California Research Bureau
California State Library

2020 Congressional Districts Supplement
California Statewide
National Security Economic Impacts

U.S. Marines with the 15th Marine Expeditionary Unit's Maritime Raid Force doing maritime interoperability training off the coast of Santa Barbara, California.

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Requested by

Governor's Office of Planning and Research
Governor's Military Council

Acknowledgements

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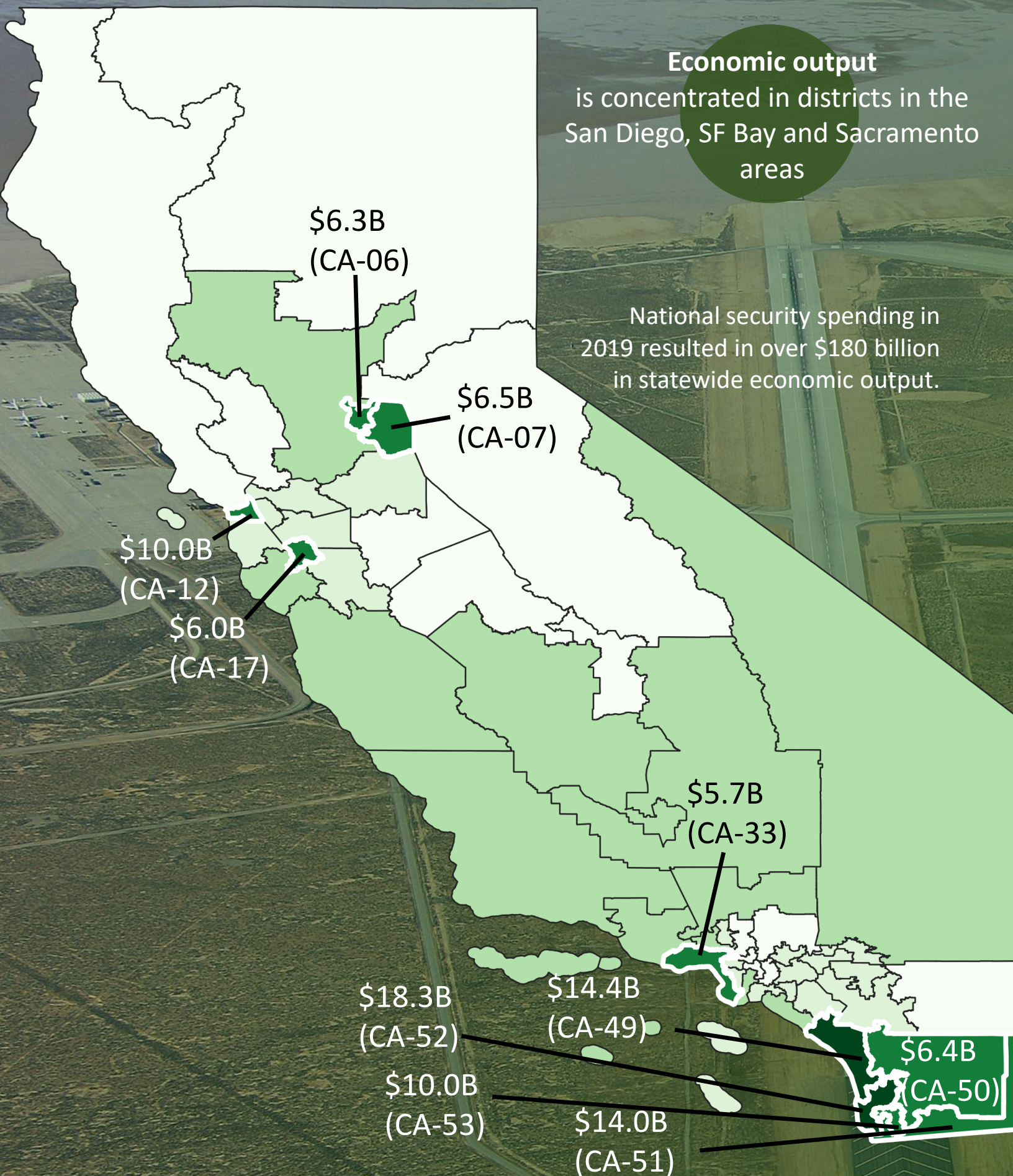
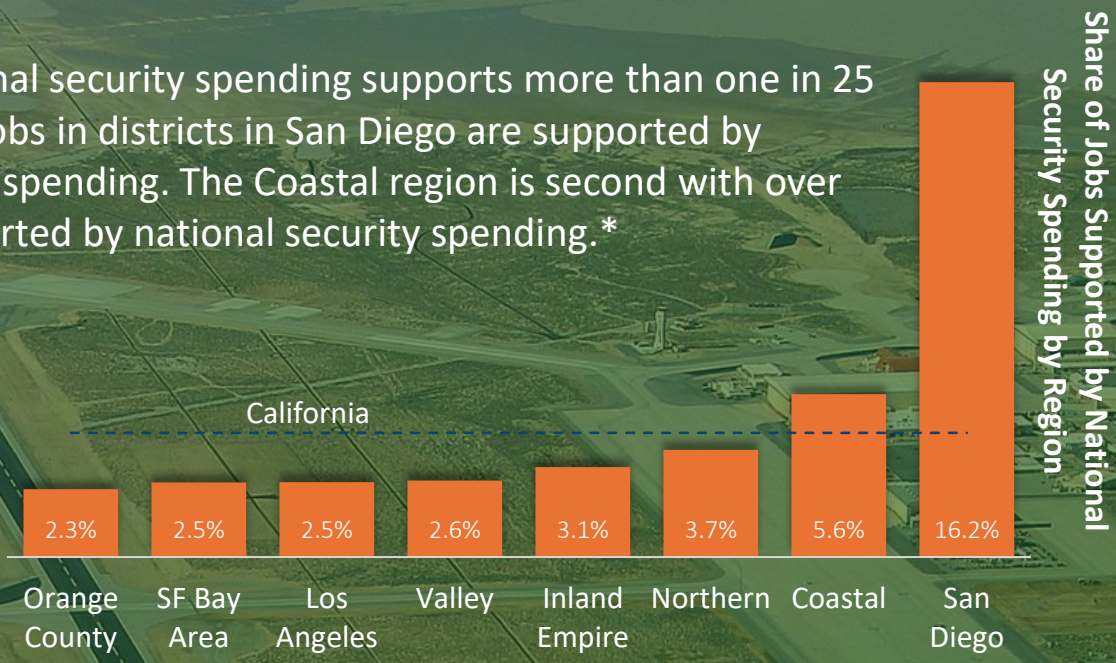
Key Findings



National security spending supports at least 5% of jobs in the Coastal region and 16% of jobs in the San Diego region.

Statewide, national security spending supports more than one in 25 jobs. One in six jobs in districts in San Diego are supported by national security spending. The Coastal region is second with over 5% of jobs supported by national security spending.*



Regions in this report are based on Congressional Districts, so totals may vary from County-based regions in the County supplement.

Districts in the San Diego, San Francisco Bay Area, Northern and Los Angeles regions generate the most output.

The 586th Field Hospital at the U.S Army Forces Command Medical Emergency Deployment Readiness Exercise at Sierra Army Depot.

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U.S. Air Force F-15C Eagle fighter jets assigned to the California Air National Guard's 144th Fighter Wing fly over Santa Cruz, California.

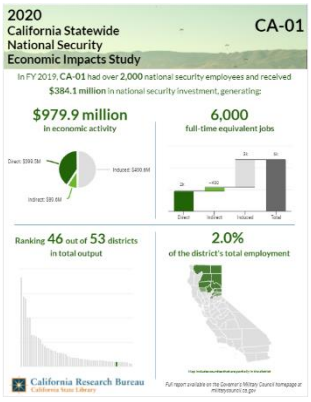
California Statewide National Security Economic Impacts, 2020 Congressional Districts Supplement

Introduction

In December 2020, the California Research Bureau at the California State Library published the third annual report on Statewide National Security Economic Impacts in California.[1] CRB produced this report at the request of the Governor's Office of Planning and Research and the Governor's Military Council. Support from the U.S. Department of Defense has allowed for an expanded scope, including two local supplements. This supplement details findings by congressional district and the second provides findings by county. Readers should refer to the California Statewide National Security Economic Impacts, 2020 Update and County Supplement for more information.

Using fiscal year 2019 spending and employment data from the Department of Defense (DoD), the Department of Homeland Security (DHS) and the Department of Veterans Affairs (VA), this report examines the impact of national security spending and employment in California's 53 congressional districts (shown on map in Appendix II).

Example of a District Factsheet – CA-01



In addition to this report, factsheets highlighting key metrics for each district are available in Appendix II. An online interactive map with complete results for each congressional district is also available for readers interested in comparing numbers between various districts.

Regions in the county supplement are based on the California Employment Development Department's "California Economic Markets."[2] Regions in this supplement start from that structure, but are adjusted to account for congressional district lines that do not align closely with county boundaries and varying levels of population density throughout the state. This results in eight regions, compared to the 13 in the county supplement: Northern, Inland Empire, Valley, San Francisco Bay Area, Coastal, Los Angeles, Orange County and San Diego, as displayed in Figure 1.

[1] Lavelle, D.M. California Statewide National Security Economic Impacts, 2020 Update. California Research Bureau, California State Library, Dec. 2020.

[2] EDD. Interactive Maps and Data Tables. Source: Regional Economic Markets Boundary Map | EDD Data Library (ca.gov)

The report begins with an overview of economic impacts by region. Congressional district results are detailed in the following section, presented in comparison with other districts in their region. Sections are designed to illustrate the unique impacts of national security spending in each district and region, highlighting the diversity of national security activity that make California a leader in national defense. Because of limitations in the workaround methodology developed to estimate congressional district results, this supplement omits the government revenue and industry output generated within each of the districts. While the methodology is accurate at a high level, it does not account for variations within a county. While economic activity can reasonably be assumed to be proportionately distributed across the county, government revenue and industry totals are tied to specific government and business entities that are in specific locations, which are likely not evenly distributed. As a result, it would not be accurate to use the methodology to estimate government revenue and industry-specific economic activity at the congressional district level. Details on government revenue and industry-specific economic activity are available in the county supplement.

Figure 1: California Districts Grouped by Region

A joint engineer team of Navy Seabees and Marines is bound for San Clemente Island to provide readiness exercise training.

Regional Overview

Direct Activity

Direct Employment

The Departments of Defense, Homeland Security and Veterans Affairs directly employed 339,000 civilian and military employees in California in 2019, making up around 860 of every 100,000 residents. Employment is concentrated in Southern California, which includes the Inland Empire, Los Angeles, Orange County and San Diego regions, with 242,000[3] military and civilian personnel – over 70% of the statewide total. Most of this employment is in the San Diego region, with nearly 172,000 civilian and military personnel, or over 4,500 out of 100,000 residents in the region. The Inland Empire and Coastal regions each had over 30,000 military and civilian employees.

Four regions – San Diego, Inland Empire, Northern and Coastal – have a higher proportion of military and civilian employment to the region's population than the state average. These regions rank first through fourth, respectively, in military employment, but only the Northern and Inland Empire regions rank in the top four in population (third and fourth respectively).

Figure 2: Direct Employment by Region

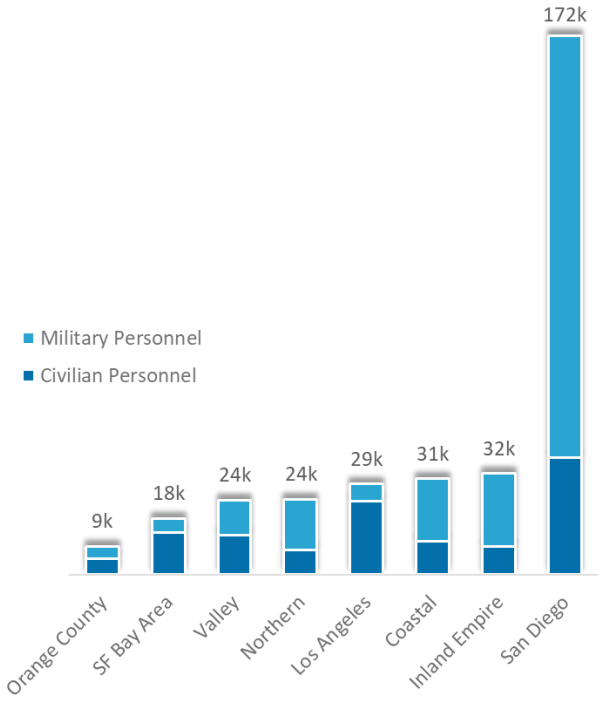
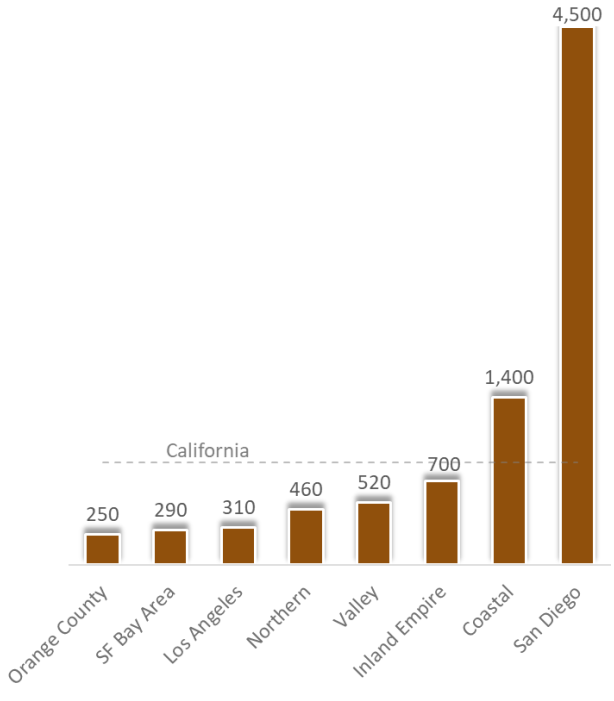


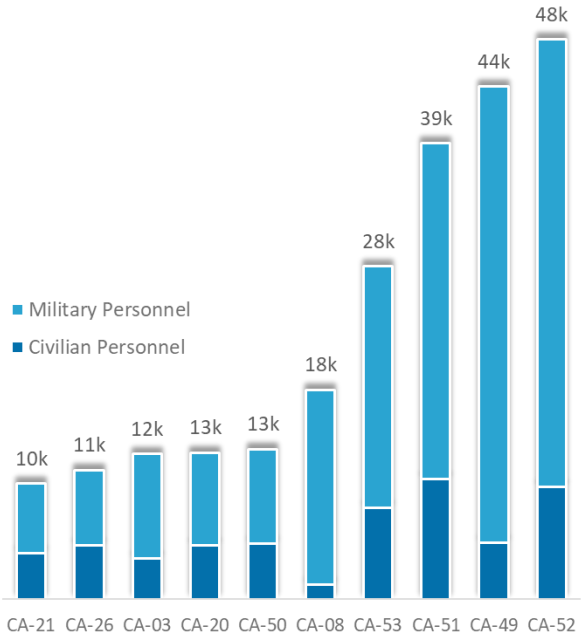
Figure 3: Direct Employment per 100k Residents by Region



[3] This may not match the county supplement due to differences in regional composition as defined in the reports.

Figure 4 displays the 10 congressional districts in the state with the most national security employees. California's eighth congressional district, or CA-08, in the Inland Empire region, is the only district outside of the San Diego region in the Top 5. In addition to CA-08 and the five congressional districts within the San Diego region, CA-20 and CA-26 in the Coastal region, CA-03 in the Northern region, and CA-21 in the Valley region comprise the Top 10.

Figure 4: Top 10 Districts in Direct Employment



Direct Spending

In fiscal year 2019, the Departments of Defense, Homeland Security and Veterans Affairs collectively spent $54.3 billion on national security activity, or about $138 million per 100,000 California residents. Southern California as a whole received $28.9 billion in spending, just over half of the state's total. The largest share is in San Diego County, which accounts for 24.0% of all national security spending in the state, totaling $13.1 billion. The San Francisco Bay Area region received around 22.2%, or $12.1 billion, of total state spending. The Northern and Los Angeles regions received $9.9 and $9.2 billion respectively, accounting for 18.3% and 17.0% of total state spending.

Adjusted for population, San Diego remains first, the San Francisco Bay Area and Northern are above the state average, and Orange County rises to fourth, dropping Los Angeles to fifth.

Figure 5: Direct Spending by Region

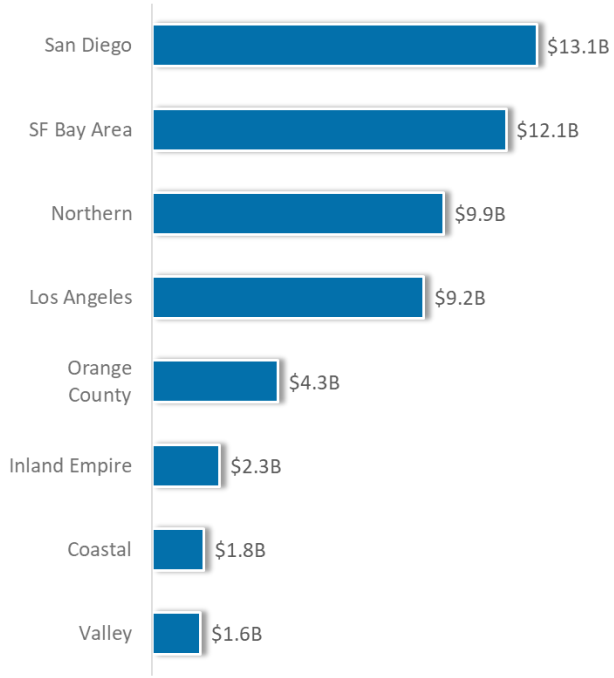


Figure 6: Direct Spending per 100k Residents by Region

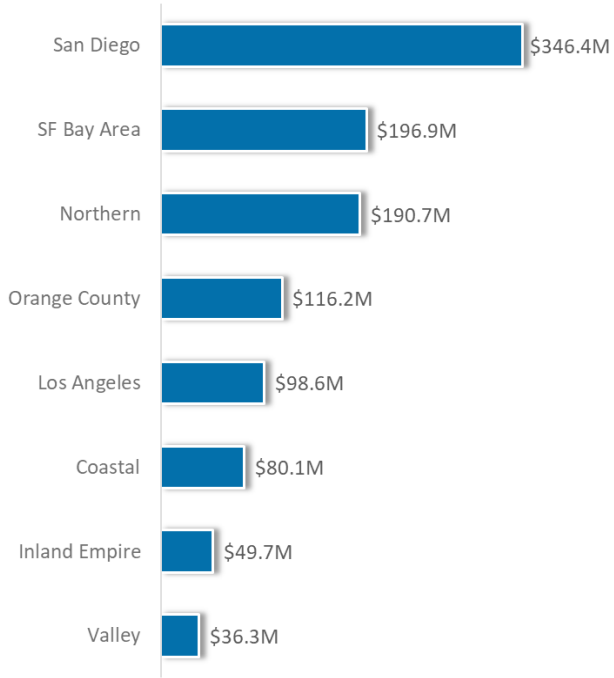
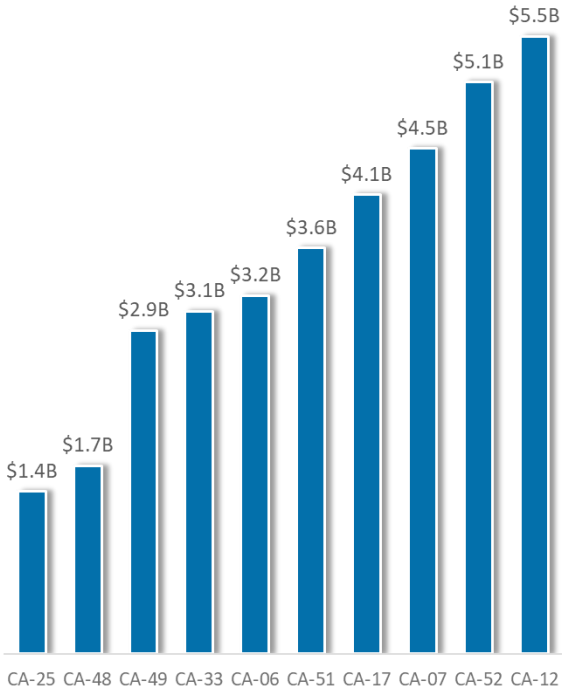


Figure 7 displays the 10 districts that received the most direct spending. Three of the districts fall in the San Diego region: CA-52, CA-51 and CA-49. The remaining seven are dispersed across multiple regions: two in the San Francisco Bay Area (CA-12 and CA-17), two in Northern (CA-07 and CA-06), two in Los Angeles (CA-33 and CA-25) and one in Orange County (CA-48).

Figure 7: Top 10 Districts in Direct Spending



Economic Impacts

This report models economic impacts using IMPLAN (IMpact analysis for PLANning). IMPLAN is a widely used, commercially available model based on standard Input-Output methodology. IMPLAN models the economy within a specified region as 546 sectors with unique spending patterns derived from U.S. Bureau of Economic Analysis expenditure patterns.

The IMPLAN model estimates the direct, indirect and induced economic activity that typically results in a region from spending and employment in each given industry. Direct effects include the employment and economic output from the federal government as well as the employment and economic output of its direct contractors. Indirect effects include the output and employment of subcontractors. Induced effects include the employment and economic output generated because of spending created from earnings generated in the first two categories.

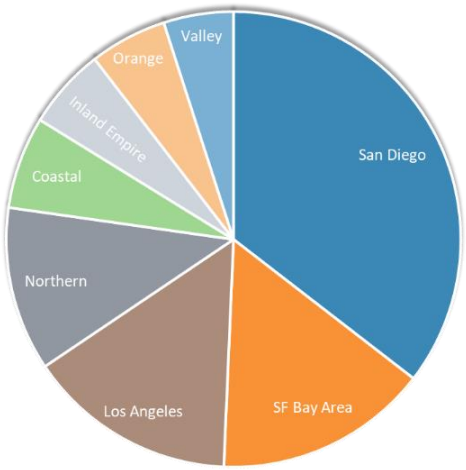
For more information about the methodology employed in this study, please refer to the methodology section in Appendix I of this report.

Total Output

Economic output follows a similar pattern to spending and employment. The San Diego region has the largest share, $63.1 billion, accounting for one-third of California's $181.2 billion in total economic output generated by national security spending and employment. The San Francisco Bay Area region is second with $27.1 billion, followed by the Los Angeles and Northern regions with $26.5 and $20.8 billion, respectively. In total, Southern California accounts for $109.6 billion in economic output, almost two-thirds of the state's total, due to the high concentration of military facilities, major contractors and servicing industries in the area.

(Note that, throughout the report, local estimated outputs add up to a modestly smaller amount than the statewide figure. A small amount of leakage from congressional districts is unable to be accounted for within IMPLAN, resulting in this difference).

Figure 8: Share of Total Output by Region



The San Diego and Coastal regions had larger output shares per resident than the state average. The San Francisco Bay Area and Northern regions are similar to the state average.

Figure 9: Total Output by Region

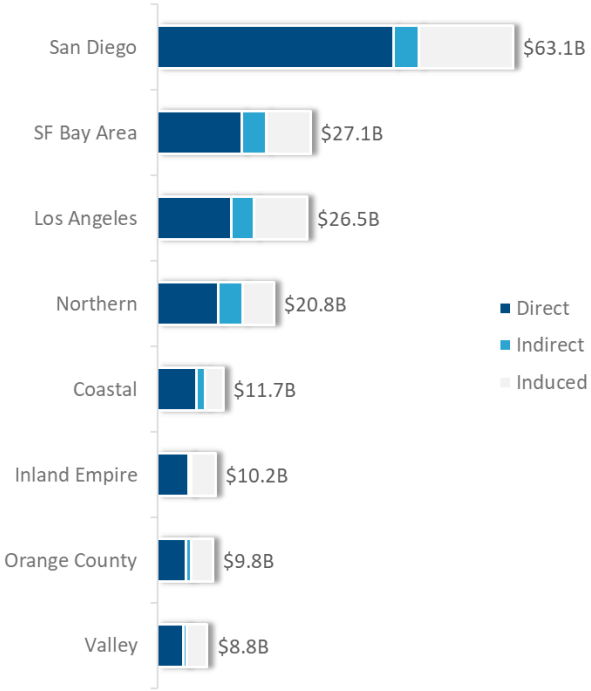


Figure 10: Total Output per 100k Residents by Region

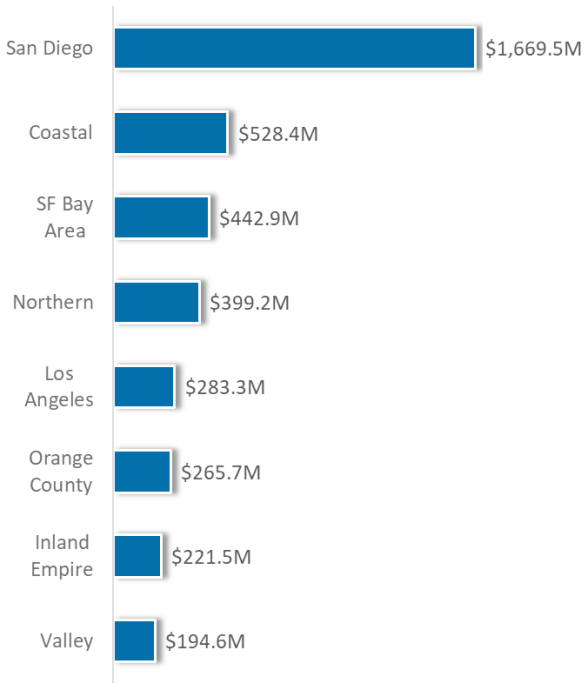
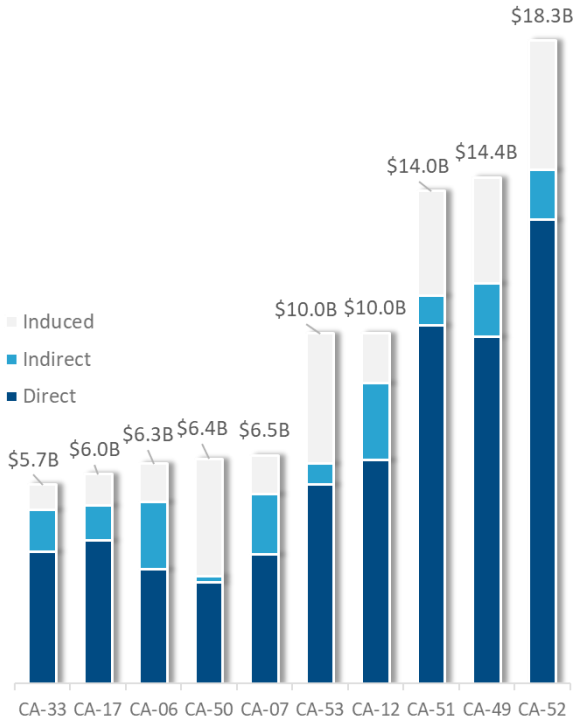


Figure 11 displays the 10 districts that generated the most economic output. CA-12, in the San Francisco Bay Area region, is the only district outside of the San Diego region to crack the Top 5. In addition to CA-12 and the five congressional districts in the San Diego region, CA-07 and CA-06 in the Northern region, CA-17 in the San Francisco Bay Area region, and CA-33 in the Los Angeles region comprise the Top 10.

Figure 11: Top 10 Districts in Total Output



Total Employment

Estimated total employment follows a similar pattern to total output across the regions. The San Diego region supported 307,000 full-time equivalent (FTEs) jobs, accounting for 37.5% of the 818,000 FTEs generated by national security activity in California in fiscal year 2019. Southern California as a whole accounts for nearly two-thirds of all employment, about 533,000 FTEs. The Los Angeles region includes 120,000 FTEs, or 14.7% of national security supported employment.

Only two regions are above the state average of 4.2% of employment being supported by national security activity. The San Diego region is by far the leader with 16.2% of jobs supported by national security activity, while the Coastal region was next with 5.6%.

Figure 12: Total Employment by Region (FTEs)

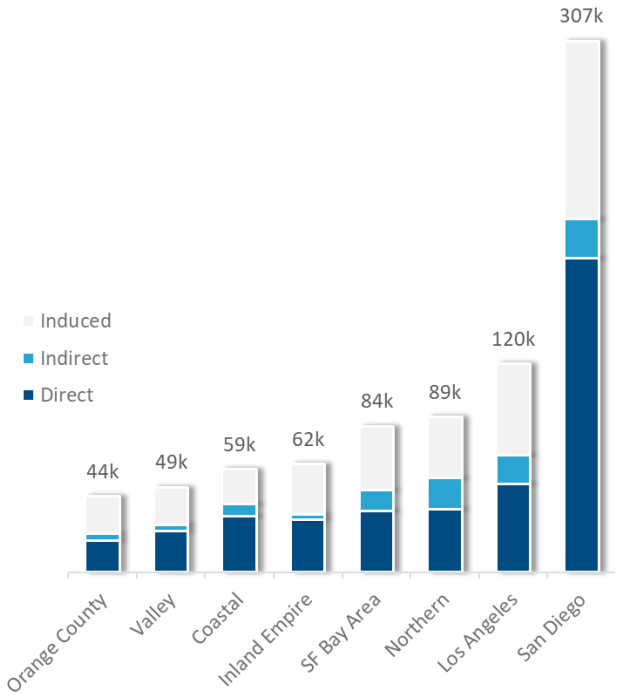


Figure 13: Total Employment as Percentage of Region's Employment

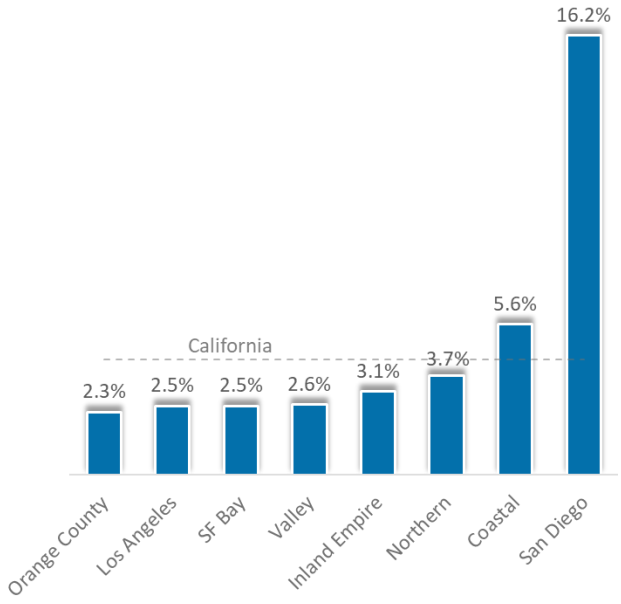
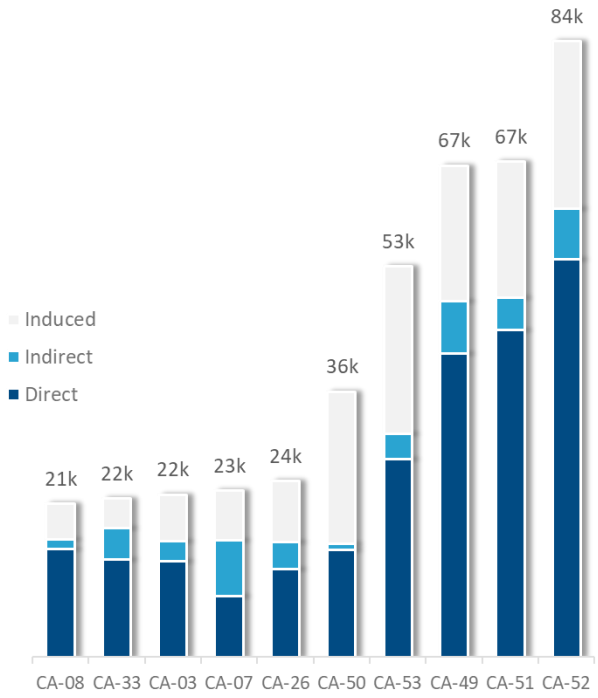


Figure 14 displays the 10 congressional districts with the most FTEs generated by national security activity. The five congressional districts within the San Diego region had more FTEs than any other district. The remaining districts in the Top 10 include CA-26 in the Coastal region, CA-07 and CA-03 in the Northern region, CA-33 in the Los Angeles region and CA-08 in the Inland Empire region.

Figure 14: Top 10 Districts in Total Employment (FTEs)



A C-17 Globemaster III assigned to Travis Air Force Base provides an aerial view of a snowy mountain range in Northern California.

Results by Region

Northern Region

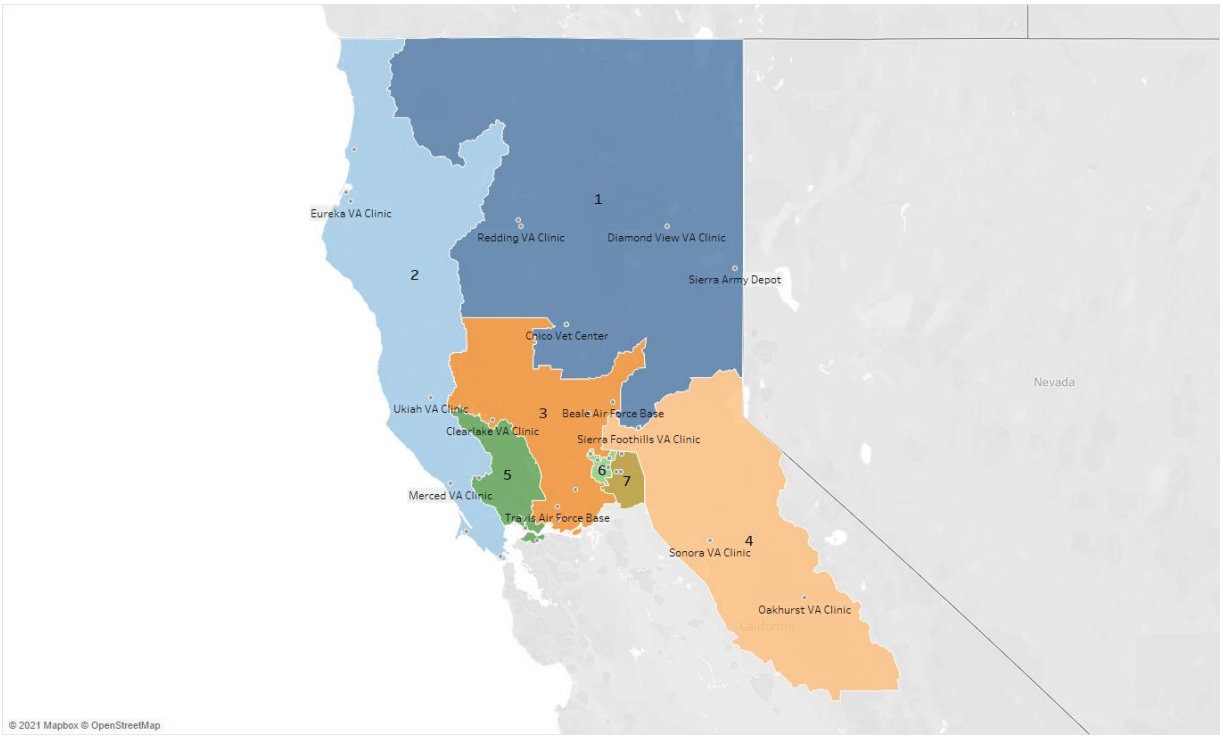
The Northern region spans the northern half of the state, including all of the Northern region and most of the Sacramento, North Bay and Mountain regions from the county supplement. Including the Sacramento and North Bay regions results in significantly more total economic activity than the Northern Region in the county supplement. It includes seven congressional districts: CA-01 through CA-07. It accounts for 13.2% of the state's population[4] and 40.0% of the state's land area.[5]

The Northern region includes the following military locations:

- CA-01: Sierra Army Depot
- CA-03: Travis Air Force Base and Beale Air Force Base
- CA-06: Defense Microelectronics Activity

The region includes 18 Veteran Affairs healthcare facilities and the Eureka Port of Entry.[6]

Figure 15: Districts in the Northern Region



[4] Population data retrieved from 2019 ACS 1-year estimate.
[5] Land area data retrieved from the California Citizens' Redistricting Commission website.
[6] VA, DoD and DHS property counts are estimates based on 2019 federal property data and department websites. Facilities that have since opened or closed and facilities not listed on department sites may not be included.

Direct Activity

The Northern region ranked third of the eight regions in total spending with $9.9 billion and fifth with a little over 24,000 national security employees (16,000 military and 8,000 civilian). Adjusted for population, the region continues to rank third in spending and fifth in employment.

Direct Employment

CA-03, just northwest of Sacramento, includes more than 50% of the region's direct employees with over 12,000 (9,000 military and 3,000 civilian). Three other districts in the region – CA-07 (over 1,000 military and under 1,000 civilian), CA-02 (under 2,000 military and 200 civilian) and CA-01 (400 military and under 2,000 civilian) – each had over 2,000 employees. The remaining three districts had below 2,000 employees.

Figure 16: Direct Employment – Northern Region

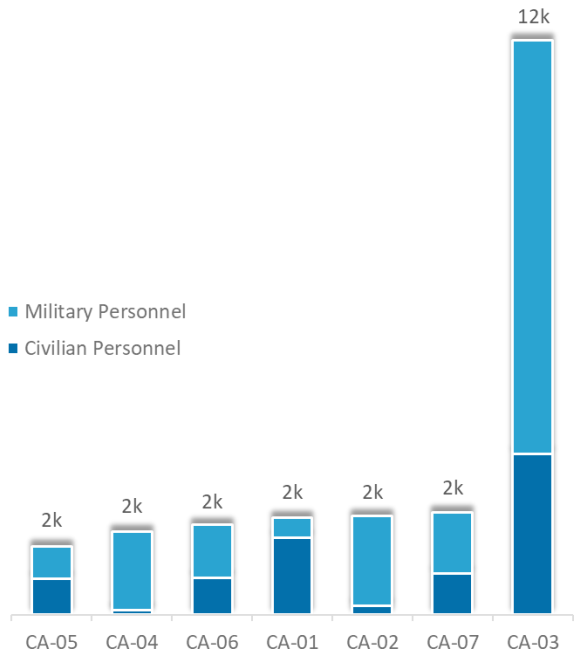
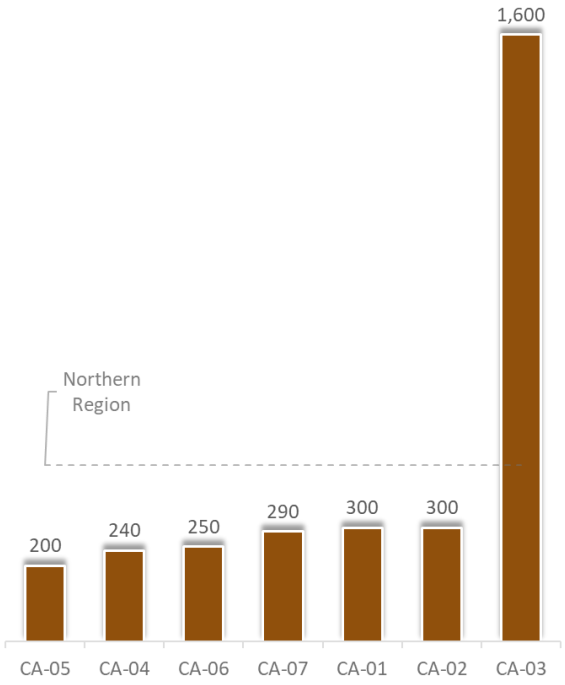


Figure 17: Direct Employment per 100k Residents – Northern Region



Direct Spending

Congressional districts around the Sacramento area, CA-07 and CA-06, received over 75% of the region's total spending with $4.5 billion and $3.2 billion, respectively. The rest of the region's districts had less than $660.1 million in direct spending each. Top contracting industries include insurance carriers in CA-07 and the pharmaceutical manufacturers in CA-06.

Figure 18: Direct Spending – Northern Region

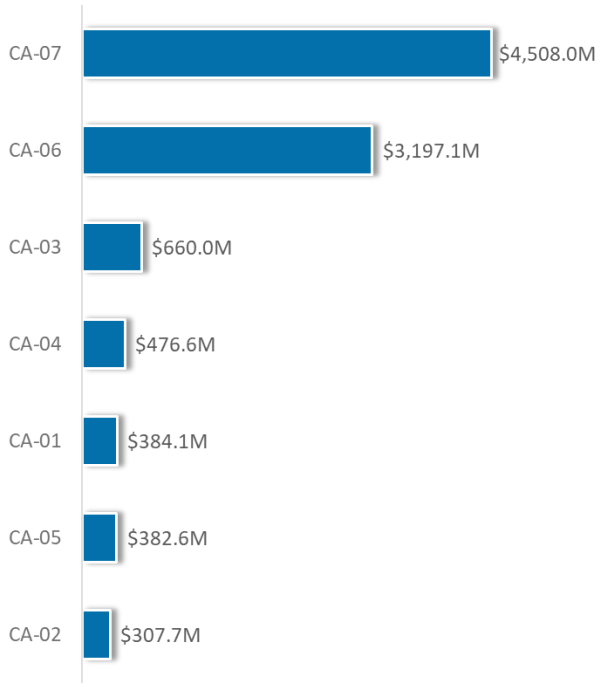
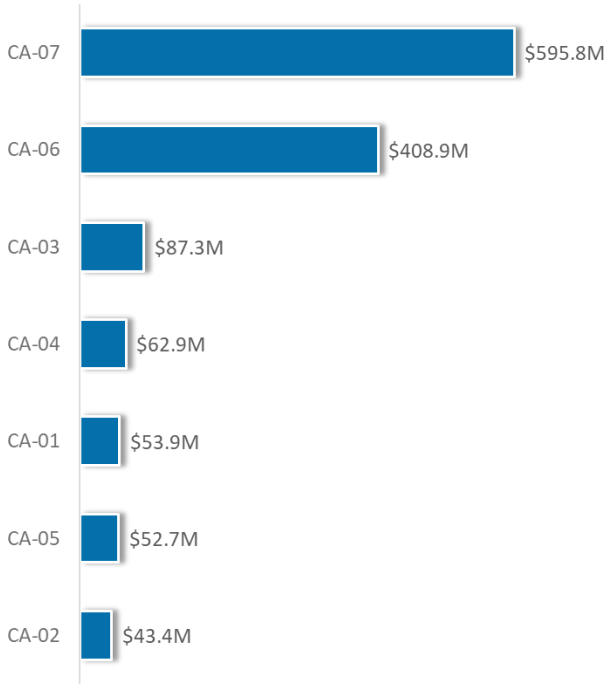


Figure 19: Direct Spending per 100k Residents – Northern Region



Economic Impacts

The Northern region ranked fourth of the eight regions with $20.8 billion in economic output and third with over 89,000 FTEs. Adjusted for population, it continues to rank fourth in economic output and third in employment.

Total Output

Output is concentrated in three districts, CA-07, CA-06 and CA-03, with $6.5 billion, $6.3 billion and $3.8 billion, respectively. The remaining four districts in the region each had less than $1.2 billion.

Figure 20: Total Output – Northern Region

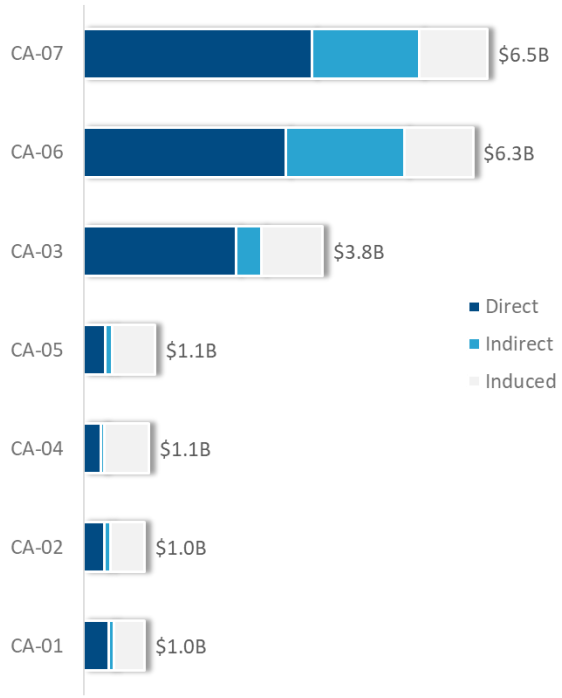
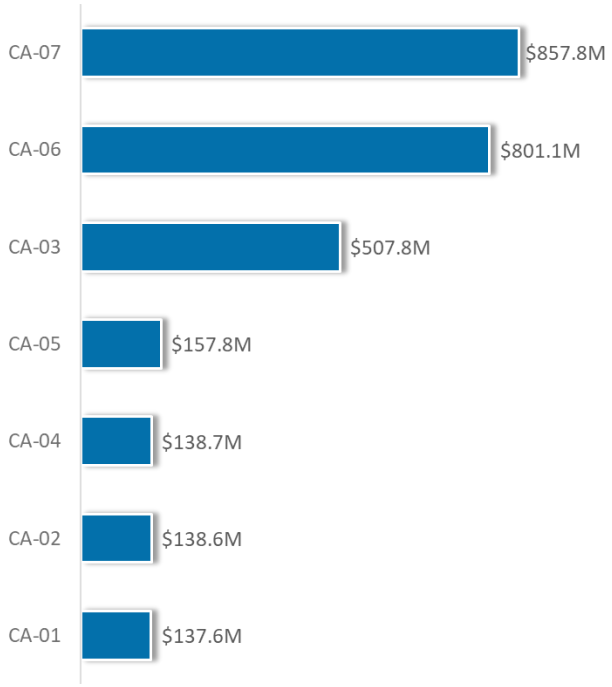


Figure 21: Total Output per 100k Residents – Northern Region



Total Employment

CA-07 led the region with about 23,000 FTEs, followed closely by CA-03 and CA-05 with 22,000 and 19,000 FTEs, respectively. National security activity supported nearly 8,000 FTEs in CA-04 and approximately 6,000 FTEs in the remaining districts.

Jobs supported by national security activity represented 3.7% of the Northern region's employment totals.[7] In CA-03, CA-07 and CA-06 national security supported FTEs accounted for 6.5%, 6.1% and 5.1% of the district's total employment, respectively.

Figure 22: Total Employment (FTEs) – Northern Region

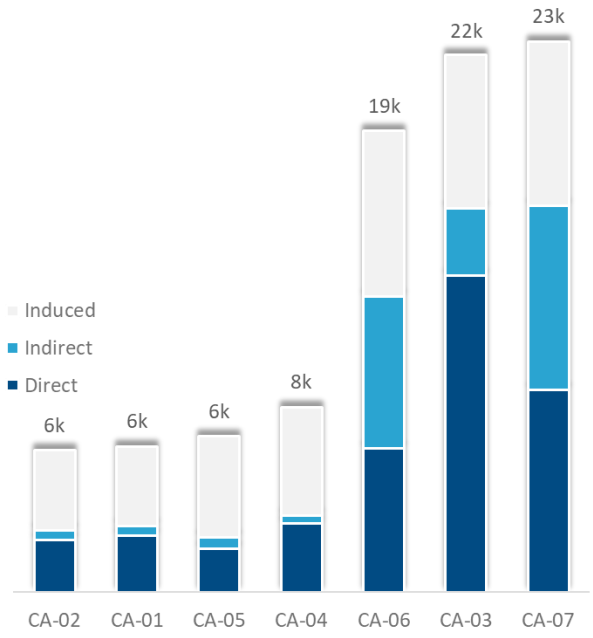
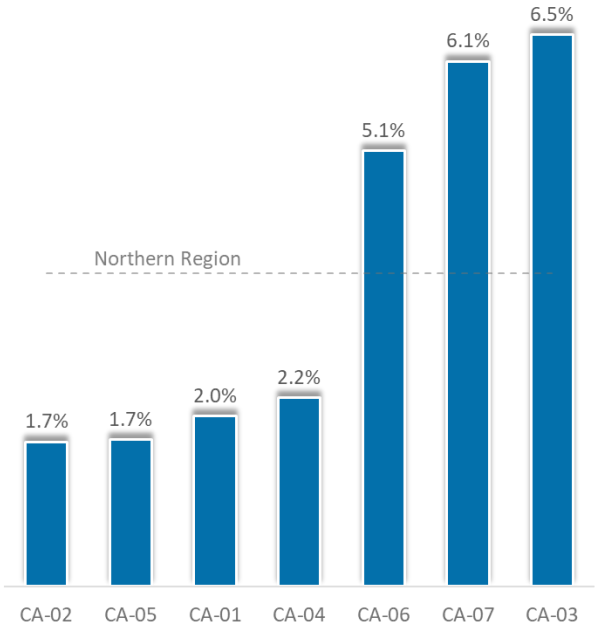


Figure 23: Total Employment as Percentage of District's Employment – Northern Region



[7] Employment data retrieved from 2019 ACS 1-year estimates.

Counterdrug Task Force members descend from a helicopter longline for a CAMP two-day operation in the San Bernardino National Forest.

Inland Empire Region

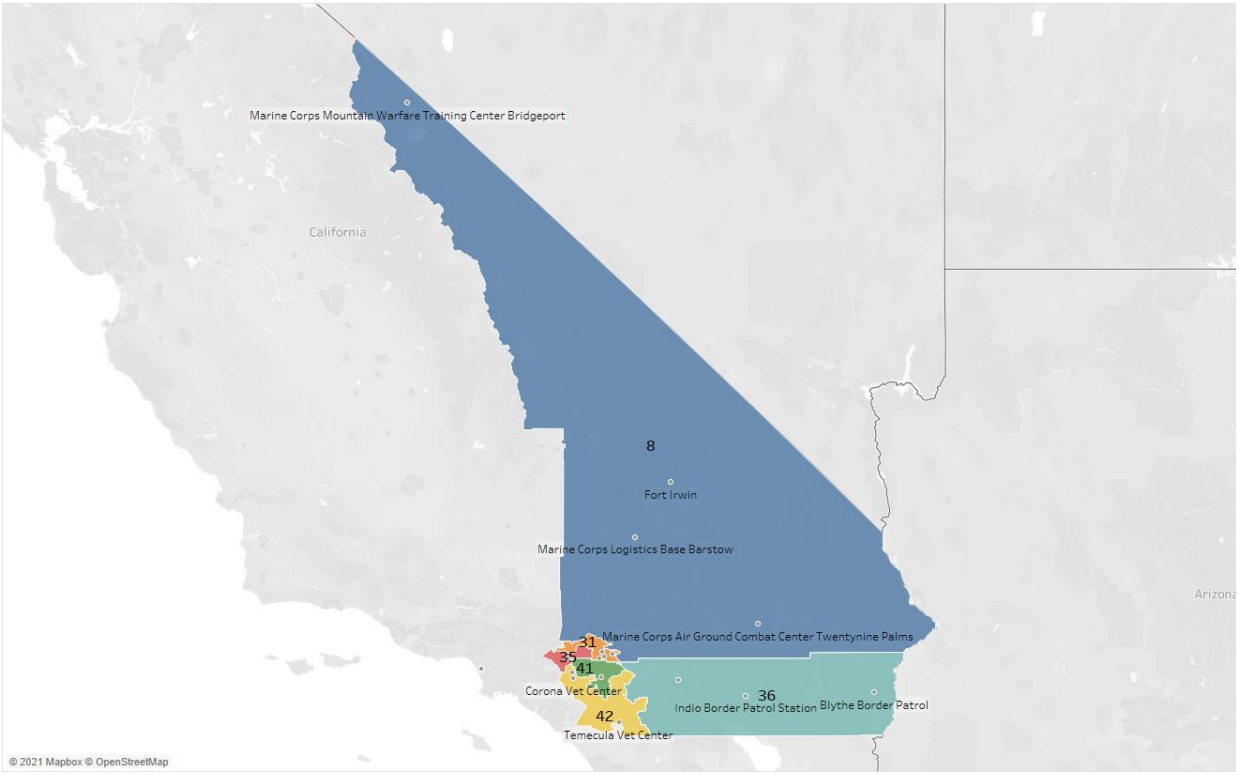
The Inland Empire region spans the southwestern portion of the state, including most of the Mountain and Other Southern regions from the county supplement. It includes six congressional districts: CA-08, CA-31, CA-35, CA-36, CA-41 and CA-42. It accounts for 11.7% of the state's population and 24.9% of the state's land area.

The Inland Empire region includes the following military locations:

- CA-08: Marine Corps Mountain Warfare Training Center Bridgeport, Marine Corps Air Ground Combat Center Twentynine Palms, Marine Corps Logistics Base Barstow and Fort Irwin
- CA-41: March Air Force Reserve Base
- CA-42: Naval Weapons Station Seal Beach Detachment in Norco

The region has nine Veteran Affairs healthcare facilities, a Port of Entry in Palm Springs and Border Patrol stations in Blythe, Indio and San Bernardino International Airport.

Figure 24: Districts in the Inland Empire Region



Direct Activity

The Inland Empire region ranked sixth of the eight regions in total spending with nearly $2.3 billion and second with 32,000 national security employees (23,000 military and 9,000 civilian). Adjusted for population, it ranks seventh in spending and third in employment.

Direct Employment

CA-08, which encompasses all of Mono and Inyo counties as well as a portion of San Bernardino County, led the region with 18,000 national security employees (17,000 military and over 1,000 civilian), more than half of the total. CA-42 and CA-41, in Riverside County, follow with nearly 5,000 (4,000 military and under 1,000 civilian) and 4,000 (over 1,000 military and 3,000 civilian) direct employees, respectively. All other districts in the region had around 2,000 employees.

Figure 25: Direct Employment – Inland Empire Region

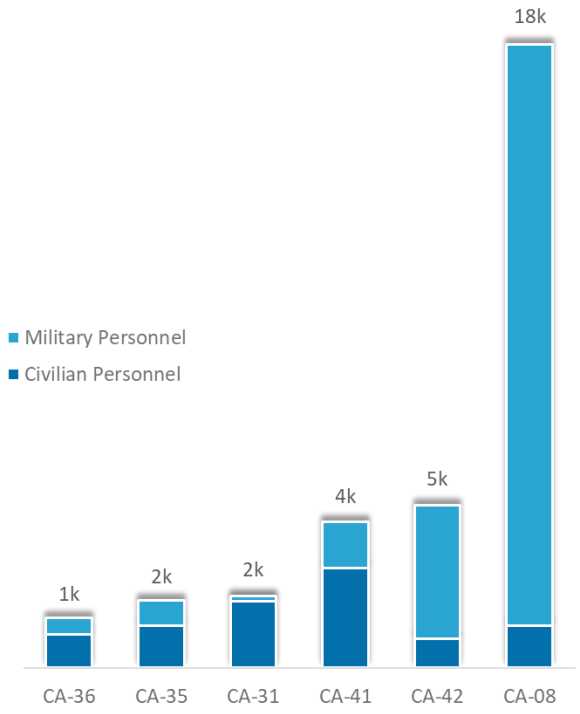
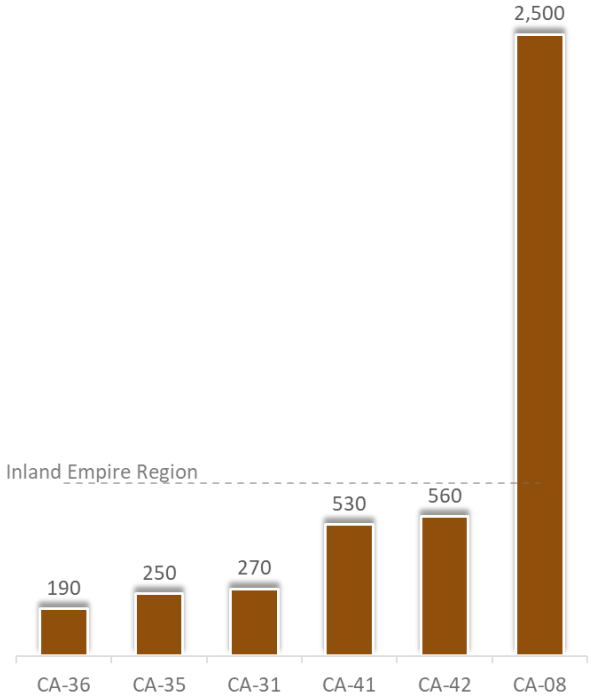


Figure 26: Direct Employment per 100k Residents – Inland Empire Region



Direct Spending

Three districts in Riverside and San Bernardino counties (CA-41, CA-31 and CA-42) received almost 60% of the region's total spending with $539.9 million, $413.8 million and $402.8 million, respectively. All other districts in the region received less than $330.9 million in national security spending. Top contracting industries include construction and maintenance, particularly for constructing new nonresidential structures in CA-35, new manufacturing structures in CA-41 and new highways and streets in both CA-41 and CA-42.

Figure 27: Direct Spending – Inland Empire Region

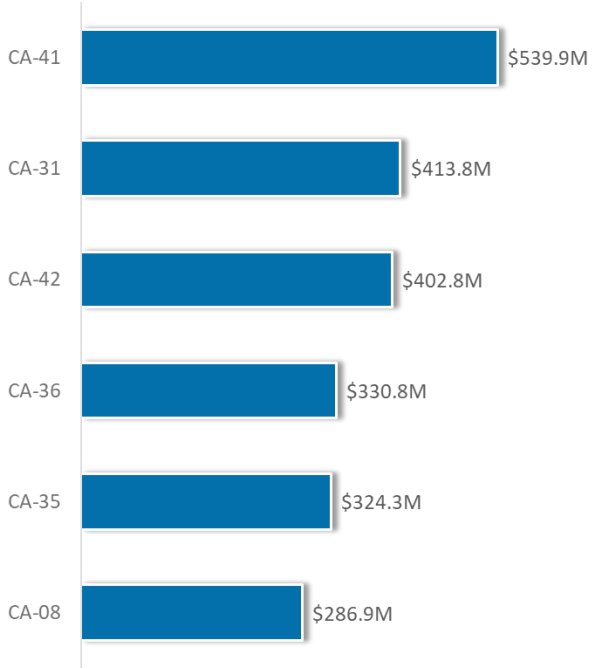
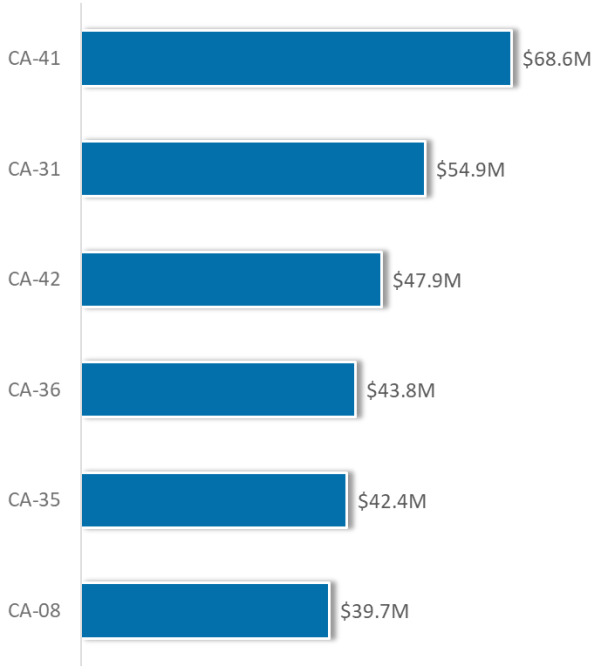


Figure 28: Direct Spending per 100k Residents – Inland Empire Region



Economic Impacts

The Inland Empire region ranked sixth of the eight regions with $10.2 billion in economic output and fifth with over 62,000 FTEs. Adjusted for population, it ranks seventh in economic output and fifth in employment.

Total Output

CA-08 had the most output with nearly $3.8 billion, followed by CA-41 with $1.6 billion. The remaining four districts in the region each had less than $1.4 billion in economic output.

Figure 29: Total Output – Inland Empire Region

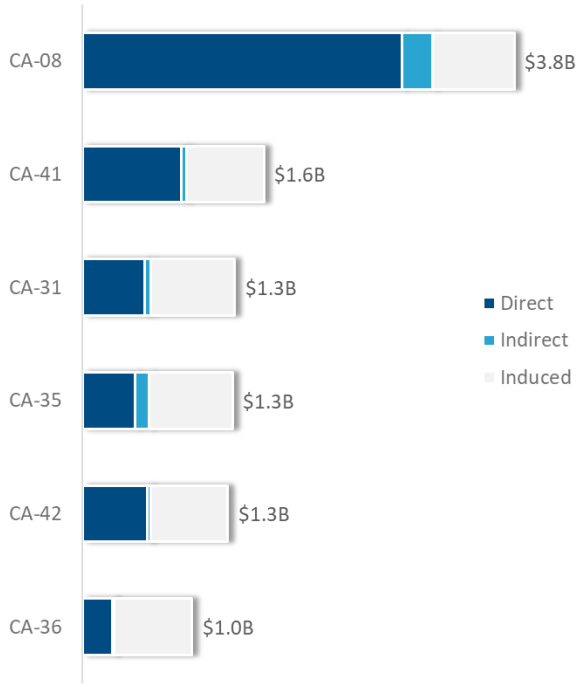
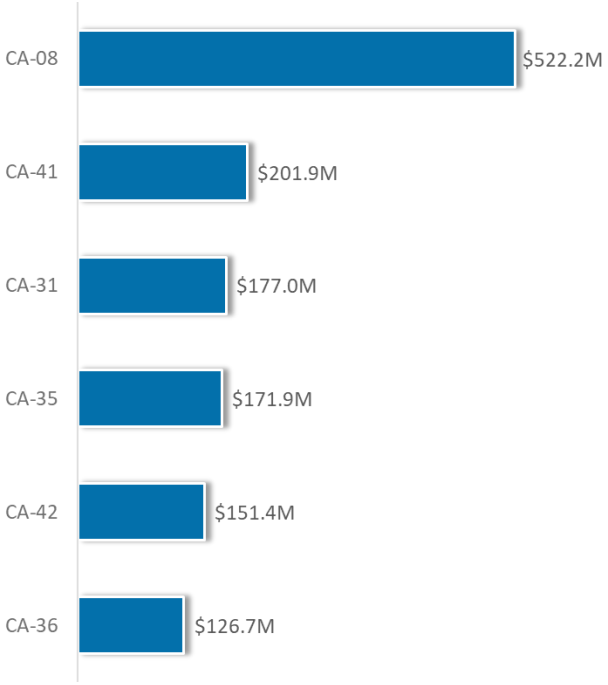


Figure 30: Total Output per 100k Residents – Inland Empire Region



Total Employment

CA-08 also led the region with nearly 21,000 FTEs, over a third of the region's total. CA-41 and CA-42 follow with 10,000 and 9,000 FTEs, respectively, while CA-31 and CA-35 had around 8,000 FTEs. The remaining district, CA-36, had over 6,000 FTEs.

Employment supported by national security activity represented 3.1% of the Inland Empire region's employment totals. In CA-08, national security supported FTEs accounted for 7.5% of the district's total employment.

Figure 31: Total Employment (FTEs) – Inland Empire Region

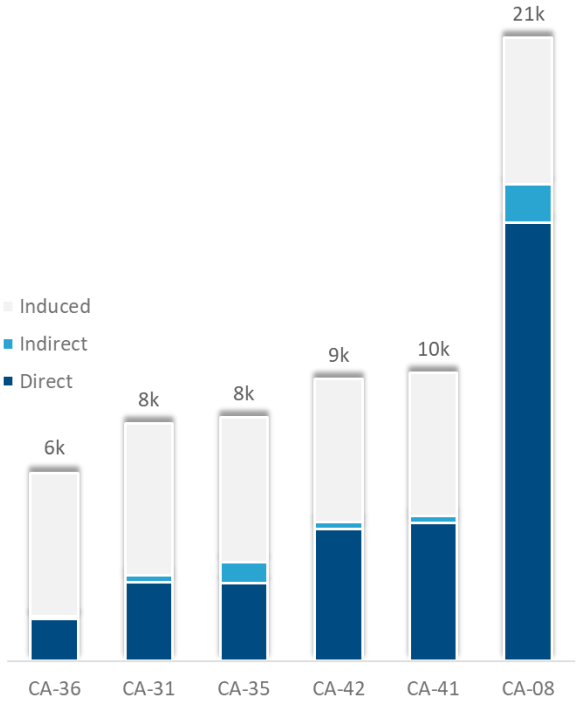
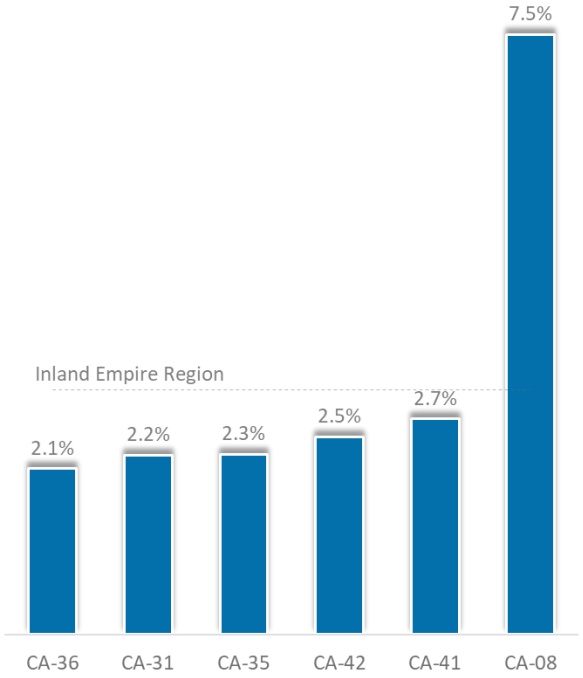


Figure 32: Total Employment as Percentage of District's Employment – Inland Empire Region



An F-16 assigned to the 416th Flight Test Squadron flies over the Precision Impact Range Area on Edwards Air Force Base in Kern County.

Valley Region

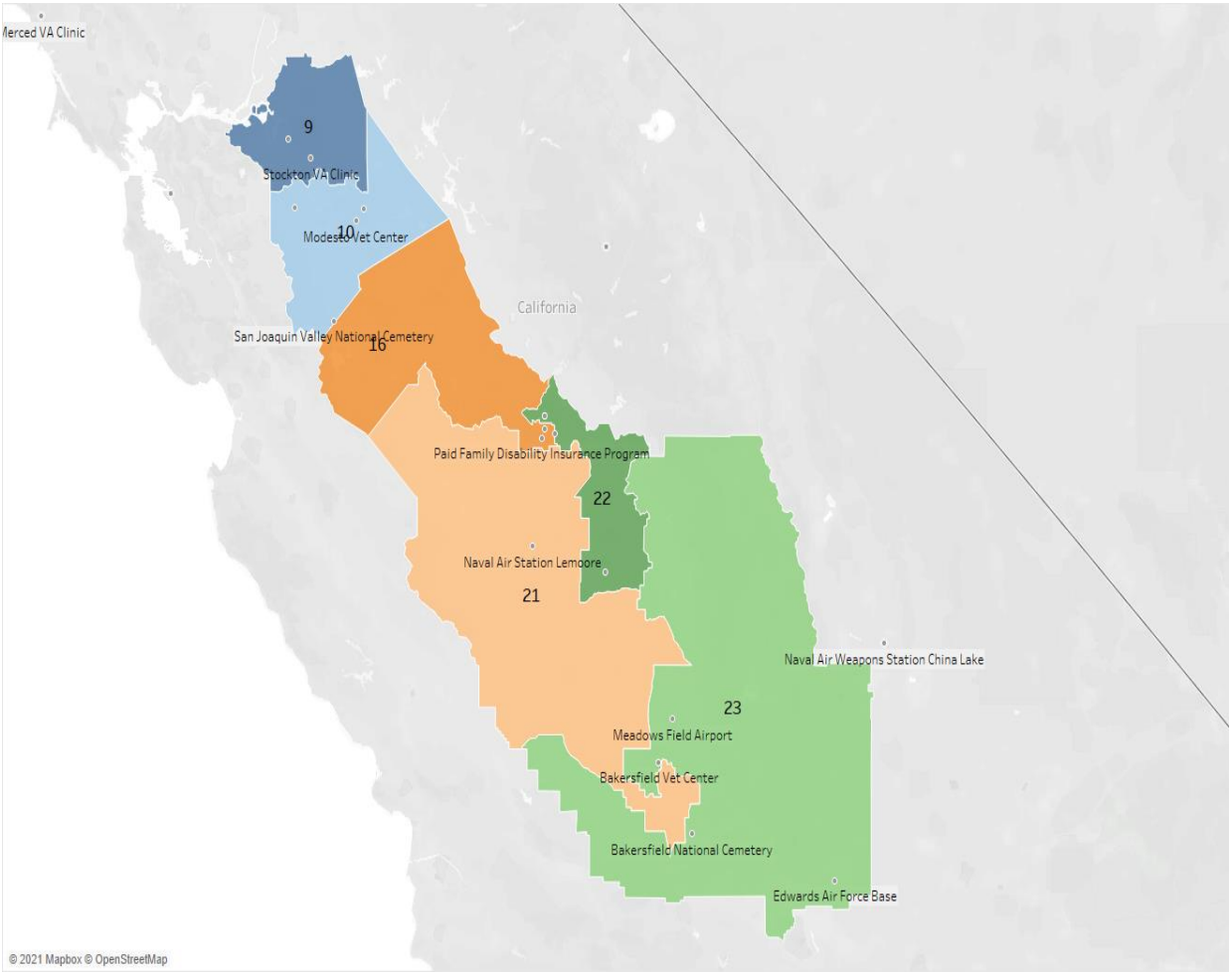
The Valley region encompasses the central portion of the state, largely paralleling the Valley region described in the county supplement. It includes six congressional districts: CA-09, CA-10, CA-16, and CA-21 through CA-23. It accounts for 11.5% of the state's population and 14.6% of the state's land area.

The Valley region includes the following military locations:

- CA-10: Defense Distribution Depot San Joaquin (Defense Logistics Agency)
- CA-21: Naval Air Station Lemoore
- CA-23: Edwards Air Force Base and Naval Air Weapons Station China Lake

The region has nine Veterans Affairs healthcare facilities and a Port of Entry in Stockton.

Figure 33: Districts in the Valley Region



Direct Activity

The Valley region ranked last of the eight regions in total spending with $1.6 billion and sixth with almost 24,000 national security employees (11,000 military and 13,000 civilian). Adjusted for population, it ranks eighth in spending and fourth in employment.

Direct Employment

CA-21 and CA-23, encompassing all of Kings and Kern counties and portions of Fresno and Tulare counties, include 75% of the region's total direct employees with nearly 10,000 (6,000 military and 4,000 civilian) and 8,000 (3,000 military and 5,000 civilian), respectively. The remaining districts in the region each had less than 2,000 national security personnel.

Figure 34: Direct Employment – Valley Region

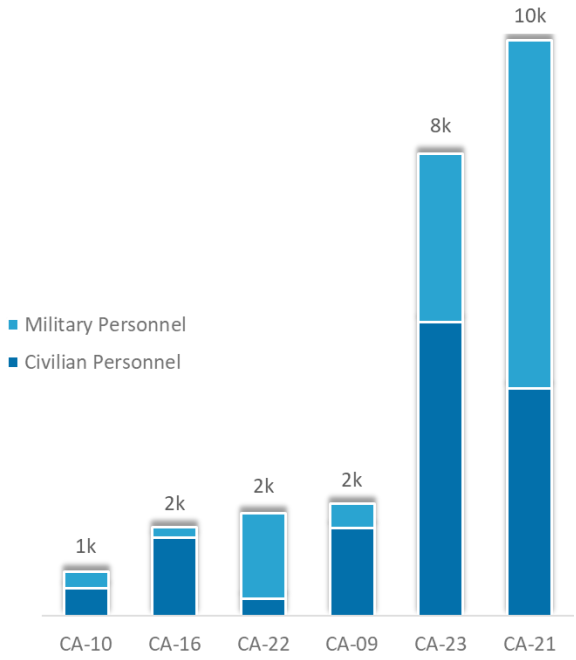
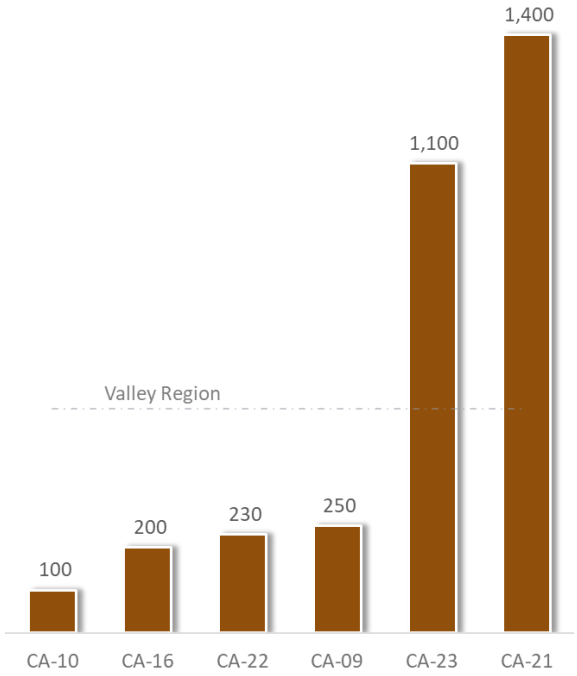


Figure 35: Direct Employment per 100k Residents – Valley Region



Direct Spending

CA-09 and CA-10, in San Joaquin and Stanislaus counties, received most of the region's total spending with $326.4 million and $315.4 million, respectively. CA-23, in Kern and Tulare counties, had $309.3 million in direct spending. The other three districts in the region received in the range of $216.3 million to $249.8 million in direct spending each. Top contracting industries include bread and bakery product manufacturing in CA-09, as well as explosives manufacturing and construction machinery manufacturing in CA-10.

Figure 36: Direct Spending – Valley Region

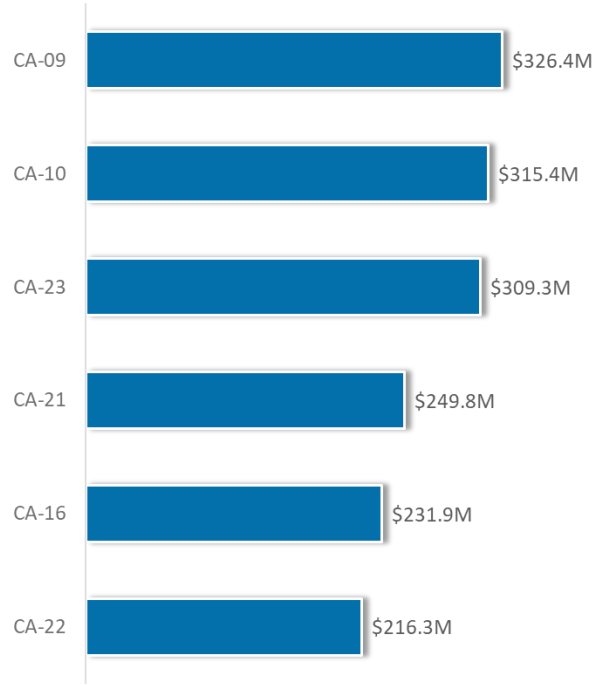
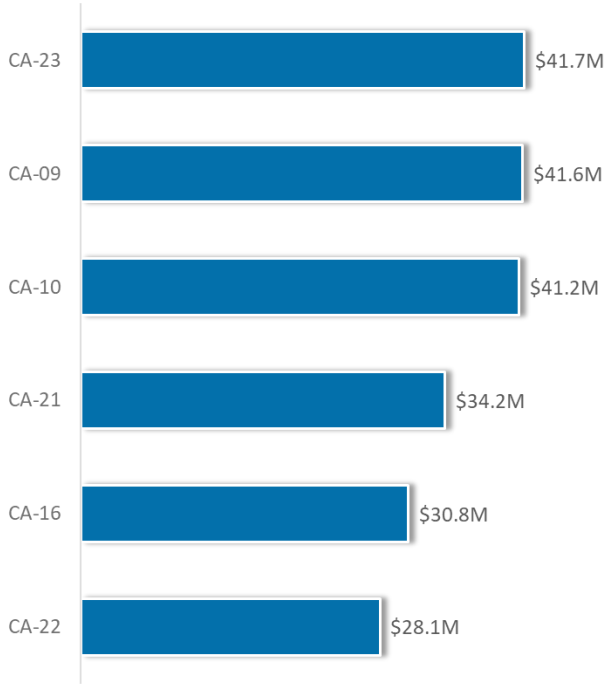


Figure 37: Direct Spending per 100k Residents – Valley Region



Economic Impacts

The Valley region ranked last of the eight regions with $8.8 billion in economic output and seventh with nearly 49,000 FTEs. Adjusted for population, it ranks eighth in both economic output and employment.

Total Output

CA-21 and CA-23, around the Kings, Kern and Tulare counties, had over 60% of the region's total output with $2.7 billion and $2.6 billion, respectively. CA-09 had $1.3 billion in economic output. The remaining three districts in the region had less than $1 billion in output each.

Figure 38: Total Output – Valley Region

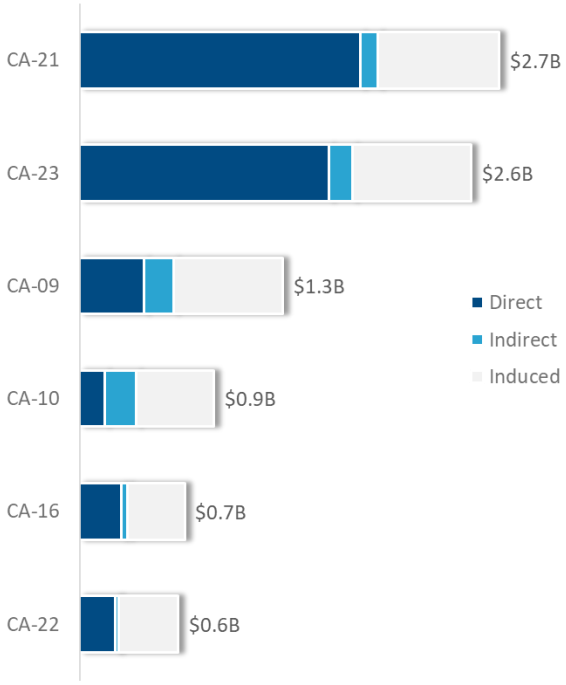
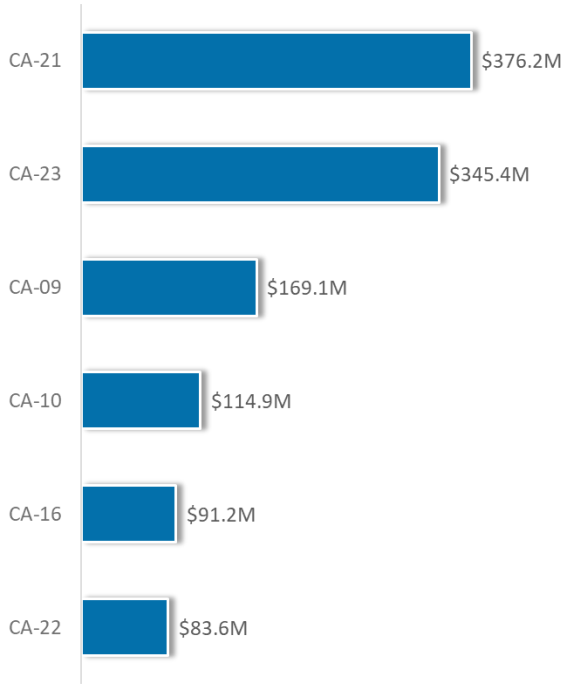


Figure 39: Total Output per 100k Residents – Valley Region



Total Employment

CA-21 and CA-23 had almost 60% of the region's FTEs with 14,000 in each district. CA-09 was third with 8,000 FTEs. The other three districts in the region had less than 5,000 FTEs each.

Jobs supported by national security activity represented 2.6% of the Valley region's employment totals. In CA-21 and CA-23, national security supported FTEs accounted for 5.3% and 4.5% of the district's total employment, respectively.

Figure 40: Total Employment (FTEs) – Valley Region

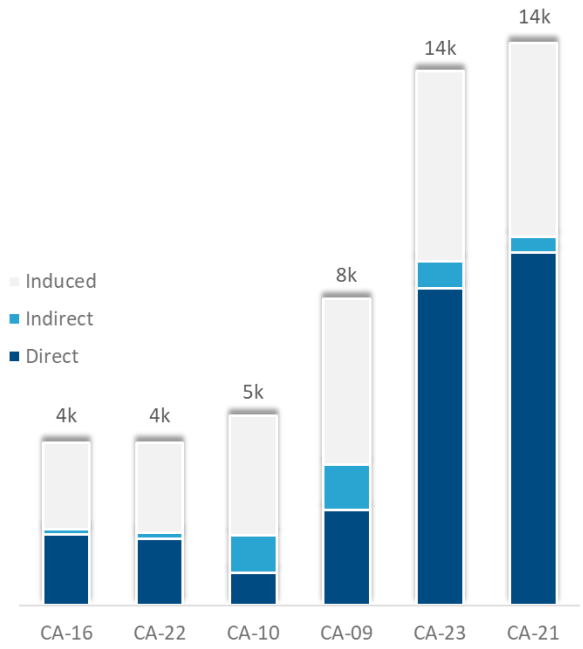
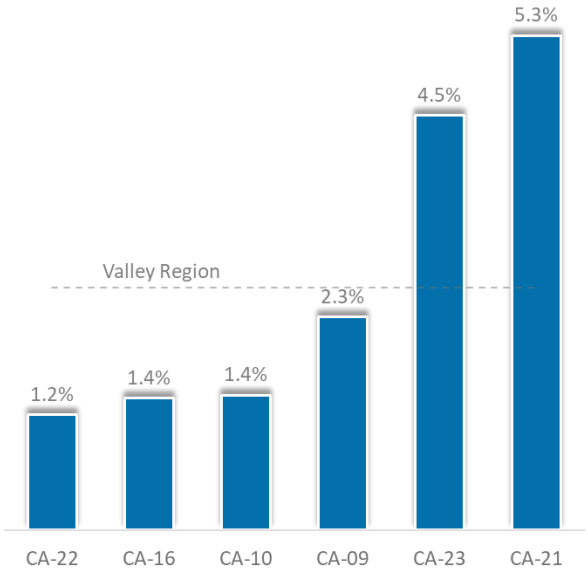


Figure 41: Total Employment as Percentage of District's Employment – Valley Region



The Coast Guard Cutter Bertholf enters the San Francisco Bay en route to its Alameda homeport.

San Francisco Bay Area Region

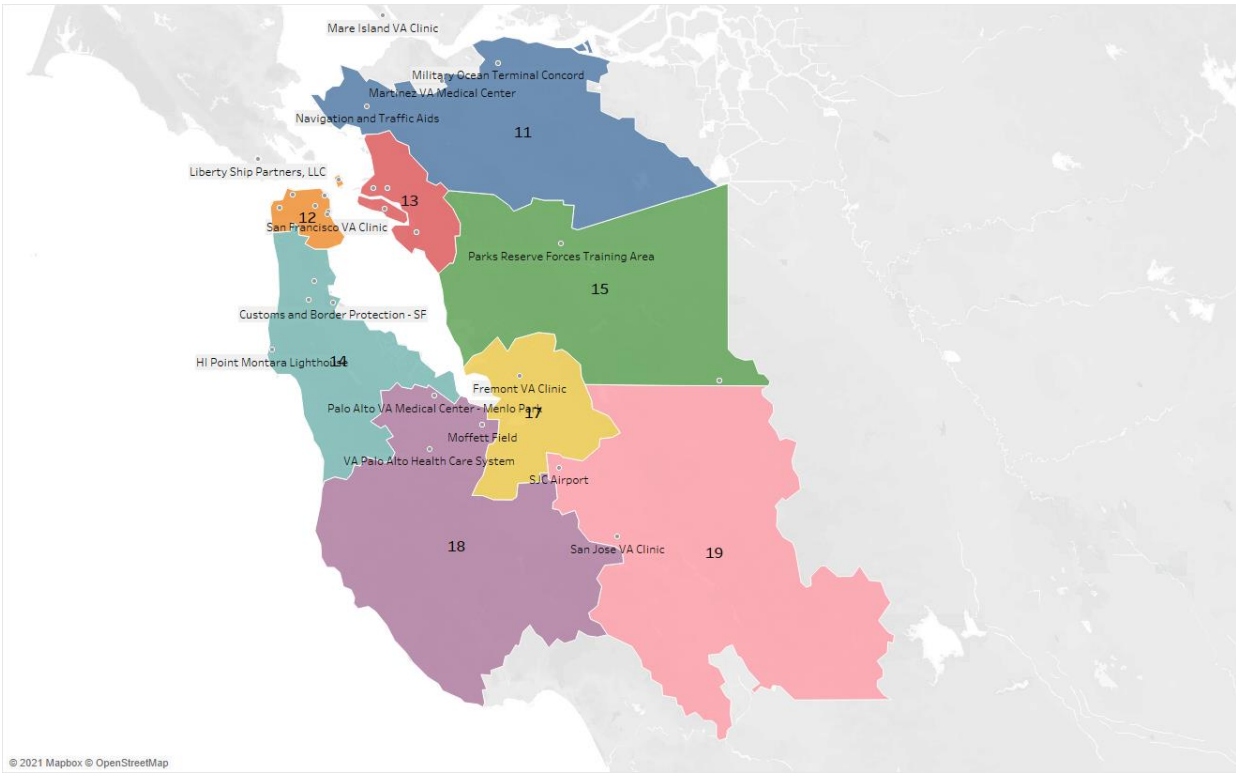
The San Francisco Bay Area region largely aligns with the San Francisco Bay and Silicon Valley regions from the county supplement. The region includes eight congressional districts: CA-11 through CA-15 and CA-17 through CA-19. It accounts for 15.5% of the state's population and 2.4% of the state's land area.

The San Francisco Bay Area region includes the following military locations:

- CA-11: Military Ocean Terminal Concord
- CA-15: Parks Reserve Forces Training Area, Lawrence Livermore National Laboratory and Sandia National Laboratories
- CA-18: Moffett Field and Defense Innovation Unit

The region has 16 Veterans Affairs healthcare facilities and two Ports of Entry that are both in San Francisco.

Figure 42: Districts in the San Francisco Bay Area Region



Direct Activity

The San Francisco Bay Area region ranked second of the eight regions in total spending with $12.1 billion, and seventh with 18,000 national security employees (5,000 military and 13,000 civilian). Adjusted for population, it continues to rank second in spending and seventh in employment.

Direct Employment

CA-18, in Santa Clara, Santa Cruz and San Mateo counties, had the most direct employees with under 7,000 (under 1,000 military and 6,000 civilian). CA-12 and CA-13, in San Francisco and Alameda counties, follow with 4,000 (under 1,000 military and under 4,000 civilian) and over 2,000 (over 1,000 military and under 1,000 civilian) national security personnel, respectively. The remaining five districts in the region had less than 2,000 national security personnel each.

Figure 43: Direct Employment – San Francisco Bay Area Region

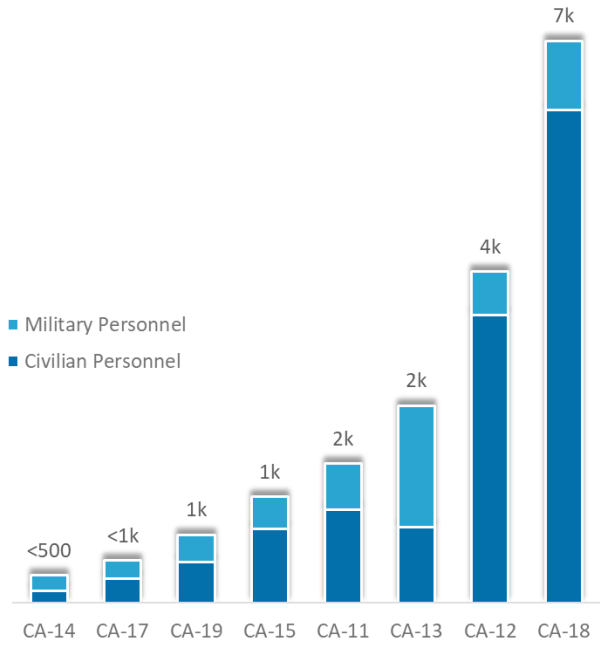
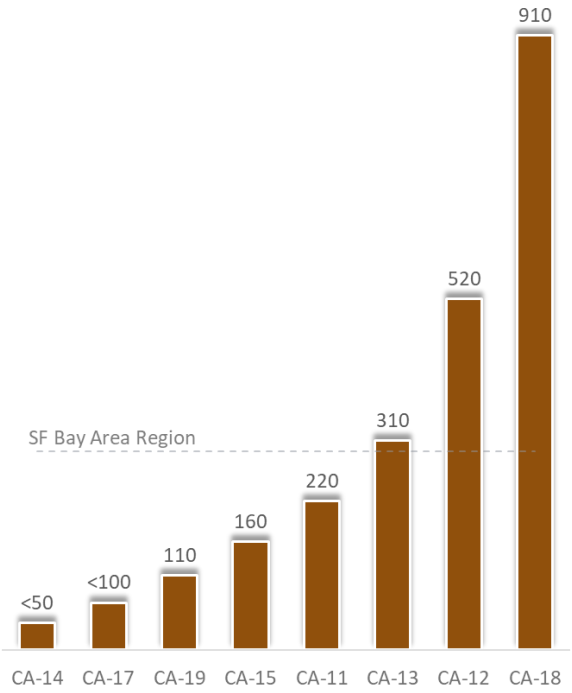


Figure 44: Direct Employment per 100k Residents – San Francisco Bay Area Region

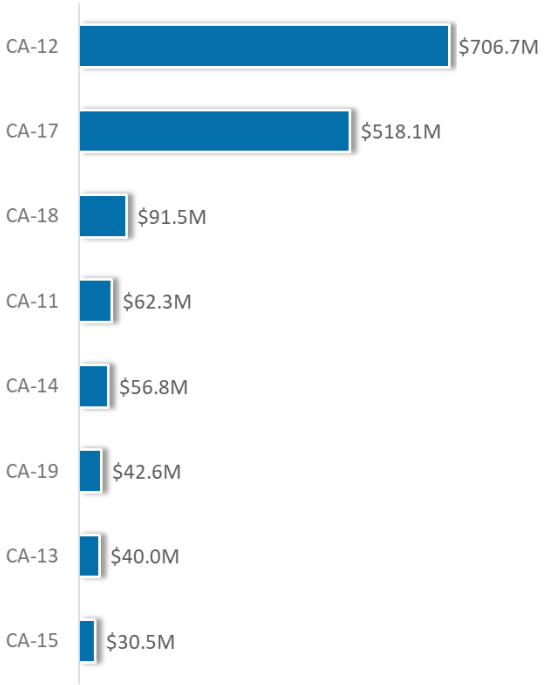


Direct Spending

Two districts received nearly 80% of the San Francisco Bay Area region's total spending: CA-12 with $5.5 billion and CA-17 with $4.1 billion. CA-18 was third with $689.4 million in direct spending. The region's remaining five districts had less than $476.6 million in spending each. Top contracting industries include pharmaceutical preparation manufacturing in CA-12, as well as guided missile and space vehicle manufacturing and scientific research and development in CA-17.

Figure 45: Direct Spending – San Francisco Bay Area Region

Figure 46: Direct Spending per 100k Residents – San Francisco Bay Area Region



Economic Impacts

The San Francisco Bay Area region ranked second of the eight regions with $27.1 billion in economic output and fourth with over 84,000 FTEs. Adjusted for population, it ranks third in economic output and fourth in employment.

Total Output

Over 70% of the region's total output related to national security activity was concentrated in three districts: CA-12 with $10.0 billion, CA-17 with $6.0 billion and CA-18 with $3.5 billion. Each of the remaining five districts in the region had economic output in the $1 billion to $2 billion range.

Figure 47: Total Output – San Francisco Bay Area Region

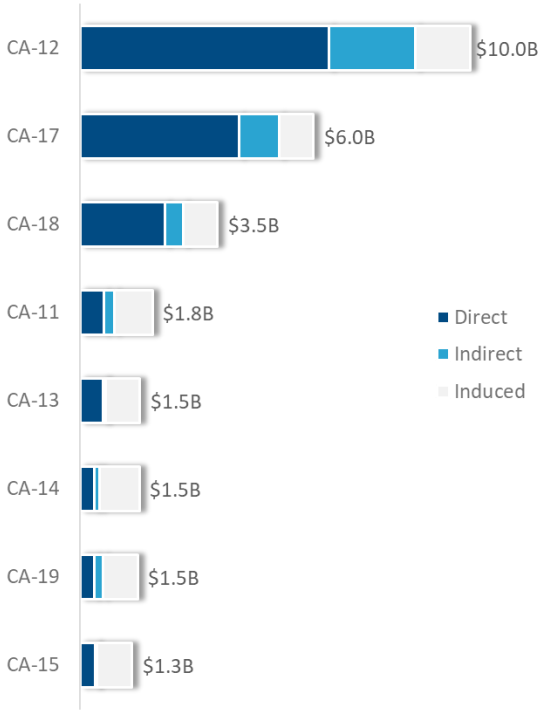
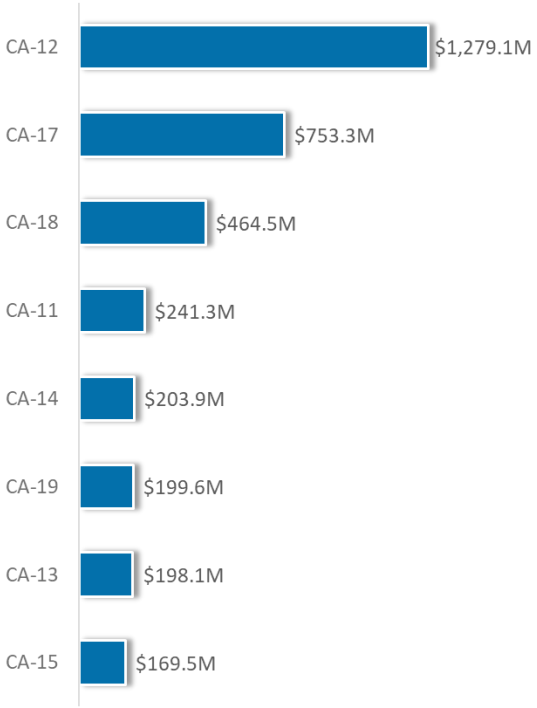


Figure 48: Total Output per 100k Residents – San Francisco Bay Area Region



Total Employment

Over 50% of the region's FTEs were in the same three districts: CA-12 with 18,000, CA-17 with 15,000 and CA-18 with 14,000. Each of the remaining five districts in the region had less than 10,000 FTEs.

Jobs supported by national security activity represented 2.5% of the San Francisco Bay Area region's employment totals. In CA-12, CA-18 and CA-17 national security supported FTEs accounted for 3.8%, 3.6% and 3.4% of the district's total employment, respectively.

Figure 49: Total Employment (FTEs) – San Francisco Bay Area Region

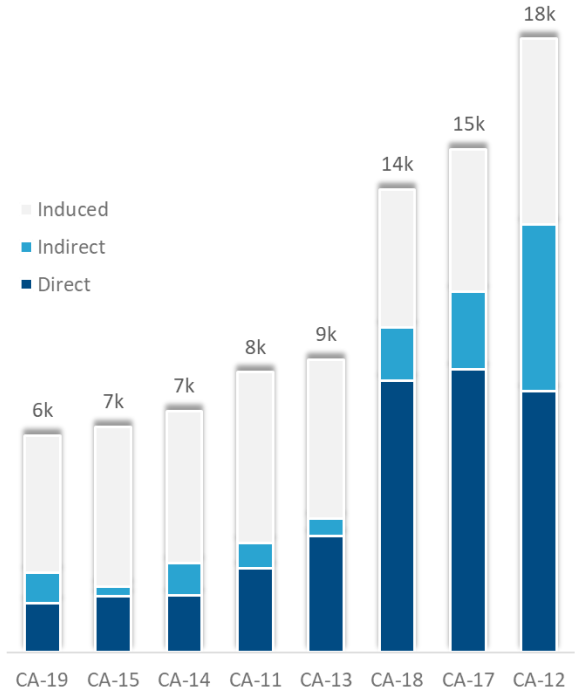
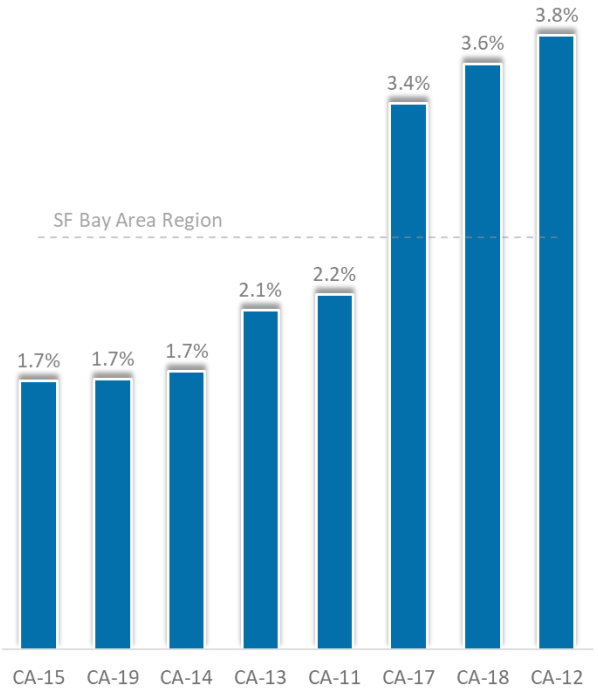


Figure 50: Total Employment as Percentage of District's Employment – San Francisco Bay Area Region



The Falcon 9 Iridium 5 rocket successfully launches from Vandenberg Air Force Base in Santa Barbara County.

Coastal Region

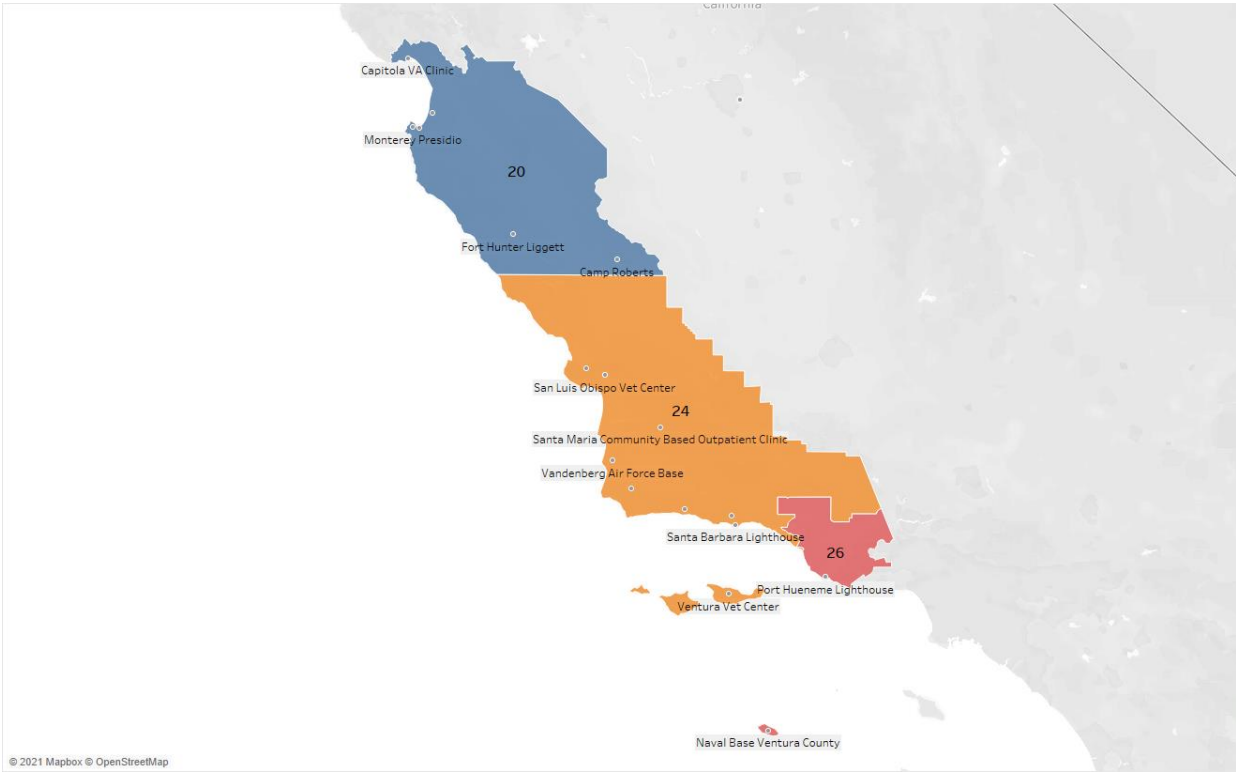
The Coastal region spans the middle of the state's coast, and includes all of the Coastal region from the county supplement. It includes three congressional districts: CA-20, CA-24 and CA-26. It accounts for 5.6% of the state's population and 9.2% of the state's land area.

The Coastal region includes the following military locations:

- CA-20: Camp Roberts, Fort Hunter Liggett, Naval Support Activity Monterey – Naval Postgraduate School and the Monterey Presidio
- CA-24: Camp San Luis Obispo and Vandenberg Air Force Base
- CA-26: Naval Base Ventura County

The region has seven Veterans Affairs healthcare facilities and three lighthouses – two in Santa Barbara, and one in Port Hueneme.

Figure 51: Districts in the Coastal Region



Direct Activity

The Coastal region ranked seventh of the eight regions in total spending with nearly $1.8 billion and third with 31,000 national security employees (20,000 military and 11,000 civilian). Adjusted for population, it ranks sixth in spending and second in employment.

Direct Employment

CA-20, primarily in Monterey, San Benito and Santa Cruz counties, led the region with under 13,000 national security personnel (8,000 military and 5,000 civilian). CA-26 in Ventura County followed with a little over 11,000 direct employees (6,000 military and 5,000 civilian). CA-24 in San Luis Obispo and Santa Barbara counties had 7,000 total national security personnel (under 6,000 military and over 1,000 civilian).

Figure 52: Direct Employment – Coastal Region

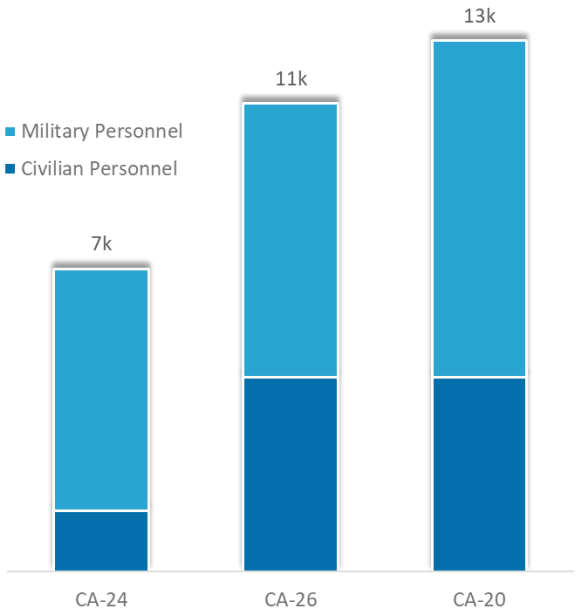
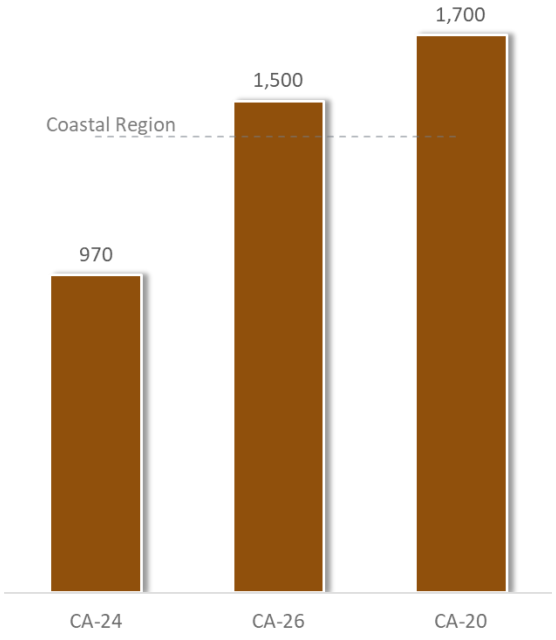


Figure 53: Direct Employment per 100k Residents – Coastal Region



Direct Spending

CA-24 and CA-26 have over 75% of the Coastal region's total national security spending with $804.0 million and $633.8 million, respectively. CA-20 received $327.4 million in national security spending. Top contracting industries include scientific research and development, and navigation and detection instruments manufacturing in CA-24, as well as architectural and engineering services in CA-26.

Figure 54: Direct Spending – Coastal Region

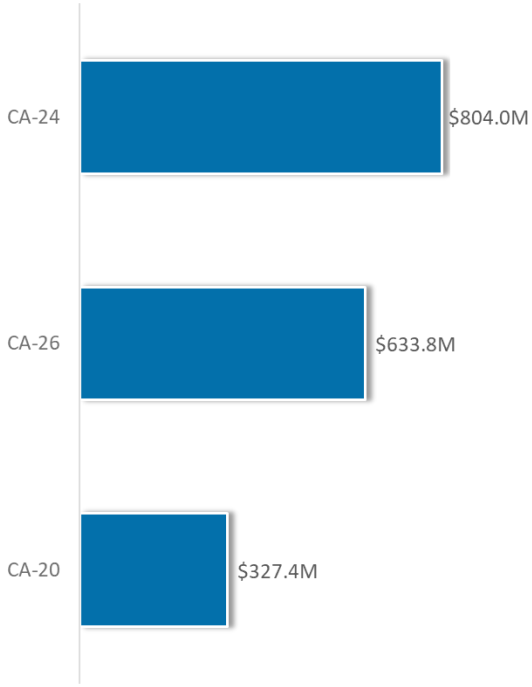
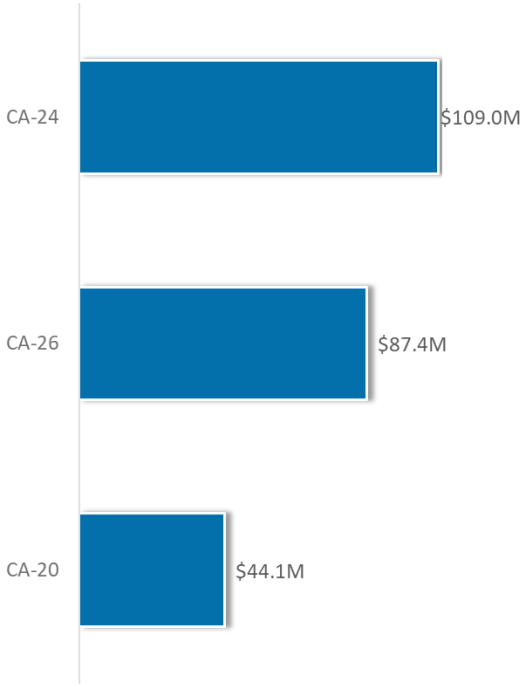


Figure 55: Direct Spending per 100k Residents – Coastal Region



Economic Impacts

The Coastal region ranked fifth of the eight regions with under $11.7 billion in economic output and sixth with over 59,000 FTEs. Adjusted for population, it ranks second in both economic output and employment.

Total Output

CA-26 had the most economic output with $4.6 billion, followed by CA-20 with $4.2 billion and CA-24 with $2.8 billion.

Figure 56: Total Output – Coastal Region

Figure 57: Total Output per 100k Residents – Coastal Region

Total Employment

Employment in the Coastal region followed the trend with total output in the region. CA-26 had 24,000 FTEs, followed by CA-20 with 21,000 FTEs and CA-24 with 15,000 FTEs.

Jobs supported by national security activity represented 5.6% of the Coastal region's employment totals. In CA-26, CA-20 and CA-24 national security supported FTEs accounted for 6.7%, 5.9% and 4.1% of the district's total employment, respectively.

Figure 58: Total Employment (FTEs) – Coastal Region

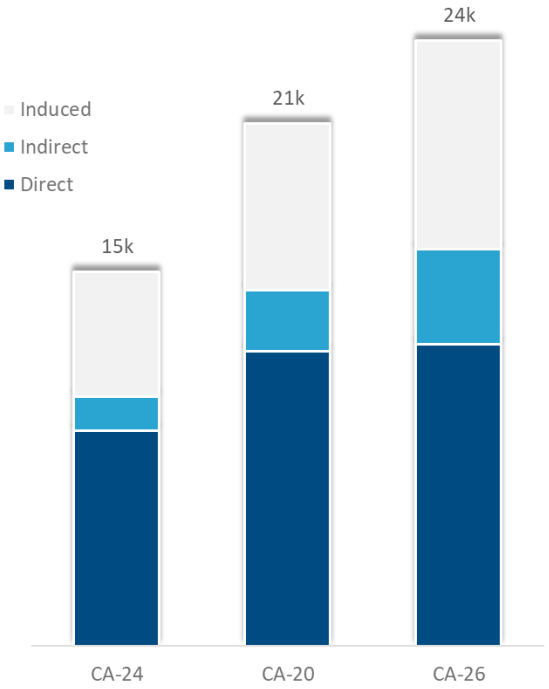
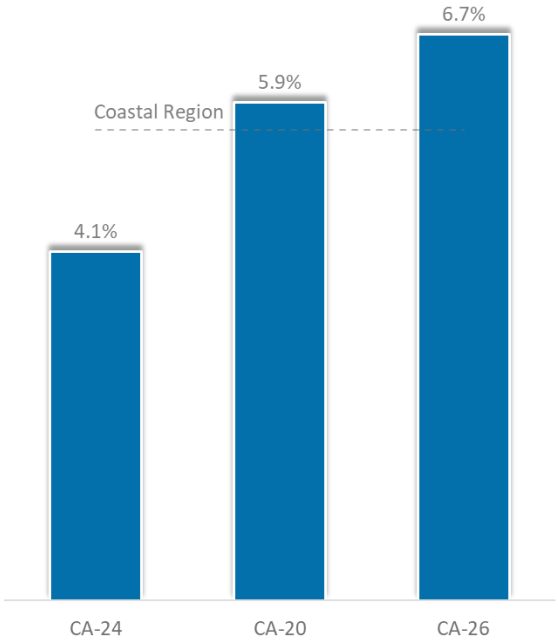


Figure 59: Total Employment as Percentage of District's Employment – Coastal Region



The ensign on the USS Dewey is hoisted and saluted during Los Angeles Fleet Week.

Los Angeles Region

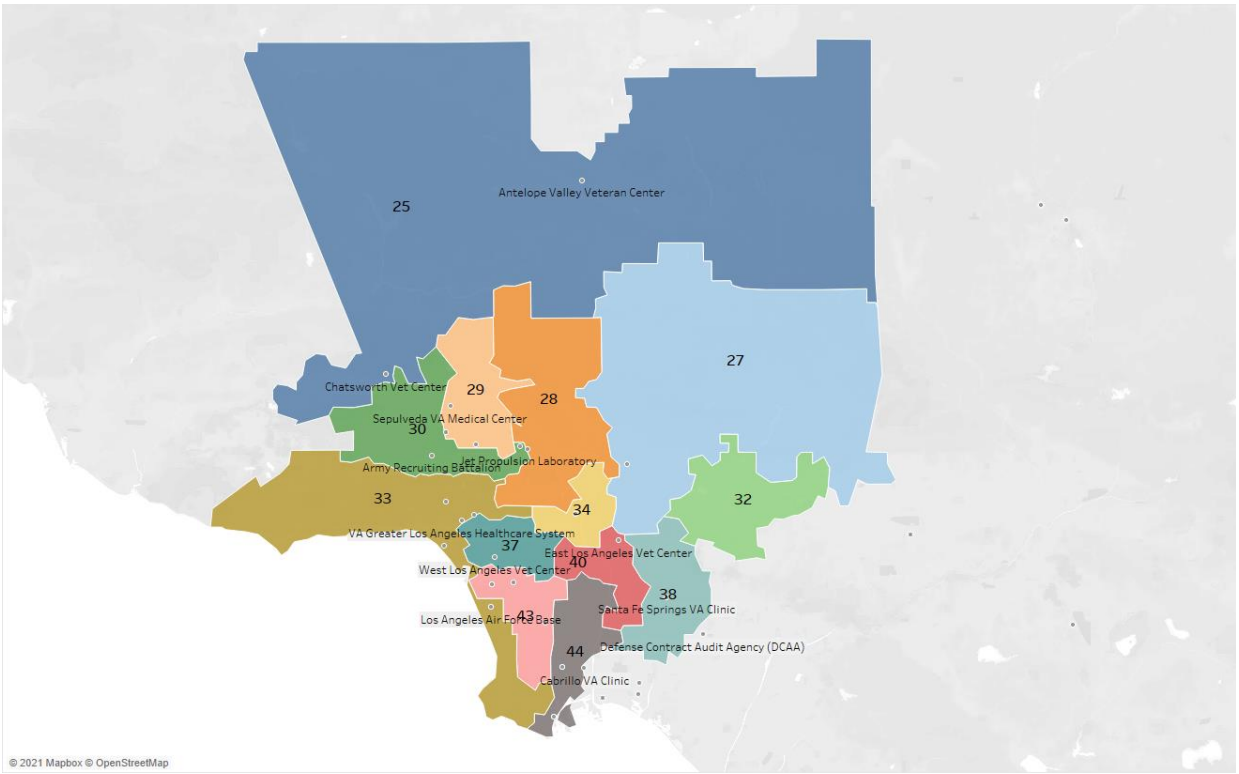
The Los Angeles region spans most of Los Angeles County, and falls within the Los Angeles region from the county supplement. It includes 13 congressional districts: CA-25, CA-27, CA-28, CA-29, CA-30, CA-32, CA-33, CA-34, CA-37, CA-38, CA-40, CA-43 and CA-44. It accounts for 23.7% of the state's population and 2.4% of the state's land area.

The Los Angeles region is home to one military base and three federally funded research and development sites:

- CA-27: Aerospace Corporation and Jet Propulsion Laboratory
- CA-33: Los Angeles Air Force Base and RAND Corporation

The region has 10 Veterans Affairs healthcare facilities, a Port of Entry in Victorville and a variety of field offices for various national security-related agencies under the purview of the Departments of Defense, Homeland Security or Veterans Affairs.

Figure 60: Districts in the Los Angeles Region



Direct Activity

The Los Angeles region ranked fourth of the eight regions in total spending with $9.2 billion and nearly 29,000 direct employees (over 5,000 military and 23,000 civilian). Adjusted for population, it ranks fifth in spending and sixth in employment.

Direct Employment

CA-44 and CA-30 have over 50% of the region's national security personnel, with nearly 8,000 (under 1,000 military and 7,000 civilian) and 7,000 (nearly all civilian), respectively. The next two biggest districts in terms of national security personnel are CA-33 and CA-29 with 4,000 (under 1,000 military and 3,000 civilian) and 3,000 (mostly civilian) direct employees respectively. The remaining nine districts in the region each had less than 2,000 national security personnel.

Figure 61: Direct Employment – Los Angeles Region

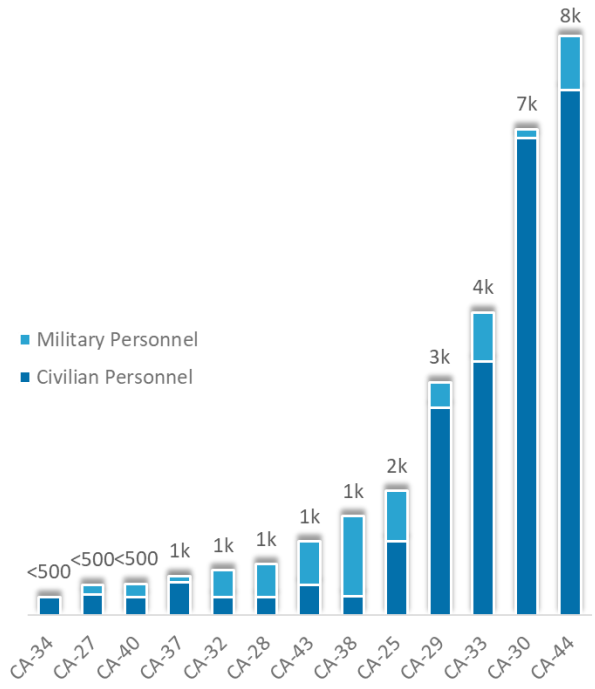
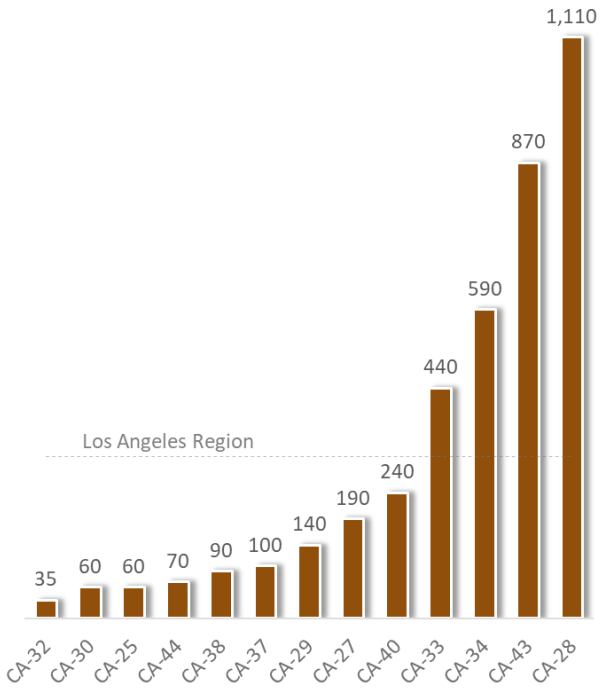


Figure 62: Direct Employment per 100k Residents – Los Angeles Region

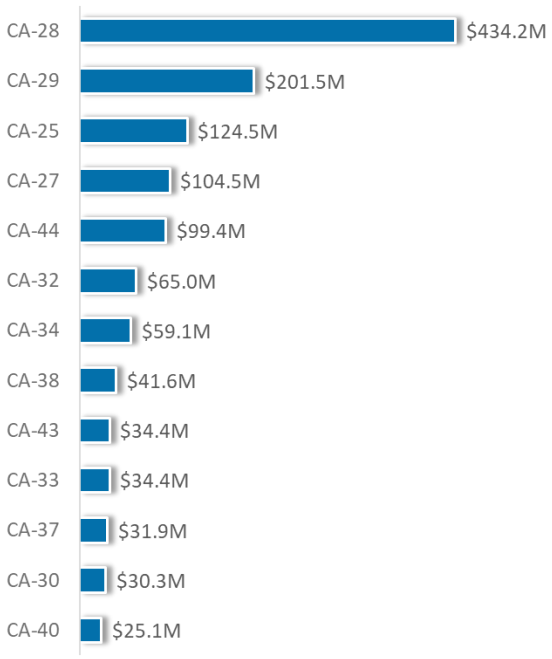


Direct Spending

CA-33 and CA-25 received around 50% of the region's total spending with $3.1 billion and $1.5 billion, respectively. The region's remaining 11 districts each had less than $1 billion in direct spending. Top contracting industries include scientific research and development in CA-33, aircraft parts and other auxiliary equipment manufacturing in CA-25, and air transportation in CA-44.

Figure 63: Direct Spending – Los Angeles Region

Figure 64: Direct Spending per 100k Residents – Los Angeles Region



Economic Impacts

The Los Angeles region ranked fourth of the eight regions with $20.8 billion in economic output and second with over 120,000 FTEs. Adjusted for population, it ranks fifth in economic output and sixth in employment.

Total Output

Nearly 60% of the region's total output is concentrated in four districts, CA-33, CA-30, CA-44 and CA-25, with $5.7 billion, $3.3 billion, $3.2 billion and $2.9 billion, respectively. The remaining nine districts in the region each had less than $2 billion in economic output.

Figure 65: Total Output – Los Angeles Region

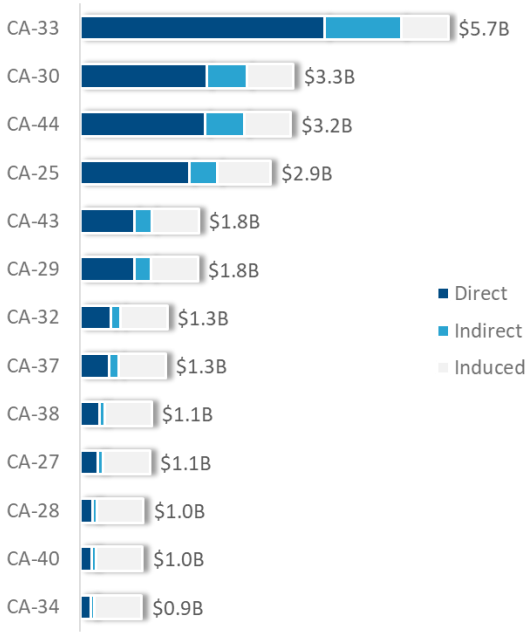


Figure 66: Total Output per 100k Residents – Los Angeles Region

Total Employment

Over 50% of the region's FTEs were in the same four districts, CA-33, CA-44, CA-30 and CA-25, with 22,000, 16,000, 14,000 and 10,000 FTEs, respectively. The remaining nine districts in the region each had less than 10,000 FTEs.

Jobs supported by national security activity represented 2.5% of the Los Angeles region's employment totals. In CA-33, CA-44, CA-30 and CA-25 national security supported FTEs accounted for 5.9%, 4.8%, 3.5% and 3.2% of the district's total employment, respectively.

Figure 67: Total Employment (FTEs) – Los Angeles Region

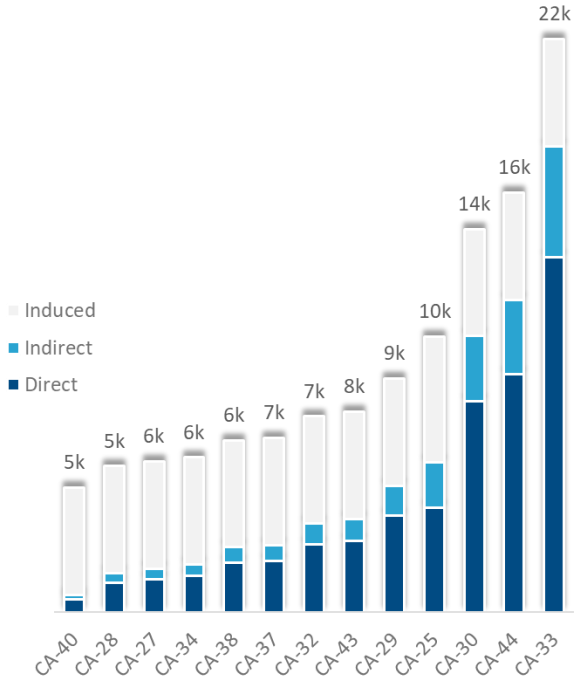
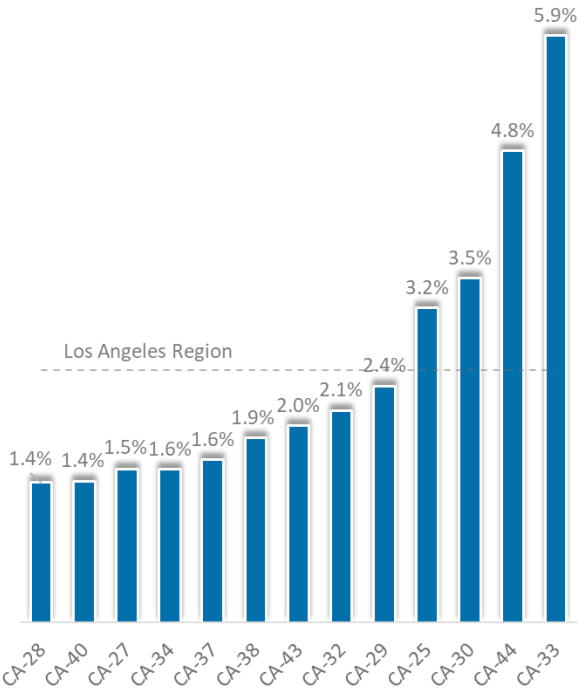


Figure 68: Total Employment as Percentage of District's Employment – Los Angeles Region



A CH-47 Chinook heavy-lift helicopter drops water for a flight demonstration at Joint Forces Training Base Los Alamitos.

Orange County Region

The Orange County region spans along the southwestern part of the state's coast, just south of the Los Angeles region and a small portion of the Other Southern region in the county supplement. It includes five congressional districts: CA-39, CA-45, CA-46, CA-47 and CA-48. It accounts for 9.3% of the state's population and 0.9% of the state's land area.

The Orange County region includes the following military locations:

- CA-47: Joint Forces Training Base Los Alamitos
- CA-48: Naval Weapons Station Seal Beach

The region has eight Veterans Affairs healthcare facilities and a Border Patrol station at San Clemente.

Figure 69: Districts in the Orange County Region

Direct Activity

The Orange County region ranked fifth of the eight regions in total spending with $4.3 billion and eighth with over 9,000 national security employees (4,000 military and 5,000 civilian). Adjusted for population, it ranks fourth in spending and eighth in employment.

Direct Employment

CA-47 has half of the region's direct employees with over 4,000 total (under 1,000 military and nearly 4,000 civilian). CA-39 was second with under 2,000 personnel (over 1,000 military and under 1,000 civilians) followed by CA-48 with about 1,000 personnel (mostly military). The remaining two districts, CA-45 and CA-46, each had under 1,000 national security employees.

Figure 70: Direct Employment – Orange County Region

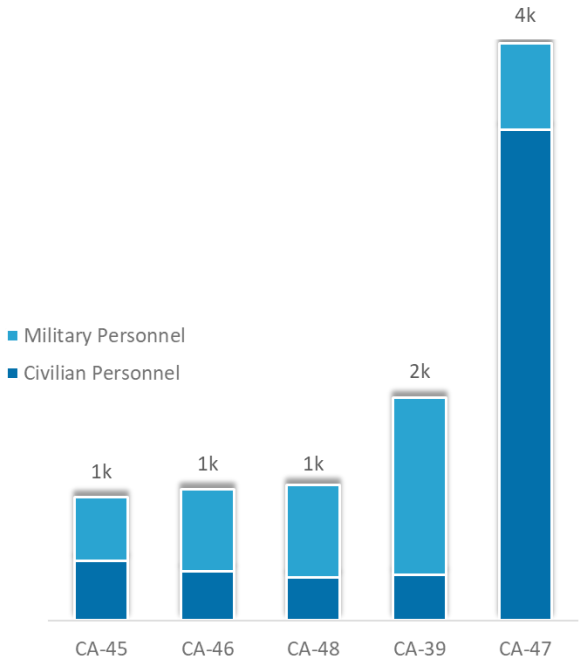
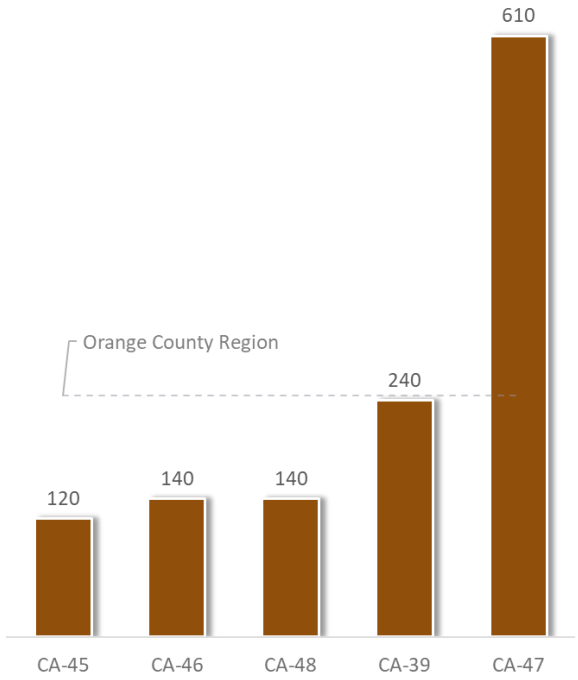


Figure 71: Direct Employment per 100k Residents – Orange County Region



Direct Spending

CA-48 received the most national security spending with a little under $1.7 billion, followed by CA-45 and CA-39 with $876.0 million and $871.6 million, respectively. The remaining two districts, CA-46 and CA-47, each had over $403.3 million in direct spending. Top contracting industries include aircraft manufacturing in CA-48, navigation and detection instruments manufacturing in CA-39, and other aircraft parts and auxiliary equipment manufacturing in CA-45.

Figure 72: Direct Spending – Orange County Region

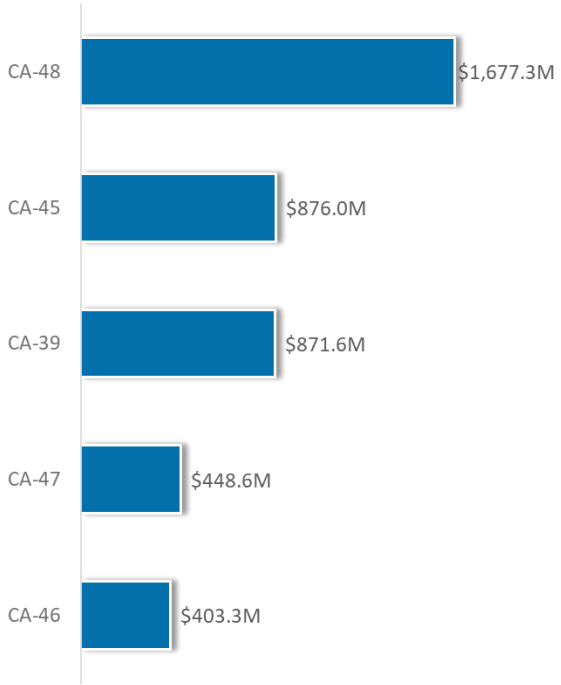
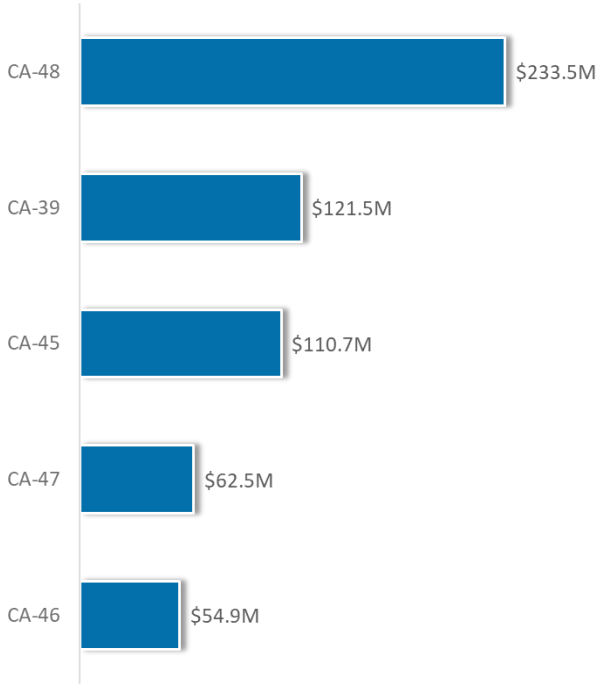


Figure 73: Direct Spending per 100k Residents – Orange County Region



Economic Impacts

The Orange County region ranked seventh of the eight regions with $9.8 billion in economic output and eighth with under 44,000 FTEs. Adjusted for population, it ranks sixth in economic output and seventh in employment.

Total Output

CA-48 led the region with a little over $2.7 billion in total output, followed by CA-47 with $2.1 billion and CA-39 with $1.9 billion. The remaining two districts, CA-45 and CA-46, produced $1.7 billion and $1.3 billion, respectively.

Figure 74: Total Output – Orange County Region

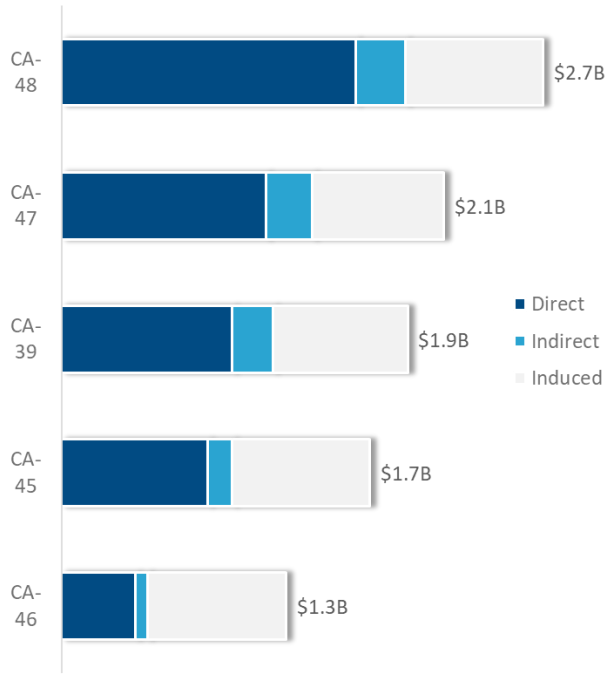
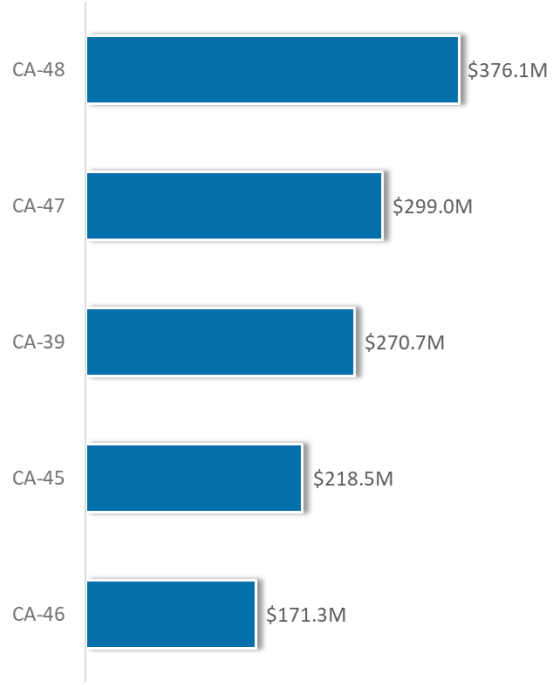


Figure 75: Total Output per 100k Residents – Orange County Region



Total Employment

CA-47 led the region with over 10,000 FTEs, followed by CA-39 with under 10,000. CA-45 had nearly 9,000 FTEs, CA-48 had over 8,000 FTEs, and CA-46 had under 7,000 FTEs.

Jobs supported by national security activity represented 2.3% of the Orange County region's employment totals. All districts were below the state average.

Figure 76: Total Employment (FTEs) – Orange County Region

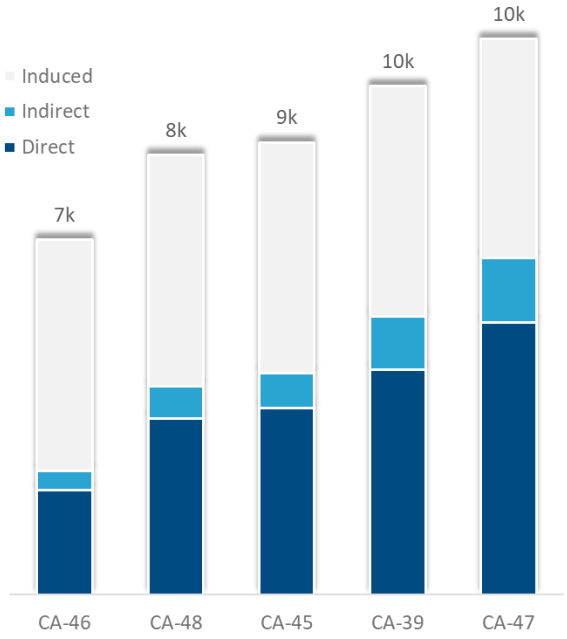
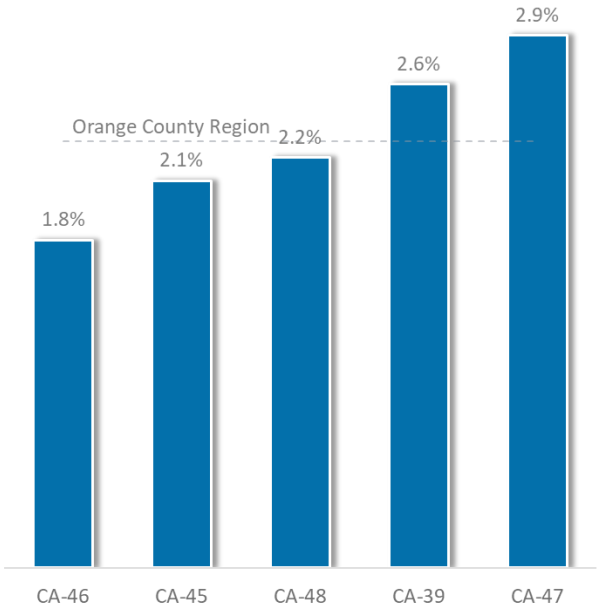


Figure 77: Total Employment as Percentage of District's Employment – Orange County Region



A physical training session in progress aboard the USS Wasp at Naval Base San Diego.

San Diego Region

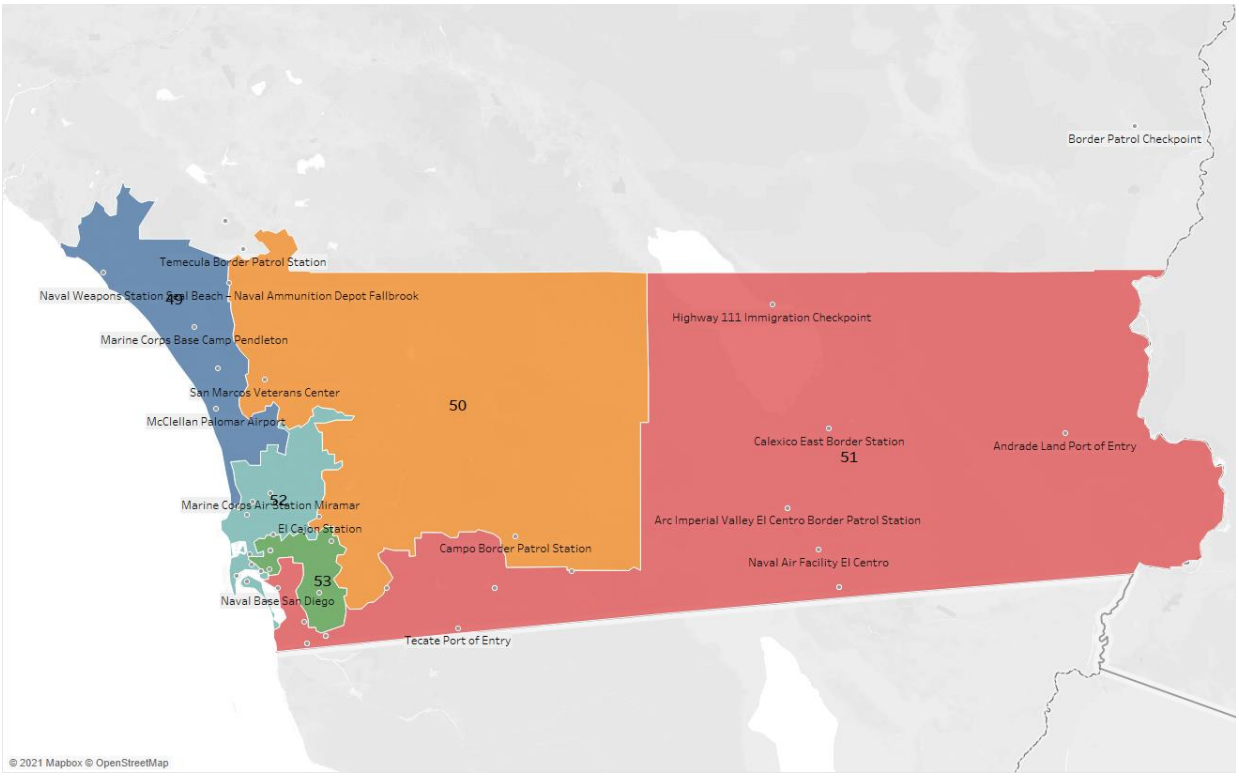
The San Diego region spans the southern base of the state, and includes all of the San Diego region and the Imperial County portion of the Other Southern region in the county supplement. It includes five congressional districts: CA-49, CA-50, CA-51, CA-52 and CA-53. It accounts for 9.6% of the state's population and 5.6% of the state's land area.

The San Diego region includes the following military locations:

- CA-49: Marine Corps Base Camp Pendleton
- CA-50: Naval Weapons Station Seal Beach – Naval Ammunitions Depot Fallbrook
- CA-51: Naval Air Facility El Centro and Naval Base San Diego
- CA-52: Marine Corps Air Station Miramar, Marine Corps Recruit Depot San Diego, Naval Base Coronado and Naval Base Point Loma
- CA-53: Naval Information Warfare Systems Command

The region has 12 Veterans Affairs healthcare facilities, 7 Ports of Entry (4 in San Diego and 3 in Imperial County) and 20 Border Patrol stations.

Figure 78: Districts in the San Diego Region



Direct Activity

The San Diego region ranked first of the eight regions in total national defense spending in fiscal year 2019 with $13.1 billion and 172,000 national security employees (135,000 military and 37,000 civilian). Adjusted for population, it continues to rank first in both.

Direct Employment

Three districts have over 75% of the region's direct employees: CA-52 with 48,000 (38,000 military and 10,000 civilian), CA-49 with 44,000 (39,000 military and 5,000 civilian) and CA-51 with 39,000 (29,000 military and 10,000 civilian). The remaining two districts, CA-53 and CA-50, had under 29,000 (over 20,000 military and under 8,000 civilian) and 13,000 (8,000 military and 5,000 civilian) national security personnel, respectively.

Figure 79: Direct Employment – San Diego Region

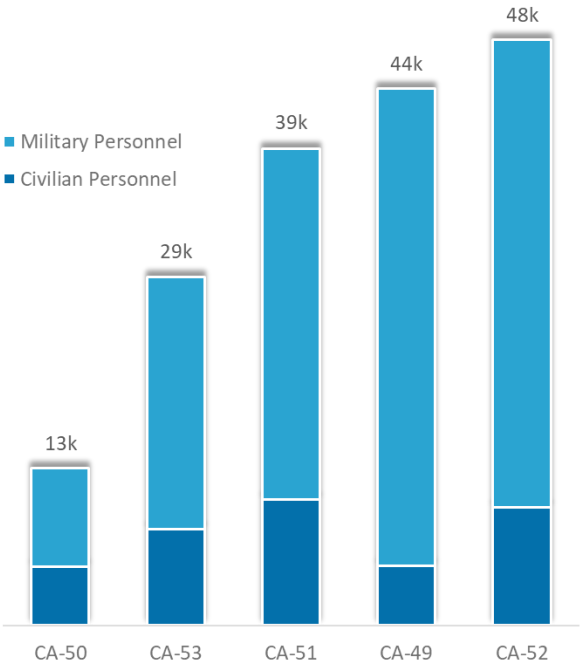
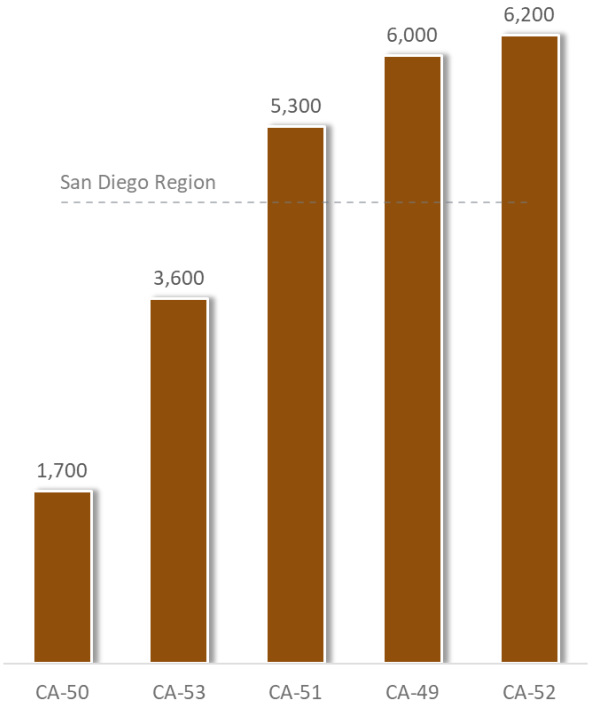


Figure 80: Direct Employment per 100k Residents – San Diego Region



Direct Spending

The same top three districts received nearly 90% of the region's total spending: CA-52 with $5.1 billion, CA-51 with $3.6 billion and CA-49 with $2.9 billion. The other two districts, CA-53 and CA-50, each had less than $1.0 billion in direct spending. Top contracting industries include ship building and repairing in CA-51, aircraft manufacturing in CA-52 and CA-49, and architectural and engineering services in CA-52.

Figure 81: Direct Spending – San Diego Region

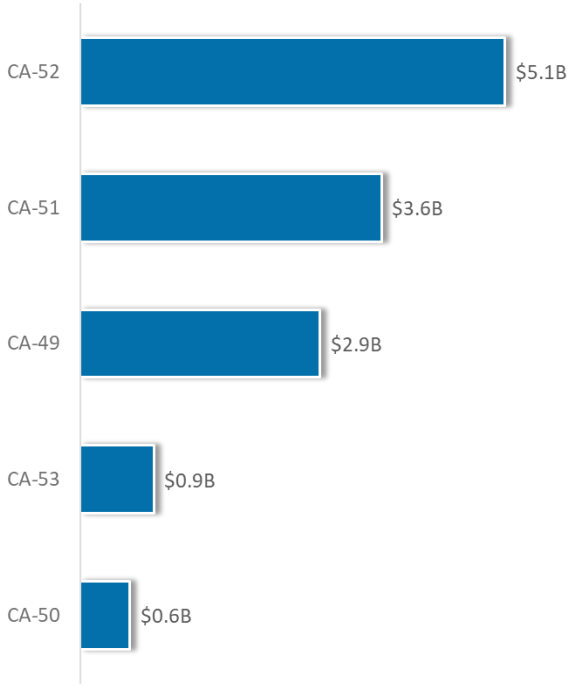
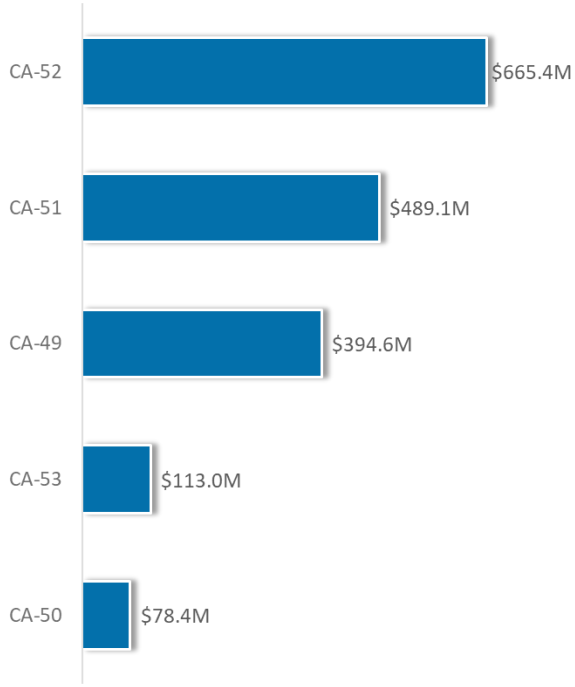


Figure 82: Direct Spending per 100k Residents – San Diego Region



Economic Impacts

The San Diego region ranked first of the eight regions with $63.1 billion in economic output and under 307,000 FTEs. Adjusted for population, it continues to rank first in both.

Total Output

Economic output was concentrated in three districts, CA-52, CA-49 and CA-51, with $18.3 billion, $14.4 billion and $14.0 billion, respectively. This accounts for nearly 75% of the region's output. The remaining two districts, CA-53 and CA-50, each had less than $10 billion in economic output.

Figure 83: Total Output – San Diego Region

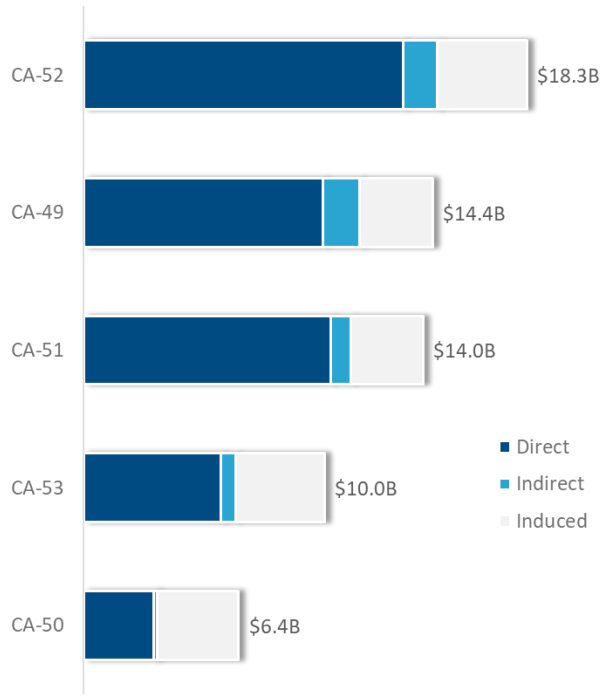
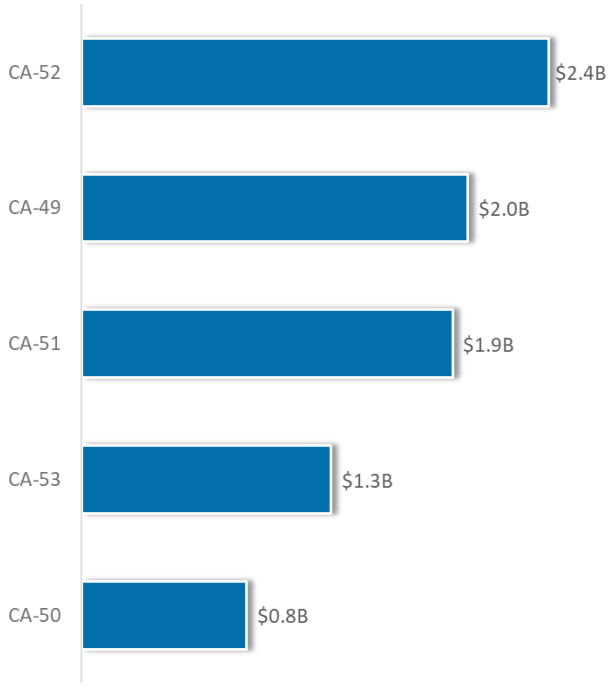


Figure 84: Total Output per 100k Residents – San Diego Region



Total Employment

CA-52 generated the most FTEs in the region with under 84,000, followed by CA-51 and CA-49 with around 67,000 FTEs each. The region's remaining two districts, CA-53 and CA-50, produced 53,000 and 36,000 FTEs, respectively.

Jobs supported by national security activity represented 16.2% of the San Diego region's employment totals. All five districts in the San Diego region have at least 10% of their district's total employment supported by national security. In CA-51, CA-52 and CA-49 national security supported FTEs accounted for 20.7%, 20.0% and 17.8% of the district's total employment, respectively.

Figure 85: Total Employment (FTEs) – San Diego Region

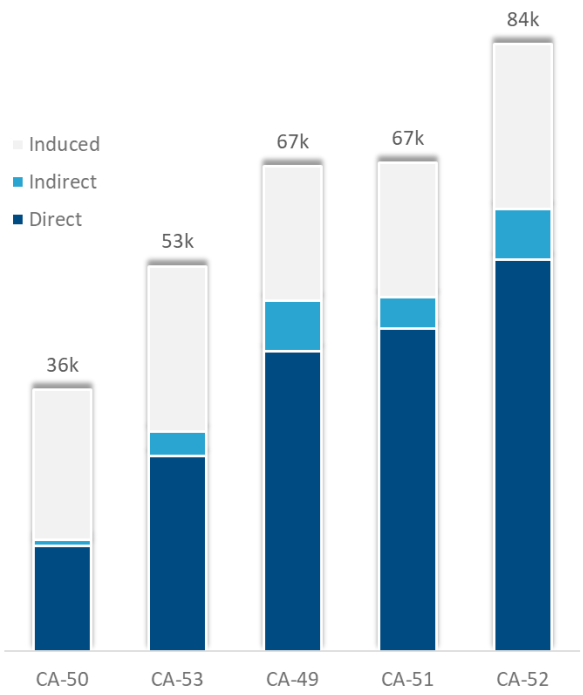
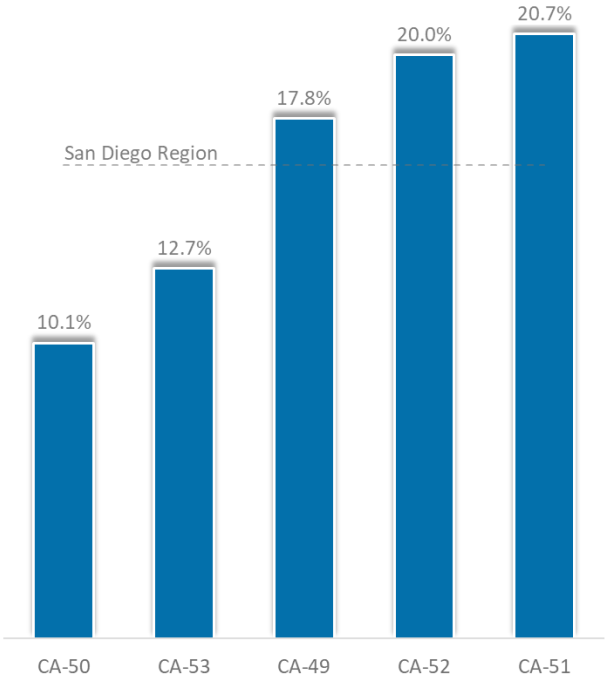


Figure 86: Total Employment as Percentage of District's Employment – San Diego Region



An A-10 Thunderbolt II flies in formation with a C-130J Super Hercules as part of the Catalina Weapons Mixer exercise over California.

Appendix I: Methodology – District Analysis

This report models economic impacts using IMPLAN software, based on standard input-output methodology. The purpose of the study is to estimate the impacts of existing spending, rather than modeling any policy changes or other counterfactuals. As a result, the analysis estimates gross benefits and does not account for alternate federal spending or other use of resources that might occur in California in the absence of national security spending and employment.

The IMPLAN (IMpact Analysis for PLANning) I-O economic model was selected for this analysis based on its reputation and the resources available. IMPLAN was developed by the U.S. Department of Agriculture Forest Service in the 1970s to fulfill the requirements of the Rural Development Act of 1972 to estimate the impacts of alternate uses for U.S. public forest resources.

For a full discussion of the overarching methodology and IMPLAN's input-output model, refer to the Methodology and Data section in the 2020 Statewide National Security Economic Impacts Study. This supplement builds on the analysis in the aforementioned study.

As in prior versions of the report, this supplement analyzes the localized impacts. It follows the same methodology as the 2019 report,[8] but provides expanded detail, estimating results for each of California's 53 congressional districts. A separate supplement provides estimates for California's 58 counties. These supplements use a two-model approach to estimate the impacts for local areas. This accounts for the fact that a traditional, single-model approach would understate the impacts occurring within a given geographic area, omitting spillover effects from spending in other districts.

Traditional models estimate the impact of spending and employment that happens within a given congressional district has within that same district. For example, it would capture most of the economic impacts associated with the employment of a government worker who both works and lives in CA-06. The large majority of the induced economic activity from her employment or spending on housing, shopping, healthcare, etc., would likely occur within the district because she both lives and works there. While it would account for most of the economic activity resulting from her employment, it would miss some aspects. For example if she went to a restaurant in neighboring CA-07 or went on vacation to San Diego in CA-53, the resulting economic activity would be omitted. The CA-06 model would miss the spending that occurs outside of CA-06, and the CA-07 and CA-53 models would miss the original employment data that led to that induced activity because it occurred outside those districts.

[8] Lavelle, D.M. California Statewide National Security Economic Impacts, 2019 Update. California Research Bureau, California State Library, Oct. 2019.

Even more economic activity is missed when economic relationships occur across congressional districts. For example, if a Los Angeles company based in CA-25 contracted with an Orange County law firm based in CA-48, the resulting indirect and induced economic impact would be missed altogether. Because the contractor is outside Los Angeles, the CA-25 model would not include it while the CA-48 model would not account for the initial spending that occurred outside of CA-48. Moreover, simply including the Los Angeles data in the CA-48 model is not viable because it would then overcount economic activity associated with the spending that is actually occurring within CA-25.

Economic activity omitted from a traditional model approach is significant in aggregate. In this case, such a methodology would overlook approximately 14% of total state output, using the county models. This is larger than reported in the 2019 report because of the larger number of geographic entities included (congressional districts instead of regions). Because there are more geographic entities, each covering less area, there is more spillover between them. This can also distort regional information significantly. For example, 80% of economic activity in Tuolumne County would be excluded by a traditional model. These impacts appear most significant in areas with large tourist economies and districts that are home to a large number of commuters from nearby congressional districts.

This supplement uses the same two-model approach as the 2019 report. This is refined and streamlined from the original three-model approach used in the 2018 report with the assistance of IMPLAN's Multi-Regional Input-Output (MRIO) tool. This tool estimates the impacts that spending within a given geography has on other selected geographies. "MRIO expands backward supply linkages beyond the boundaries of a single-region Study Area. MRIO analyses utilize interregional commodity trade and commuting flows to quantify the demand changes across many regions stemming from a change in production and/or income in another region. This powerful analytical method allows analysts to go beyond a single study region, measuring the economic interdependence of regions. In an MRIO analysis, the Direct Effect in one region, Region A, can trigger Indirect and Induced Effects in linked regions, capturing some of what would have been a leakage in a traditional I-O model."[9]

Because of the complexity of these models, however, IMPLAN is only able to analyze seven geographies within the MRIO tool. This prevents us from simply running a single MRIO model for each district.

Instead of using the MRIO tool to estimate all of the spillover resulting from spending in a congressional district, we use it in reverse to calculate all of the spillover it receives resulting from spending in other districts. First we run a standard model for each district using spending and employment within that district. We then set up a second MRIO-based model. This model uses a custom region that is composed of all of the congressional districts in the state, except

[9] Clouse, C. (2019) MRIO: Introduction to Multi-Regional Input-Output Analysis. IMPLAN.

the district[10] from the first model. Similarly, the input data for the analysis is the spending and employment from those 52 districts, omitting the spending and employment that was included in the first model. The district from the first model is then used as the secondary region within the MRIO framework. By doing so, the MRIO tool estimates the indirect and induced activity that occurs within that district as a result of spending and employment that occurs within the other districts. These outputs are then added to the outputs from the first model to calculate the total outputs for that district. This approach, combining the economic activity resulting from direct inputs as well as spillover from outside the district, more fully accounts for the localized impacts within the state without impacting the statewide estimates.

Developing this report identified a limitation in the IMPLAN model. Most economic data is based on counties. As a result, the IMPLAN model is structured based on counties as well. Since congressional districts often do not align with county boundaries, IMPLAN builds these from zip code data that is estimated from the county data.[11] Due to challenges in estimating this data, a large portion of indirect and induced effects estimated in the statewide and county models is omitted, which IMPLAN staff attribute to aggregation bias,[12] omitted data sources and lagged data.

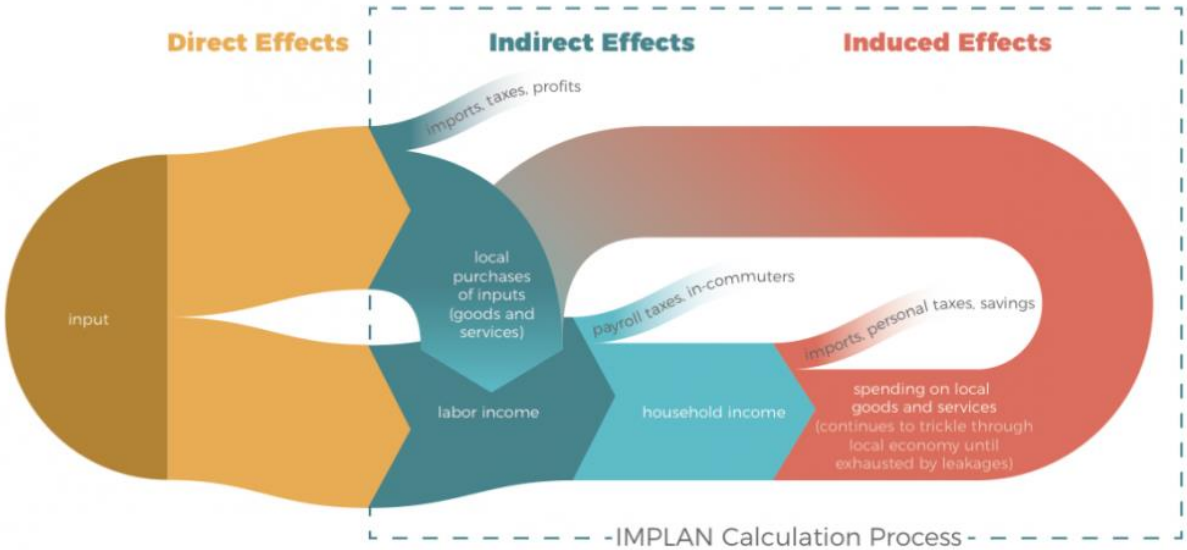
While these problems are inherent to the model, it appears to be a particularly significant issue for California due to the state's large number of congressional districts and relatively small number of counties. The variation identified was much more significant in districts in dense urban areas than in rural areas, where some counties are wholly contained within a single congressional district.

In order to more accurately estimate the indirect and induced activity across congressional districts, we developed a workaround methodology based on induced and indirect activity detailed in the county supplement and distributed estimated impacts across each congressional district. Indirect impacts were distributed proportionately based on the estimated share of direct impacts. Induced impacts were distributed proportionately based on the share of population.

While this methodology is expected to yield reliable results, estimated differences between neighboring districts should be understood to come with a lower level of precision than differences estimated between counties and regions.

[10] Due to limitations with IMPLAN's software, the MRIO-based models utilize the counties completely outside of the district under analysis.
[11] For more information, refer to IMPLAN's article on estimating Zip Code Data
[12] For more information, refer to IMPLAN's article on aggregation bias.

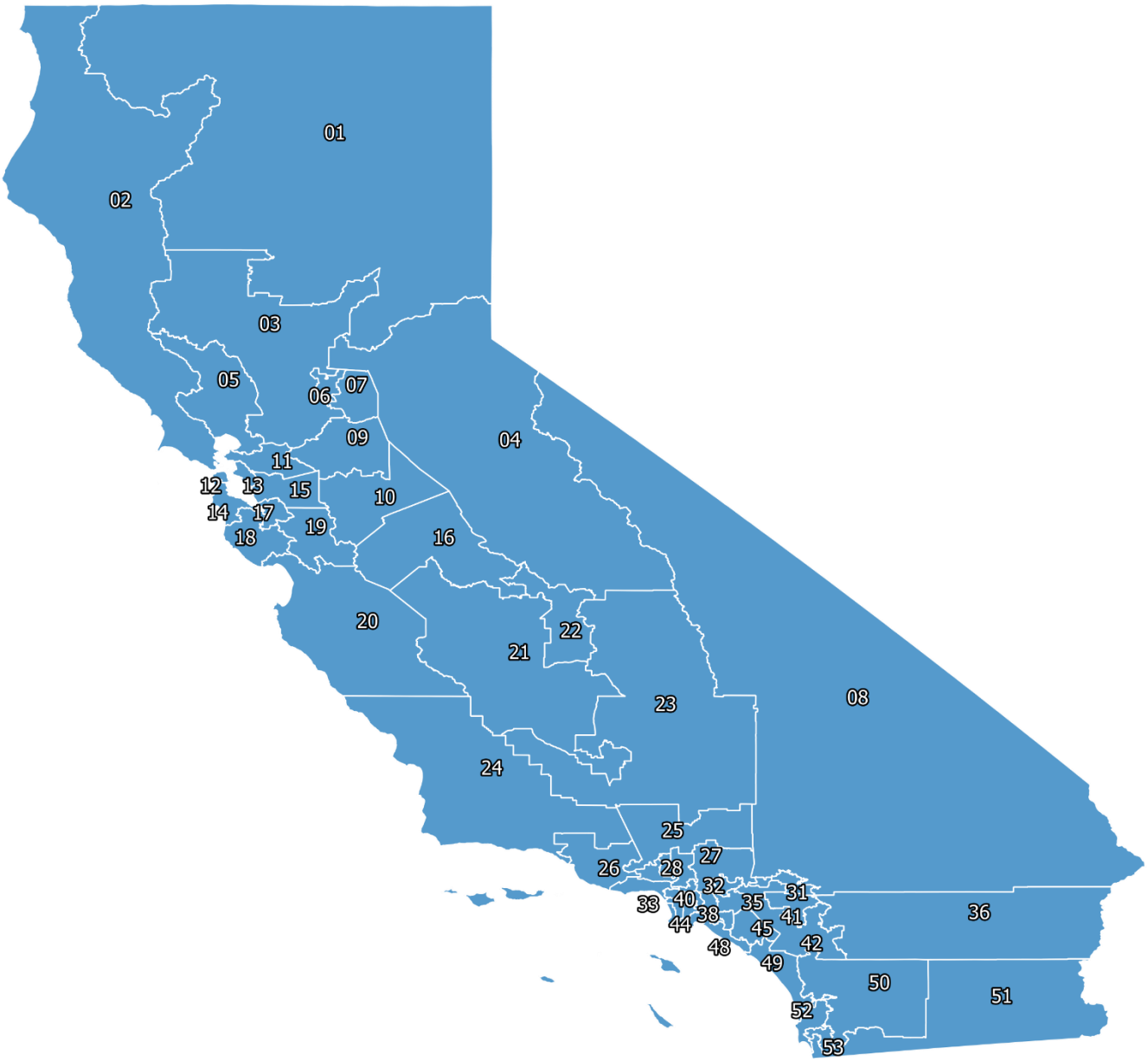
Figure 87: IMPLAN Model[13]



[13] IMPLAN. Assisted Economy.

Appendix II: District Factsheets

Economic impacts are detailed for all 53 California congressional districts in a separate appendix which can be found on the Governor's Military Council homepage at militarycouncil.ca.gov.



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