

SAN DIEGO MILITARY ECONOMIC IMPACT STUDY 2019



**DOD BUDGET INCONSISTENT.
SAN DIEGO REGION CONTINUES TO GROW.**



Department of Defense Budget (\$ Billions)



Military Impact in San Diego GRP (\$ Billions)



SDMAC would like to thank the following companies and organizations for their strong and generous support of the Annual SDMAC Military Economic Impact Study (MEIS) which allows for this study to be developed and provided to the military and the San Diego region.

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ABOUT SAN DIEGO MILITARY ADVISORY COUNCIL (SDMAC)

SDMAC was founded in 2004 with the mission to facilitate and advance the partnership between the military, elected officials, civic leaders, and the business community in order to enhance the understanding of the military's many contributions to the San Diego region. Annually, SDMAC commissions an economic impact study showing the considerable benefits from defense-related spending and presence of the military in San Diego. In 2019, San Diego benefitted from \$28.1 billion in direct spending which equates to \$51 billion in GRP and 354,000 jobs within the military sector of our local economy.

MEMBERSHIP

SDMAC is not just for people in the military and defense industries—anyone who lives or works in San Diego is a stakeholder, and can become a member. Benefits of membership include exclusive networking opportunities and events, as well as staying ahead of the latest military and defense issues impacting our region. Become a member of SDMAC, today: www.sdmac.org.



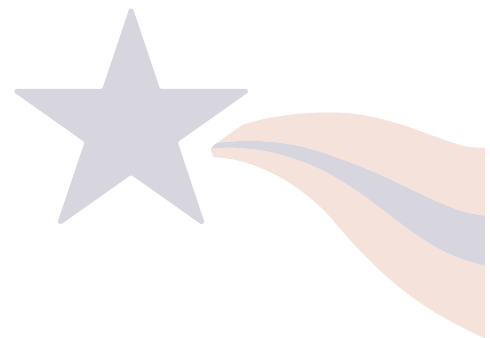
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SDMAC would like to thank Commander Navy Region Southwest, Commander Marine Corps Installations West, Commander Naval Information Warfare Systems Command, Commander Navy Medicine West, Sector Commander Coast Guard Sector San Diego, the San

Diego Department of Veterans Affairs Regional Office (VARO), the VA San Diego Healthcare System (VASDHS), the San Diego Water Authority, and their staffs for their support in making this study possible.

11th Annual SDMAC Military Economic Impact Study (SDMAC MEIS) Oversight Group

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Dr. Reaser provided oversight of the research and analysis of the SDMEIS and was the primary author of the study.

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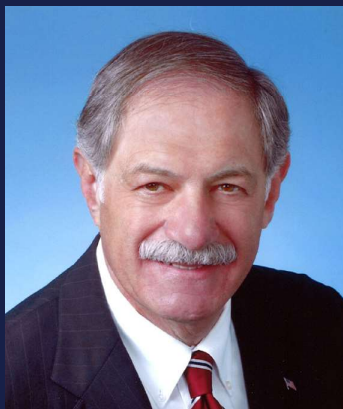
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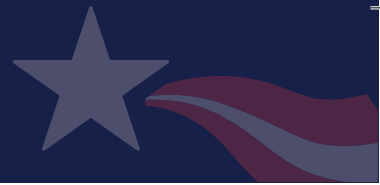


The SDMAC Military Economic Impact Study is dedicated to the memory of John Nersesian, SDMAC President 2009 and long-term SDMAC Board Member who left us on May 29, 2012. It was John's vision that recognized the need to quantify and document the military's many contributions to the San Diego region, and it was his initiative, drive, and encouragement that were the forces that resulted in the San Diego Military Advisory Council producing the annual Military Economic Impact Study. John was a patriot and a great supporter of the military and their families. His contributions to the military's mission and improving the quality of life for the military and their families in the San Diego area were truly significant and are his legacy.

JOHN NERSESIAN

SDMAC PRESIDENT 2009 | (NOV. 1942–MAY 2012)

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To download a digital PDF of this report or to view the charts and graphics, visit us online at sdmac.org/MEIS2019





EXECUTIVE SUMMARY

Defense spending increases and the continued rebalancing of the Navy's fleet towards the Indo-Asia-Pacific Region are now key forces driving San Diego's economy forward. This thrust could be particularly important in the year ahead should the national or global economy slow.

The partnership that has been forged over many years between the military and San Diego is truly synergistic, providing benefits to both entities and making each stronger together than alone. Not only does San Diego enable the nation to achieve its security objectives, but the military delivers a wide range of benefits to San

Diego. The region's military and civilian employees, its geography, integrated supply chains, universities, and community support mean that defense dollars deliver a higher return in San Diego than in any other area.

San Diego's military ecosystem represents its largest economic driver, with military-linked spending accounting for one-fifth of the region's total economy in terms of gross regional product (GRP). The region is home to the largest concentration of military in the world, as well as large numbers of Veterans and military retirees. Because it spans a number of the region's major sectors, including technology, health care, shipbuilding, manufacturing, and tourism, it represents a "mega cluster".

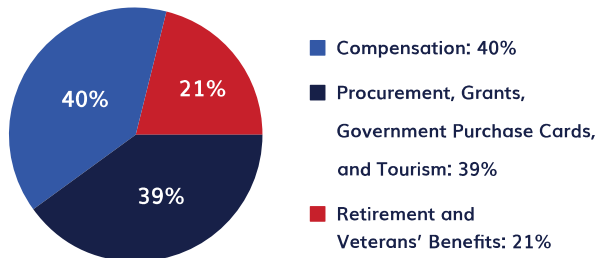
This report aims to give the most comprehensive picture possible of the military's economic influence on San Diego by including the total effects of the Department of Defense (DOD), the Coast Guard and the Department of Veterans Affairs (VA).

➔ An estimated total of \$28.1 billion in direct spending related to defense flowed into San Diego County during Fiscal Year (FY) 2019, an amount equal to nearly \$25,000 for each household. (See [Exhibit A](#))

EXHIBIT A

Defense Funds to San Diego Equal \$28.1 Billion

BILLIONS OF DOLLARS, FY 2019^e



e=estimate

SOURCE: FBFI

EXHIBIT B

Military Super Cluster Drives San Diego's Economy

FY 2019 ESTIMATE*

DIRECT SPENDING	JOB	INCOME	GROSS REGIONAL PRODUCT (GRP)
\$28.1 Billion	354,000	\$24 Billion	\$51 Billion <i>(One-fifth of San Diego GRP)</i>

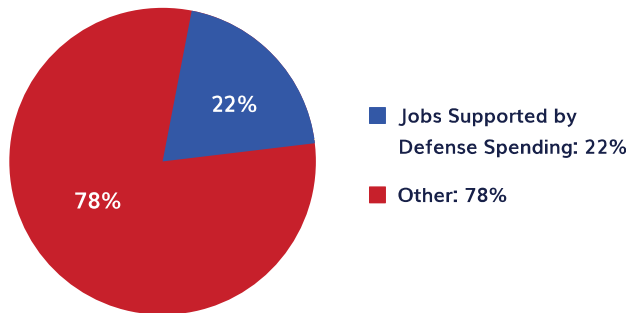
*Includes all ripple or multiplier effects

SOURCE: FBEI

EXHIBIT C

Military Creates 22% of San Diego's Jobs

SHARE OF TOTAL, FY 2019e



e=estimate

SOURCE: FBEI

- Defense-related activities and spending contributed approximately \$51 billion to San Diego County's GRP in FY 2019. (See Exhibit B)
- The military sector was responsible for about 354,000 of the region's total jobs in FY 2019 after accounting for all of the ripple effects of defense-connected spending. This represented 22% of all jobs existing in the County.
- A total of 143,000 Active Duty and civilians work as members of the Navy, Marines Corps, Reserves, Coast Guard, or VA. San Diego is home to one of every six of the Nation's Sailors and over one-quarter of the total U.S. Marines Corps.
- The jobs created as a direct and indirect result of defense spending cover a wide range, including engineering, shipbuilding, construction, health care, real estate, education, transportation, food services, retailing, and wholesale trade. (See Exhibit C)
- Income generated as a result of all direct and multiplier effects of military-linked spending equaled almost \$24 billion in FY 2019.

This included wages, salaries, other compensation, and small business owners' income.

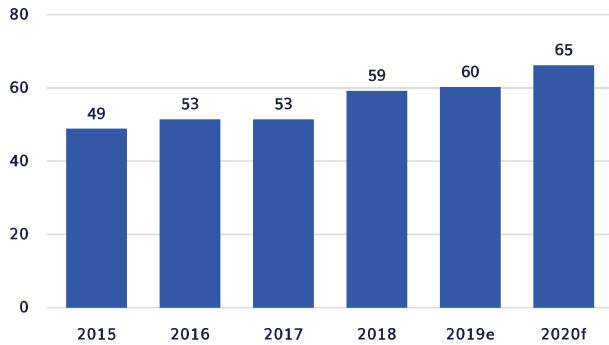
- In FY 2019 San Diego was home port for 60 U.S. Navy ships compared with fewer than 50 ships just four years earlier. These ships alone accounted for an estimated direct spending of \$2.3 billion and a total economic impact of \$6.8 billion. A single aircraft carrier generates more than \$800 million of GRP.
- The Naval Information Warfare Systems Command (NAVWAR), previously known as SPAWAR, is the U.S. Navy command responsible for the development, delivery, and maintenance of the Navy's communications, networks, information, and space capabilities. This year's SDMEIS features a special analysis of NAVWAR, which has nearly half of its 11,000 global workforce in San Diego and generates about \$3.2 billion of GRP for the region.
- Navy Medicine, with its two major San Diego hospitals and other facilities, employed over 8,700 individuals and brought an estimated \$1.3 billion of DOD dollars directly into the region in FY 2019.
- The Marine Corps maintains eight installations and two training ranges in the west which provide the infrastructure to enable Marine Corps air and ground forces to develop and sustain operational readiness. San Diego's three major Marine Corps installations (Camp Pendleton, Miramar, and MCRD) are home not only to 52,000 Marines, but to 3,600 Navy personnel and about 4,000 civilian employees.
- The Coast Guard is a key partner to the Navy and Marine Corps in San Diego in its roles as a law enforcement agency, member of the U.S. Intelligence Community, and first responder. The Coast Guard employed



EXHIBIT D

More Ships Head for San Diego

TOTAL NUMBER OF SHIPS BASED IN SAN DIEGO



e=estimate f=forecast

SOURCE: FBEI

nearly 1,100 Active Duty and civilian employees in FY 2019 and, with an estimated direct spending base of \$112 million, contributed nearly \$300 million to San Diego's GRP.


➤ The VA in San Diego provides a wide range of services, including health care, education and training assistance, and loans. It has

placed a major focus on reducing homelessness. In FY 2019 the VA employed nearly 3,100 individuals. With total direct spending of about \$3.5 billion, it provided the region with approximately \$3.7 billion in GRP.

➤ Total spending funded by the DOD, Coast Guard, and VA is expected to advance by 6.0% in FY 2020, providing a major thrust to the region's economy. The total number of employees is projected to reach 151,000, a jump of about 7,500 over FY 2019. This rise will be primarily driven by the addition of five ships to the Navy's fleet homeported in San Diego, especially with the addition of two aircraft carriers. (See Exhibit D)

➤ Total GRP connected to the military's direct or indirect influence on the region is forecast to advance 7% in FY 2020. This could take the military from its traditional role as a steady source of support to one as a key growth catalyst. This growth spark could be particularly important should consumer spending, business investment, or exports begin to slow in the year ahead. ■





The military and San Diego region have been in a mutually beneficial strategic partnership for over 100 years

SECTION I

STUDY PURPOSE, HISTORICAL PERSPECTIVE, AND COMPARISONS

The military has significantly impacted the San Diego region for more than a century. While some suspected that its influence might be large, it was not until 2008 when the SDMAC commissioned the first *San Diego Military Economic Impact Study (SDMEIS)* that its value was documented in numbers. Over time a better understanding of the complexity of San Diego's military ecosystem has also emerged. It extends from members of the Armed Forces to Veterans and retirees to defense contractors and subcontractors. Defying the traditional grouping of sectors into distinct economic buckets, San Diego's military crosses over a number of sectors, including technology, shipbuilding, medicine, tourism, and education. Because it encompasses so many of these individual segments, San Diego's defense driver can be viewed as a "mega cluster"

This year's *SDMEIS* quantifies the current and projected impact of the military's influence on San Diego County in all its dimensions. It includes the impact of the Navy, Marine Corps, Coast Guard, and Department of Veterans Affairs (VA). It also highlights the impact of the Naval Information Warfare Systems Command (NAVWAR), previously known as the Space and Naval Warfare Systems Command (SPAWAR), as a special feature in Section VII. ■

HISTORICAL PERSPECTIVE

The first *SDMEIS* calculated the impact of the military in FY 2008 as bringing \$15.5 billion to the San Diego region in terms of direct spending. For FY 2019 that number has jumped to an estimated \$28.1 billion, with inflation accounting for a relatively small part of the gain. The growth of the military's impact on GRP has been even more impressive, although there have been some methodological changes in GRP calculations by the U.S. Bureau of Economic Analysis. Whereas the military's contribution to San Diego's GRP in FY 2008 was estimated at \$24.6 billion, that number has doubled in the 11 years to a current estimate of \$50.7 billion.

COMPARISON TO LAST YEAR'S ESTIMATES

Last year's *SDMEIS* estimated total direct spending of \$25.7 billion and GRP of \$49.7 billion for FY 2018. Direct spending for FY 2018 is now estimated at \$27.1 billion, with upward revisions in numbers on pensions, procurement, Government Purchase Cards (GPC), and tourism. The GRP estimate remains at \$49.7 billion.

SECTION II

OVERVIEW: THE FACE OF SAN DIEGO'S MILITARY AND THE STRATEGIC PARTNERSHIP



THE PEOPLE OF THE MILITARY

All of the people attached to the military, along with their families, help define San Diego's character and make the region truly unique. Today 143,000 people work every day in San Diego County as an Active Duty member or civilian for the Navy, Marines Corps, Reserves, Coast Guard, or Department of Veterans Affairs (VA). In FY 2019 109,000 served as enlisted or officer positions and were assisted by 26,000 civilians and 7,500 Reservists. *(See Exhibit 1)*

Military employees and their families reside throughout San Diego County. The highest concentrations are in North County, in the area encompassing Camp Pendleton, the neighborhoods around the Miramar Marine Corps Air Station, and in the localities that are part of or adjacent to the City of San Diego. The Navy's large operations at the Naval Medical Center, Naval Base Coronado, Naval Base Point Loma, and the Naval Base San Diego mean that large numbers of military personnel and their families reside in the coastal and inland areas of the southern half of the County.

Approximately 70,000 retired military and civilian employees of the DOD, Coast Guard, and VA live in San Diego. These individuals represent a valuable asset to the region and add to the region's spending power. Many of them work in the private, non-profit, or government sectors as others volunteer in various ways in their communities.

San Diego's defense face is also defined by the approximately 241,000 Veterans who are estimated to currently live here. These individuals have served in various wars, including World War II, the Korean War, the Vietnam War, and the War on Terrorism. A large number represent those who have fought in Iraq and Afghanistan. Many of these individuals have returned to their previous home in San Diego, although the cost of housing has caused some decline in the region's Veteran population in recent years.

It's all about the courageous men and women in uniform and their families who serve so honorably and sacrifice so much.

STRATEGIC PARTNERS: VALUE TO NATIONAL SECURITY

The synergy between San Diego and the military is distinctive. Their combination is much more valuable than the sum of their individual parts. San Diego's ecosystem involving military personnel, geography, private companies, academic institutions, and the community means that defense dollars are able to achieve more here than anywhere else. The region's network of Active Duty personnel, civilians, defense contractors, subcontractors, researchers, and complex supply chains is unmatched. Combined with the region's natural

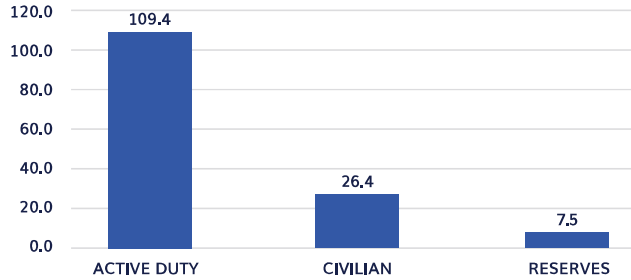
features of a deep-water port, position on the Pacific Rim, and air, land, and sea training ranges, San Diego's defense ecosystem represents an asset that cannot be replicated anywhere else.

Over 60% of the Navy's Pacific Fleet and over 40% of the Marine Corps combat capability are in the San Diego area. Additionally, more than 50% of Marine Corps recruits are trained at Marine Corps Recruit Depot San Diego, which benefits from its close proximity to Camp Pendleton for additional recruit training. San Diego's deep water port, bases, training ranges for land, sea and air (67% of the Nation's military training airspace is in the southwest and within 210 nautical miles of San Diego), logistic and repair facilities, and an entrenched contractor base that supports the military are essential to our national security.

EXHIBIT 1

Military Directly Employs 143,000 in San Diego*

THOUSANDS, FY 2019^e



e=estimate

*Includes DoD, Coast Guard, and VA Personnel

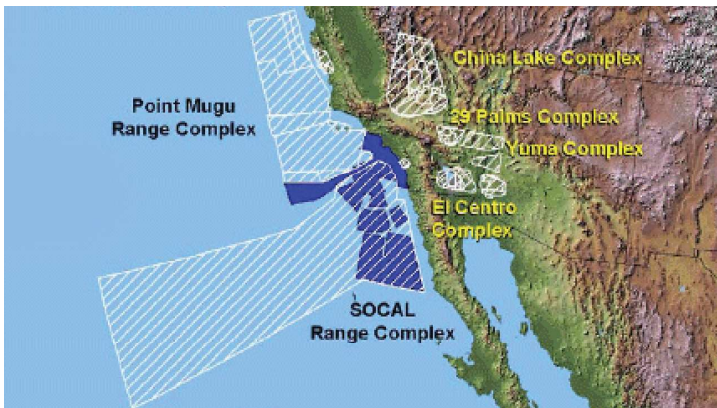
SOURCE: FBFI; DoD; COAST GUARD; VA

The Marine Corps has three major installations in the San Diego area that allows it to train Marines from recruits to fully integrated combat-ready Marine Corps Expeditionary Forces. With Camp Pendleton's shoreline, access to the sea, and mountainous terrain, all types of military training can be conducted to ensure the Marines are ready for all missions.

NAVWAR (See Section VII) is the U.S. Navy command responsible for the development, delivery, and maintenance of the Navy's communications, networks, information, and space capabilities. Its mission is to ensure that operational and support forces remain connected anytime and anywhere.

The Coast Guard utilizes San Diego's deep-water port for its cutters and Lindberg Field for its airplanes and helicopters. A state-of-the-art Coast Guard Joint Harbor Operations Center has been established in San Diego that integrates the military, Coast Guard, and other federal and state agencies to address human trafficking, drug smuggling, disaster relief, and humanitarian assistance.

The geographic proximity and close relationships that have been established between the Navy, Marine Corps, and Coast Guard facilitate integrated training and operations which have made San Diego a critical cog in the nation's defense.



STRATEGIC PARTNERS: WIDESPREAD LINKAGES

The partnership that has been forged over many years between the military and San Diego is truly synergistic by providing benefits to both entities and making each stronger together than alone. Not only does San Diego enable the nation to achieve its security objectives, but the military delivers a wide range of benefits to San Diego.

San Diegans integrate members of the military and their families into their communities. They help assure military members that their families will be taken care of while they are deployed. At the same time, military members and their spouses are active participants and contributors to their communities. They serve on juries and public boards. They coach youth sports teams and mentor students. They volunteer to help with churches, schools, and non-profit organizations.

The military with its Active Duty members, civilian employees, and Veterans provides San Diego's colleges, universities, and trade schools with a steady flow of new students, eager to acquire new skills and knowledge. The region's educational system in turn supplies the military with vital increases in human capital.

Military members who transition out of the service and choose to remain in the area provide a labor pool of skilled, technically proficient, disciplined, and reliable employees for businesses and industries in the San Diego region. At the same time, individuals with critical knowledge or skills may find new opportunities in the defense ecosystem.

San Diego and NAVWAR represent special synergies. While NAVWAR brings major economic, technological, and educational benefits to the region, San Diego provides NAVWAR with a vital network of defense contractors, research firms, talent, university connections, proximity to other major Navy installations, and essential test facilities.

San Diego businesses, institutions, and the military all partner in research and development, which is extremely successful in evolving capabilities of mutual benefit. This is especially true in the areas of medicine, unmanned systems, and information technology with a focus on cybersecurity.

Due to the military's presence and economic value, the San Diego region serves as an incubator for small business whose customer base is the DOD. These businesses can then become part of supply chains vital to military operations.

The military has proven to be a good steward of the environment and frequently sets the trend for the region in environmental efforts, especially in the protection of endangered species, alternative energy, and the conservation of water. These efforts support the San Diego region's Climate Action Plans (CAPs) as it strives to reduce greenhouse gas (GHG) emissions.

The synergy between the military and San Diego has two major implications. It means that pulling any part of the defense ecosystem out of the region would damage the effectiveness of the Nation's security strategy. It also means that a loss of any part of the region's defense network might be extremely hard to replace in terms of its economic and social benefits. ■



SECTION III

THE ECONOMIC
IMPACT OF THE
MILITARY



CHANNELS OF INFLUENCE

Funds devoted to carrying out the Nation’s defense flow into San Diego from the DOD, Department of Homeland Security (DHS) for the Coast Guard, and the VA. Non-government funds from individuals and companies visiting military families, defense firms, or conferences represent another outside source of funds linked to the military’s presence in the region.

San Diego County received an estimated \$28.1 billion of military-related direct spending in FY 2019. This amounted to nearly \$25,000 for every San Diego household. To put the volume of total military-linked direct spending in perspective, the combined budget for both the City and County of San Diego in FY 2018-2019 was \$10 billion.

The injection of \$28.1 billion of military-linked dollars in FY 2019 represented a \$1.0 billion rise, or 3.6% advance, over the prior year’s total. It was comprised of the following six components: [\(See Exhibit 2\)](#)

EXHIBIT 2

Defense Dollars Flow through Six Main Channels

MILLIONS OF DOLLARS, FISCAL YEARS

	2018	2019e	2020f
Employee Compensation	11,096	11,314	12,434
Retirement and Veterans’ Benefits	5,912	5,991	6,065
Procurement	9,659	10,322	10,799
Government Purchase Cards	95	96	102
Tourism	203	212	231
Grants	117	119	121
TOTAL	27,082	28,054	29,752

e=estimate f=forecast

SOURCE: FBI; DoD; USASPENDING.GOV; COAST GUARD; VA

TOTAL COMPENSATION

The total payroll in terms of wages, salaries, special pay, and benefits of Navy, Marine Corps (including recruits), civilian workers, Reserves, Coast Guard employees, and VA personnel totaled an estimated \$11.3 billion in FY 2019. This amount reflected increases in both the number of personnel and average compensation. In FY 2019, Active Duty personnel received raises of 2.6% and civilians in San Diego saw wage increases of 2.1%.

Members of the Armed Forces receive either military housing or additional compensation (termed the Basic Allowance for Housing or BAH) to live in housing off base. Housing allowances vary according to geographic location, pay grade, and whether the Active Duty member has dependents. For FY 2019, the average housing allowance for a mid-grade Petty Officer in the Navy or mid-grade sergeant in the Marine Corps living in most of San Diego County was about \$2,265 per month (\$2,165 in the Camp Pendleton area). Mid-grade officers of higher ranks received a monthly BAH of about \$3,000 in San Diego (\$3,060 in Camp Pendleton).

Active duty personnel also receive compensation for spending on food (termed the Basic Allowance for Subsistence or BAS). Enlisted members of the military received a monthly BAS of \$369 per month in FY 2019, while officers received a monthly amount of \$254. Federal civilian employees at Navy, Marine, Coast Guard, and VA facilities receive non-wage benefits in the form of health care, life insurance, and contributions to a savings plan for retirement, which equal approximately 30% of their base pay.

RETIREMENT AND VETERANS' BENEFITS

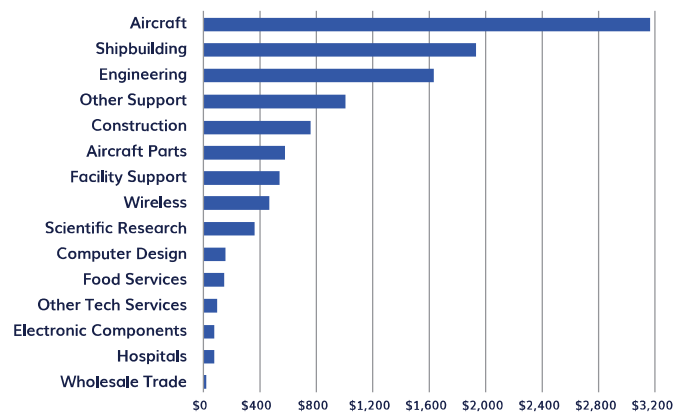
In FY 2019 approximately \$6.0 billion was paid to various San Diego residents who were Veterans, retired military members or civilian employees of the DOD, Coast Guard, or VA. This income supported spending on goods and services throughout the region.

The 239,000 Veterans residing in San Diego County in FY 2019 received an average of nearly \$11,000 in benefits. Close to one-half of this total amount was for pension payments, with the remainder split between funding for medical care and educational or vocational training. In addition, Veterans have access to insured and guaranteed mortgage loans, which help support San Diego's real estate and housing sectors.

EXHIBIT 3

Aircraft, Shipbuilding, and Engineering Lead San Diego's DoD Contracting

MILLIONS OF DOLLARS, FY 2019e



e=estimate

SOURCE: FBFI; USASPENDING.GOV

PROCUREMENT OUTLAYS

During FY 2019 an estimated \$10.3 billion flowed into San Diego County as a result of work on new and previous procurement contracts with various branches of the DOD, Coast Guard, and the VA. Local industries heavily involved with DOD contracts (the primary government procurement agency) include aircraft and parts, shipbuilding and repair, engineering, construction, electronics components, and scientific research. (See Exhibit 3)

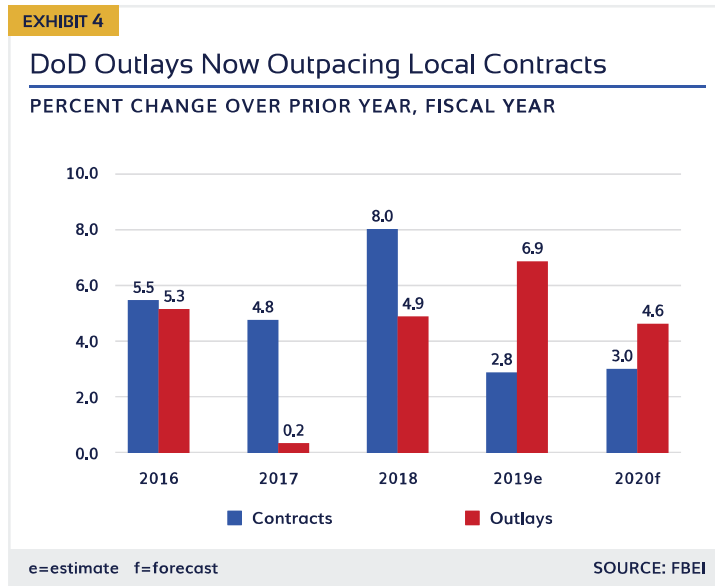
After sequestration slashed DOD contracts to San Diego firms by nearly 25% in FY 2013, orders have rebounded in recent years, including a nearly 5% gain in FY 2017 and an 8% rise in FY 2018. New contract orders are estimated to have gained about 3% in FY 2019.

Actual outlays each year are typically less volatile than the annual totals of new procurements because many defense contracts extend over a considerable period of time. For instance, construction and shipbuilding projects involve phases of design and engineering, acquisition of materials, hiring of subcontractors, site preparation, and actual building. Spending on defense contracts can span a period of five years or even longer. R&D contracts typically are relatively short-term in nature, with much of the work completed within the first two years. Aircraft projects frequently see a peak of activity in the second year, while construction projects peak in the third year. For both of these industry contracts, sizable amounts of work continue into the two or three subsequent years following the peak.



Shipbuilding has the most even build-out rates, with about 10-20% of project funds expended during each of the six years of a typical project.

Procurement dollars in terms of newly contracted amounts each year and the disbursement of outlays for the work actually done can follow different patterns. The approximate 7% jump in DOD contract disbursements estimated for FY 2019 partly reflected the surge in shipyard contracts in FY 2017 and large contract volume increases for aircraft, aircraft parts, and research and development in FY 2018. (See Exhibit 4)



A wide range of firms also contract with the Navy, Marine Corps, Coast Guard, and VA to provide goods and services to carry out the multiple operations and maintenance functions of the facilities based in the County. These include food service, janitorial, telecommunications, logistics, security, landscaping, and other facilities support functions.

GOVERNMENT PURCHASE CARDS

Federal agencies often use Government Purchase Cards (GPCs) for "micro-purchases" of less than \$5,000. GPC spending by DOD, Coast Guard, and VA units in San Diego totaled an estimated \$96 million in FY 2019. This spending benefited a wide variety of the region's businesses as purchases were made for office supplies, medical instruments, electronics components, and many types of other merchandise. GPC payments also benefited many service providers, such as construction firms able to make needed building repairs, telecommunications providers, and printing firms.

GRANTS

Grants from the DOD, DHS for the Coast Guard, and VA represent another funding channel for San Diego organizations, with the total estimated at about \$119 million for FY 2019. Underwriting a variety of research efforts, grants related to medicine, alternative energy, intelligence, and other military-related issues have been funded across the County. The majority of grants goes to local universities for research in these areas. Grants are also awarded to elementary and secondary schools for enrichment programs in math, science, and engineering. Further grant funding supports various community food, housing, and rehabilitation services along with environmental issues. Coast Guard grants support health and education. VA grants are focused on various Veterans' facilities and organizations, including those serving individuals experiencing homelessness.

TOURISM

Tourism linked to the military's presence in San Diego represents the final channel of influence and was equal to an estimated \$212 million in FY 2019, a gain of 4.5% over the prior year. This was an important source of revenue for the region's hotels, restaurants, transportation, entertainment, and other tourist-related businesses.

Visits by business travelers, government officials, and family members or friends of military personnel and civilian workers employed by the DOD, Coast Guard, and VA bring a significant sum of funds from outside the region into San Diego each year. While not primarily funded by the government as are the other components of defense-related dollars, these dollars are an important catalyst for economic activity.

Considerable tourist dollars come to the region because of the numerous graduations that take place each year at the Marine Corps Recruiting Depot (MCRD). In FY 2019, over 17,000 individuals graduated from the facility in 42 ceremonies over the course of the year. Nearly 70,000 family members and friends came to San Diego to celebrate these events, spending an estimated \$39 million on hotels, food, transportation, and entertainment. MCRD also conducts training sessions for recruiters during the year as well as workshops for teachers and school counselors.

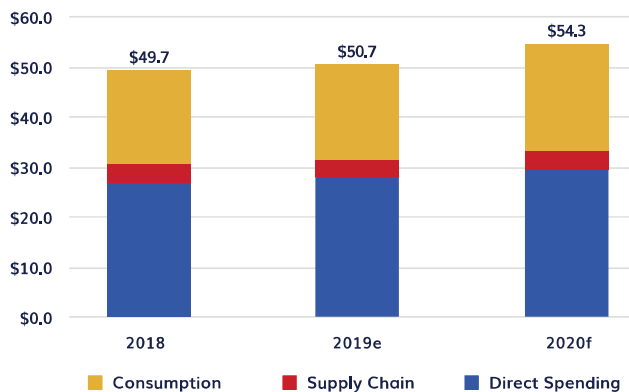
Conferences and conventions related to the military also bring tourist dollars to the region. Two major professional organizations host significant conventions and industry conferences in San Diego each year. The Naval Institute and Armed Forces Communications & Electronics Association (AFCEA) organize the annual "WEST Symposium. This event, which attracted an estimated 8,000 attendees in FY 2019, is the largest maritime convention on the west coast. It also hosts the C4ISR Symposium for government and industry leaders. The NDIA (National Defense Industrial Association) holds important conferences, including its annual Gold Coast meeting that focuses on opportunities for small business. In FY 2019 the Gold Coast event drew nearly 2,100 attendees.

SPAWAR, Navy Medicine, other Navy and Marine units, the Coast Guard, and VA partner with business and government entities on various projects during the year. These face-to-face meetings are often essential for implementing and coordinating complex initiatives. Spending by individuals visiting those currently employed in San Diego because of the military's and VA's operations here represents additional tourist dollars.

EXHIBIT 5

Defense Dollars Support Regional GRP

BILLIONS OF DOLLARS, FISCAL YEARS



e=estimate f=forecast

SOURCE: FBFI

EXHIBIT 6

Defense Spending Powers More Economic Growth in San Diego

FISCAL YEARS

	2018	2019e	2020f
Direct Spending (\$ billions)	\$27.1	\$28.1	\$29.8
Jobs (thousands)	348	354	373
Income (\$ billions)	\$22.9	\$23.5	\$25.3
GRP (\$ billions)	\$49.7	\$50.7	\$54.3

e=estimate f=forecast

SOURCE: FBFI

RIPPLE EFFECTS

The region possesses a unique ability to multiply defense spending into widespread benefits because of its capabilities and expertise in so many areas. The impact of all of the direct spending of dollars connected to the Nation's security (compensation, procurement, other expenditures, and benefit payments) is only the starting point for measuring the impact on San Diego. Two additional dimensions are important.

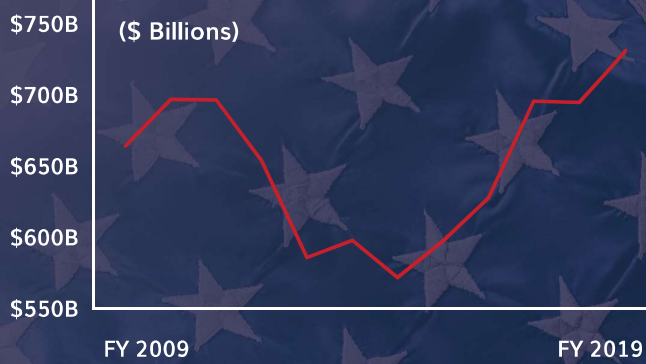
First, supply chain, or business-to-business, effects are significant. For example, once a firm receives a contract to complete a construction project or build a ship, it will need to purchase materials and hire employees to carry out the work. Second, consumer spending will receive a boost. Workers employed by the prime contractors plus those benefiting along the supply chain will spend a part of their related earnings on various goods and services produced in San Diego.

Accounting for the supply chain and consumption effects means that each dollar of defense-related expenditures goes much further than its face value in creating jobs, income, and additions to the region's GRP. (See Exhibit 5)

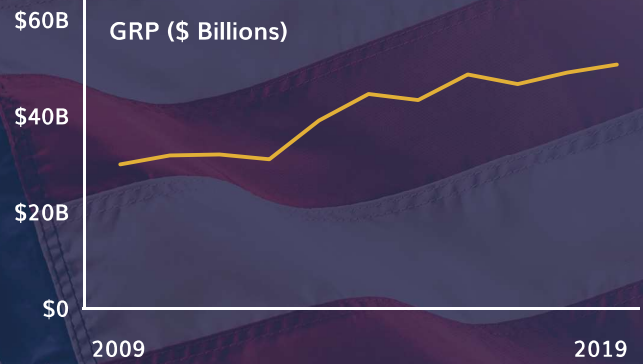
The estimated \$28.1 billion of direct defense-related spending was a primary driver for San Diego's economy in FY 2019. Incorporating all of the ripple or multiplier effects, the military through the DOD, Coast Guard, and VA was responsible for an estimated \$50.7 billion of San Diego's GRP in FY 2019. This represented one-fifth of the County's total output.

The economic activity driven by military-linked activity supported a total of 354,000 jobs in FY 2019. These jobs generated \$23.5 billion in income or earnings for wage and salary workers and for various small business owners. (See Exhibit 6)

The military, including the impacts of the Coast Guard and VA and all of the ripple effects, was responsible for 22% of all jobs in San Diego County in FY 2019. These jobs spanned a broad array of industries, including engineering, shipbuilding, construction, health care, real estate, education, transportation, food services, retailing, and wholesale trade.■



Department of Defense Budget



Military Impact in San Diego

SECTION IV

THE BUDGET AND OUTLOOK

NATIONAL DEFENSE SPENDING

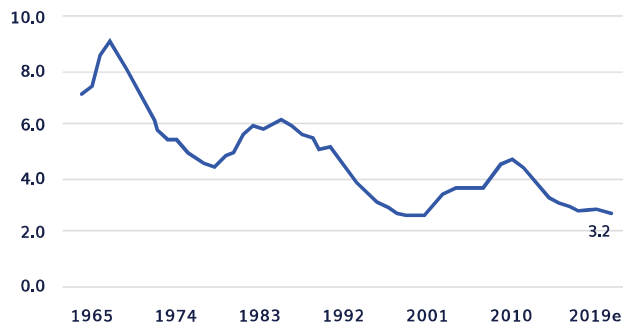
Total spending on national security appears to have bottomed out relative to GDP, although at a relatively low level. From a peak of slightly over 9.0% at the height of the Vietnam War in 1968, discretionary defense spending (requiring congressional appropriations) as a share of GDP has generally trended lower. It did rise briefly following the 9/11 terrorist attacks, but the downward trend again resumed before flattening out during the past five years. Since FY 2018, the share of total federal outlays linked to defense has equaled about 3.1% to 3.2% of GDP. (See [Exhibit 7](#))

Congress and the President approved legislation last summer that avoided large cuts to the defense budget that would have taken place in FY 2020 under requirements of the Budget Control Act of 2011. The agreement set budget authority for discretionary defense spending at \$738 billion for FY 2020. Adjusting for defense-related spending by the Department of Energy and other federal agencies, this will mean a discretionary budget authority for the DOD of about \$707 billion, a 3.2% increase over FY 2019. This will be up from the 2.1% estimated increase of FY 2019, but down from the 10.7% advance of FY 2018. (See [Exhibit 8](#))

EXHIBIT 7

U.S. Defense Share of GDP Bottoms Out

DEFENSE SPENDING AS PERCENT OF GDP



e=estimate

SOURCE: FBET; DoD; OMB

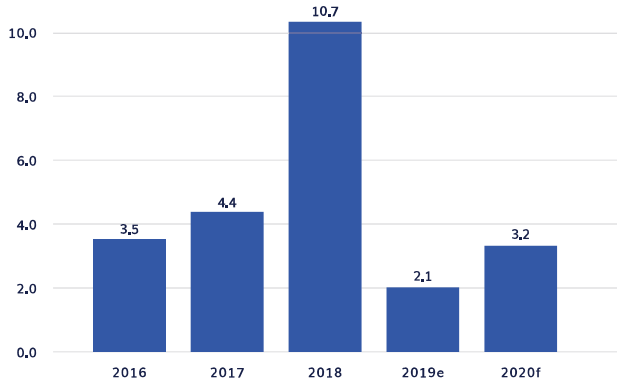
OUTLOOK FOR SAN DIEGO IN FY 2020

San Diego should continue to benefit from the ongoing rebalance to the Pacific and the DOD's efforts to improve troop readiness and incorporate new technologies. Total spending funded by the DOD, Coast Guard, and VA is expected to advance to \$29.8 billion in FY 2020, a 6.0% leap over FY 2019. This advance could be a vital growth catalyst, offsetting other possible sources of weakening in consumer spending, business investment, or exports.

EXHIBIT 8

DoD Budget Authority Advances in FY 2020

PERCENT CHANGE OVER PRIOR YEAR, FISCAL YEARS



e=estimate f=forecast

SOURCE: FBFI; DoD; OMB

The total number of Active Duty personnel employed by the DOD or Coast Guard, along with civilians on DOD, Coast Guard, or VA payrolls, is projected to increase to approximately 151,000 in FY 2020, a jump of about 7,500 over FY 2019. This rise will be primarily driven by the addition of five ships to the Navy's fleet homeported in San Diego, especially with the addition of two aircraft carriers. (See Exhibit 9)

The projected gain in DOD spending in San Diego for FY 2020 will reflect a rise in personnel numbers, pay raises, and increases in contract outlays, grants, GPC expenditures, and tourism. The VA's spending rise will reflect efforts to better respond to Veterans' growing needs. Coast Guard expenditures in San Diego are projected to rise modestly to respond to the Guard's wide scope of responsibilities.

EXHIBIT 9

San Diego's Military to Grow

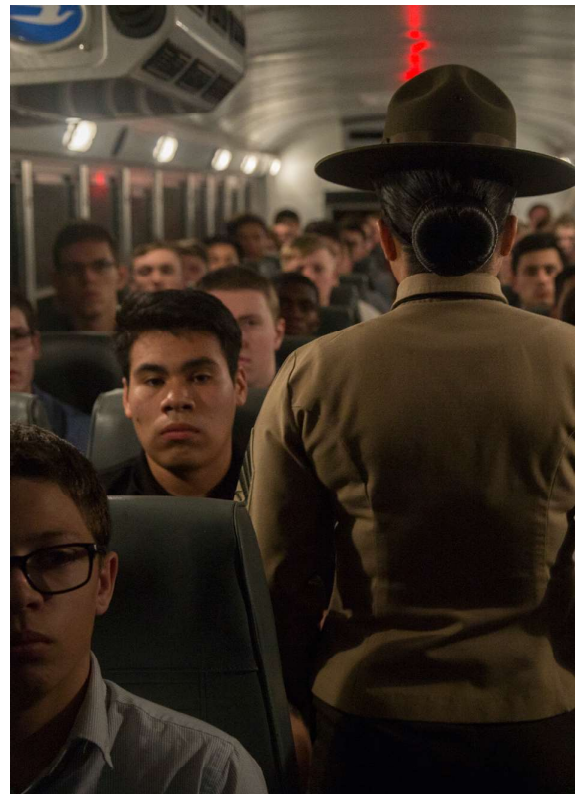
PERSONNEL COUNT, FISCAL YEARS

	2018	2019e	2020f
Navy	57,041	56,431	63,774
Marines	53,451	52,070	52,056
DoD Civilians	20,518	23,280	23,500
DoD Reserves	7,435	7,405	7,437
Coast Guard	820	1,067	1,080
VA	2,938	3,059	3,072
TOTAL	142,203	143,312	150,919

e=estimate f=forecast

SOURCE: FBFI; DoD; COAST GUARD; VA

Including all of the multiplier or ripple effects, defense spending will yield a projected \$54.3 billion of San Diego County's GRP in FY 2020, a 7.1% climb from the estimate for FY 2019. The total of defense-related spending is forecast to account for a total of 373,000 jobs and \$25.3 billion of total personal income. The military complex will remain San Diego's most important economic driver as the region benefits from a further rise in national defense spending and a growing focus on the Indo-Asia-Pacific Region. ■



SECTION V

CONTRIBUTIONS
OF THE
INDIVIDUAL
SECTORS



THE U.S. NAVY

The Navy in San Diego represents the primary platform for the Nation's military operations in the Asia-Pacific region. Approximately 56,000 Sailors are based in San Diego, accounting for one of every six members of the Nation's total Naval force. The largest share of the region's Navy (28,000) is at Naval Base San Diego, including Sailors who may be deployed on various ships during the year. The Navy has 3 major installations with 18 geographic sites and approximately 600 commands in the San Diego area.

SHIPS AND PEOPLE

About two-fifths of San Diego's Sailors, or 23,000, were attached to various ships homeported in the region in FY 2019 and the Naval fleet in San Diego included 54 surface combatants, a nuclear powered aircraft carrier, and five nuclear powered submarines for a total of 60 operational ships. Each ship type possesses distinct characteristics to carry out the Nation's defense strategies.

Even as ships have become more automated, sizable numbers of personnel are required to make each operate effectively. The number of people working on each ship varies according to the ship's size, its complexity, and its specific mission. There are fewer

than 100 personnel on board a mine countermeasure ship (MCM), while submarines (SSN) and littoral combat ships (LCS) require about 130-140 personnel. Destroyers (DDG), guided missile cruisers (CG), amphibious transport ships (LPD), and dock landing ships (LSD) require 300-400 sailors for operations. Approximately 1,200 individuals are needed to operate an amphibious transport ship (LHA-LHD) and an aircraft carrier (CVN) typically requires about 3,200 people.

SHIPS AND DOLLARS

Ship-related spending has a sizable impact on the local economy. Wages and salaries of personnel assigned to different ships are spent primarily in the San Diego region either by Active Duty members or by their families residing here. Sailors retain their local residences when deployed overseas (either base housing or supported by the Basic Allowance for Housing.) The spending on ship repair and other contracts, port services, food, and utilities, primarily

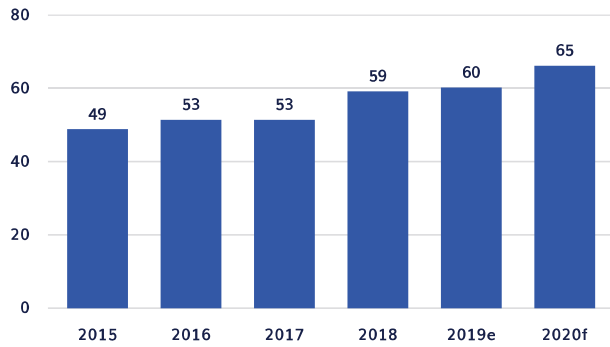
benefits the local economy. Electricity and water are the major utility expenses, with electricity representing the dominant one. All ships have the capability of distilling fresh water from sea water when underway. In addition to the sizable economic effect from the spending required to operate each ship, considerable “ripple” or multiplier effects take place as those initial dollars feed through the region.

In FY 2019 direct spending related to San Diego’s Navy fleet totaled an estimated \$2.3 billion. A single aircraft carrier represents spending of more than \$800 million. Including all of the ripple effects, San Diego’s Navy fleet contributed \$6.8 billion to the region’s economy in FY 2019.

EXHIBIT 10

More Ships Head for San Diego

TOTAL NUMBER OF SHIPS BASED IN SAN DIEGO



e=estimate f=forecast

SOURCE: FBI

SAN DIEGO’S FLEET BULKS UP

The number of ships homeported in San Diego is projected to advance to 65 in FY 2020, compared with 60 in FY 2019 and fewer than 50 in FY 2015. San Diego continues to benefit from a greater focus on Asia and the Navy’s “Rebalance to the Pacific” strategy. San Diego will be home to three aircraft carriers in FY 2020. Due to carrier overhauls, homeport changes and deployments there is currently only one carrier homeported in San Diego, but the plan has always been for three with the second to arrive in November 2019.. These will be joined by five submarines and 57 surface ships. (See Exhibit 10) ■





NAVY MEDICINE

Navy Medicine is an integral part of the footprint and economic impact that the military has on the entire San Diego region. Navy Medicine in the County is anchored by two major military treatment facilities and a research center, which employ more than 8,700 individuals. (See Exhibit 11)

NAVAL MEDICAL CENTER SAN DIEGO

The larger of the two military treatment facilities is Naval Medical Center San Diego (NMCS), adjacent to Balboa Park, which services Active Duty service members, families, retirees, and Veterans. In addition to its main campus at Balboa, NMCS operates 21 branch health and dental clinics located at several military bases and neighborhoods throughout the County and two in El Centro, CA. NMCS employs about 6,400 Active Duty and civilians. NMCS often contributes to the USNS Mercy's mission in supporting multinational humanitarian efforts.

NAVAL HOSPITAL CAMP PENDLETON

Naval Hospital Camp Pendleton (NHCP) is a medium sized teaching hospital serving Marines, Sailors, and family members of the I Marine Expeditionary Force and other units aboard Marine Corps Base Camp Pendleton. NHCP's staff is comprised of nearly 2,200 enlisted personnel, officers, and civilian personnel. In addition to the core hospital, NHCP has four branch health clinics located on the base and one off-base clinic located in Oceanside, CA. The command also has branch health clinics at Marine Corps Air Station Yuma, Arizona, and Naval Base Ventura County, California.

NAVAL HEALTH RESEARCH CENTER

Located at Naval Base Point Loma, the Naval Health Research Center (NHRC) is the DOD's designated deployment health research center, conducting much of the Nation's top tri-service research and development. Its research encompasses physical readiness, joint medical planning, wounded warrior recovery, and behavioral health.

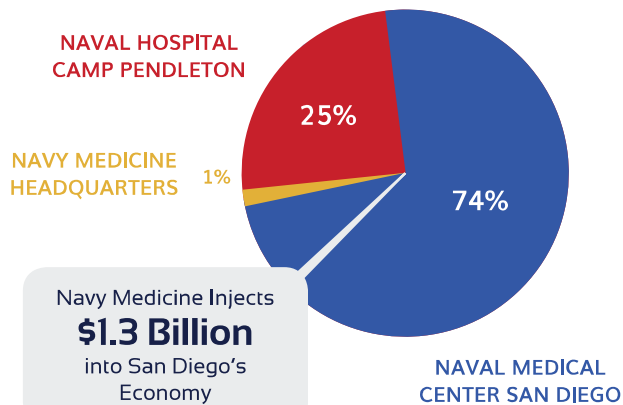
ECONOMIC INFLUENCE OF NAVY HOSPITALS

The two Navy hospital facilities injected about \$1.3 billion of funds into the region during FY 2019. These expenditures included compensation to employees, pharmaceuticals, surgical appliances, family services, and electronic equipment support. Navy Medicine continues to represent a vital spoke of San Diego's overall health care system. ■

EXHIBIT 11

Navy Medicine Employs Over 8,700 People

NUMBER OF PERSONNEL, FY 2019



Navy Medicine Injects
\$1.3 Billion
into San Diego's
Economy

SOURCE: FBFI; NAVY MEDICINE WEST



THE U.S. MARINE CORPS

The Marine Corps fulfills a vital role in national security as an amphibious, expeditionary, and an air-to-ground force, capable of combat from the air, land, or sea. With its unique expeditionary abilities, Marines can deploy anywhere in the world within a few days. In order to retain constant readiness, Marines must train as they fight, with access to interconnected sea, land, and air ranges. The varied terrain and climate of the southwest makes it an ideal place to prepare Marines for combat. Forty percent of the Marine Corps' combat power resides in the southwest, along with 85% of its land holdings. Even more significant, 95% of Marines train in the region (predominantly California) before deploying overseas.

THE MARINES CORPS' LOCAL PRESENCE

Approximately 52,000 Marines are based in San Diego, including the average number of recruits located here during the year. More than one out of every four members serving nationwide in the Marine Corps is based in San Diego County. Camp Pendleton is home to about 37,000 of San Diego's Marines. [\(See Exhibit 12\)](#)

The Marine Corps maintains eight installations and two training ranges in the west which provide the infrastructure to enable Marine Corps air and ground forces to develop and sustain operational readiness. San Diego's three major Marine Corps installations (Camp Pendleton, Miramar, and MCRD) are home not only to 52,000 Marines, but to 3,600 Navy personnel and about 4,000 civilian employees. An additional 2,000 Marines work at the

region's different Navy bases and at the hospitals. The Marine bases are in themselves centers of economic activity, with a heavy flow of local businesses entering the installations every day to provide various goods and services.

As the largest west coast amphibious assault training facility, Camp Pendleton encompasses more than 125,000 acres of southern California. The 17.5 miles of shoreline and mountainous terrain support a variety of military training for operating forces, as well as national, state and local agencies. Having uninterrupted air space allows Camp Pendleton to host large-scale training exercises involving naval, ground, and aviation forces in a combined way.

With an approximate daily population of 80,000 personnel, Camp Pendleton is one of the Department of Defense's busiest installations. Camp Pendleton has been the largest North County employer for over 60 years with about 43,000 Marines, sailors, civilians and their families calling it home.

MCRD is essential to the viability of the Marine Corps, graduating over 17,000 new Marines in FY 2019. The proximity to Camp Pendleton enhances recruit training, vital to their success.

EXHIBIT 12**Marine & Navy Personnel Dispersed Across Various Installations*****NUMBER OF EMPLOYEES, FY 2019e**

COMMAND	CIV	USMC	USN	TOTAL
MCAS MIRAMAR	466	7,952	273	8,691
MCB & MCAS CAMP PENDLETON	2,955	36,517	3,145	42,617
MCRD SAN DIEGO	644	1,193	181	2,018
MRCDD SAN DIEGO (RECRUITS)**	0	4,294	0	4,294
NAVY HOSPITALS	3,328	1,586	3,805	8,719
NB CORONADO	4,700	204	17,464	22,368
NB POINT LOMA	5,307	24	3,532	8,863
NB SAN DIEGO	5,808	61	27,988	33,857
OTHER	72	239	43	354
TOTAL	23,280	52,070	56,431	131,781

e=estimate *Does not include Reserves **annual average SOURCE: FBFI; DoD

Marine Corps Air Station Miramar is the home of the 3rd Marine Aircraft Wing. Some of the Marine Corps' newest aircraft, including the MV-22, are based there. The new F-35 is scheduled to arrive early in 2020. MCAS Camp Pendleton is the home of Marine Aircraft Group 39, the Corps largest aircraft group.

MARINES CORPS' OPERATIONAL FORCES IN THE GREATER SAN DIEGO REGION

Distributed across Marine Corps Base Camp Pendleton, Marine Corps Air Stations Camp Pendleton, Miramar, and Yuma, and Marine Corps Air Ground Combat Center Twenty-Nine Palms, I Marine Expeditionary Force (I MEF) is capable of generating and deploying units for crisis response, forward presence, major combat operations, and campaigns.

Major subordinate commands of I MEF are the 1st Marine Division (1stMarDiv), 3rd Marine Aircraft Wing (3rdMAW), and the 1st Marine Logistics Group (1stMLG).

The 1stMarDiv is a multi-role, expeditionary ground combat force. The Division is employed as the ground combat element of I MEF and may provide task-organized forces for assault and other operations as required. The 1stMarDiv provides the ground amphibious entry capability for the naval expeditionary force and can conduct subsequent land operations in any operational environment.

The 3rdMAW's mission is to provide combat ready expeditionary aviation forces capable of world wide deployment on short notice to Marine Air Ground Task Force (MAGTF), fleet, and unified commanders. The Wing is employed as the air combat element to I MEF.

The 1stMLG provides direct support to I MEF and sustained tactical logistics for each element of the MEF beyond the capabilities of supported units. In order to provide the necessary throughput support to the MEF, the MLG establishes beach support areas, landing zone support areas, and other areas required to ensure sustainment of the MEF.

The subordinate commands allow the MEF to operate as a Marine Air-Ground Task Force (MAGTF). The MAGTF is the Corps' principal organizational construct for conducting missions across the entire range of military operations. The MAGTFs supply commanders with scalable and versatile expeditionary forces able to assure allies, deter potential adversaries, provide United States' presence with little or no footprint ashore, and respond to a broad range of contingency, crisis, and conflict situations. The MAGTF is a balanced, combined arms force package containing command, ground, aviation, and logistics elements.

Several thousand I MEF Marines are deployed across the globe at any given time, deploying three Marine Expeditionary Units (11th, 13th, 15th MEUs), a Special Purpose MAGTF Crisis Response Central Command (SPMAGTF-CR-CC), and Advise and Assist Task Forces, while facilitating several Theater Security Cooperation exercises at home and abroad. A single commander leads and coordinates each of these combined arms teams through all phases of deployment and employment. The MAGTFs live and train together, further increasing their cohesion and fighting power.

The Marine Corps' infrastructure and training ranges in the San Diego area, combined with the proximity to Navy installations and Navy Expeditionary units for integration and joint training, are essential to the readiness of the Marine Corps and are irreplaceable anywhere else in the nation. ■





THE U.S. COAST GUARD

The Coast Guard is a key national security partner to the Navy and Marine Corps in San Diego in its roles as a law enforcement agency, member of the U.S. Intelligence Community, and first responder. It is the only branch of the U.S. Armed Forces within the Department of Homeland Security.

The Coast Guard is responsible for search and rescue, seizure of illegal drugs, security boardings in and around U.S. ports, safety examinations on foreign vessels, marine inspections, and the facilitation of the movement of large volumes of goods and commodities through the Nation's Maritime Transportation System. *(See Exhibit 13)* In response to the overwhelming support shown by the community for the Coast Guard's presence in San Diego, the city was officially designated by Congress as the 21st and largest Coast Guard City in February of 2017.

EXHIBIT 13

On an Average Day, the U.S. Coast Guard:

- Conducts 45 search and rescue cases.
- Screens 360 merchant vessels for potential security threats prior to arrival in U.S. ports.
- Facilitates movement of \$8.7 billion worth of goods and commodities through the nation's maritime transportation system.
- Conducts 105 marine inspections
- Conducts 57 waterborne patrols of critical maritime infrastructure.
- Conducts 24 security boardings in and around U.S. ports.
- Conducts 14 fisheries conservation boardings.
- Investigates 14 marine casualties involving commercial vessels.
- Investigates 35 pollution incidents.
- Escorts 5 high-capacity passenger vessels.
- Seizes 874 pounds of cocaine.
- Saves over \$1.2M in property.
- Saves 10 lives.

SOURCE: U.S. COAST GUARD OVERVIEW | WWW.USCG.MIL/ALWAYSREADY

THE COAST GUARD'S PRESENCE IN PEOPLE AND DOLLARS

The Coast Guard directly employs nearly 1,100 people, including Active Duty personnel, civilians, and Armed Forces Reserves. Direct spending, reflecting the flow of dollars into San Diego that are linked to the Coast Guard's presence here, totaled approximately \$112 million in FY 2019. Most of these funds represented the wages, salaries, and benefits paid to its employees. Other funding came through the benefits paid to retirees, grants, contracts to San Diego firms, Government Purchase Cards, and tourism. *(See Exhibit 14)*

EXHIBIT 14

Coast Guard Brings \$290 Million to San Diego's GRP

FY 2019e

Total Personnel	1,067
Direct Spending Total (\$ millions)	\$112.0
Employee Compensation	\$78.6
Retirement Benefits	\$25.5
Procurement	\$3.8
Grants, GPC, Tourism	\$4.1
GRP (\$ millions)	\$290.4
Personal Income (\$ millions)	\$112.5
Total Jobs	1,745

e=estimate

GPC = GOVERNMENT PURCHASE CARDS

SOURCE: FBFI; COAST GUARD

ECONOMIC RIPPLE EFFECTS

Both in qualitative and quantitative terms, the Coast Guard has a much larger impact than might be suggested by its relatively small budget. In FY 2019, every \$100 of direct spending through the Coast Guard generated over \$250 of GRP. As a result, after all the multiplier effects of supply chain and consumer impacts, the Coast Guard contributed nearly \$300 million to San Diego County's total output or GRP. The Coast Guard was also responsible, directly or indirectly, for generating \$113 million in total personal income and nearly 1,750 total jobs. ■



THE U.S. DEPARTMENT OF VETERAN'S AFFAIRS

The San Diego VA Regional Office administers a wide array of benefits to the 239,000 Veterans in San Diego plus those who reside in Riverside, Imperial, and Orange Counties. These Veterans have served the Nation in various conflicts dating back to World War II.

These individuals have sometimes arrived with serious physical injuries, post-traumatic syndrome disorder (PTSD), or major problems assimilating again into civilian life. Transitioning from a military framework to the environment of family, community, and work can be an enormous challenge. The VA, supported by the efforts of numerous organizations in San Diego and its general citizenry, is charged with helping the men and women who have defended the Nation find their own security and well-being.

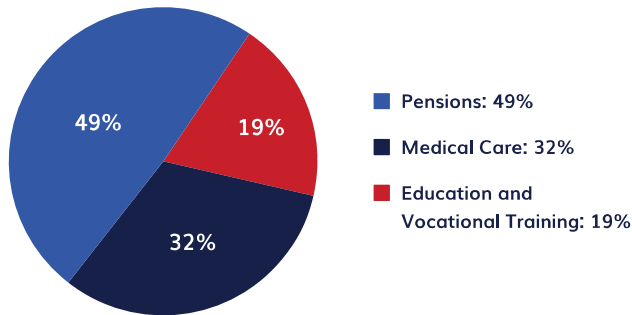
A BROAD-BASED ROLE

The VA in San Diego provides \$2.6 billion in federal benefits, including education and training along with many other services. The VA has made the ending of homelessness among Veterans a major priority and is working with other agencies to help find housing for Veterans and the support services they need. These services include employment assistance, health care, mental health treatment, and substance use counseling to help them recover and stay housed. Every year since 1988, the Veterans Village of San

EXHIBIT 15

San Diego Veterans Receive \$2.6 Billion in Benefits

BILLIONS OF DOLLARS, FY 2019e



e=estimate

SOURCE: FBEI

EXHIBIT 16

San Diego's VA Supports the Region

FY 2019e

Total Personnel	3,059
Direct Spending Total (\$ millions)	\$3,538
Employee Compensation	\$552
Veterans' and Retiree Benefits	\$2,767
Procurement	\$199
Grants, GPC, Tourism	\$20
GRP (\$ millions)	\$3,727
Personal Income (\$ millions)	\$2,285
Total Jobs	36,848

e=estimate

GPC = GOVERNMENT PURCHASE CARDS

SOURCE: FBEI; VA



Diego (VVSD) has created a safe haven for Veterans experiencing homelessness to receive wrap-around services while enabling them to find housing. VVSD is the only program of its kind in the United States and is nationally recognized as the leader in serving homeless military veterans. (See Exhibit 15)

The VA San Diego Healthcare System (VASDHS) provides comprehensive inpatient and outpatient health services at the medical center in La Jolla, at six community clinics (Chula Vista, Escondido, Imperial Valley, Mission Valley, Oceanside, and Sorrento Valley), and at the Rio Clinic. It provides medical, surgical, mental health, geriatric, spinal cord injury, and advanced rehabilitation services. VASDHS has 296 authorized hospital beds and it operates several regional referral programs that include cardiovascular surgery and spinal cord injury care.

VASDHS is affiliated with the University of California, San Diego School of Medicine. It provides training for 1,440 medical interns, residents, and fellows as well as 751 other health profession trainees in areas such as nursing, pharmacy, dentistry, and dietetics. The facility has one of the Nation's largest VA research programs with 210 principal investigators and nearly 700 projects.

THE VA'S PRESENCE IN PEOPLE AND DOLLARS

The VA in San Diego directly employs nearly 3,100 people, with most of them on its medical staff. Direct spending, reflecting the inflow of dollars emanating primarily from the VA into San Diego, totaled approximately \$3.5 billion in FY 2019. Veterans' benefits and retiree pay represented the bulk of the funding. Personnel compensation and the value of VA contracts awarded to San Diego firms for equipment, other goods, and services followed in importance. Grants, GPC, and tourism represented the balance. (See Exhibit 16)

ECONOMIC RIPPLE EFFECTS

Including all of the supply chain and consumer effects as these direct spending dollars circulated through the economy, the VA contributed approximately \$3.7 billion to San Diego County's GRP in FY 2019. This translated into \$2.3 billion of total personal income and approximately 37,000 total jobs. ■



SECTION VI

RELIABLE WATER SUPPLIES SUSTAIN SAN DIEGO'S MILITARY SECTOR

The San Diego County Water Authority formed 75 years ago during the height of World War II, when it became clear that imported water supplies were necessary to sustain a booming region at the forefront of the war effort.

Ever since, the Water Authority and its 24 member agencies have played a vital – through often unseen – role in supporting the largest concentration of active and retired military personnel in the world, serving several vital military bases and sustaining the San Diego region's defense industry in a region with few natural water resources.

Today, the Water Authority and its member agencies – including Marine Corps Base Camp Pendleton – provide the water needed for military operations, military families and military contractors. They also play an active role in supporting water-use efficiency efforts across the region, promoting job opportunities for veterans and ensuring the region has sufficient water for future needs – including an expansion of military operations.

EXPANDING JOB ACCESS FOR VETS

Water and wastewater treatment is an essential industry faced with challenges created by an aging infrastructure and workforce – challenges that veterans can help address.

California Assembly Bill 1588 – co-sponsored by the San Diego County Water Authority and the Otay Water District – would provide a pathway for veterans to apply their advanced skills and experience in the military toward state and industry certifications in the civilian water and wastewater treatment and distribution industry as the wave of retiring Baby Boomers continues to grow. At the start of August,

AB 1588 had passed through several committees in Sacramento without opposition and was on a path toward the governor's desk.

"The water industry is facing a 'silver tsunami,' with thousands of workers expected to retire in coming years," said Jim Madaffer, chair of the Water Authority's Board of Directors. "Veterans can strengthen our community with skills that not only fill critical needs but also help our industry continue to thrive."

There are approximately 6,000 active certified wastewater treatment plant operators and approximately 35,000 drinking water treatment and distribution operators in California. Locally, more than 2,800 people work at the Water Authority and its 24 member agencies in fields such as engineering, accounting, human resources and operations.

Interested veterans should go to www.sdcwa.org/careers to learn more about opportunities at the Water Authority and its 24 member agencies.

CELEBRATING A SHARED LEGACY OF SERVICE

The Water Authority celebrates its 75th anniversary in 2019, owing its very existence to the rapid expansion of military forces in San Diego following the bombing of Pearl Harbor in 1941. A flood of servicemembers and construction crews nearly doubled the city's population in just two years, and it quickly became clear that San Diego – and the Navy – needed more reliable water supplies.

An aqueduct to the Colorado River became a top priority, not only locally but also in Washington, D.C. President Roosevelt directed the Navy to build a six-foot-diameter pipeline that connected San Vicente Reservoir near Lakeside to the Metropolitan Water District of Southern California's aqueduct system in Riverside County. *(The picture on the previous page depicts officials examining the six foot diameter pipeline.)*

On June 9, 1944, San Diego voters approved the agency's formation under the County Water Authority Act. Imported water arrived three years later through the new pipeline just weeks before local supplies would have run out.

For its first several decades, the Water Authority served mainly as a pumps-and-pipes agency, delivering imported water to local agencies. But a severe drought in the early 1990s forced the region to confront the fact that continuing to provide safe and reliable water supplies

demand a diverse portfolio of water supplies instead of near-total reliance on a single source.

Today, the Water Authority is a leader in water conservation, asset management, seawater desalination and water resource planning, delivering more than 400 million gallons a day to serve the region's 3.3 million residents and sustain its \$231 billion economy. In fact, a 2018 study by the San Diego Regional Economic Development Corp. concluded that \$482 million a day in regional sales were supported by reliable access to water.

PREPARING FOR THE FUTURE

A vibrant region like San Diego requires local agencies that are planning for decades ahead to ensure safe, reliable water supplies are always available to support the region's needs, including expansion of military operations in the region.

That's why the Water Authority and its member agencies are engaged in several visionary efforts to increase water security despite a changing climate. For example, several retail agencies around the region are developing or executing plans to purify wastewater for potable reuse.

The Water Authority is currently refurbishing the historic First Aqueduct, while also assessing the potential for a new pipeline system that would deliver Colorado River water supplies directly while providing multiple benefits to other stakeholders in the Southwest. At the same time, the Water Authority is seeking to expand water storage opportunities in Lake Mead and even generating green energy using the power of water.

With continued investments, strategic planning and sound fiscal management, San Diego County's water agencies will continue to deliver the supplies that keep the region's military strong. ■

NAVAL INFORMATION WARFARE SYSTEMS COMMAND ECONOMIC IMPACT STUDY 2019



NAVWAR





NAVAL INFORMATION WARFARE SYSTEMS COMMAND (NAVWAR) ECONOMIC IMPACT ON THE SAN DIEGO REGION

NAVWAR contributed \$3.2B in GRP and over 26,000 jobs to the San Diego region in FY 2018 and is forecasted to grow to \$3.5B and nearly 29,000 jobs in FY 2019

The Naval Information Warfare Systems Command (NAVWAR) is the U.S. Navy command responsible for the development, delivery, and maintenance of the Navy's communications, networks, information, and space capabilities to ensure that operational and support forces remain connected anytime and anywhere. Previously known as the Space and Naval Warfare Systems Command (SPAWAR), this vital organization was renamed in 2019 to recognize the evolution of information as a fundamental element of warfare and as an essential concept of the Department of the Navy's strategy. In addition to making a significant economic impact on the San Diego region, NAVWAR occupies more than 70 acres centrally located only two miles from downtown and has started the process of working with private industry and government organizations to redevelop the land with new facilities for NAVWAR and a technology and business hub for the Midway District.

With a vision to rapidly deliver information warfighting capability from seabed to space, NAVWAR pursues cutting-edge research and development for the Navy's growing cyberspace capabilities and provides the hardware and software that support manned and unmanned systems at sea, on land, in the air, and in space. NAVWAR supports the information warfare domain through the full lifecycle of product and service delivery, ranging from initial research and development to acquisition and deployment to operations and logistics. NAVWAR's identification, development, delivery, and sustainment of information warfare capabilities enable naval, joint-service, multi-national coalition, and other national missions to operate in all warfighting domains.

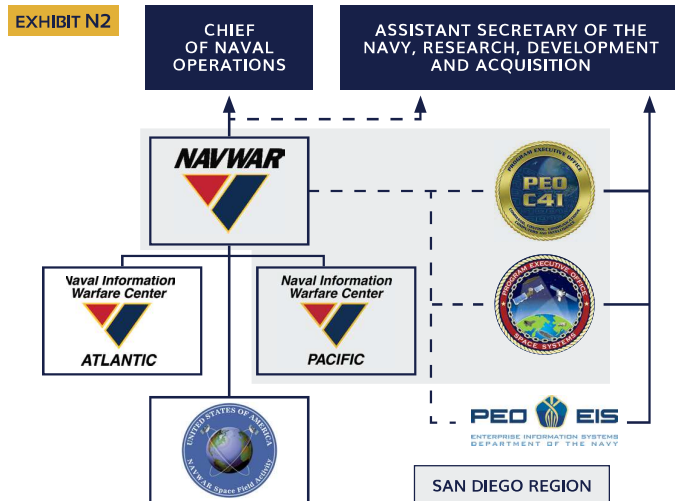
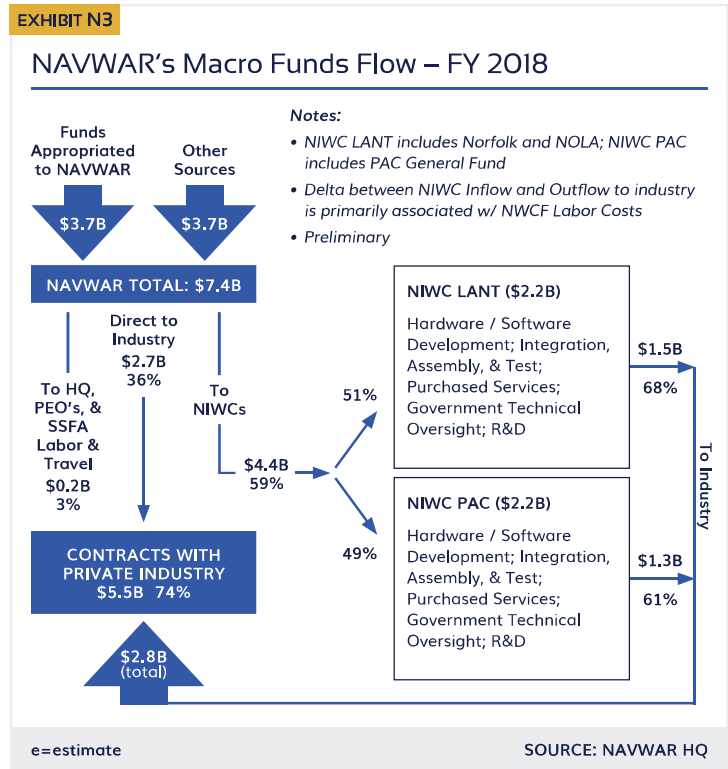
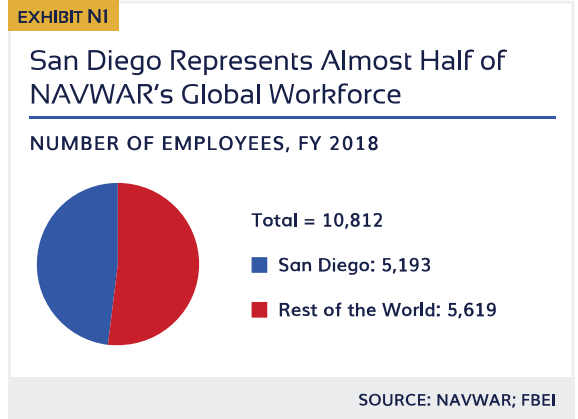
NAVWAR'S SAN DIEGO OPERATION

The Naval Information Warfare Systems Command, headquartered in San Diego, is an Echelon II organization, operating under the Chief of Naval Operations. Employing about 11,000 military and civilian professionals world-wide, and 5,200 here in the San Diego region (See Exhibit N1), NAVWAR is the Navy's technical authority and acquisition command for information warfighting capabilities.

As one of the Department of the Navy's major acquisition commands, NAVWAR's expertise is in information technology, specifically in networks and communications, warfare systems, and business systems, all with a strong focus on cybersecurity. (See Exhibit N2) NAVWAR develops information architectures and standards, along with supporting products and services. These transform ships, aircraft, and vehicles from individual platforms into integrated warfighting capabilities, while delivering

and enhancing interoperability with partners around the world. These partnerships include the Navy, Marines, joint forces, federal agencies, and international allies.

NAVWAR's San Diego headquarters' operations provide support for more than 150 separate Navy programs, managed by three Program Executive Offices (PEOs). PEO for Command, Control, Communications, Computers and Intelligence (PEO C4I) and PEO Space Systems are located in San Diego, while PEO Enterprise Information Systems is located in Washington DC. Additionally, NAVWAR oversees three subordinate commands: Naval Information Warfare Center Atlantic (NIWC), headquartered in Charleston, South Carolina, NAVWAR Space Field Activity, located in Chantilly Virginia, and NIWC Pacific, located in



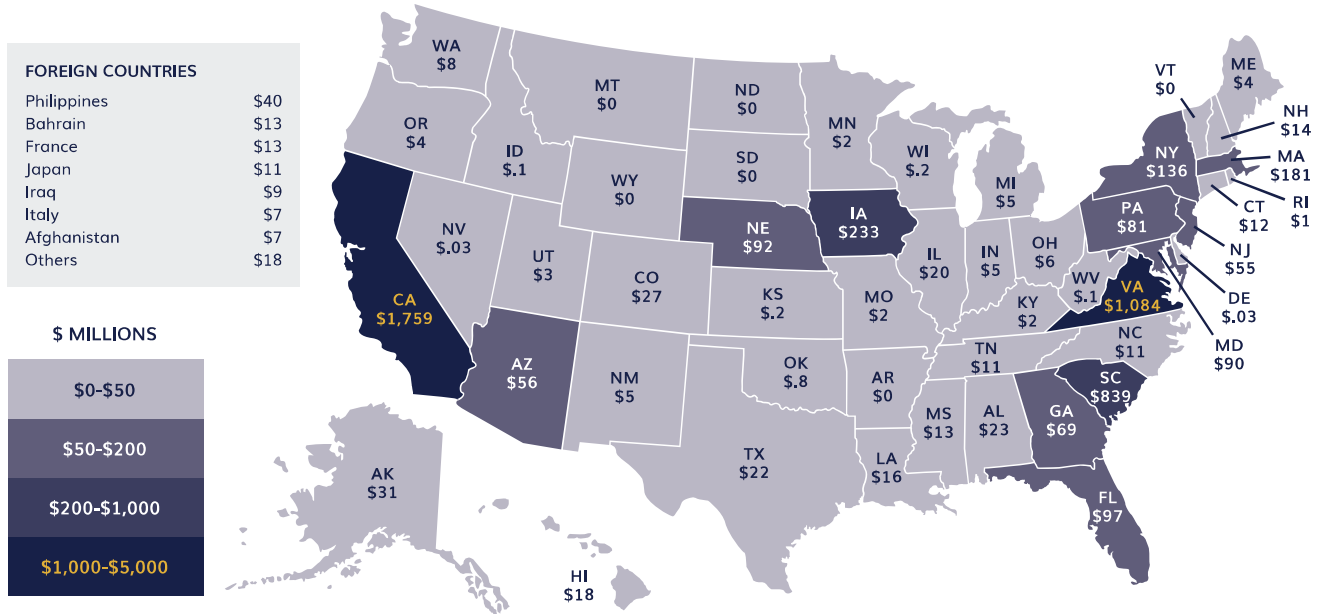
San Diego. Nearly half of NAVWAR's global employees are based in San Diego and the majority of those are assigned to NIWC Pacific. With significant laboratory and support facilities, NIWC Pacific's focus is research, development, engineering, and support of integrated C4ISR, cyber, and space systems across all warfighting domains. It rapidly prototypes, conducts testing and evaluation, and provides acquisition, installation, and in-service engineering support for the Navy and other sponsors.

NAVWAR's total budget in FY 2018 was more than \$7.4 billion (See Exhibit N3), with about half provided by direct Congressional appropriations and half sourced by other U.S. Government agencies through their budgets. NAVWAR

EXHIBIT N4

NAVWAR Contracts by State

FY 18 TOTAL OBLIGATIONS: \$5.34 BILLION



FOREIGN COUNTRIES

Philippines	\$40
Bahrain	\$13
France	\$13
Japan	\$11
Iraq	\$9
Italy	\$7
Afghanistan	\$7
Others	\$18

\$ MILLIONS

\$0-\$50
\$50-\$200
\$200-\$1,000
\$1,000-\$5,000

- Numbers represent NAVWAR's net contract obligations during Fiscal Year 2018 (\$ Millions)
- **Yellow Text** states represent top 2 states with the most direct business (> \$1 Billion)

SOURCE: PFDS-NG AS OF 11/15/18

is able to accept funding from other parts of the government for specific products and services for work executed through NIWC Pacific and Atlantic. These commands operate as Navy Working Capital Fund (NWC) organizations, a revolving fund operation that relies on revenue from NAVWAR and other agencies rather than direct Congressional appropriations. The level of NWC funding received is based on customer demand and NAVWAR's capacity. These other U.S. Government agencies include other parts of the Navy and Department of Defense (DOD), the Department of Energy, the Department of Transportation, and the Department of Homeland Security, as well as international work funded through DOD's Foreign Military Sales program.

Although NAVWAR conducts research and other work internally, it also outsources a large amount to private industry. In FY 2018, \$2.7 billion of the total \$7.4 billion of new funding was immediately outsourced to commercial companies, and another \$4.4 billion was allocated to NIWC Atlantic and NIWC Pacific. These commands then contracted out \$2.8 billion to private companies. As a result, in FY 2018, the private sector received \$5.5 billion of contracts funded through NAVWAR. This amount was equivalent to about 74% of NAVWAR's funds available for the year.

Businesses that work with NAVWAR tend to be co-located where they have a major footprint. NAVWAR has its largest concentration of people in San Diego, CA, Charleston, SC, and Norfolk, VA. These are also the three locations, led by California, receiving the highest dollar volumes of contract work (See Exhibit N4).

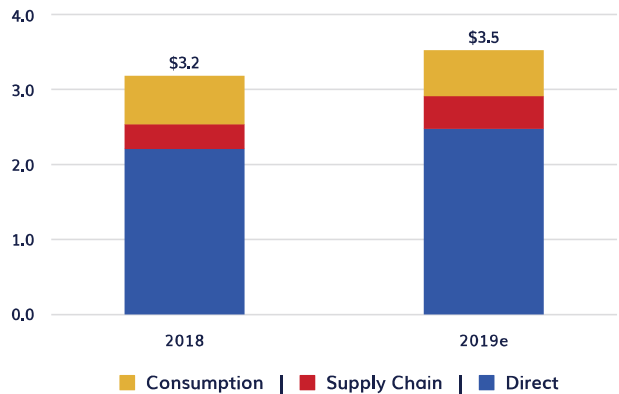
While NAVWAR distributed its budgeted funds worldwide to support its mission, California was the nation's biggest state recipient of FY 2018 funds and, by far, the U.S. area receiving the largest amount of contracted work was the San Diego region at \$1.6 billion.



EXHIBIT N5

NAVWAR Generated Over \$3 Billion in FY18 and FY19 GRP

BILLIONS OF DOLLARS, FISCAL YEARS



e=estimate

SOURCE: FBEI

NAVWAR'S TOTAL ECONOMIC IMPACT

NAVWAR's economic impact on San Diego County extends beyond the \$2.2 billion injected through the seven principal channels described on the next page. Supply chain effects and additional consumer spending amplify the total impact on jobs, income, and GRP.

In FY 2018, NAVWAR contributed an estimated \$3.2 billion (See Exhibit N5) to San Diego region's GRP. It was responsible, directly and indirectly, for more than 26,000 jobs and \$2.2 billion in total income. NAVWAR's economic footprint on the region is estimated to expand even further in FY 2019, with a forecasted \$3.5 billion in GRP, nearly 29,000 jobs, and \$2.4 billion in total personal income. (See Exhibit N6)

EXHIBIT N6

NAVWAR Ripples Across San Diego Economy

FISCAL YEARS

	2018	2019e
DIRECT SPENDING (\$ BILLIONS)	2.2	2.5
JOBS (\$ THOUSANDS)	26.2	28.8
INCOME (\$ BILLIONS)	2.2	2.4
GROSS REGIONAL PRODUCT (\$ BILLIONS)	3.2	3.5

e=estimate

SOURCE: NAVWAR; FBEI



EXHIBIT N7

NAVWAR Influences Region Through Several Channels

MILLIONS OF DOLLARS, FISCAL YEARS

	2018	2019e
CONTRACTS	\$1,308.4	\$1,561.5
COMPENSATION	\$791.7	\$815.3
OPERATIONS / MAINTENANCE	\$70.7	\$69.6
TOURISM	\$35.3	\$37.4
PATENTS	\$18.6	\$18.1
GOVERNMENT PURCHASE CARDS	\$7.3	\$7.5
STEM	\$0.96	\$0.98
TOTAL	\$2,233.0	\$2,510.4

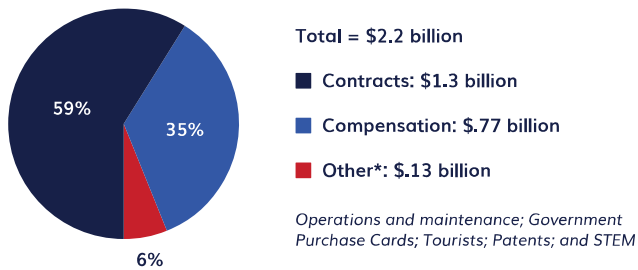
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SOURCE: NAVWAR; FBI

EXHIBIT N8

Contracts and Payrolls Largest Contributors to NAVWAR's Impact

BILLIONS OF DOLLARS, FY 2018



SOURCE: NAVWAR; FBI



UNDERSTANDING NAVWAR'S ECONOMIC FOOTPRINT ON SAN DIEGO

NAVWAR'S CHANNELS OF INFLUENCE

NAVWAR impacts San Diego's economy through seven major channels (See Exhibit N7), with a total direct spending stream totaling \$2.2 billion in FY 2018. These channels include contracts awarded to San Diego businesses, NAVWAR's employees, spending for operations and maintenance, NAVWAR related tourism, patents, Government Purchase Card payments, and NAVWAR's contribution to science, technology, engineering, and math (STEM) education.

1. CONTRACTS

NAVWAR's contracts awarded to businesses in San Diego represent its largest direct contribution to our region's economy (See Exhibit N8). The funding for many contracts may span a number of years as projects work their way to completion. The dollar value of work done on previous and current contracts in FY 2018 is estimated at \$1.3 billion versus the \$1.6 billion of new contracts awarded during the year.

Both large and small businesses benefit from contracts awarded by NAVWAR. Viasat, Booz Allen Hamilton, SERCO, and Science Applications International Corporation (SAIC) each received total NAVWAR contract awards exceeding \$100 million in FY 2018

EXHIBIT N9

NAVWAR Contracts with Major San Diego Companies

TOP 10 RECIPIENTS, FY 2018, MILLIONS OF DOLLARS

COMPANY NAME	DOLLARS
VIASAT, INC.	\$278.9
BOOZ ALLEN HAMILTON	\$159.2
SERCO INC.	\$132.5
SCIENCE APPLICATIONS INTERNATIONAL CORPORATION	\$117.6
AMSEC LLC	\$29.6
INNOVASYSTEMS INTERNATIONAL, LLC	\$25.9
LEIDOS, INC.	\$23.6
PERATON INC.	\$22.8
CARAHSOFT TECHNOLOGY CORP.	\$20.4
NATIONAL MARINE MAMMAL FOUNDATION, INC.	\$18.4

SOURCE: NAVWAR; FBI

(See Exhibit N9). Small businesses received more than \$500 million, or one-third of NAVWAR contracts, in FY 2018 (See Exhibit N10). Some of these small firms included Koam Engineering Systems, Sentek Consulting, Systems Technology Forum, and Cameron Bell Corporation. (See Exhibit N11)

Companies, both large and small, receiving NAVWAR contracts are dispersed throughout San Diego County. Some of the largest clusters, in terms of the value of contracts, are in Carlsbad, Serra Mesa, and in San Diego near NAVWAR's offices. Engineering, communications equipment, computer system design, specialized equipment manufacturing, and research and development represented the primary areas receiving NAVWAR contract awards in FY 2018 (See Exhibit N12). This reflects NAVWAR's mission to provide communications, network capabilities, and technology to support information warfare.

National defense strategies have increasingly moved to information warfare throughout the world. DOD funding reflecting this strategic shift, as well as increased spending by all government agencies on cybersecurity, have added significantly to NAVWAR's contracting budget during the past two years (See Exhibit N13) and NAVWAR has been a major contributor to cyber security

EXHIBIT N12

Technology Attracts Majority of NAVWAR Contracts

MILLIONS OF DOLLARS, FY 2018

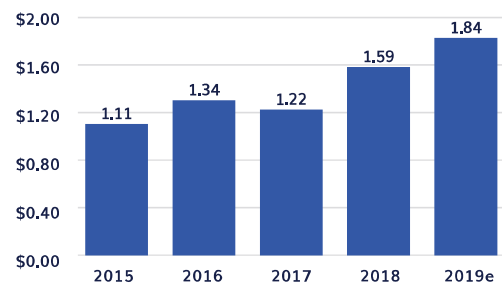
CONTRACT TYPE	AMOUNT
ENGINEERING	\$975.3
COMMUNICATION EQUIPMENT	
MANUFACTURING	\$355.3
COMPUTER SYSTEM DESIGN	\$94.8
OTHER EQUIPMENT MANUFACTURING	\$70.3
RESEARCH AND DEVELOPMENT	\$30.0
PROFESSIONAL SERVICES	\$21.7
MANAGEMENT CONSULTING	\$12.6
TELECOM	\$11.7
MISC. MANUFACTURING	\$6.8
WHOLESALE TRADE	\$4.1

SOURCE: NAVWAR; FBEI

EXHIBIT N13

Cybersecurity Boosts Recent NAVWAR Contracting

BILLIONS OF DOLLARS, FISCAL YEARS



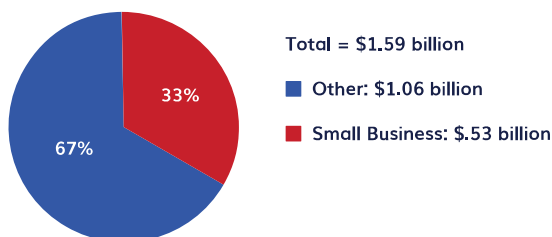
e=estimate

SOURCE: NAVWAR; FBEI

EXHIBIT N10

Small Business Receive 1/3 of NAVWAR's Contracts

BILLIONS OF DOLLARS, FY 2018



SOURCE: NAVWAR; FBEI

EXHIBIT N11

NAWWAR Boosts Small Business

TOP 10 SMALL BUSINESS RECIPIENTS, FY 2018, MILLIONS OF DOLLARS

COMPANY NAME	DOLLARS
KOAM ENGINEERING SYSTEMS, INC.	\$37.8
SENTEK CONSULTING INCORPORATED	\$32.1
SYSTEMS TECHNOLOGY FORUM LTD	\$31.3
CAMERON BELL CORPORATION	\$28.0
TACTICAL ENGINEERING & ANALYSIS, INC.	\$24.2
INDUS TECHNOLOGY INC.	\$23.5
G2 SOFTWARE SYSTEMS INC	\$16.9
CYPHER ANALYTICS, INC	\$16.3
LAFAYETTE GROUP, INC.	\$16.3
CENTURUM INFORMATION TECHNOLOGY, INC.	\$16.1

SOURCE: NAVWAR; FBEI

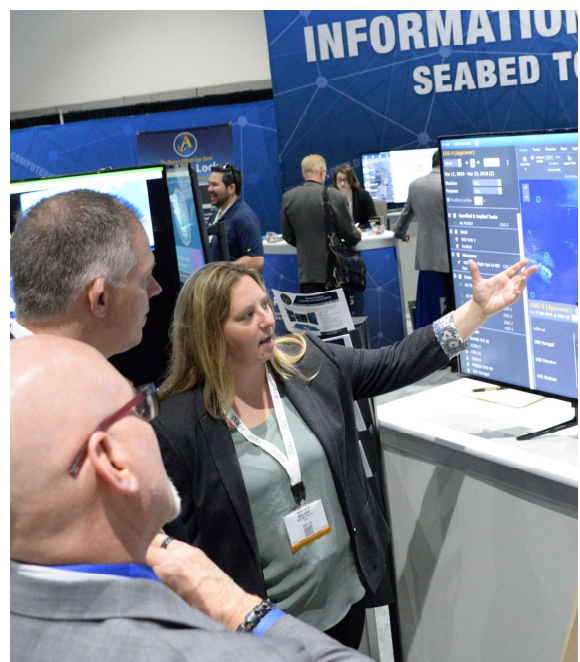


EXHIBIT N14

NAVWAR Important Catalyst to San Diego's Cyber Economy

FY 2018

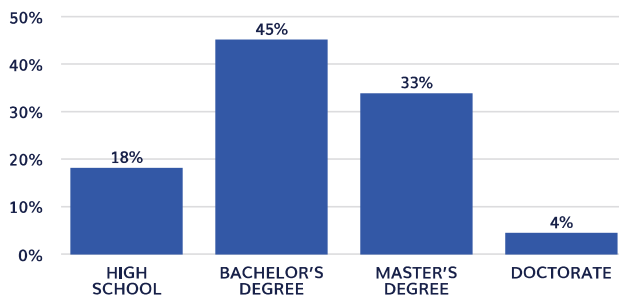
5,200 employees in San Diego – half of global workforce
Total direct spending = \$2.2 billion
15 th largest employer in San Diego County
Total payroll of \$800 million
2/3 of workforce is in cybersecurity
Contracts of \$1.6 billion to San Diego firms
Over 250 patent filings, disclosures, or issuances
\$1.0 million of STEM volunteer hours
\$35 million contribution to tourism
Total economic impacts of \$3.2 billion GRP
Over 26,000 jobs created

SOURCE: FBI

EXHIBIT N15

NAVWAR Employees Represent Educated Talent Pool

SHARE OF EMPLOYMENT, FY 2018



SOURCE: NAVWAR; FBI

emphasis which is evident in San Diego (See Exhibit N14). In FY 2018, NAVWAR awarded \$1.6 billion to firms with operations in San Diego County, a more than 30% jump over the prior fiscal year. An estimated \$1.8 billion in contracts were awarded regionally in FY 2019, representing an additional 16% increase.

2. NAVWAR PERSONNEL AND PAYROLLS

NAVWAR employed a total of nearly 5,200 people in San Diego in FY 2018, with about 270 military members and 4,900 civilian employees. Their combined compensation, including wages and benefits, totaled nearly \$800 million. NAVWAR's workforce is highly educated. More than four-fifths of its personnel hold at least a four-year college degree. About two-fifths hold a Master's or Doctorate degree. (See Exhibit N15)

This education level is necessary to the types of jobs that NAVWAR supports. Nearly 40% of NAVWAR's employees work in engineering or science, while almost another 30% are supporting information technology (IT) (See Exhibit N16). Project management, program analysis, contracting support, and quality control involve about 20% of NAVWAR's total staffing.

NAVWAR's employees live throughout the San Diego region (See Exhibit N17), with the highest concentrations near its offices in Old Town San Diego and Point Loma. The biggest clusters are in Chula Vista, Point Loma, and Ocean Beach, followed by Clairemont Mesa. Large numbers also live in North and East Counties, including the communities of Mira Mesa and Rancho Peñasquitos.

3. OPERATIONS AND MAINTENANCE

In FY 2018 NAVWAR spent about \$70 million to operate and maintain its local facilities. Expenditures on repairs and renovations plus outlays for utilities (water, gas, and electricity) comprised the largest spending categories. Security and other building services, such as landscaping and janitorial, accounted for other significant shares of the operations and maintenance budget. While relatively small compared to the total amount of NAVWAR dollars flowing into the region, operations and maintenance funds benefit a variety of San Diego enterprises.

4. TOURISM

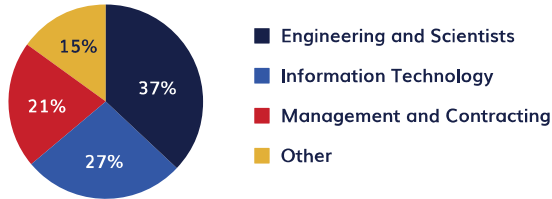
NAVWAR's headquarters' presence and large employee base help San Diego's tourism industry. Dollars from outside the area come from several local conventions held in San Diego, attracted to NAVWAR's contracting importance, as well as government and business visitors to NAVWAR offices; and friends and family visiting NAVWAR employees in San Diego County.

The annual "WEST Symposium" is the largest maritime convention on the west coast, organized by the Naval Institute and Armed Forces Communications & Electronics Association (AFCEA), with a focus on NAVWAR's vital role in leading C4ISR technology. Additionally, the annual "Gold Coast Symposium" is hosted by the National Defense Industrial Association (NDIA) in partnership with the Navy. This convention is aimed at small businesses interested in NAVWAR contracts as a prime contractor or as a sub-contractor to the many large businesses holding NAVWAR contracts. Several other smaller industry conferences related to NAVWAR are held in hotels and other facilities throughout San Diego each year. In the absence of NAVWAR these meetings would likely be held somewhere other than San Diego.

EXHIBIT N16

Engineering and IT Lead NAVWAR's Hiring

SHARE OF EMPLOYMENT, FY 2018

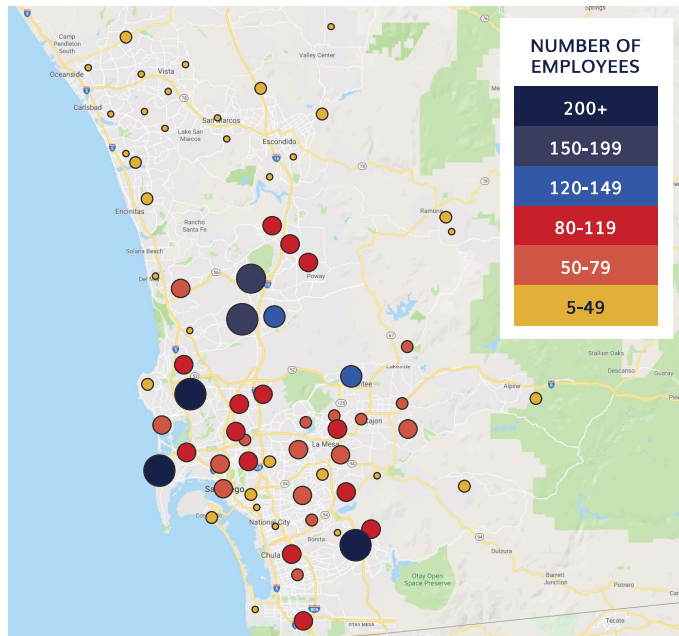


SOURCE: NAVWAR; FBEI

EXHIBIT N17

NAVWAR Employees Dispersed Across County

FY 2018

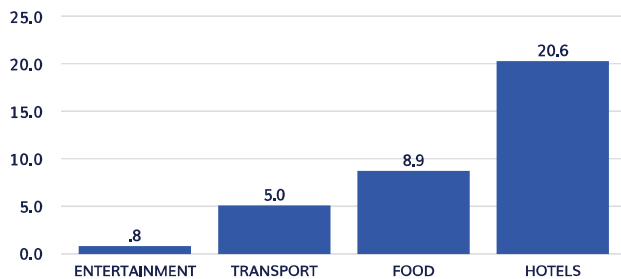


SOURCE: NAVWAR; FBEI

EXHIBIT N18

NAVWAR San Diego Draws Visitor Dollars

MILLIONS OF DOLLARS, FY 2018



SOURCE: FBEI

NAVWAR receives large numbers of business and government partners doing business on various projects during the year. These face-to-face meetings are often essential for implementing and coordinating complex initiatives. In FY 2018, over 15,000 badges were issued for access to the controlled and restricted areas of NAVWAR at its different locations.

Friends and family members of the approximately 5,200 NAVWAR employees in San Diego County also boost leisure travel to the region. Visits can be short or extended but can contribute to spending for lodging, restaurants, transportation, and various entertainment venues in the area.

Combining all of these sources of business and leisure travel from outside the region, NAVWAR generated more than \$35 million for the tourism industry in FY 2018 (See Exhibit N18). Spending on hotels totaled nearly \$21 million, while outlays for food equaled about \$9 million. Another \$5 million was spent on local transportation, while approximately \$1 million was spent on different types of entertainment, such as theme parks, the San Diego Zoo, museums, musical events, and water-based activities.

5. PATENTS

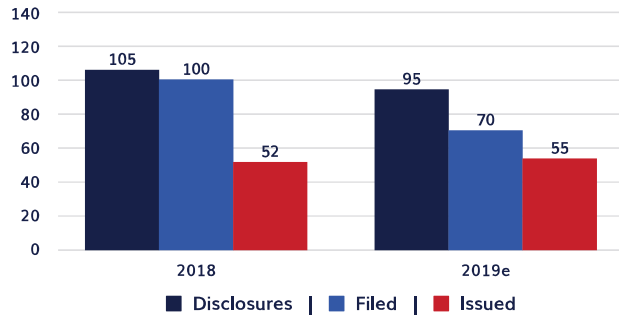
NIWC Pacific is a major source of innovation in San Diego and its local employees are prolific producers of patents. In FY 2018 they were responsible for more than 250 new patent-related activities. A total of 52 new patents were issued, while another 100 filings for new patents were made, and 105 documented concepts or disclosures were processed.



EXHIBIT N19

NAVWAR Active in Patents

NUMBER, FISCAL YEARS



e=estimate

SOURCE: NAVWAR; FBI

EXHIBIT N20

NAVWAR’s Employees Support STEM Education

FY 2018

STEM OUTREACH	
Outreach Hours	12,578
No. of Volunteers	465
Value of Outreach	\$1.0 Million

SOURCE: NAVWAR; FBI

NIWC Pacific holds nearly 500 active patents. These cover such areas as basic electric elements, computing and calculating, electrical communications, instrument measuring and testing, and optics. Including the impact of existing and new activities, patents contributed an estimated \$18.6 million to San Diego’s economy in FY 2018.

NAVWAR San Diego represents an important conduit for transferring technology from the government to the private sector. A Cooperative Research and Development Agreement (CRADA) provides for NIWC Pacific and a non-federal government partner to collaborate in a technical area and share in the mutually beneficial results. In FY 2018, NIWC Pacific launched 26 new CRADAs as part of its technology-transfer program. (See Exhibit N19)

6. GOVERNMENT PURCHASE CARDS

Department of Defense organizations often use Government Purchase Cards (GPCs) for “micro-purchases” of less than \$5,000. GPC spending by NAVWAR in San Diego totaled an estimated \$7.3 million in FY 2018. This spending benefited a wide variety of businesses selling or producing electronics equipment and

components, hardware and abrasives, instruments and laboratory equipment, and providers of various business services.

7. STEM OUTREACH

Keeping up with the demand for individuals educated and trained to work in fields involving high technology remains one of San Diego’s major challenges. The region’s schools are tasked with providing the most relevant STEM curricula and for inspiring students to follow STEM careers. (See Exhibit N20)

NAVWAR is actively involved in bridging any gaps within STEM through its involvement with local K-12 schools and universities. Through its diversity initiative, NAVWAR hosts numerous events and projects with young students to create interest within STEM. It provides internship opportunities for local high school and college students and is highly involved in providing mentoring partnerships. It also sponsors various events to foster interest in STEM among students, organizes classroom demonstrations, and participates in science fairs.

NAVWAR employees devote sizable amounts of their own time to supplementing STEM education and to encourage young people to pursue STEM careers. In FY 2018, 465 NAVWAR employees contributed nearly 13,000 hours in support of STEM education and career advancement. This contribution to STEM education was equal to an estimated \$1.0 million in FY 2018.





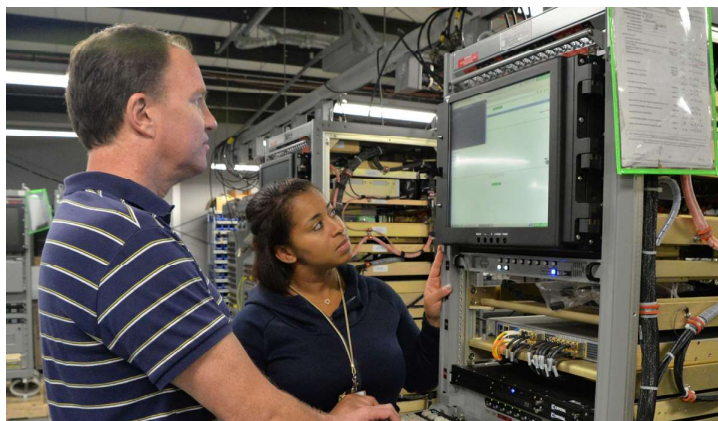
EXCEPTIONAL SYNERGIES BETWEEN NAVWAR AND THE SAN DIEGO REGION

THE POWER OF NAVWAR AND SAN DIEGO WORKING TOGETHER

The headquartering of NAVWAR in the Midway District of San Diego is ideal for both the Navy's leading information technology acquisition organization and the vibrant community of San Diego. The synergistic effect has propelled NAVWAR, while the San Diego region has benefited from a large professional workforce and valuable contract awards.

In 2017, NAVWAR, in conjunction with Navy Region Southwest and Naval Base Point Loma, embarked upon an ambitious plan for the complete redevelopment of the Naval Base Point Loma Old Town Complex. The possible public-private venture could result in a new, modern, 1.5 million square foot NAVWAR facility. This redevelopment could bring huge economic benefit to the region not only through the redevelopment of 70 acres at the Old Town Complex but through the construction and operation of planned new commercial, transportation and housing facilities.

Additionally, the San Diego Association of Governments (SANDAG) is working with the Navy through an intra-governmental agreement as it pursues the Naval Base Point Loma Old Town Complex as an ideal location for a major transportation hub with a link to San Diego International Airport's redevelopment of Terminal One.



WHAT SAN DIEGO BRINGS TO NAVWAR

With nearly half of its workforce positioned in the San Diego area, NAVWAR leverages many of the region's unique advantages. These include its close proximity with operational forces, training ranges, high-tech industry and world-class universities.

Its co-location with large numbers of Navy and Marine Corps operational forces is a primary advantage. Interaction with fleet customers makes sure NAVWAR designs, develops, installs, tests, and evaluates capabilities that are the best match for Navy and Marine Corps requirements. On a broader scope, the robust and unique local training areas and ranges not only serve operational force training, but also provide opportunities for NAVWAR to develop and test new capabilities.

The high-tech nature of NAVWAR's information warfare capabilities requires close partnership with industry. San Diego has a long tradition of leadership in the telecommunications and defense industries and a technology-rich workforce to support these endeavors. This has fostered growth of a wide variety of small and large businesses with the structures in place that align with the technical and security requirements of defense acquisition. This hub of qualified vendors supports an effective and competitive acquisition process. Further, the density of cybersecurity industry expertise benefits the core function of NAVWAR's mission.

High-tech expertise in San Diego extends beyond industry and critically involves academia. NAVWAR is surrounded by exceptional universities and colleges that support its mission in key areas. There are opportunities for formal cooperative research agreements that particularly benefit the fundamental

technology development areas for new capabilities. NAVWAR promulgates Small Business Innovative Research (SBIR) and Small Business Technology Transfer (STTR) program solicitations to conduct research and development that is of mutual benefit to various small firms and NAVWAR. SBIR is small business exclusive, while STTR requires the small business to have a research partner consisting of a university or other qualified non-profit research institution.

San Diego's set of world class universities provides access to a vital talent pipeline as students assume internships or move into the workforce after graduation. The region's academic institutions provide a convenient access for the continued professional development of NAVWAR's current employees. These university links are particularly important as NAVWAR must attract and retain future talent in the highly competitive technology-centric career fields.

The location in San Diego of NAVWAR headquarters, PEO C4I, PEO Space Systems, and NIWC Pacific, along with the concentration

of operational fleet units, training ranges, high-tech industry, and academia, provides a nexus of capability that is truly unique.

WHAT NAVWAR BRINGS TO SAN DIEGO

NAVWAR benefits the San Diego region in a wide variety of ways. It is the region's 15th largest employer. (See Exhibit N21) It provides the high-paying jobs sought by communities throughout the world. It offers positions to new graduates of the region's colleges and universities and helps build the technical expertise sorely needed by enterprises across the San Diego region.

NAVWAR has helped to build some of the industry's primary clusters. For example, two-thirds of its employees work in cybersecurity, one of the region's rapidly growing areas. (See Exhibit N22) NAVWAR's role in technology transfer is an important driver of innovation and the incubation of new enterprises.

NAVWAR's large volume of contracts support both large and small businesses and have helped San Diego firms to expand. Fueled by both collaborative innovation and an entrepreneurial drive, many small businesses in the San Diego region were founded and have grown as a product of doing business with NAVWAR. Moreover, the operation and maintenance of its San Diego facilities, along with numerous small-scale purchases, provide many local firms with a wide range of business growth opportunities. NAVWAR also contributes to the tourism industry through its effects on both business and leisure travel. Finally, the desire of NAVWAR's employees to give back to San Diego, such as through the hours they dedicate to support STEM education, is particularly noteworthy. NAVWAR and the San Diego region are the model for how military and civilian communities can work with great synergy that is mutually beneficial to both. ■

EXHIBIT N21

NAVWAR Ranks as San Diego County's 15th Largest Employer

MILLIONS OF DOLLARS, FY 2018

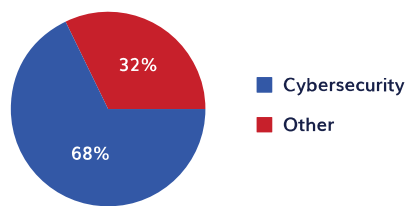
RANK	COMPANY	# EMPLOYEES	RANK	COMPANY	# EMPLOYEES
1	UC San Diego	34,448	11	General Atomics	6,791
2	Naval Base San Diego	34,185	12	San Diego State University	6,436
3	Sharp HealthCare	18,364	13	YMCA	5,517
4	County of San Diego	17,413	14	Rady Children's Hospital	5,471
5	Scripps Health	14,941	15	NAVWAR	5,193
6	San Diego Unified School District	13,815	16	Northrop Grummond	4,994
7	Qualcomm Inc.	11,800	17	Sempra Energy	4,860
8	City of San Diego	11,462	18	San Diego Community College District	4,250
9	Kaiser Permanente San Diego	9,606	19	Solar Turbines Inc.	4,000
10	UC San Diego Health	8,932	20	BD (Becton, Dickinson and Co.)	3,997

SOURCE: SAN DIEGO BUSINESS JOURNAL'S BOOK OF LISTS; NAVWAR; FBI

EXHIBIT N22

Two-Thirds of NAVWAR Employees Work in Cybersecurity

SHARE OF EMPLOYMENT, FY 2018

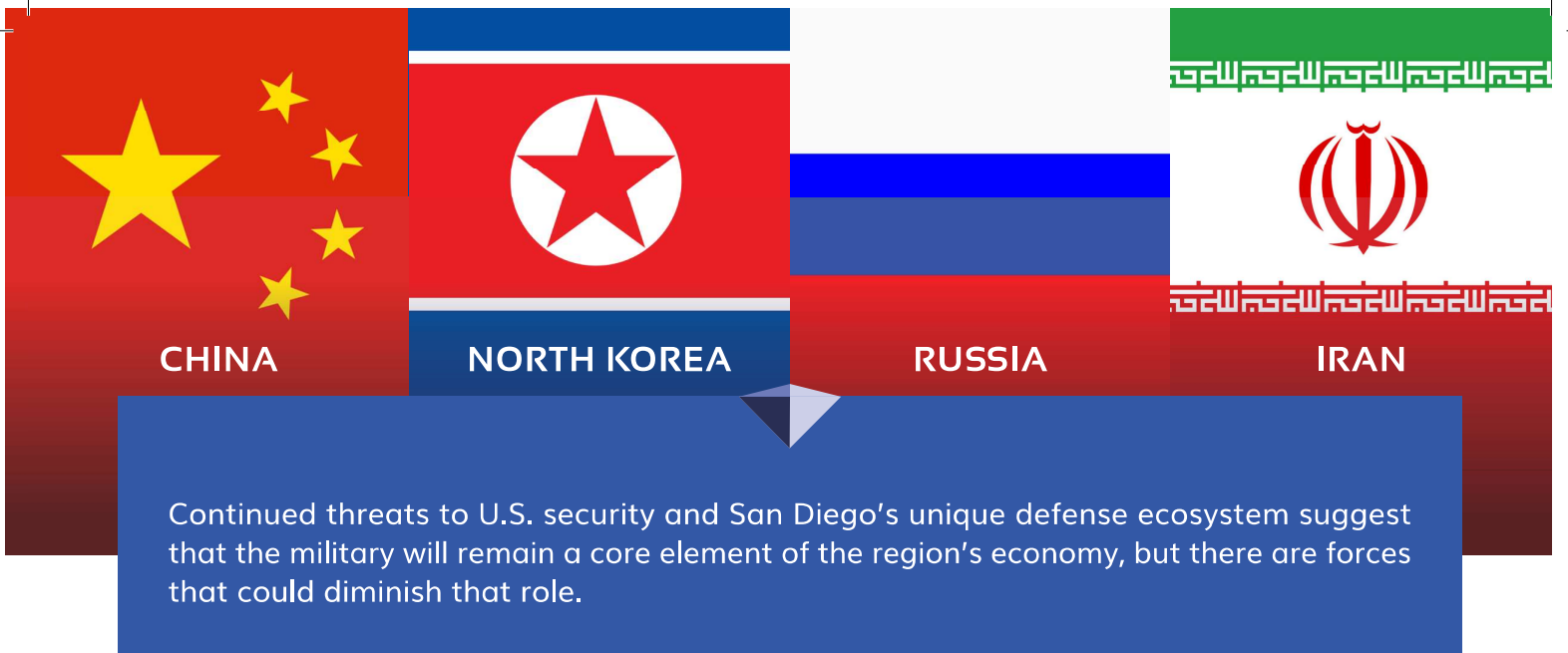


SOURCE: NAVWAR; FBI



SECTION VIII

THE MILITARY'S
FUTURE IN
SAN DIEGO



SAN DIEGO'S STRENGTHS

San Diego possesses several characteristics that give it a comparative advantage over other regions in attracting military dollars:

- **Rebalance to the Pacific Region.** Although the Middle East and Europe will continue to demand attention, the DOD remains committed to a fleet mix of approximately 60% focused on the Pacific versus 40% in the rest of the world. San Diego's strong military infrastructure on the West Coast places it in a prime position to receive newly built or redeployed ships.
- **Shipbuilding.** The Trump Administration has set a goal of increasing the number of Navy ships to 355 by approximately FY 2050 up from a count of 286 ships at the beginning of FY 2019. This can be achieved by building new ships and extending the lives of existing ones. San Diego's robust shipbuilding and repair industry stands to benefit significantly. The 355 goal could be achieved earlier by stretching ship life times by seven to ten or more years by periodically putting them in dry dock for maintenance and upgrade. Employment at San Diego's shipyards has recently reached about 7,600, not far from the recent peak of 8,000 seen in 2015.
- **Information warfare.** The DOD considers information warfare (IW), including cybersecurity, to be a major priority as military strategies and tactics change worldwide. San Diego has a strong cluster of firms well positioned in this field.
- **Space warfare.** The Trump Administration has identified outer space as a key link in the Nation's security. NAVWAR's presence and the expertise of San Diego firms in satellite and related technologies make the region an important enabler of this strategy.

- **Unmanned systems.** As the DOD relies more on unmanned vehicles and weapons systems, San Diego's leading drone industry is well positioned to develop existing and new technologies.
- **Troop readiness.** The Administration has emphasized the need for enhanced troop training and San Diego possesses an ideal setting for such training. Two-thirds of the Nation's military training airspace is in the Southwest. The need for the Armed Forces to work together can be honed in San Diego where large numbers of Navy, Marine Corps, Coast Guard, and Reserve personnel can train together.
- **Equipment readiness.** Requirements to repair and upgrade aircraft, ground vehicles, weapons, and other military needs will find a vast supply network in the San Diego region. Aircraft readiness will bring additional orders to the Fleet Readiness Center Southwest at Naval Air Station North Island (NASNI) and to various private aircraft



manufacturers. San Diego firms producing replacement parts for vehicles, weapons, and other military requirements will also be key to meeting force requirements.

- Special operation forces. The proliferation of unconventional and localized conflict has made the use of special operations forces, such as the Navy SEALs on Coronado and the 1st Marine Special Operations Battalion at Camp Pendleton, increasingly important.
- Emphasis on conservation and the environment. The military's focus on conserving resources, ranging from water to energy, and safeguarding the environment where it operates will align with efforts promoted both by California and the San Diego region.



CONSTRAINTS AND RISKS

Significant constraints and risks could limit the potential of defense as an economic driver in San Diego:

- Housing supply. San Diego's supply of new housing is not keeping pace with the demands of the military as the number of personnel in the region expands. The total housing stock in San Diego is rising by only about 8,500-9,000 units per year, while the number of military personnel based in San Diego is projected to climb by about 7,500 in FY 2020. While the DOD offers a BAH to address some of San Diego's higher housing costs, many military personnel find it insufficient. High housing costs are also a constraint for private defense companies attempting to attract or retain employees.
- Labor supply. With the jobless rate hovering between 3.1% and 3.2% in San Diego County, companies are finding it increasingly difficult to fill open positions while quit rates among existing employees rise. Government and private firms in the defense complex are particularly vulnerable as they seek people trained in occupations ranging from software engineers and medical professionals to welders and pipefitters. Security clearances are often a hurdle. High housing costs are a further constraint on employers attempting to attract or retain workers.
- High taxes. Despite California's and San Diego's weather and quality-of-life advantages, income, property, and other taxes represent an impediment. The \$10,000 limit on the amount of state and local taxes (SALT) that can be deducted from federal income returns has worsened the problem for some homeowners. California's and San Diego's population of military retirees has dropped significantly in part due to the State's taxation of military benefits. California is only one of eight states that fully taxes such benefits.

- Tariffs. Defense units and contractors reliant on aluminum, steel, electronic components, and other materials and products could face continued or additional price increases due to tariffs. Some buyers may be able to shift suppliers to other nations not subject to the tariffs and some of the potential price increase could be buffered by a stronger dollar. While all regions, along with San Diego, will be impacted, the effects of tariffs will diminish the strength of any defense budget increase.
- Veterans. The 239,000 Veterans who currently reside in San Diego County face a multitude of challenges, including mental and physical disabilities, housing, job placement, and the assimilation into civilian life. The San Diego 2019 Point-in-Time-Count identified found that 10% of the 8,100 individuals experiencing homelessness in the County were Veterans.
- Political shifts. While current policy is focused on bolstering the Nation's defense and there is little concern about a growing deficit and rising debt, a changing landscape in Washington could quickly change those priorities. Attention to the Nation's budget deficit, likely to exceed \$1 trillion in FY 2020 and in future years, and a shift to social priorities could end the steady flow of defense dollars into the San Diego region.



RECOMMENDATIONS

To safeguard the military's presence and contribution to San Diego's economy, several actions could be supportive in the coming year:

- San Diego's political, corporate, educational, and non-profit organization leaders need to remain informed on the symbiotic relationship between the region and the Nation's defense strategy and continue to carry that message to Sacramento and Washington. This is critical as local governments and economic development areas throughout the country compete for a larger share of defense dollars.
- Military leaders need to be a key part of the conversation with local government officials, builders, and developers to design housing policies that will accommodate increased numbers of military personnel now envisioned for the region as the number of ships homeported in San Diego rises.
- Military and transit leaders need to work more closely together to insure that the region's transportation network, including buses, rail, and bike lanes, are aligned with the needs of military installations and their personnel.
- California should eliminate or substantially reduce its taxation of the pensions of military retirees. While there would be a short-term revenue loss, it would be relatively small and offset by rising revenues over time. The continued loss of some of the State's most valuable citizens is a great economic and social cost.
- Services for those experiencing homelessness offered by various non-profit organizations, the VA, DOD, local government agencies, and private companies need to be better coordinated with designated areas of specialization. Individual programs need

to be evaluated for their effectiveness. This could help identify gaps, while eliminating redundancies and encouraging organizations to focus on areas where they have a comparative advantage.

- Companies and government agencies need to further expand their internal employee education and training programs to keep pace with technological advances. Apprenticeship programs should be considered or expanded among all types of defense employers.
- NAVWAR, Navy Medicine, the VA, and the region's universities, colleges, and private firms need to deepen and broaden their relationships. This would facilitate the further exchange of the large amounts of valuable technology between defense research labs, academia, and the private sector.
- DOD entities, the Coast Guard, and the VA should facilitate the efforts of San Diego retirees to volunteer their time and skills to provide assistance.
- The City of San Diego and other cities in the County need to work with the military to help achieve their Climate Action Plans (CAPs) and reduce Greenhouse Gas (GHG) emissions. Military installations have often been at the leading edge of implementing energy conservation and renewable energy systems. ■



CONCLUSION

The network of Sailors, Marines, those who serve in the Coast Guard, and members of the Reserves, civilian employees, Veterans, retirees, aerospace firms, shipbuilders, electronics companies, software developers, researchers, and the various supply chains in San Diego represent a vital military ecosystem. This ecosystem is critical to the nation's defense and delivers enormous economic value to the region.

Even more important than the economic impact on San Diego are the individuals connected with the military. As employees and residents, they represent vital roles in local schools, non-profit organizations, churches, and the overall community.

The values upheld by San Diego's military service branches set high standards for the region:

The U.S. Navy and Marine Corps:
Honor, Courage, and Commitment

The U.S. Coast Guard:
Honor, Respect, and Devotion to Duty

The U.S. Department of Veterans Affairs:
Integrity, Commitment, Advocacy, Respect, and Excellence

These values are underscored in the third verse of the Navy Hymn.

The Military and their families are a vital part of San Diego's fabric and help make the region exceptional.

*"Upon the chaos
dark and rude,
And bid its angry
tumult cease,
And give, for wild
confusion, peace;
Oh, hear us when
we cry to Thee,
For those in peril
on the sea!"¹*

¹The Navy Hymn, with the original words written as a poem in 1860 by William Whiting

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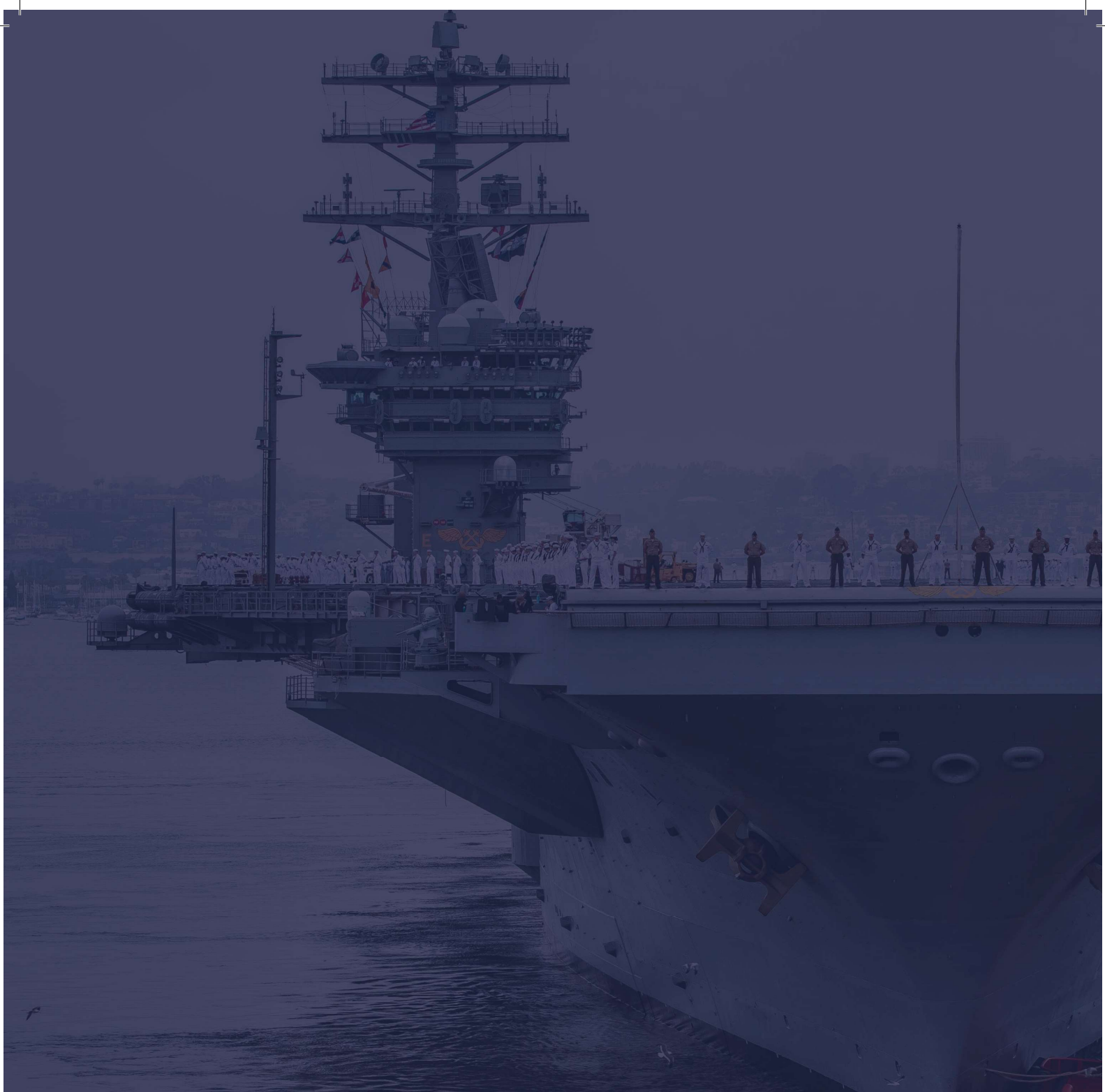


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LIST OF ACRONYMS

BAH	Basic Allowance for Housing	NBSD	Naval Base San Diego
BAS	Basic Allowance for Subsistence	NHCP	Naval Hospital Camp Pendleton
BCA	Budget Control Account	NMAWC	Naval Mine and Anti-Submarine Warfare Command
BEA	Bureau of Economic Analysis	NMCSO	Naval Medical Center San Diego
CBO	Congressional Budget Office	NRSW	Navy Region Southwest
CNRSW	Commander, Navy Region Southwest	NSWC	Naval Special Warfare Command
DMDC	Defense Management Data Center	OCO	Overseas Contingency Operations
DOD	Department of Defense	OMB	Office of Management and Budget
FBEI	Fermanian Business and Economic Institute	SDMAC	San Diego Military Advisory Council
FY	Fiscal Year (Oct. 1 – Sept. 30)	SDMEIS	San Diego Military Economic Impact Study
GDP	Gross Domestic Product	SPAWAR	Space and Naval Warfare Impact Study (now named NAVWAR)
GPC	Government Purchase Card	USCG	United States Coast Guard
GRP	Gross Regional Product	USMC	United States Marine Corps
MAG	Marine Aircraft Group	USN	United States Navy
MAW	Marine Air Wing	VA	Veterans Administration
MCAS	Marine Corps Air Station	VASDHS	VA San Diego Healthcare System
MCB	Marine Corps Base	VVSD	Veterans Village of San Diego
MCRD	Marine Corps Recruit Depot		
MCI	Marine Corps Installations		
NAB	Naval Amphibious Base		
NAICS	North American Industry Classification System		
NASNI	Naval Air Station North Island		
NAVSUP FLC	Naval Supply Systems Command Fleet Logistics Center		
NAVWAR	Naval Information Warfare Systems Command		
NBC	Naval Base Coronado		
NBPL	Naval Base Point Loma		



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