	☑	☑
11-9021	Construction Managers <sup>A</sup>	Bachelor's degree	5,856	7,008	20%	469	744	\$25.30	\$40.10	☑	
17-2051	Civil Engineers	Bachelor's degree	3,989	6,146	54%	387	617	\$37.65	\$48.33	☑	☑
13-1041	Compliance Officers	Bachelor's degree	1,984	4,145	109%	183	458	\$29.17	\$37.80	☑	☑
11-9111	Medical and Health Services Managers* <sup>A</sup>	Bachelor's degree	1,626	3,525	117%	305	350	\$35.12	\$52.76	☑	☑
11-3012	Administrative Services Managers*	Bachelor's degree	2,227	3,351	50%	212	347	\$37.60	\$47.33	☑	☑



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### Exhibit 2: Great Recession-Stable Jobs in Orange County

SOC	Occupation	Typical Entry Level Education	2005 Jobs	2019 Jobs	2005 - 2019 % Employment Change	Annual Openings (2007-2009)	Annual Openings (2010-2019)	Entry-Level Hourly Earnings (25th Percentile)	Median Hourly Earnings	Good Job (MIT Living Wage \$23.66)	Family Supporting Job (MIT Living Wage \$25.57)
17-2112	Industrial Engineers	Bachelor's degree	2,292	3,290	44%	255	278	\$39.07	\$49.56	☑	☑
29-1051	Pharmacists <sup>A</sup>	Doctoral or professional degree	1,934	3,260	69%	109	240	\$61.01	\$63.21	☑	☑
29-1123	Physical Therapists <sup>A</sup>	Doctoral or professional degree	1,454	3,069	111%	175	257	\$31.36	\$47.51	☑	☑
21-1012	Educational, Guidance, and Career Counselors and Advisors <sup>A</sup>	Master's degree	2,094	2,987	43%	296	360	\$27.52	\$35.15	☑	☑
29-1021	Dentists, General* <sup>A</sup>	Doctoral or professional degree	1,262	2,908	130%	91	359	\$34.95	\$78.65	☑	☑
29-1292	Dental Hygienists* <sup>A</sup>	Associate degree	1,788	2,734	53%	170	236	\$48.77	\$48.82	☑	☑
13-1081	Logisticians <sup>A</sup>	Bachelor's degree	996	2,349	136%	115	268	\$30.04	\$38.45	☑	☑
13-2099	Financial Specialists, All Other	Bachelor's degree	1,491	2,049	37%	129	184	\$27.23	\$35.64	☑	☑
29-1127	Speech-Language Pathologists <sup>A</sup>	Master's degree	703	1,896	170%	152	186	\$35.06	\$46.37	☑	☑
11-9032	Education Administrators, Kindergarten through Secondary*	Master's degree	1,562	1,871	20%	121	174	\$47.02	\$59.53	☑	☑

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Exhibit 2: Great Recession-Stable Jobs in Orange County

SOC	Occupation	Typical Entry Level Education	2005 Jobs	2019 Jobs	2005 - 2019 % Employment Change	Annual Openings (2007-2009)	Annual Openings (2010-2019)	Entry-Level Hourly Earnings (25th Percentile)	Median Hourly Earnings	Good Job (MIT Living Wage \$23.66)	Family Supporting Job (MIT Living Wage \$25.57)
11-9151	Social and Community Service Managers <sup>A</sup>	Bachelor's degree	939	1,823	94%	134	307	\$27.81	\$35.57	☑	☑
11-3071	Transportation, Storage, and Distribution Managers*	High school diploma or equivalent	994	1,820	83%	80	204	\$36.39	\$48.76	☑	☑
21-1023	Mental Health and Substance Abuse Social Workers	Master's degree	786	1,638	108%	109	200	\$23.67	\$35.41	☑	
11-9033	Education Administrators, Postsecondary*	Master's degree	1,122	1,513	35%	110	164	\$45.18	\$57.90	☑	☑
27-2012	Producers and Directors*	Bachelor's degree	328	1,385	322%	147	179	\$33.05	\$54.41	☑	☑
29-1122	Occupational Therapists <sup>A</sup>	Master's degree	713	1,285	80%	111	109	\$41.15	\$47.99	☑	☑
49-2098	Security and Fire Alarm Systems Installers*	High school diploma or equivalent	869	1,236	42%	143	138	\$24.94	\$31.84	☑	
11-3013	Facilities Managers*	Bachelor's degree	757	1,226	62%	79	133	\$36.53	\$47.21	☑	☑

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Exhibit 2: Great Recession-Stable Jobs in Orange County

SOC	Occupation	Typical Entry Level Education	2005 Jobs	2019 Jobs	2005 - 2019 % Employment Change	Annual Openings (2007-2009)	Annual Openings (2010-2019)	Entry-Level Hourly Earnings (25th Percentile)	Median Hourly Earnings	Good Job (MIT Living Wage \$23.66)	Family Supporting Job (MIT Living Wage \$25.57)
19-3039	Psychologists, All Other <sup>A</sup>	Master's degree	100	1,119	1,019%	357	97	\$27.31	\$45.70	☑	☑
29-1071	Physician Assistants <sup>A</sup>	Master's degree	540	1,064	97%	66	95	\$53.49	\$59.99	☑	☑
15-2031	Operations Research Analysts <sup>A</sup>	Bachelor's degree	389	961	147%	100	160	\$29.58	\$41.12	☑	☑
17-2081	Environmental Engineers <sup>A</sup>	Bachelor's degree	438	808	84%	79	78	\$37.23	\$48.04	☑	☑
31-2021	Physical Therapist Assistants <sup>A</sup>	Associate degree	391	704	80%	92	93	\$30.31	\$37.61	☑	☑

**Researcher's Note:**

**Great Recession-Stable Jobs met the following criteria:** **Employment** – Less than 7.4% employment decline between 2005 and 2009, as well as greater than 21.4% employment growth between 2010 and 2019. **Annual Job Openings** – Annual openings at or above the median during the Great Recession (2007-2009), as well as at or above the median between 2010 and 2019. **Wages** – Entry-level hourly earnings are at or above \$23.66

\*Great Recession and COVID-19 Pandemic-Stable Job

<sup>A</sup>U.S. News and World Report Best 100 Jobs

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## COVID-19 Pandemic Recession-Stable Jobs: Methodology

- 54 COVID-19 Pandemic Recession-Stable Jobs in Orange County
  - 24 of which are also included in U.S. News and World Report Best Jobs
- **Employment** – Less than 8% employment decline between 2019 and 2020, as well as greater than 3.5% employment growth between 2020 and 2021.
- **Annual Job Openings** – Annual openings at or above the median during the COVID-19 Pandemic Recession (2019-2020), as well as at or above the median between 2020 and 2021.
- **Wages** – Entry-level hourly earnings are at or above \$20.63.

## Exhibit 3: COVID-19 Pandemic Recession-Stable Jobs

SOC	Occupation	Typical Entry Level Education	2019 Jobs	2021 Jobs	2019 - 2021 % Employment Change	Annual Openings (2019-2020)	Annual Openings (2020-2021)	Entry-Level Hourly Earnings (25th Percentile)	Median Hourly Earnings	Good Job (MIT Living Wage \$23.66)	Family Supporting Job (MIT Living Wage \$25.37)
11-1021	General and Operations Managers <sup>A</sup>	Bachelor's degree	26,680	30,246	13%	2,193	7,587	\$36.80	\$51.15	☑	☑
29-1141	Registered Nurses <sup>*A</sup>	Bachelor's degree	24,993	25,415	2%	1,305	2,645	\$46.02	\$56.03	☑	☑
23-1011	Lawyers <sup>A</sup>	Doctoral or professional degree	16,040	17,615	10%	1,713	1,458	\$38.87	\$63.93	☑	☑
11-9199	Managers, All Other <sup>*</sup>	Bachelor's degree	12,947	14,386	11%	964	2,540	\$26.87	\$49.17	☑	☑
11-3031	Financial Managers <sup>A</sup>	Bachelor's degree	11,819	12,439	5%	913	1,391	\$46.64	\$69.76	☑	☑
25-2021	Elementary School Teachers, Except Special Education <sup>A</sup>	Bachelor's degree	11,239	12,014	7%	875	1,927	\$29.71	\$46.26	☑	☑
13-1082	Project Management Specialists <sup>*</sup>	Bachelor's degree	7,281	9,518	31%	1,141	2,274	\$34.69	\$46.75	☑	☑
13-1071	Human Resources Specialists	Bachelor's degree	8,134	9,229	13%	893	1,797	\$27.45	\$34.47	☑	☑

Exhibit 3: COVID-19 Pandemic Recession-Stable Jobs in Orange County

SOC	Occupation	Typical Entry Level Education	2019 Jobs	2021 Jobs	2019 - 2021 % Employment Change	Annual Openings (2019-2020)	Annual Openings (2020-2021)	Entry-Level Hourly Earnings (25th Percentile)	Median Hourly Earnings	Good Job (MIT Living Wage \$23.66)	Family Supporting Job (MIT Living Wage \$25.57)
47-1011	First-Line Supervisors of Construction Trades and Extraction Workers	High school diploma or equivalent	7,975	8,492	6%	827	1,631	\$28.61	\$38.40	☑	☑
15-1299	Computer Occupations, All Other	Bachelor's degree	7,692	7,975	4%	680	1,141	\$27.55	\$37.17	☑	☑
11-3021	Computer and Information Systems Managers <sup>A</sup>	Bachelor's degree	6,766	7,649	13%	829	1,066	\$59.31	\$76.67	☑	☑
13-2052	Personal Financial Advisors <sup>A</sup>	Bachelor's degree	5,338	6,721	26%	729	1,449	\$25.74	\$42.40	☑	☑
11-1011	Chief Executives	Bachelor's degree	4,321	4,482	4%	298	565	\$50.30	\$95.05	☑	☑
11-9111	Medical and Health Services Managers <sup>A</sup>	Bachelor's degree	3,525	4,334	23%	446	913	\$35.12	\$52.76	☑	☑
49-1011	First-Line Supervisors of Mechanics, Installers, and Repairers	High school diploma or equivalent	3,865	4,037	4%	340	715	\$30.89	\$39.68	☑	☑
11-3012	Administrative Services Managers <sup>*</sup>	Bachelor's degree	3,351	3,572	7%	270	597	\$37.60	\$47.33	☑	☑

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Exhibit 3: COVID-19 Pandemic Recession-Stable Jobs in Orange County

SOC	Occupation	Typical Entry Level Education	2019 Jobs	2021 Jobs	2019 - 2021 % Employment Change	Annual Openings (2019-2020)	Annual Openings (2020-2021)	Entry-Level Hourly Earnings (25th Percentile)	Median Hourly Earnings	Good Job (MIT Living Wage \$23.66)	Family Supporting Job (MIT Living Wage \$25.57)
29-1292	Dental Hygienists <sup>^A</sup>	Associate degree	2,734	3,543	30%	179	1,061	\$48.77	\$48.82	☑	☑
17-2071	Electrical Engineers	Bachelor's degree	3,166	3,516	11%	354	493	\$46.71	\$60.19	☑	☑
13-1051	Cost Estimators	Bachelor's degree	3,239	3,443	6%	288	671	\$24.73	\$32.77	☑	
25-2022	Middle School Teachers, Except Special and Career/Technical Education <sup>A</sup>	Bachelor's degree	2,669	3,046	14%	226	542	\$30.50	\$47.03	☑	☑
29-1021	Dentists, General <sup>^A</sup>	Doctoral or professional degree	2,908	2,979	2%	115	314	\$34.95	\$78.65	☑	☑
11-3121	Human Resources Managers	Bachelor's degree	2,363	2,624	11%	242	404	\$46.26	\$61.44	☑	☑
11-3051	Industrial Production Managers	Bachelor's degree	2,551	2,610	2%	171	400	\$38.86	\$50.10	☑	☑
47-2073	Operating Engineers and Other Construction Equipment Operators	High school diploma or equivalent	2,347	2,422	3%	262	349	\$28.59	\$37.60	☑	☑
17-3011	Architectural and Civil Drafters	Associate degree	1,915	2,244	17%	238	523	\$24.20	\$30.39	☑	

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### Exhibit 3: COVID-19 Pandemic Recession-Stable Jobs

SOC	Occupation	Typical Entry Level Education	2019 Jobs	2021 Jobs	2019 - 2021 % Employment Change	Annual Openings (2019-2020)	Annual Openings (2020-2021)	Entry-Level Hourly Earnings (25th Percentile)	Median Hourly Earnings	Good Job (MIT Living Wage \$23.66)	Family Supporting Job (MIT Living Wage \$25.57)
11-1021	General and Operations Managers <sup>A</sup>	Bachelor's degree	26,680	30,246	13%	2,193	7,587	\$36.80	\$51.15	☑	☑
29-1141	Registered Nurses <sup>A</sup>	Bachelor's degree	24,993	25,415	2%	1,305	2,645	\$46.02	\$56.03	☑	☑
23-1011	Lawyers <sup>A</sup>	Doctoral or professional degree	16,040	17,615	10%	1,713	1,458	\$38.87	\$63.93	☑	☑
11-9199	Managers, All Other <sup>*</sup>	Bachelor's degree	12,947	14,386	11%	964	2,540	\$26.87	\$49.17	☑	☑
11-3031	Financial Managers <sup>A</sup>	Bachelor's degree	11,819	12,439	5%	913	1,391	\$46.64	\$69.76	☑	☑
25-2021	Elementary School Teachers, Except Special Education <sup>A</sup>	Bachelor's degree	11,239	12,014	7%	875	1,927	\$29.71	\$46.26	☑	☑
13-1082	Project Management Specialists <sup>*</sup>	Bachelor's degree	7,281	9,518	31%	1,141	2,274	\$34.69	\$46.75	☑	☑
13-1071	Human Resources Specialists	Bachelor's degree	8,134	9,229	13%	893	1,797	\$27.45	\$34.47	☑	☑



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OC Occupational Assessment for SCAG

Exhibit 3: COVID-19 Pandemic Recession-Stable Jobs in Orange County

SOC	Occupation	Typical Entry Level Education	2019 Jobs	2021 Jobs	2019 - 2021 % Employment Change	Annual Openings (2019-2020)	Annual Openings (2020-2021)	Entry-Level Hourly Earnings (25th Percentile)	Median Hourly Earnings	Good Job (MIT Living Wage \$23.66)	Family Supporting Job (MIT Living Wage \$25.57)
47-1011	First-Line Supervisors of Construction Trades and Extraction Workers	High school diploma or equivalent	7,975	8,492	6%	827	1,631	\$28.61	\$38.40	☑	☑
15-1299	Computer Occupations, All Other	Bachelor's degree	7,692	7,975	4%	680	1,141	\$27.55	\$37.17	☑	☑
11-3021	Computer and Information Systems Managers <sup>A</sup>	Bachelor's degree	6,766	7,649	13%	829	1,066	\$59.31	\$76.67	☑	☑
13-2052	Personal Financial Advisors <sup>A</sup>	Bachelor's degree	5,338	6,721	26%	729	1,449	\$25.74	\$42.40	☑	☑
11-1011	Chief Executives	Bachelor's degree	4,321	4,482	4%	298	565	\$50.30	\$95.05	☑	☑
11-9111	Medical and Health Services Managers <sup>A</sup>	Bachelor's degree	3,525	4,334	23%	446	913	\$35.12	\$52.76	☑	☑
49-1011	First-Line Supervisors of Mechanics, Installers, and Repairers	High school diploma or equivalent	3,865	4,037	4%	340	715	\$30.89	\$39.68	☑	☑
11-3012	Administrative Services Managers <sup>*</sup>	Bachelor's degree	3,351	3,572	7%	270	597	\$37.60	\$47.33	☑	☑

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Exhibit 3: COVID-19 Pandemic Recession-Stable Jobs in Orange County

SOC	Occupation	Typical Entry Level Education	2019 Jobs	2021 Jobs	2019 - 2021 % Employment Change	Annual Openings (2019-2020)	Annual Openings (2020-2021)	Entry-Level Hourly Earnings (25th Percentile)	Median Hourly Earnings	Good Job (MIT Living Wage \$23.66)	Family Supporting Job (MIT Living Wage \$25.57)
29-1292	Dental Hygienists* <sup>^</sup>	Associate degree	2,734	3,543	30%	179	1,061	\$48.77	\$48.82	☑	☑
17-2071	Electrical Engineers	Bachelor's degree	3,166	3,516	11%	354	493	\$46.71	\$60.19	☑	☑
13-1051	Cost Estimators	Bachelor's degree	3,239	3,443	6%	288	671	\$24.73	\$32.77	☑	
25-2022	Middle School Teachers, Except Special and Career/Technical Education <sup>^</sup>	Bachelor's degree	2,669	3,046	14%	226	542	\$30.50	\$47.03	☑	☑
29-1021	Dentists, General* <sup>^</sup>	Doctoral or professional degree	2,908	2,979	2%	115	314	\$34.95	\$78.65	☑	☑
11-3121	Human Resources Managers	Bachelor's degree	2,363	2,624	11%	242	404	\$46.26	\$61.44	☑	☑
11-3051	Industrial Production Managers	Bachelor's degree	2,551	2,610	2%	171	400	\$38.86	\$50.10	☑	☑
47-2073	Operating Engineers and Other Construction Equipment Operators	High school diploma or equivalent	2,347	2,422	3%	262	349	\$28.59	\$37.60	☑	☑
17-3011	Architectural and Civil Drafters	Associate degree	1,915	2,244	17%	238	523	\$24.20	\$30.39	☑	

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Exhibit 3: COVID-19 Pandemic Recession-Stable Jobs in Orange County

SOC	Occupation	Typical Entry Level Education	2019 Jobs	2021 Jobs	2019 - 2021 % Employment Change	Annual Openings (2019-2020)	Annual Openings (2020-2021)	Entry-Level Hourly Earnings (25th Percentile)	Median Hourly Earnings	Good Job (MIT Living Wage \$23.66)	Family Supporting Job (MIT Living Wage \$25.57)
11-3071	Transportation, Storage, and Distribution Managers*	High school diploma or equivalent	1,820	2,108	16%	135	474	\$36.39	\$48.76	☑	☑
15-1241	Computer Network Architects <sup>^</sup>	Bachelor's degree	1,695	1,953	15%	194	270	\$37.50	\$52.69	☑	☑
11-9032	Education Administrators, Kindergarten through Secondary*	Master's degree	1,871	1,884	1%	158	279	\$47.02	\$59.53	☑	☑
11-9033	Education Administrators, Postsecondary*	Master's degree	1,513	1,726	14%	121	379	\$45.18	\$57.90	☑	☑
29-2034	Radiologic Technologists and Technicians	Associate degree	1,485	1,714	15%	108	360	\$29.56	\$38.75	☑	☑
49-2098	Security and Fire Alarm Systems Installers*	High school diploma or equivalent	1,236	1,659	34%	141	533	\$24.94	\$31.84	☑	
27-2012	Producers and Directors*	Bachelor's degree	1,385	1,618	17%	138	376	\$33.05	\$54.41	☑	☑
29-1171	Nurse Practitioners <sup>^</sup>	Master's degree	1,208	1,531	27%	165	290	\$61.33	\$64.11	☑	☑
29-1071	Physician Assistants* <sup>^</sup>	Master's degree	1,064	1,433	35%	188	306	\$53.49	\$59.99	☑	☑

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Exhibit 3: COVID-19 Pandemic Recession-Stable Jobs in Orange County

SOC	Occupation	Typical Entry Level Education	2019 Jobs	2021 Jobs	2019 - 2021 % Employment Change	Annual Openings (2019-2020)	Annual Openings (2020-2021)	Entry-Level Hourly Earnings (25th Percentile)	Median Hourly Earnings	Good Job (MIT Living Wage \$23.66)	Family Supporting Job (MIT Living Wage \$25.57)
25-2052	Special Education Teachers, Kindergarten and Elementary School <sup>A</sup>	Bachelor's degree	1,120	1,429	28%	129	346	\$29.19	\$37.73	☑	☑
29-1041	Optometrists <sup>A</sup>	Doctoral or professional degree	1,064	1,387	30%	122	268	\$43.67	\$60.81	☑	☑
11-9039	Education Administrators, All Other	Bachelor's degree	1,206	1,374	14%	93	329	\$34.20	\$44.47	☑	☑
19-3039	Psychologists, All Other <sup>A</sup>	Master's degree	1,119	1,332	19%	193	173	\$27.31	\$45.70	☑	☑
11-3013	Facilities Managers*	Bachelor's degree	1,226	1,298	6%	100	233	\$36.53	\$47.21	☑	☑
13-2028	Property Appraisers and Assessors	Bachelor's degree	1,032	1,239	20%	197	186	\$24.24	\$35.56	☑	☑
27-1011	Art Directors	Bachelor's degree	1,029	1,227	19%	212	259	\$31.11	\$49.28	☑	☑
15-2051	Data Scientists <sup>A</sup>	Bachelor's degree	778	1,179	52%	184	335	\$36.93	\$55.03	☑	☑
15-1212	Information Security Analysts <sup>A</sup>	Bachelor's degree	933	1,161	24%	149	218	\$44.48	\$56.23	☑	☑
15-1243	Database Architects	Bachelor's degree	854	1,119	31%	211	188	\$35.51	\$35.51	☑	☑
33-3012	Correctional Officers and Jailers	High school diploma or equivalent	769	1,038	35%	255	173	\$28.99	\$35.17	☑	☑

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Exhibit 3: COVID-19 Pandemic Recession-Stable Jobs in Orange County

SOC	Occupation	Typical Entry Level Education	2019 Jobs	2021 Jobs	2019 - 2021 % Employment Change	Annual Openings (2019-2020)	Annual Openings (2020-2021)	Entry-Level Hourly Earnings (25th Percentile)	Median Hourly Earnings	Good Job (MIT Living Wage \$23.66)	Family Supporting Job (MIT Living Wage \$25.57)
19-3033	Clinical and Counseling Psychologists <sup>A</sup>	Doctoral or professional degree	911	1,031	13%	102	139	\$33.88	\$56.91	☑	☑
25-2012	Teachers, Except Special Education <sup>A</sup>	Bachelor's degree	734	930	27%	118	229	\$36.20	\$46.86	☑	☑
49-9062	Medical Equipment Repairers	Associate degree	758	913	21%	104	212	\$24.61	\$32.18	☑	☑
15-1242	Database Administrators <sup>A</sup>	Bachelor's degree	613	839	37%	162	161	\$34.14	\$46.13	☑	☑
29-2032	Diagnostic Medical Sonographers <sup>A</sup>	Associate degree	679	821	21%	82	159	\$38.74	\$48.69	☑	☑
11-9179	Personal Service Managers, All Other	Bachelor's degree	592	805	36%	77	235	\$27.16	\$27.16	☑	☑
33-1012	First-Line Supervisors of Police and Detectives	High school diploma or equivalent	455	649	43%	99	159	\$58.35	\$72.60	☑	☑
47-2071	Paving, Surfacing, and Tamping Equipment Operators	High school diploma or equivalent	283	430	52%	89	124	\$29.62	\$39.20	☑	☑
29-1218	Obstetricians and Gynecologists <sup>A</sup>	Doctoral or professional degree	182	347	91%	75	103	\$81.51	\$124.28	☑	☑

**Researcher's Note:**

**COVID-19 Pandemic-Stable Jobs** met the following criteria: **Employment** – Less than 8% employment decline between 2019 and 2020, as well as greater than 3.5% employment growth between 2020 and 2021. **Annual Job Openings** – Annual openings at or above the median during the COVID-19 Pandemic Recession (2019-2020), as well as at or above the median between 2020 and 2021. **Wages** – Entry-level hourly earnings are at or above \$20.63.

\*Great Recession and COVID-19 Pandemic-Stable Job

<sup>A</sup>U.S. News and World Report Best 100 Jobs

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## OC Center of Excellence for Labor Market Research



*This Occupational Assessment was conducted in support of the Southern California Association of Government (SCAG) Labor Market Information to support Subregional Implementation Plans. For more information, please contact the Orange County Center of Excellence.*

**Jesse Crete, Ed.D.**

OC COE Director

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OC COE Assistant Director

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## Appendix D: Stakeholder Mapping Survey Questions

The stakeholder mapping survey was administered online via SurveyMonkey and was available with unique links in English, Spanish and Vietnamese. Questions included in the survey are outlined below.

### 1. Organization/Entity Basic Information and Contact Information

- Organization/entity name
- Person completing survey contact name, title, and email address
- Entity's full address (street, city, zip code)
- Link to organization/entity's website and any social media accounts

### 2. Overview of the Organization/Entity

- Sector that BEST describes the organization/entity (CERF sectors with an option for "other")
- Other sectors that describe the organization/entity
- A brief description of what the organization/entity does (open-ended)

### 3. Geographic Areas Served

- Checklist of all Orange County cities
- Respondents could also select "county-wide"
- Whether or not the organization/entity also works outside of Orange County (if so, a comment box to describe where)

### 4. Community/Communities or Groups Served & Potential CERF Role

- A description of the community/communities or groups the organization/entity serves (open-ended questions; respondents were prompted to be specific such as, specific racial/ethnic group(s), young children, youth, seniors, indigenous groups, small business owners, veterans, industry leaders, etc.)
- Role they think they could play in creating a 'High Road Economy'
- How they believe they are positioned in the sector(s) they operate in (e.g., recent wins or accomplishments that could be related to developing a High Road Economy in Orange County)
- Other organizations they think should be involved in the CERF process

**Orange County Supervisorial Districts**

District Boundaries effective January 6, 2022

**SUPERVISORIAL DISTRICTS**

- 1 - Andrew Do
- 2 - Katrina Foley
- 3 - Donald P. Wagner
- 4 - Doug Chaffee
- 5 - Lisa Bartlett

## Appendix F: Application for Disinvested Community Members (English Version)

### **CERF ORANGE COUNTY**

#### **REQUEST FOR APPLICATIONS FOR DISINVESTED COMMUNITY MEMBERS TO JOIN THE CERF HIGH ROAD TRANSITION COLLABORATIVE (HRTC)**

##### **Eligibility**

Do you live in a part of Orange County where:

1. Residents are low-income?
2. There are not enough good-paying jobs, or residents have to travel far to find good-paying jobs or training?
3. Residents suffer from poor health?
4. Residents have less access to parks than in other parts of Orange County?
5. Residents don't have affordable housing options and your community is underinvested?

If so, then you are eligible to apply to join the Orange County HRTC. We explain about the HRTC below.

##### **The Opportunity**

The Community Economic Resilience Fund, or CERF, was created to help Orange County develop an economic plan that: 1). Prioritizes creating good-paying jobs that are accessible to all and provide equitable economic stability; and 2). Protects our planet.

This initiative is guided by the Orange County High Road Transition Collaborative (HRTC), a planning group that consists of a diverse membership of regional stakeholders. A "High Road" economy is an economy that is growing, that keeps the environment clean, and where prosperity can be accessed by more residents.

The HRTC is comprised of individuals from labor, business, community, philanthropy, government, education, workforce development, and other sectors.

We are currently seeking individuals from disinvested communities in Orange County to join the HRTC and lend their voices, insight, and perspectives to help shape a stronger, healthier, and more environmentally friendly economy for all to prosper.

## **HRTC Responsibilities**

For new HRTC members, there will be up to two virtual orientation meetings in June 2023 to welcome you and get you familiar with CERF and our goals in Orange County.

Additionally, HRTC members will be expected to attend most, if not all, HRTC meetings. Meetings will take place virtually\* from 8:30-9:30am on Fridays\*\*:

- One meeting a month in June, July, August 2023
- Two meetings a month in September and October 2023
- No meetings in November and December 2023 or January 2024
- One meeting a month February through May 2024
- Public forums in June 2024

*\*It's anticipated that two of these meetings will be in-person instead of virtual. There will be plenty of notice given on the meetings that will take place in-person so that HRTC members can adequately plan.*

*\*\*If these times are not accessible for you, we still encourage you to apply and describe your availability.*

Translation services will be provided over Zoom for non-English speakers. Additionally, devices to access Zoom meetings will be provided to HRTC members who have a need, and Zoom how-to trainings will be offered.

There will be pre-reading required in the form of agendas and packets one week prior to each HRTC meeting. Pre-reading can take anywhere from 30-60 minutes. Materials will be translated for non-English speakers.

If an HRTC member is inactive and/or absent in three consecutive meetings and six meetings total, that person will be eligible for removal.

You may be asked to participate in stakeholder meetings, additional meetings to discuss a particular topic in depth. These meetings will take place virtually as well.

You will be asked to engage in all meetings, meaning that your voice is encouraged and sought after and valued. Your thoughts and input can be delivered verbally or in writing. Your lived experience, and your hope for a stronger and healthier Orange County, will be critical to a successful CERF Planning Phase. You can be offered additional support if needed to be able to participate fully, including reviewing material in advance with facilitators and other HRTC members from community-based organizations.

## **Compensation**

Disinvested community members who are invited to join the HRTC will receive compensation of \$25,000 through June 2024. This compensation is intended to cover your time, and any transportation or childcare costs associated with your participation.

## Review and Selection Process

An advisory committee will help review applications and make recommendations on selection.

We welcome applicants regardless of immigration status. Selection priority will be given to those with very and extremely low-income levels (for a family of four: \$50,000 and below in income per year) and communities historically excluded from decision-making around economic development.

Applicants will be informed of HRTC membership decisions by May 26, 2023, and will be expected to go through HRTC orientation meetings in early June and start participating in HRTC meetings in June 2023.

Please note: Applicants must be at least 18 years of age or older.

**APPLICATIONS ARE DUE BY 7:00 P.M. WEDNESDAY, MAY 17, 2023.**

### Orange County CERF Membership Application

*Questions marked with an \* are mandatory to answer.*

\*Name: \_\_\_\_\_  
\_\_\_\_\_

\*Street  
Address: \_\_\_\_\_

\*City, State,  
Zip: \_\_\_\_\_

\*Email  
Address: \_\_\_\_\_

\*Phone  
Number: \_\_\_\_\_

\*What is your age?

- ☐ 18-24 years old
- ☐ 25-34 years old
- ☐ 35-44 years old
- ☐ 45-54 years old
- ☐ 55-64 years old
- ☐ 65-74 years old
- ☐ 75-84 years old
- ☐ 85 years or older

\*Do you currently work?

- Yes, I work full-time.
- Yes, I work part-time.
- Yes, I am self-employed (please specify:\_\_\_\_\_)
- No, I don't work.

\*Please select your household income below:

- Less than \$20,000
- \$20,000 to \$34,999
- \$35,000 to \$49,999
- \$50,000 to \$74,999
- More than \$75,000

\*My racial ethnic identity is:

- American Indian or Alaskan Native
- Asian or Asian American
- Black or African American
- Hispanic or Latinx
- Middle Eastern or North African
- Native Hawaiian or Pacific Islander
- White
- Bi-racial or multiracial
- Prefer not to state or unknown

\*My preferred language is:

- Arabic
- Chinese (including Cantonese and Mandarin)
- English
- Farsi
- French
- Japanese
- Khmer
- Korean
- Russian
- Spanish
- Tagalog (including Filipino)
- Vietnamese
- Other:\_\_\_\_\_

\*How long have you lived in Orange County?\_\_\_\_\_



1). Tell us a little bit about yourself. We'd like to get to know you, in as much detail as you feel comfortable sharing.

2). How did you hear about this opportunity to join the CERF HRTC in Orange County, and why do you want to join?

3). Have you previously been or are you currently involved in any community health or outreach initiatives? If so, please describe.

4). Please describe how you can contribute to the Orange County HRTC.

5). Is there any additional information you'd like to share?

\*\*\*\*\*

1. I have read and understand background and information on the Orange County HRTC.
2. I accept the responsibilities of membership and agree to uphold the objectives of the Orange County HRTC.
3. I certify that I am 18 years of age or older.
4. I certify that all statements and representations made in this application are true and correct. Misrepresentation shall be a basis for revocation of my application/membership.

Please sign and date below as acknowledgment.

Signature: \_\_\_\_\_ Date: \_\_\_\_\_

**APPLICATIONS ARE DUE BY 7:00 P.M. WEDNESDAY, MAY 17, 2023.**

**Overall Freshman Graduation Rates  
Fall 2014 through Fall 2022 Entering Cohorts**

		Number of students in entering cohort	Graduated by end of 3rd yr	Graduated by end of 4th yr	Graduated by end of 5th yr	Graduated by end of 6th yr	Graduated by end of 7th yr	Graduated by end of 8th yr
SWANA	2014-15	237	3.8%	73.4%	89.0%	89.5%	89.5%	89.5%
	2015-16	202	2.5%	76.7%	92.6%	92.6%	92.6%	
	2016-17	280	7.9%	81.4%	92.1%	92.5%		
	2017-18	228	6.6%	70.6%	86.4%			
	2018-19	209	8.1%	75.1%				
	2019-20	222	12.2%					
	2020-21	263						
	2021-22	280						
	2022-23	237						
All others	2014-15	5,187	4.7%	68.6%	82.9%	84.7%	85.2%	85.5%
	2015-16	5,544	5.6%	67.9%	81.7%	83.2%	83.9%	
	2016-17	6,261	5.3%	72.1%	85.2%	86.3%		
	2017-18	6,306	6.9%	73.4%	84.6%			
	2018-19	5,571	7.1%	73.4%				
	2019-20	5,830	10.1%					
	2020-21	5,479						
	2021-22	6,190						
	2022-23	5,547						

UC Irvine Office of Academic Planning and Institutional Research  
IIIC-grad-rate-reports : Freshmen : 07/28/2023

## Appendix H: Swana Undergraduate Student Headcount, UCI

## Undergraduate Student Headcount

### Fall Quarter

			Fall		
			2020	2021	2022
Undergraduate	SWANA	Headcount	1,514	1,616	1,597
		% of headcount	5.11%	5.49%	5.57%
	All others	Headcount	28,124	27,833	27,064
		% of headcount	94.89%	94.51%	94.43%
Grand Total		Headcount	29,638	29,449	28,661
		% of headcount	100.00%	100.00%	100.00%

UC Irvine Office of Academic Planning and Institutional Research  
 IIA07-enr-by-ethnicity : IIA07F (2) : 07/28/2023

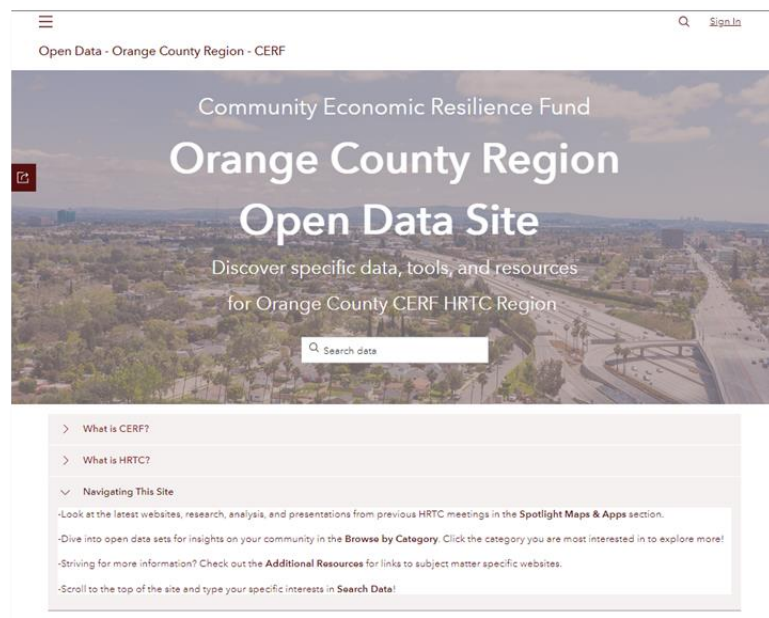
## Appendix I: ESRI Status Reports

**To:** Dr. Wallace Walrod  
**Esri Project Manager:** Brian McNamara  
**Cerf Project:** April 2023 – June 2024

Esri, Inc is providing support to Orange County Region of the California Economic Resilience Fund (lead by CAL FWD) as part of the Data & Research team lead by Dr. Wallace Walrod of Orange County Business Council.

## Major Work Accomplished

- **Data Discovery**
  1. Additional Data feedback and ad-hoc research as requested
  2. Communication & feedback from stakeholders and public input
- **Data Gathering**
  1. Performed data gathering and validation through collaboration with the Data Research Team, performed data gathering and validation
  2. Received feedback from public members, stakeholders, and others to support and enhance the overall project
- **Open Data Hub Configuration**
  1. Successful update and on-going refinement Orange Count CERF HRTC Open Data Hub to maintain overall project alignment (<https://hrtc-oc-cerf.hub.arcgis.com/>)



- **Ad Hoc Tasks**
  1. **Survey Administration and Data Analysis**
    - Ongoing support of public outreach surveys with the Outreach & Engagement OC CERF Team via Survey123
    - Created survey delivery automation with the larger Data Research and Outreach team enabling further analysis

- Created additional surveys for Outreach & Engagement data collection and project tracking

The screenshot shows a survey form titled "OC Hispanic Chamber of Commerce CERF Community O&E Su...". The form contains the following text:

The Community Economic Resilience Fund, or CERF, was created to help Orange County develop an economic plan that prioritizes creating good paying jobs, that are accessible to all, and also protects our planet.

We are seeking to identify strategies (ideas) and solutions for building an equitable and environmentally friendly economy, one that increases the number of high-quality jobs. And we need your help - specifically, we need your voice. In the survey below, please share your thoughts. This survey should take you about 15 minutes to complete.

Please Note: All survey responses will be presented to a diverse stakeholder group to inform the creation of Orange County's new economic development plan. Please answer as many questions below as you like. The more feedback and ideas you can provide the better, but it is not mandatory that you answer every question.

You can learn more at [ocbc.org/cerf](http://ocbc.org/cerf)

1. What is your name?

2. What is your email?

2. Additional& ongoing HRTC, Stakeholder and Data & Research Team meetings
3. Support Data Research team in development of exhibits and maps to accompany analysis
- 4. Stakeholder Mapping and Visualization**
  - Using the Stakeholder and Outreach team's analysis, transformed their findings into an interactive, public facing visualization web mapping application
  - Through this website, one can select surveyed organizations by service area (e.g., City Limits), service sectors (e.g., Government Agency, Education and Training Organization), Collaborative Voting Member status, or by survey responses through an open word search

## Organization

Collaborative Voting Member

0 Selected

Service Area

3 Selected

Service Sector

0 Selected

Q Search

A-Z

**Ahri Center**

Community-based Organization

8682 Beach Blvd Suite 200 Buena Park 90

Disinvested or Underserved Community, Edu

Q Search

- ☒ Aliso Viejo
- ☐ Anaheim
- ☐ Brea
- ☒ Buena Park
- ☒ Costa Mesa
- ☐ County-wide
- ☐ Cypress

**Visit Website**

**Anaheim Union High School Dis**

Education and Training Organization

501 N. Crescent Way Anaheim 92801

No Other Sector Applies

**Visit Website**

- Details also include organization contact information, resources provided, and goals
- To access the site click [here](https://experience.arcgis.com/experience/5bc715bfb76f4ec8b0cc82e4172c60eb/page/Page/?data_id=dataSource_2-0%3A38)  
([https://experience.arcgis.com/experience/5bc715bfb76f4ec8b0cc82e4172c60eb/page/Page/?data\\_id=dataSource\\_2-0%3A38](https://experience.arcgis.com/experience/5bc715bfb76f4ec8b0cc82e4172c60eb/page/Page/?data_id=dataSource_2-0%3A38))

## Orange County CERF Region

### Organization

Collaborative Voting Member

0 Selected

Service Area

0 Selected

Service Sector

0 Selected

Q Search

A-Z

**Abrazar, Inc.**

Community-based Organization

7101 Wyoming Street, Westminster, CA 92683 Westminster 92683

No Other Sector Applies, Disinvested or Underserved Community

**Visit Website**

**Access California Services**

Community-based Organization

300 W Carl Karcher Way Anaheim 92801

Disinvested or Underserved Community

**Visit Website**

**Accessity**

Economic Development Organization

404 Euclid Ave, Ste 271 San Diego 92114

Education and Training Org

**Visit Website**

**Ahri Center**

Community-based Organization

8682 Beach Blvd Suite 200 Buena Park 90620

Disinvested or Underserved Community, Education and Training Org, Other

**Visit Website**

**Alzheimer's Family Center**

Employer, Business or Business Association

9451 INDIANAPOLIS AVE HUNTINGTON BCH 92646-5955

Community-based Org

**Visit Website**

### Organization Details

**Abrazar, Inc.**

7101 Wyoming Street, Westminster, CA 92683 Westminster 92683

**About This Organization**

Abrazar (means to Embrace in Spanish) is a non-profit direct service organization providing services to residents in Orange County. Abrazar is dedicated to embracing the diversity of families in our community, educating them on the resources we provide through our community collaborations, and empowering them to improve the quality of their lives through programs addressing health equity. Abrazar has been addressing inequities in the social determinants of health (SDoH) since 1976. We have over 40 programs that impact the most vulnerable community members. Abrazar's goals are to Embrace, Educate and Empower children, families, and individuals with the necessary tools to improve health equity by delivering programs that improve the social determinants of health. Diversity and the delivery of collaborative services are critical to the success of our programs. We are here to save the community. We

**Organization Information**

**Areas Served**

County-wide

**Works Outside OC**

Works outside county

**Resources Provided**

OC is a multicultural, multilingual, and diverse population. Abrazar has provided services to OC residents for 47 years that live in areas with the lowest social progress index scores (underrepresented Latinx, AAPL, and isolated communities). These communities face multiple barriers to education and resources. Through the formation of the OC HOPE Collective and other collaborations, Abrazar has brought together partners that address Social Determinants of Health (SDoH) and inequity. Abrazar and partners put the community voice at the forefront of

City of Irvine, County of Los Angeles, California State Parks, Esri, HERE, Garmin, SafeGraph, FAO, METI/NASA, USGS, Bureau of Land Management... Powered by Esri



### More Information

The data in the Orange County CERF Stakeholder Map was collected through the Orange County CERF Stakeholder Mapping Survey, conducted via SurveyMonkey from April through July 2023. The data included was self-reported by organizations that completed the survey.

We are making this data available so that it can be utilized for collaborative efforts and relationship-building as part of CERF and beyond.

Other useful maps you may want to review, specific to nonprofits/community-based organizations include:

- Orange County Community Foundation's OC Nonprofit Central, a tool for donors to research nonprofit organizations: [ocnonprofitcentral.org](https://ocnonprofitcentral.org)
- Charitable Ventures Map My CBO, a free public search tool designed to support partnership, collaboration, and community outreach for local organizations that work with the diverse communities of Orange County: [map-my-cbo.herokuapp.com](https://map-my-cbo.herokuapp.com)

If you have any questions about the Orange County CERF Stakeholder Map, please contact [CERF@ocbc.org](mailto:CERF@ocbc.org).

**To:** Dr. Wallace Walrod

**Esri Project Manager:** Brian McNamara

**Cerf Project:** April 2023 – June 2024

Esri, Inc is providing support to Orange County Region of the California Economic Resilience Fund (lead by CAL FWD) as part of the Data & Research team lead by Dr. Wallace Walrod of Orange County Business Council.

## Major Work Accomplished Job to Date

- **Data Discovery**
  1. Internal and Data & Research Team meetings
  2. Attended HRTC Meetings
  3. Stakeholder meeting with Ana U. of Cooperacion Satna Ana
  4. Communication & Feedback from Stakeholders and Public Input
- **Data Gathering**
  1. Esri & Data/Research Team data validation and collaboration
  2. Receive feedback from public, stakeholders, and other members to support and enhance data gathering effort
- **Open Data Hub Configuration**
  1. Completed successful development and launch of Open Data Hub - <https://hrtc-oc-cerf.hub.arcgis.com/>

- **Ad Hoc Tasks**

1. Successfully hosted 3 surveys for 27 organizations hosted in multiple languages in support of Outreach & Engagement OC CERF Team
2. Additional& Ongoing HRTC meetings and Data & Research Team meetings
3. Presented Open Data Hub to larger HRTC group at monthly meeting (x2)

## Attachments

- Data Layer Summary & Report

## Data Layer Summary

- Data Layers by Category

Category	~ Count
Climate & Environmental Impact	17
COVID Recovery	4
Demographics	26
Economic and Economic Development	21
Environmental Justice	11
Labor Market	26
Public Health	29
Sustainability	15
<b>Total</b>	<b>149*</b>

\*datasets can reference multiple categories

## Data Layer Report

- Data Layers identified by Esri included in Open Data Hub (<https://hrtc-oc-cerf.hub.arcgis.com/>)
  - *The Open Data Hub is a designed to be a living document to meet the needs of project members, stakeholders, and the public. As such, additional data layers may be added at any time. The list below represents a snapshot in time of available data.*

Layer / Data Name	Category
2022 USA Health Care Spending	Public Health, Economy & Economic Development
ACS Children by Parental Labor Force Participation Variables - Boundaries	Demographics, Labor Market
ACS Disability by Type Variables - Boundaries	Public Health, Demographics
ACS Disability Status Variables - Boundaries	Public Health, Demographics

<b>Layer / Data Name</b>	<b>Category</b>
ACS Health Insurance by Age by Race Variables - Boundaries	<i>Public Health, Demographics</i>
ACS Health Insurance Coverage Variables - Boundaries	<i>Public Health</i>
ACS Housing Cost Variables - Boundaries	<i>Economy &amp; Economic Development</i>
ACS Internet Access by Age and Race Variables - Boundaries	<i>Labor Market, Economy &amp; Economic Development</i>
ACS Labor Force Participation by Age Variables - Boundaries	<i>Demographics, Labor Market</i>
ACS Language Spoken at Home Variables - Boundaries	<i>Demographics</i>
ACS Median Household Income Variables - Boundaries	<i>Demographics, Economy &amp; Economic Development</i>
ACS Population and Housing Basics - Boundaries	<i>Demographics</i>
ACS Population Variables - Boundaries	<i>Demographics</i>
ACS Poverty Status Variables - Boundaries	<i>Economy and Economic Development; Labor Market</i>
ACS Race and Hispanic Origin Variables - Boundaries	<i>Demographics</i>
ACS Travel Time to Work Variables - Boundaries	<i>Labor Market</i>
Broadband Access in Your City	<i>Sustainability</i>
California Census 2020 Redistricting Blocks	<i>Demographics</i>
CDC/ATSDR Social Vulnerability Index 2020 USA	<i>Sustainability; Demographics</i>
Climate Mapping for Resilience and Adaptation Assessment Tool	<i>Sustainability; Climate &amp; Environmental Impact</i>
FCC Broadband Data Collection June 2022	<i>Environmental Justice; Economy and Economic Development</i>
FEMA National Risk Index WebMap	<i>Public Health; Climate &amp; Environmental Impact</i>
Full Range Heat Anomalies - USA 2020	<i>Public Health, Climate &amp; Environmental Impact</i>
Healthcare Facility, California	<i>Public Health</i>
Heat Health Census Tracts	<i>Climate &amp; Environmental Impact; Public Health</i>
Heat Severity - USA 2022	<i>Public Health, Climate &amp; Environmental Impact</i>
Households who spend more than 30 percent of income on housing	<i>Labor Market; Economic Development</i>
How expensive are living costs in your area?	<i>Economy and Economic Development</i>
Job Centers - SCAG Region	<i>Labor Market</i>
Justice 40 Tracts November 2022 Version 1.0	<i>Sustainability; Demographics</i>
Labor Marker Map Data May 8 2023	<i>Labor Market</i>
Land Cover Vulnerability Change 2050 - Country	<i>Economy &amp; Economic Development</i>

<b>Layer / Data Name</b>	<b>Category</b>
Location Affordability Index	<i>Economy and Economic Development, Demographics, Labor Market</i>
Low Resilience and Drought Risk	<i>Climate &amp; Environmental Impact</i>
Medical Service Study Area	<i>Public Health, Demographic</i>
Medically Underserved Areas	<i>Public Health</i>
Medically Underserved Populations	<i>Public Health</i>
National Equity Atlas	<i>Demographics, Labor Market</i>
National Risk Index Census Tracts Map	<i>Climate &amp; Environmental Impact</i>
OC Occupational Assessment Stable Jobs Slide deck SCAG May23 OC COE	<i>Labor Market, Economy, and Economic Development</i>
OC Occupational Assessment Stable Jobs Tables SCAG May23 OC COE	<i>Labor Market, Economy, and Economic Development</i>
Orange County COVID Response	<i>Public Health; COVID Recovery</i>
Primary Care Shortage Areas (PCSA)	<i>Public Health</i>
Race/Ethnicity with Highest Median Income	<i>Labor Market; Demographics</i>
Race/Ethnicity with Lowest Median Income	<i>Labor Market; Demographics</i>
Toxic Release Inventory (TRI) Facilities	<i>Public Health, Environmental Justice</i>
U.S. Urban Heat Island Mapping Campaign	<i>Public Health, Environmental Justice, Climate &amp; Environmental Impact</i>
Urban Heat Island Severity for U.S. Cities - 2019	<i>Public Health, Climate &amp; Environmental Impact</i>
USA Transportation Noise - Road and Aviation 2018	<i>Environmental Justice, Economy &amp; Economic Development</i>
What is the Predominant Commute Time	<i>Labor Market</i>
What is the predominant income range within the Middle Class?	<i>Labor Market; Economic Development</i>
Where are households with more cars than people?	<i>Economy &amp; Economic Development?</i>
Where are housing units that are heated by Solar?	<i>Sustainability</i>
Where are minority populations with no health insurance?	<i>Public Health</i>
Where are people who started college but did not finish	<i>Demographics</i>
Where are teens working full-time (and therefore at risk for stopping out school)?	<i>Labor Market</i>
Where are the most socially vulnerable populations in the U.S.?	<i>Public Health, Economy and Economic Development</i>
Where do hyper commuters live?	<i>Labor Market</i>

- Data layers and links requested by other stakeholders, HRTC members, and research team included in Open Data Hub website (<https://hrtc-oc-cerf.hub.arcgis.com/>)
- *The Open Data Hub is a designed to be a living document to meet the needs of project members, stakeholders, and the public. As such, additional data layers may be added at any time. The list below represents a snapshot in time of available data.*

<b>Layer / Data Name</b>	<b>Category</b>
Trust For Public Land	<i>Climate &amp; Environmental Impact; Environmental Justice</i>
Outdoors for All Draft Strategy Report	<i>Climate &amp; Environmental Impact; Environmental Justice</i>
SOBAN Report 2021 (State Outdoor Business Alliance Network)	<i>Climate &amp; Environmental Impact; Environmental Justice</i>
MBC - Disinvested Community Tracts Analysis	<i>Public Health; Labor Market; Sustainability; Demographics</i>
MBC - Disinvested Communities Analysis Webmaps	<i>Public Health; Labor Market; Sustainability; Demographics</i>
CAP Community Needs Assessment Preliminary Findings - 2023	<i>Labor Market; Demographics</i>
CAP Community Needs Assessment - 2021	<i>Labor Market; Demographics</i>
CAP Transportation Community Needs Assessment - 2020	<i>Labor Market; Demographics; Environmental Justice</i>
Mapping Black California - Environmental Justice & Pollution Webmap	<i>Public Health; Sustainability; Environmental Justice; Climate &amp; Environmental Impact</i>
Mapping Black California - Environmental Justice & Public Health COVID Webmap	<i>Public Health; COVID</i>
Mapping Black California - Equity & Inclusiveness in Orange County Analysis & Webmaps	<i>Public Health; Labor Market; Sustainability; Demographics</i>
CAL EnvioScreen Link	<i>Climate &amp; Environmental Impact; Environmental Justice; Sustainability</i>
CAL EnvioScreen Water pollution Maps	<i>Climate &amp; Environmental Impact</i>
SoCal Atlas - SCAG	<i>Economic &amp; Economic Development; Sustainability; Labor Market; Demographics</i>
California Healthy Places Index	<i>Public Health</i>
Orange County Health Agency	<i>Public Health; COVID</i>
Orange County Coastkeeper Website	<i>Climate &amp; Environmental Impact</i>
CDSS (Cal-WORKs, Cal-Fresh) Website	<i>Public Health</i>
Additional presentation resources from HRTC meetings	<i>All Categories</i>

# Appendix J: HRTC Participant Questions and UCI Labor Center Responses

by Professor Virginia Parks and Youjin Kim

June 30, 2023

1. Where would we see domestic workers reflected?

*In occupations under “Personal Care and Service” for childcare workers or under “Building & Grounds Maintenance” for housekeepers. In industries, work usually carried out by domestic workers falls under “Other Services, Except Public Administration.” This latter industry classification covers a diverse range of activities, including car washes, funeral homes, civic and advocacy organizations, as well as private households.*

2. Are job losses (between 2019 to 2021) due to the closing of positions, vaccination requirements, etc?

*We do not analyze data on this question so cannot respond to it directly. From anecdotal evidence, we know that many businesses had to close or layoff employees due to decreased demand for goods and services, e.g., restaurants, brick-and-mortar retail. While some of these businesses were able to weather the pandemic, some closed and did not re-open. However, this is a larger question that deserves further research, but is beyond the scope of our project.*

3. Based on my limited experience with acs/census, there are hard-to-reach communities. Do we have a sense of how inclusive this data is of our most disinvested/vulnerable communities?

*The value of the Census is that it includes vulnerable communities and individuals. Although challenges with undercounting continue, the Census has made progress on reaching vulnerable communities through outreach efforts in partnership with community-based organizations over the past two decades.*

4. Do you have the “good jobs” breakdown by census tracts with race percentages in OC?

*There’s always a trade-off with census data: you can either get a lot of information about an individual worker, but you can’t locate this worker at a fine geographic scale such as a census tract. Or you can get aggregate information about a census tract, but not information attached to the*

*workers that live in that tract.*

*In our analysis, “good jobs” percentages represent the percent of workers in each racial/ethnic category, not the racial composition of workers who have good jobs. Latinx workers represent the second largest racial or ethnic group in Orange County and less than a quarter of them hold good jobs.*

5. Is the Hospitality industry - although very valuable as a first job, transitional job, 2nd job, going to school jobs - the industry that is depressing wage growth?

*Many workers in the hospitality industry are long-time workers in this sector. We do not analyze this question directly, but research over the past 15 years has shown that many jobs we used to consider “first jobs,” are in fact long-time jobs held by working adults. If the question is about the hospitality’s industry’s influence on overall wages in OC, we would expect the impact to be negligible given the size of the industry relative to the overall size of the OC labor market. If the question is about wage growth within the industry, union jobs within the industry reflect an upward trajectory in wage rates.*

6. How do you define a living wage and what factors are considered in its calculation? Could you provide some insight into the criteria used to determine the cost of housing in Orange County? We have seen reports where a person has to earn \$40 or more an hour to be able to afford a 2 bedroom apartment in Orange County

*Our estimates are consistent with these reports. The MIT living wage for a household of two adults and one child is the hourly wage for both adults to afford a two-bedroom apartment (and other basic necessities and taxes). That is, both adults would need to earn at least \$25.57, which times two equals \$51.14. The National Low Income Housing Coalition (NLIHC) estimated the two-bedroom housing wage for California at \$42.25, or what a household needs to earn to afford a two-bedroom apartment. Both MIT researchers and NLIHC used “the likely cost of rental housing in a given area in April 2022 using HUD Fair Market Rents (FMR) estimates” ([Nadeau & Glasmeier, 2023](#)). Fair Market Rents are “estimates of 40th percentile gross rents for standard quality units within a metropolitan area or nonmetropolitan county” ([HUD, 2022](#)).*



7. I have a big question - why are the wages in the service, eg, personal care occupations kept so low? We've seen through COVID that there is a high demand for these essential occupations, we know they are not low-skilled as much as they are work that is not desirable to do. And we see that unionization provides higher wages, benefits and protections, so there is a lot of power in management and leadership of businesses to be able to provide better wages, right? It makes me think about incentives (if not requirements) for employers to provide better wages and protections as a key strategy to increase good jobs.

*There have also been legislative efforts led by unions to increase wages industry-wide. For example, SB 525 in California seeks to raise healthcare worker wages to \$25/hour minimum. In New York City, delivery workers will be earning \$17.96/hour minimum. California's AB 257 passed last year, which raised the minimum wage for fast-food workers to \$22/hour this year.*

8. Is there research on how many "good paying jobs" are available compared to the number of unemployed or underemployed individuals

*The State of California's Economic Development Department provides yearly reports documenting unemployment in [Orange County](#) by industry. This provides data points that can be compared to the UCI Labor Center data slides about good jobs by industry. One note: unemployment changed dramatically during Covid and through the prolonged post-Covid recovery. We don't have Census/ACS data available that is as recent as unemployment data. Most recent worker-level Census data is from 2021. Unemployment in May 2021 was 6.2 percent in Orange County and 3.2 percent in May 2023.*

9. Question on the overall regional plan draft – there's data there about living wages by race that seems different than what we saw through UCI. Is that right? Page 50 specifically.

*Our data analysis includes a "living wage" in our "good jobs" definition, which also requires employer-sponsored healthcare and full-time, full-year employment. Hence, a smaller proportion of workers have "good jobs" than are earning a "living wage." No single data set includes all of the criteria included in the State of California's definition of "high quality jobs" (see below). The three criteria we utilize—living wage, health care, full-time employment—serve as a floor for good jobs; high quality jobs as defined below would offer even more benefits to workers.*

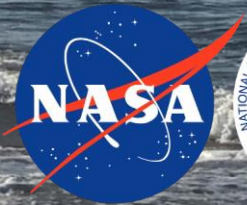
*The State of CA definition of High Quality Jobs:*

*“Job quality varies across industry, occupation, and region. Indicators of high quality jobs include family-sustaining wages, clearly defined routes to advancement into higher wage jobs, benefits (like paid sick and vacation), adequate hours and predictable schedules, access to training, occupational health and safety, worker representation or right to organize, and no employer or subcontractor record of wage theft or other violations of labor law. High quality jobs bring sustainable income to the region.”*

## Appendix K: Coastal Erosion and Beach Loss in California

# Coastal Erosion and Beach Loss in California

Please do not share this presentation



Richard Matthew, PhD  
Professor, Department of Urban Planning and Public  
Policy  
Director, Climate and Urban Sustainability Program

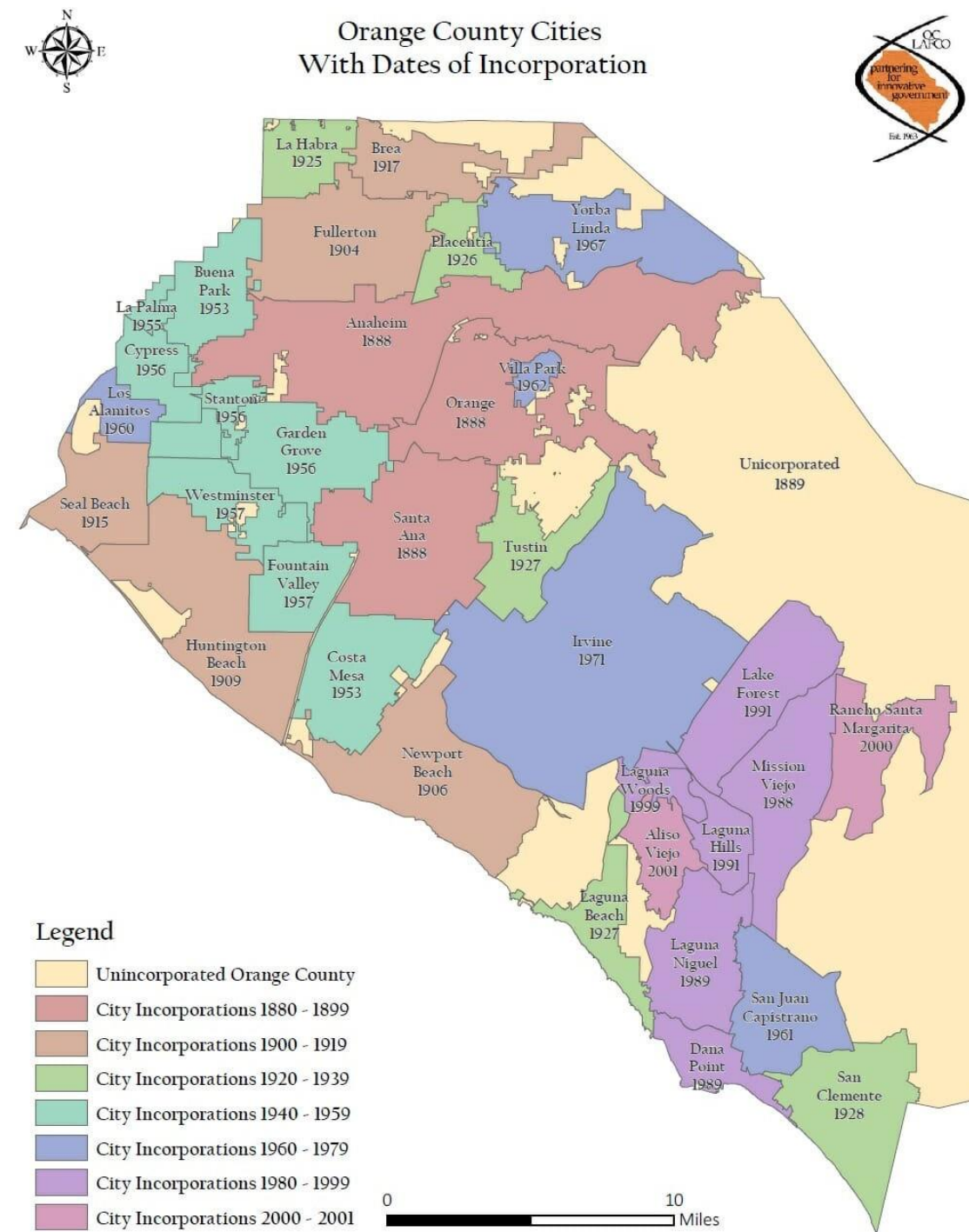
UCI



# Climate and Urban Sustainability Challenges in Orange County

- Beach loss and coastal erosion
- Flood risk
- Heat waves
- Air pollution
- Wildfires
- Drought

Key drivers include: aging infrastructure, urban development and climate change



# Addressing Environmental Challenges

- Develop data driven models of trends, patterns and anomalies
- Model risk under future development and climate scenarios
- Co-develop and model possible solutions with community
- Select adaptation pathway and address permitting, financing and litigation issues





# Case Study: Beach Loss in Orange County

- Data and analysis led by:
- Dr. Brett Sanders, Civil and Environmental Engineering and Urban Planning and Public Policy, University of California Irvine





# **Saving Beaches in a Win-Win-Win for California**

- **Economy**
- **Ecosystems**
- **Recreation**
- **Livelihoods**
- **Storm Protection**
- **Cultural Heritage**





# Lessons from San Clemente

THE ORANGE COUNTY  
**REGISTER**

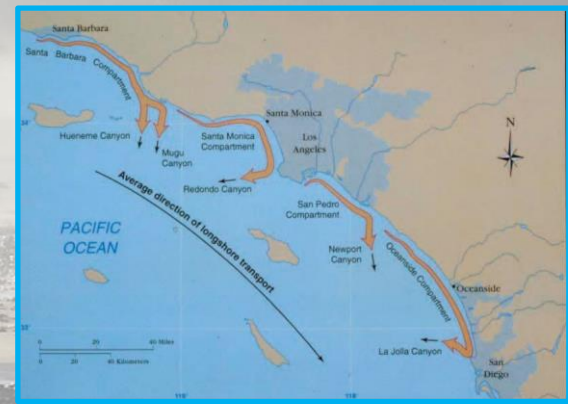


## What Communities Need:

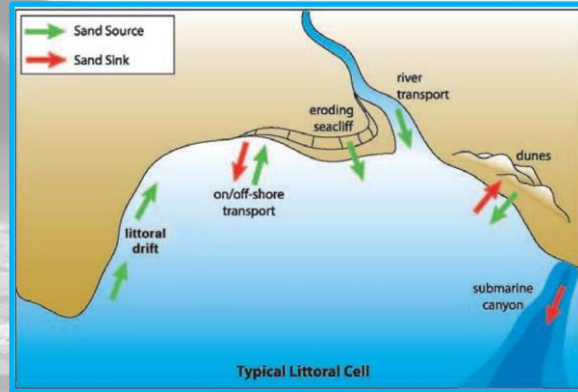
- **An understanding of what's driving the problem**
- **Options for solutions, including estimates of costs and benefits**
- **Early warnings**
- **Future forecasts**
- **An ability to act quickly**



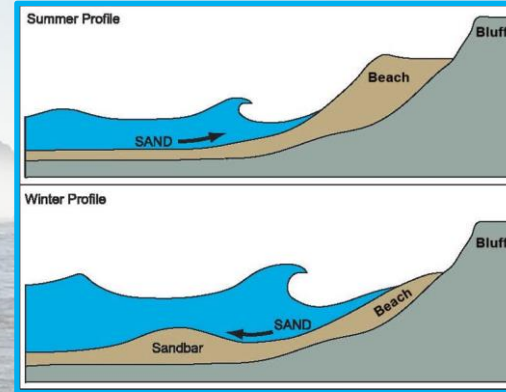
# Presently Available Resources for Communities



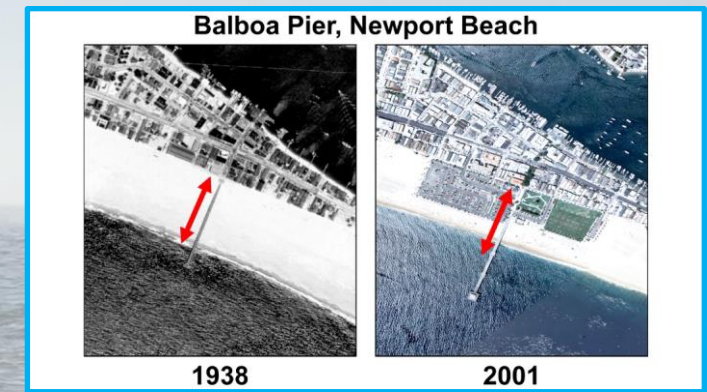
Littoral Cell Concepts



Sand Budget Concepts



Seasonal Concept



Aerial Photos

*Patsch and Griggs (2006)*

***What's Missing: Site-Specific Data on Sediment Dynamics, and the Ability to Make Predictions***



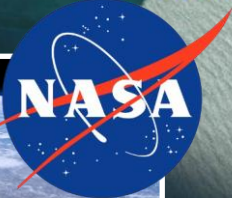
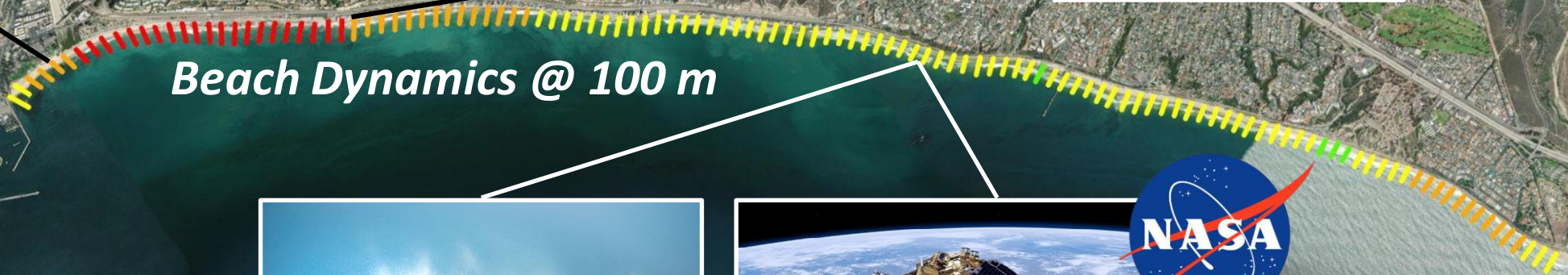
# The Digital Platform

- New monitoring and prediction systems for sediment dynamics
- An improved process for participation in decision-making





# Monitoring and Prediction System

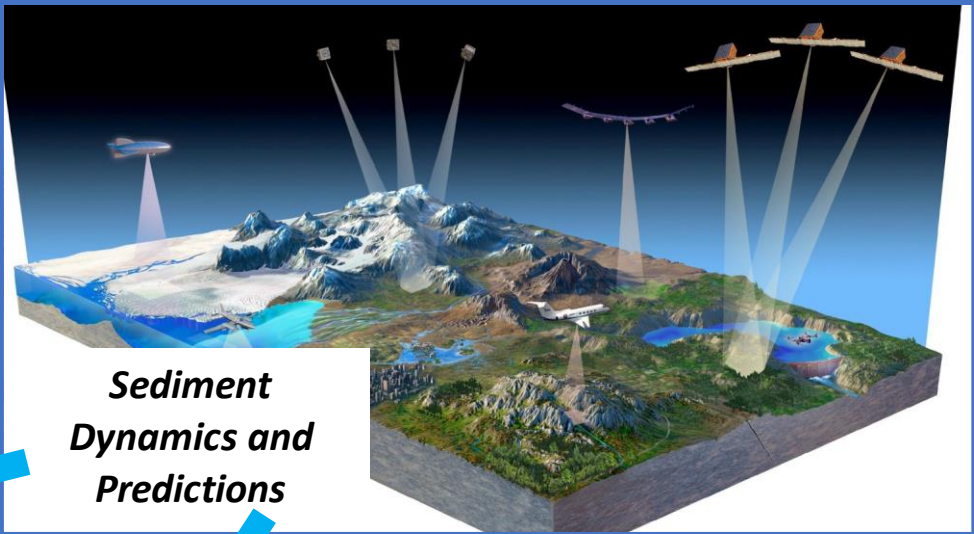
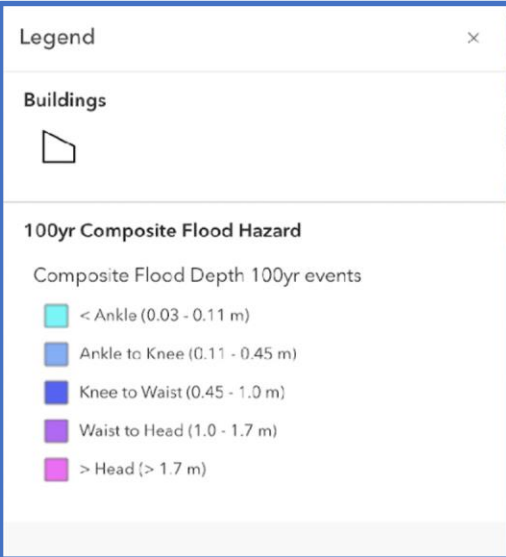


Monitoring and Prediction of  
Waves and Shoreline Change





# From Sand Dynamics to Regional Risks



**Beach and Dune Topography**

**Housing**

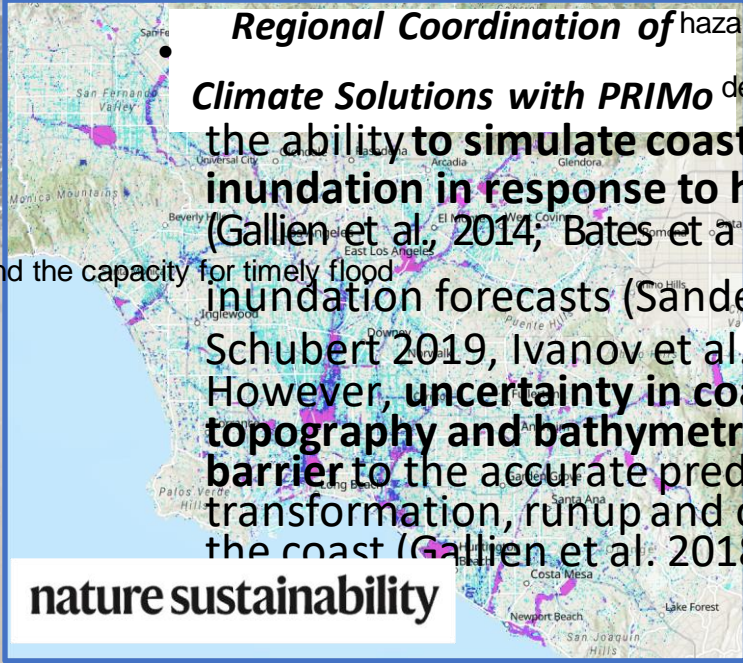
**Energy Infrastructure**

**Transportation Infrastructure**

**Nearshore Bathymetry, Sediment and Ecosystems**

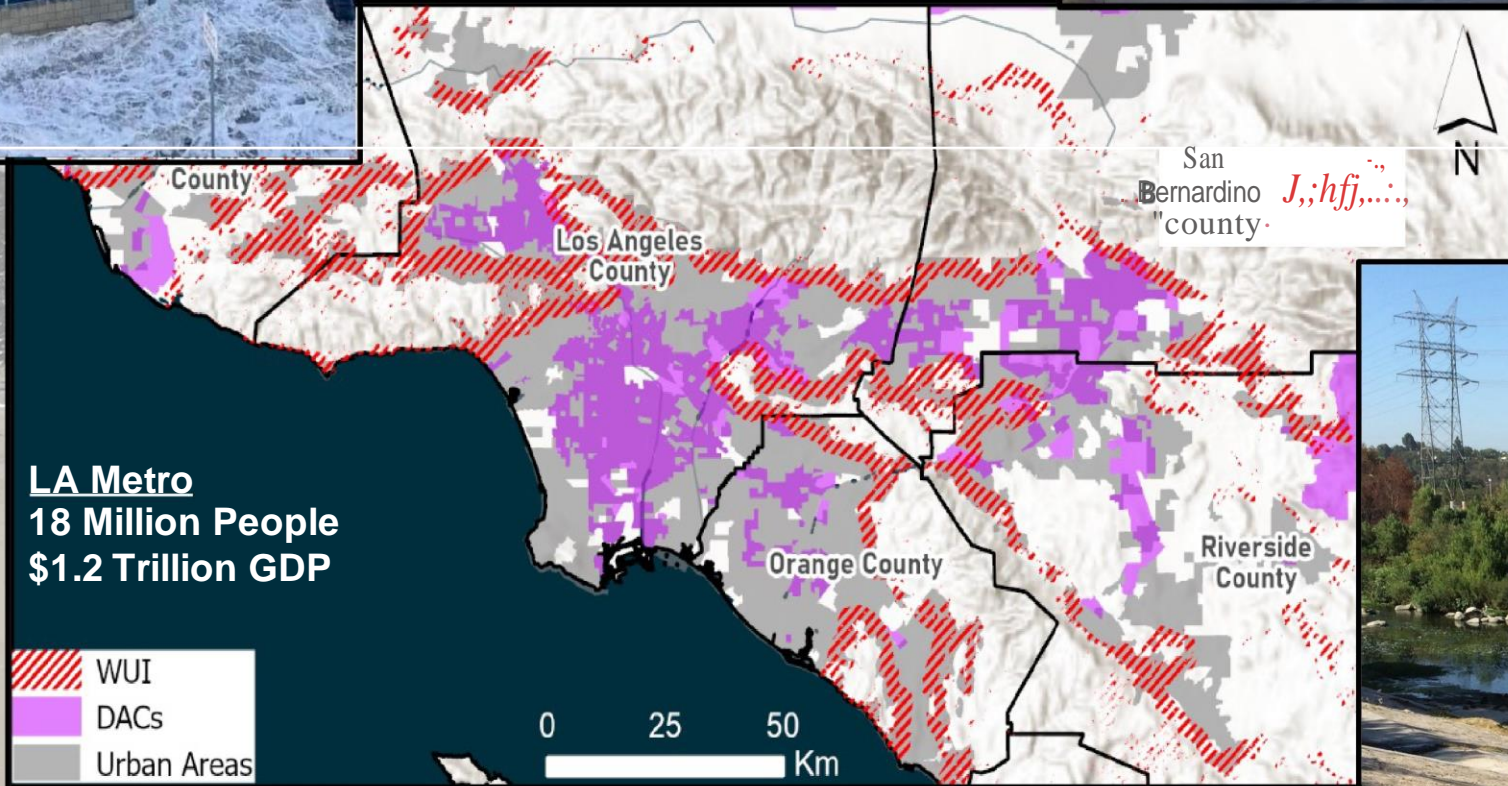
**Coastal Marsh**

**Water Infrastructure**

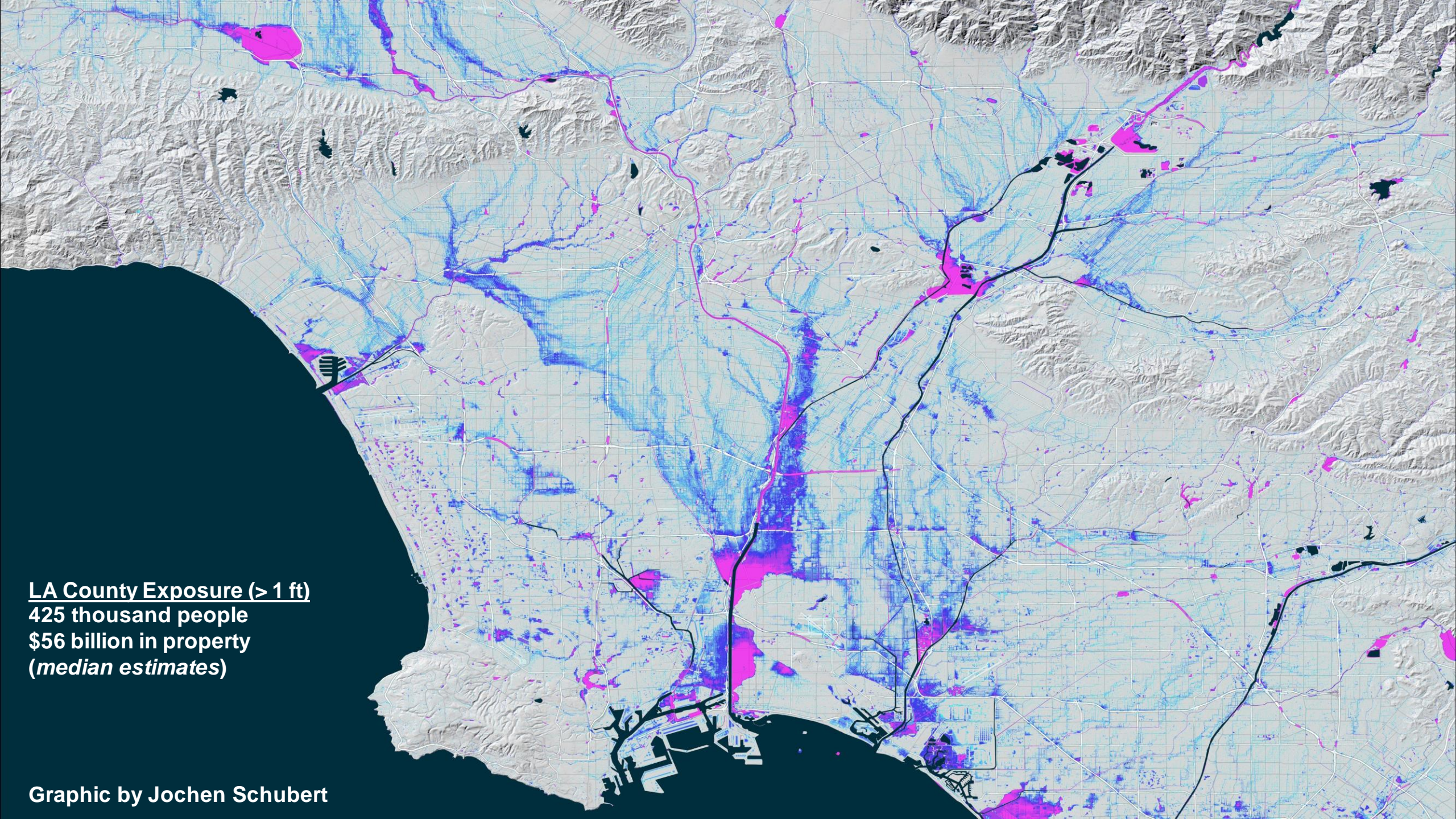




# Regional Risks







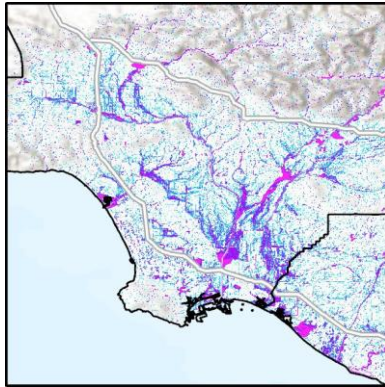
LA County Exposure (> 1 ft)  
425 thousand people  
\$56 billion in property  
(median estimates)

Graphic by Jochen Schubert



# Today's 1% Annual Chance Exposure in Los Angeles County

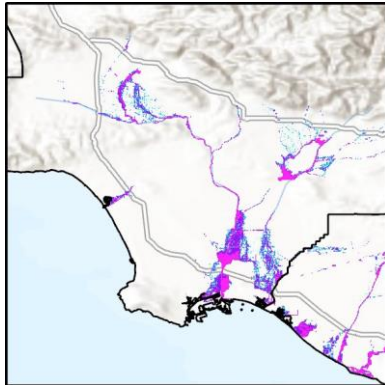
## Pluvial



### Exposure to > 1 ft flooding

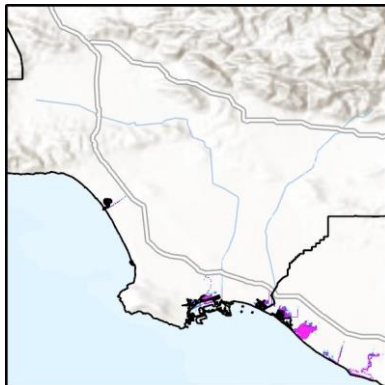
247 thousand people  
\$41 billion in property

## Fluvial

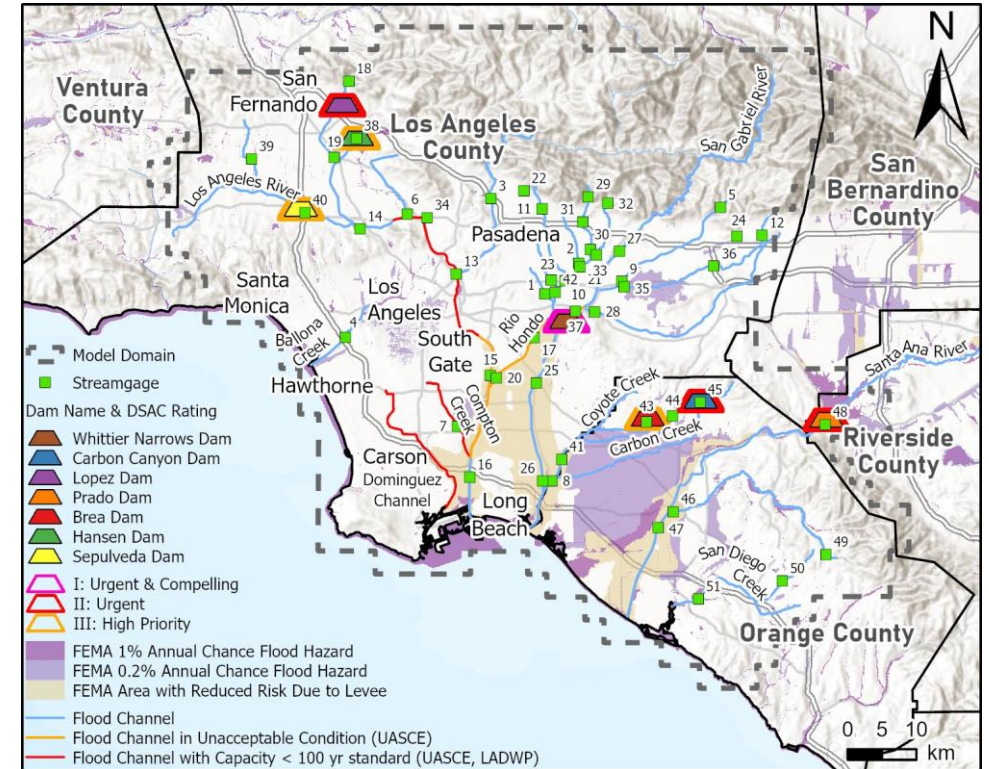


217 thousand people  
\$20 billion in property

## Coastal



2 thousand people  
\$300 million in property



### FEMA Flood Zones (Los Angeles County)

#### 1% Annual Chance Hazard Area

23 thousand people, \$5 billion in property

#### 0.2% Annual Chance Hazard Area

191 thousand people, \$23 billion in property

#### Area with Reduced Risk Due to Levee

885 thousand people, \$83.4 billion in property

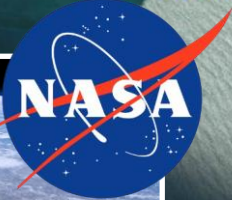
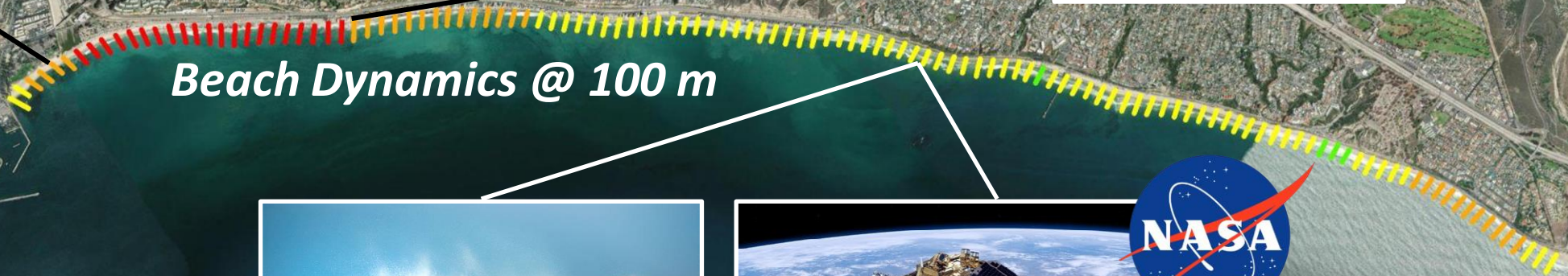
# Flood Risk Inequities

<i>Inequality Index</i>	Overall Hazard	Rainfall Hazard	Streamflow Hazard	-Coastal Hazard
Property Value	0.02	-0.04	0.05	-0.11
Income	-0.11	-0.06	-0.15	0.53
Neighborhood Disadvantage Index (NDI}	0.15	0.07	<u>10.211</u>	<u>1-o.s61</u>
Social Vulnerability Index (SoVI}	0.05	0.05	0.07	0.01
Non-Hispanic Black Population Fraction	0.32	0.12	<u>o.51</u>	-0.43
Hispanic Population Fraction	0.07	0.03	0.12	-0.79
Non-Hispanic Asian Population Fraction	0.00	-0.05	0.04	-0.31
Non-Hispanic White Population Fraction	-0.23	-0.12	<u>1-o.331</u>	<u>o.95</u>





# Early Applications of a Sand Dynamics Monitoring and Prediction System



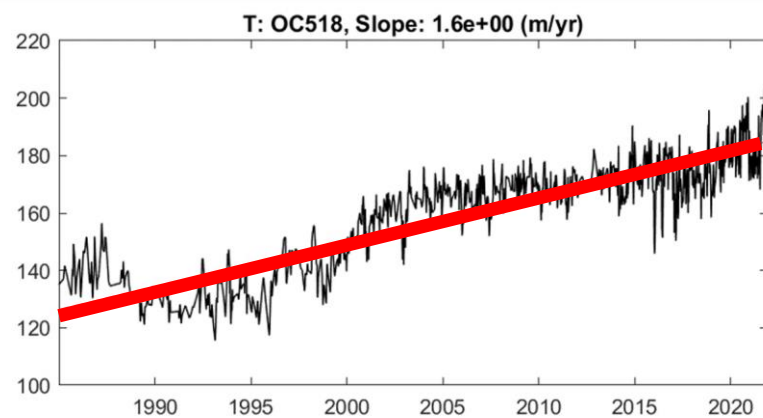
Monitoring and Prediction of  
Waves and Shoreline Change



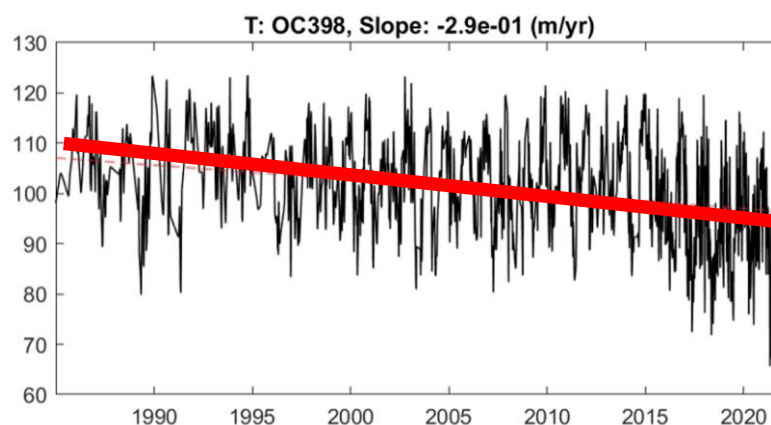


Beach Width (meters)

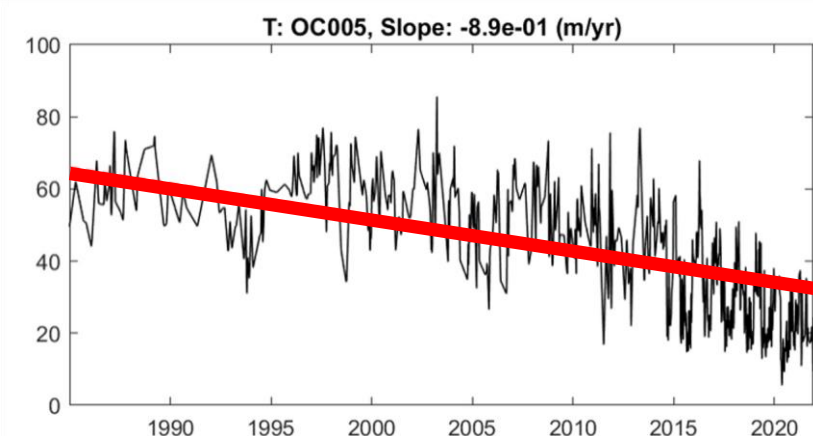
## Huntington Pier



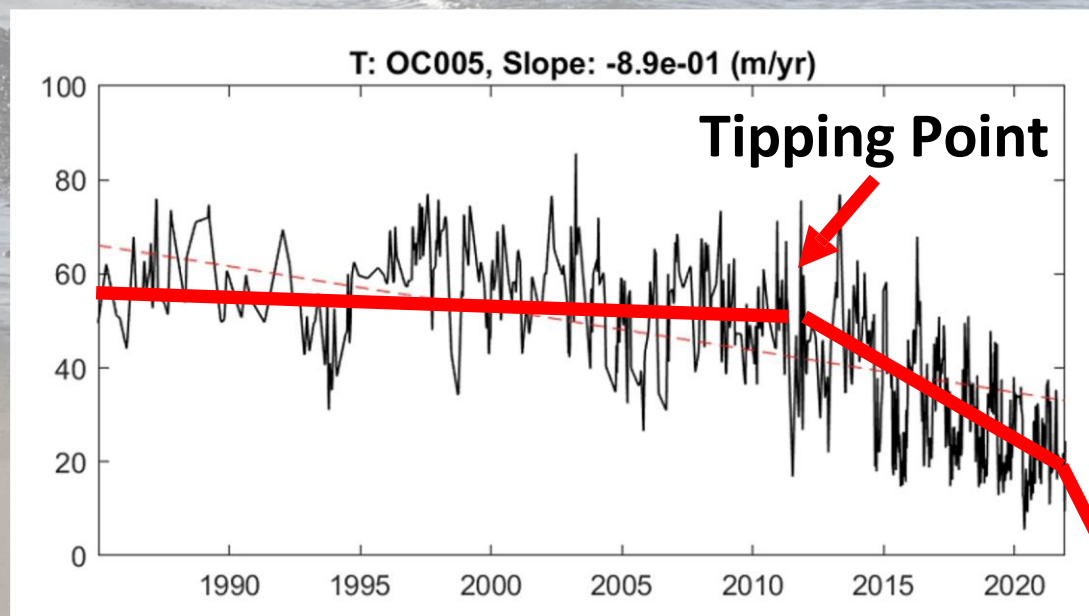
## Newport Pier



## S. San Clemente



## S. San Clemente

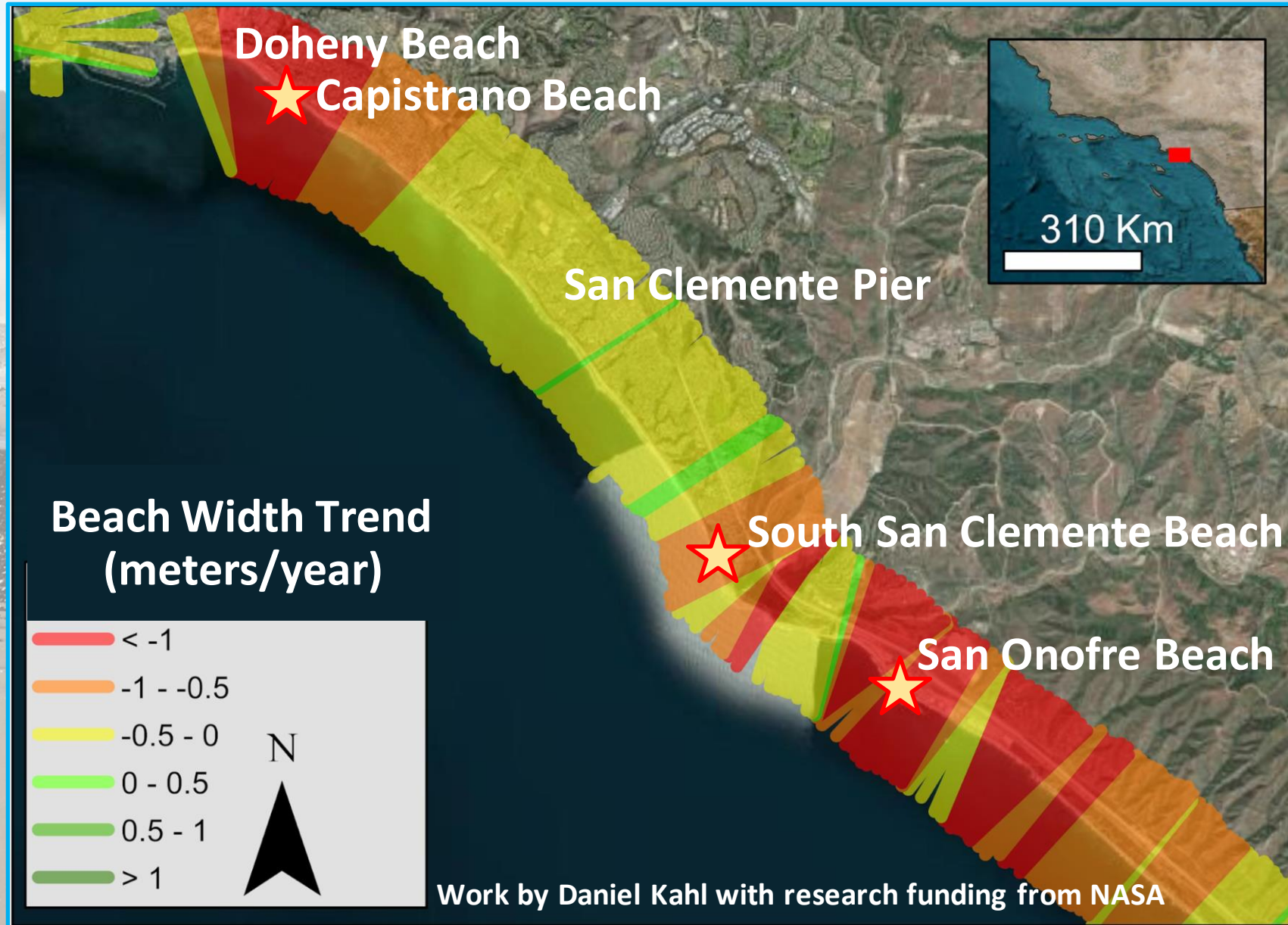


**Disaster Point**





# South County Trends: 1984-2020



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**Southern California coastal towns are losing valuable sand, putting some beaches at risk**

Sand erosion is changing the character of popular and key beaches and solutions can be slow to arrive.

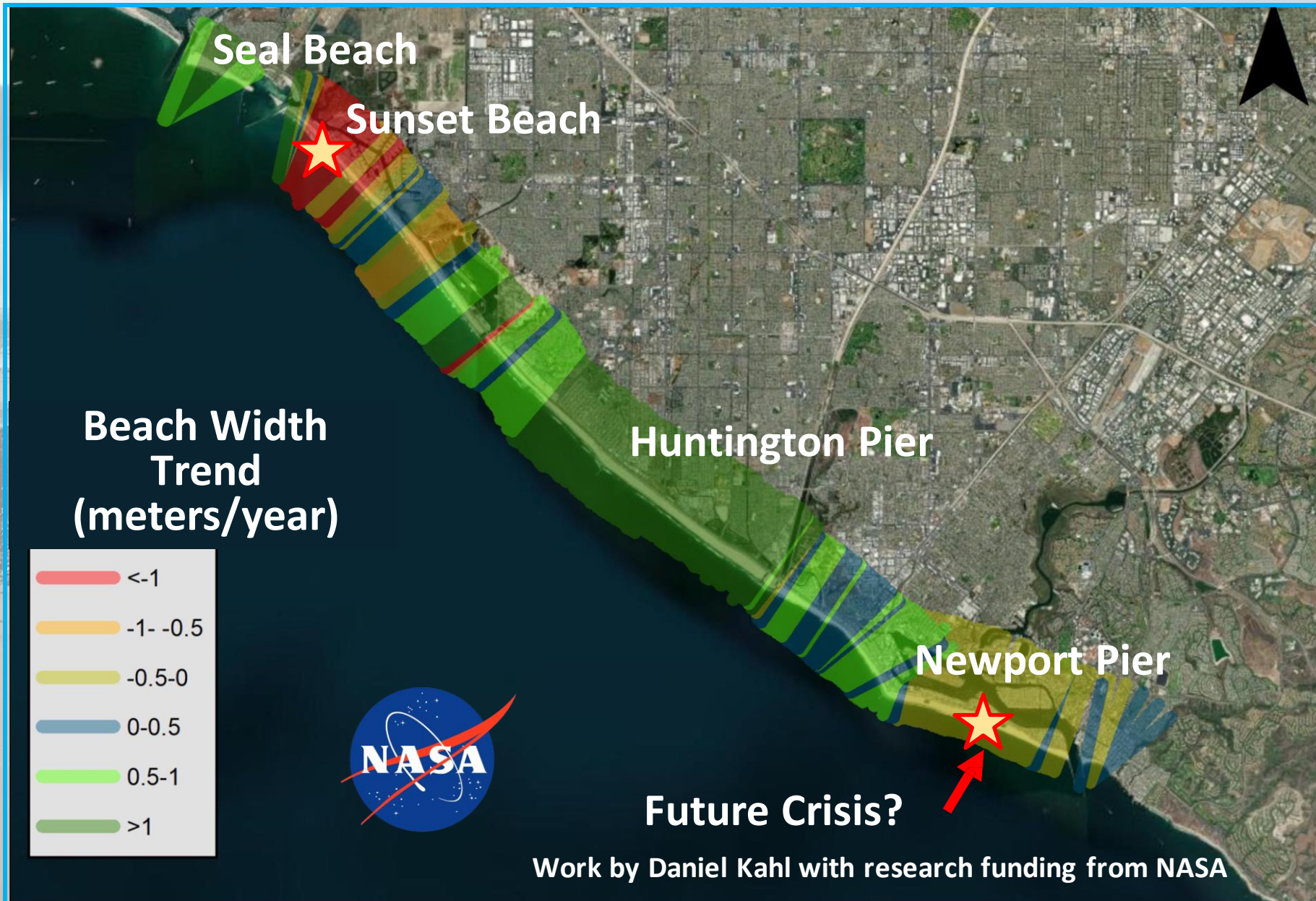


Some of Orange County's most popular beaches are disappearing as waves swallow up the sand. Above, north San Clemente during high tide on Thursday, December 8, 2022. (Photo by Jeff Gritchen, Orange County Register/SCNG)

By LAYLAN CONNELLY | lconnelly@scng.com and TONY SAAVEDRA | tsaavedra@scng.com |  
Orange County Register  
PUBLISHED: December 12, 2022 at 10:52 a.m. | UPDATED: December 12, 2022 at 4:52 p.m.



# North County Trends: 1984-2020



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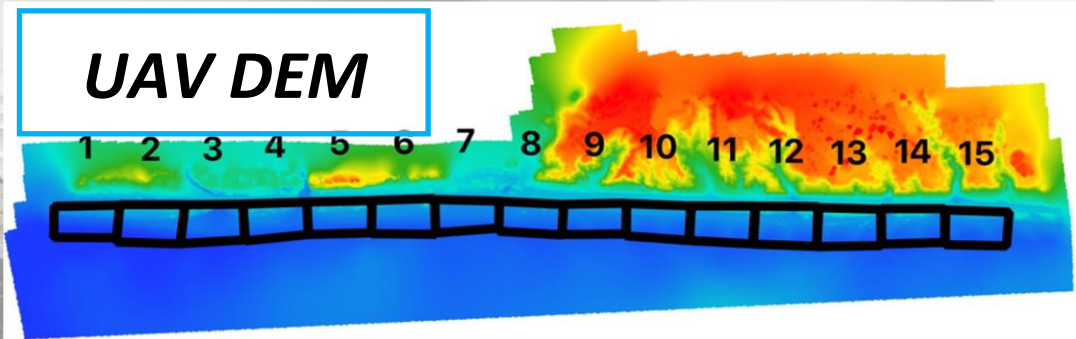
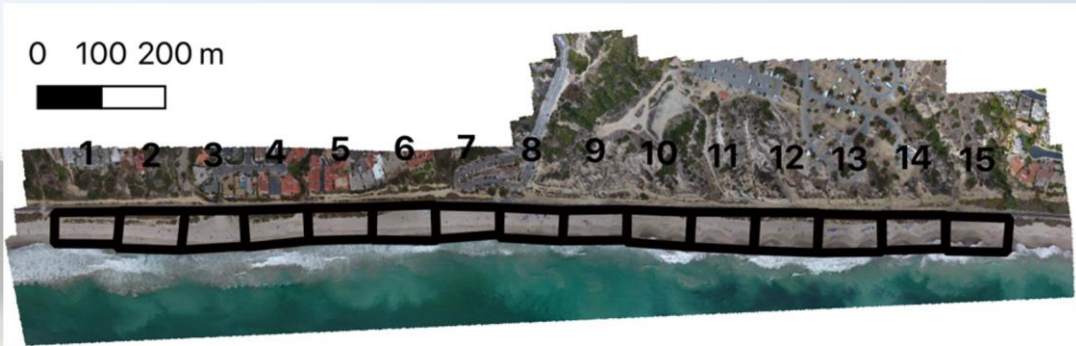


# Integration of Data and Theory is Required to Make Predictions, Anticipate Impacts, and Design Solutions

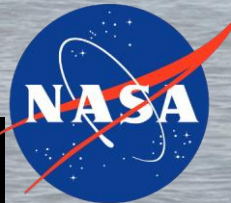




# On the Horizon: California-wide, Bi-Weekly Sand Volume Data



**DLR Tandem-X**



**Accuracy**  
44 cm (RMSE)

*Research is needed NOW to make this data useful to California communities facing coastal erosion and flooding risks.*



# **Summary: exciting new monitoring and prediction systems have emerged for beach sediment dynamics, and interdisciplinary research is needed to support coastal communities**

- **Early warning**
- **Local and regional drivers**
- **Finding the appropriate scale and best methods to solve problem**
- **Estimate the costs and benefits of proposed solutions in near and long term**
- **Develop adaptation plans and pathways**