SDMAC wishes to extend our sincere appreciation to:

Bank of America
Merrill Lynch

For their generous support in making this study possible.

Copies of this report may be obtained by visiting the San Diego Military Advisory Council website at: www.SDMAC.org

Copyright © 2016 by the San Diego Military Advisory Council.
All rights reserved.

The material in this report includes forecasts and projections and may, in some instances, be judgmental in nature. PLNU, The Fermanian Business & Economic Institute, and the San Diego Military Advisory Council disclaim any and all liability from the use of this material. Publication or distribution of any portion of this document is prohibited without the express approval of the San Diego Military Advisory Council.
SMDAC 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 2016, San Diego benefitted from more than $23.3 billion in direct defense spending and was supported by 301,000 jobs by the military sector.

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
November, 2016

SDMAC Members and Supporters,

The San Diego Military Advisory Council (SDMAC) is proud to present the 8th Annual SDMAC Military Economic Impact Study (SDMAC MEIS). This Study once again highlights the mutually beneficial relationship and the significant economic impact that exists between the military and the San Diego region.

The last few years have seen uncertainties and reductions in Defense spending. Currently there is a Continuing Resolution in place and with elections looming and changes in Congress as well as the Administration, the Continuing Resolution and uncertainty will continue well into 2017.

San Diego remains home to the largest concentration of Military in the world. It is the epicenter of the National Strategy of rebalance to the Indo-Asia Pacific. San Diego's vital air, land and sea training ranges, the existing military infrastructure, its' network of firms with expertise in shipbuilding, unmanned vehicles and equipment, cybersecurity, electronics, wireless communication, computer systems, energy and environmental sciences make the San Diego region critical to our national Security objectives.

We should never take anything for granted. The extraordinary and synergistic relationship between the Community and the Military and the strong support for the Military received from the San Diego Community and it’s local, state and federal elected representatives makes it unique in the county and unites the San Diego region and the military to face all challenges.

The 2016 Military Economic Impact Study substantiates the synergistic relationship and that the Military is the largest economic cluster in the San Diego Region and is essential to the San Diego Regional economic well being.

SDMAC would like to extend its deepest appreciation to the Military for its support and cooperation in generating this study and to the Fermanian Business and Economic Institute at Point Loma Nazarene University for the meticulous and professional efforts in generating this report.

Most of all SDMAC would like to thank all of the Communities, organizations, and businesses in the San Diego Area for their strong support of the military.

Ward Wilson
2016 SDMAC President
November, 2016

Members and Supporters of SDMAC,

The Fermanian Business & Economic Institute (FBEI) at Point Loma Nazarene University is pleased to present the 2016 San Diego Military Economic Impact Study (SDMEIS), commissioned by the San Diego Military Advisory Council (SDMAC). The partnership between PLNU and SDMAC has spanned 7 years and has resulted in a variety of studies, each supporting the overall value and economic benefit that the military brings to the San Diego region.

This year marks our 5th Military Economic Impact Study (MEIS). In keeping with past reports, this is a comprehensive update of our 2015 report, including the economic impact by ship class and a brief update on Navy medicine. The study demonstrates the synergy between the military and San Diego and quantifies the defense related spending and its impact on the region.

The Institute wishes to thank SDMAC leadership and members of the military for their assistance with the data collection and research necessary for accurate modeling resulting in an objective analysis to assist military leadership and policy makers at all levels.

On behalf of PLNU’s Fermanian Business & Economic Institute, Executive Director Cathy Gallagher and Chief Economist, Dr. Lynn Reaser we are pleased to present to the San Diego Military Advisory Council and the San Diego region the 2016 SDMEIS for your consideration and use.

Positively,

Bob Brower, Ph.D.
President
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)
Sponsors

SDMAC would like to thank the following companies and organizations for their generous support in helping to make this 8th Annual SDMAC Military Economic Impact Study possible.
Acknowledgements

SDMAC would like to thank Commander Navy Region Southwest and Commander Marine Corps Installations West and their staffs for their support in making this study possible.

8th Annual SDMAC Military Economic Impact Study Oversight Group

Ward Wilson – SDMAC President

Randy Bogle, CAPT. USN (Ret.) – SDMAC Executive Director

Terry Magee, CAPT. USN (Ret.) – SDMAC President 2008, Board Member & Co-Chair, SDMEIS Oversight Group

Steve Soules, CAPT. USN (Ret.) – SDMAC Board Member, Co-Chair SDMAC, SDMEIS Oversight Group

Michelle Ragsdale – Chair, SDMAC PR & Media Committee

Fermanian Business & Economic Institute Staff

Cathy L. Gallagher – Executive Director, FBEI

Ms. Gallagher provided editorial leadership of the SDMEIS, quality control, and oversight of the overall timeline and deliverables.

Lynn Reaser, Ph.D. – Chief Economist, FBEI

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

Paul Gentry, MBA – Assistant Director, FBEI

Mr. Gentry provided project management to student researchers involved in the study, as well management of the timeline, and facilitating communication processes related to web, email, and social media releases.

Tom Hale – Senior Research Associate, FBEI

Mr. Hale provided primary research, data collection, and assisted with analysis of the SDMEIS. He also managed the MBA researchers in their areas of responsibility.

Anna Heinz, Jesse Oleson, & Ryan Risse – Undergraduate Student Researchers, FBEI
The Fermanian Business & Economic Institute

The FBEI specializes in providing a variety of business and economic consulting services to employers, for profit and nonprofit companies, individuals, organizations, government entities, and others throughout the San Diego Region, as well as nationally and internationally. Consulting services include economic analysis and forecasting, economic impact studies, business plans, customer and consumer trends, market research, feasibility studies, expert opinion, and many other contemporary needs of the business and economic community, public and private, for-profit and non-profit. The Institute also has extensive experience in presenting materials to government officials at all levels and in conducting interviews with local and national media outlets.

For nearly two years, the FBEI has served as the economic consulting unit to California State Treasurer John Chiang, with Dr. Lynn Reaser serving as Chief Economist for his Council of Economic Advisors. Reaser served in a similar role during the 2 years prior while Treasurer Chiang served as CA State Controller. In this role, Reaser provides oral and written commentary, analysis, arrangement of meetings with business and economic leaders, and counsel on a wide variety of topics. Additionally, other clients in the region include Building Industry Association (BIA) San Diego, San Diego Housing Commission, Space and Naval Warfare Systems Command (SPAWAR), St. Vincent de Paul Village, The Jacobs & Cushman San Diego Food Bank, The Corky McMillin Companies, the City of San Diego, Armed Forces YMCA, Sempra Energy, San Diego Workforce Partnership, San Diego Zoo Global, and many others.
Special Thanks

SDMAC wishes to thank the San Diego County Board of Supervisors, the San Diego City Council, and the Coronado City Council for their financial support of this study.

CITY OF CORONADO, CALIFORNIA

The City of Coronado

The County of San Diego

San Diego City Council Members
# Table of Contents

EXECUTIVE SUMMARY 01

STUDY PURPOSE AND SCOPE 04

I THE ECONOMIC IMPACT 05
THE MILITARY’S INFLUENCE ON SAN DIEGO 05
SAN DIEGO’S MILITARY FACE: THE PEOPLE 06
SPACE AND NAVAL WARFARE SYSTEMS COMMAND (SPAWAR) 07
THE INFLOW OF DEFENSE DOLLARS 08
TRACKING THE RIPPLE EFFECTS OF DEFENSE DOLLARS 12
THE BUDGET AND NATIONAL DEFENSE SPENDING 13
THE OUTLOOK FOR DEFENSE OUTFAYS AND SAN DIEGO IN FY 2017 14
THE DEFENSE CLUSTER’S FUTURE IN SAN DIEGO 15
CONCLUSIONS 15

II THE IMPACT OF NAVY SHIPS ON SAN DIEGO 17
THE FLEET’S STRUCTURE 17
SHIPS AND PEOPLE 18
SHIPS AND DOLLARS 18
CHARTING THE RIPPLE EFFECTS AND TOTAL ECONOMIC IMPACT 18
THE FLEET’S FUTURE IN SAN DIEGO 19

III SAN DIEGO COUNTY NAVY MEDICINE AND ITS PEOPLE 20
MILITARY TREATMENT FACILITIES 20
TOTAL DIRECT SPENDING BY THE NAVY HOSPITALS 21
## IV SAN DIEGO AND THE MILITARY

- THE HISTORY OF THE NAVY IN SAN DIEGO 22
- THE HISTORY OF THE MARINE CORPS IN SAN DIEGO 22
- SYNERGISTIC PARTNERS 23

## APPENDIX

- METHODOLOGY 25
- INDEX OF EXHIBITS 28
- LIST OF ACRONYMS 30
The San Diego Region has the largest concentration of military in the world. The relationship and synergy between the military and the San Diego Region is exemplary, of mutual benefit, and serves as the model for the rest of the nation. The San Diego Military Advisory Council (SDMAC) is proud to present the 8th Annual Military Economic Impact Study (MEIS) to accurately and credibly document the military’s contribution to the economy of the San Diego Region.

San Diego’s military complex represents the region’s most important and largest economic catalyst. The area’s pivotal role in the rebalancing of U.S. forces towards the Pacific, its network of defense contractors, its geographic advantages for training, and its large number of military retirees represent a powerful economic force. One-fifth of San Diego County’s economy relies on this key sector.

- An estimated total of $23.3 billion in direct spending related to defense has been sent to San Diego County during fiscal year 2016, an amount equal to over $7,000 for each of the County’s residents.

- Defense-related activities and spending will generate an estimated $44.7 billion of gross regional product (GRP) for San Diego County in fiscal 2016. This represents 20% of the region’s total GRP.

- The military sector is generating more than 300,000 of the region’s total jobs in 2016.
after accounting for all of the ripple effects of defense spending. This represents one out of every five jobs existing in the County.

- Approximately 134,000 members of the Navy, Marines Corps, Reserves, and DoD civilians currently work in San Diego County. One out of every six of the nation’s Sailors is here and more than one-fourth of Marines are stationed in San Diego.

- The jobs created as a direct and indirect result of defense spending span a wide range, including food services, retail trade, health care, engineering, transportation, real estate, construction, and shipbuilding.

- Income generated as a result of all of the direct and multiplier effects of military-linked spending will amount to an estimated $19.6 billion in fiscal year 2016. This includes wages, salaries, other compensation, and small business owners’ income.

- In fiscal 2016, the 53 U.S. Navy ships home ported in San Diego will see direct spending of about $2.0 billion that will equate to a total economic impact of $6.0 billion in GRP. The two aircraft carriers based here will bring a combined $1.5 billion to the economy.

- SPAWAR, headquartered in San Diego, conducts research and development for Navy technology and cyberspace capabilities and provides the hardware and software vital for U.S. manned and unmanned systems at sea, on land, in the air, and in space.

- The two Navy hospitals in San Diego County employ over 8,200 individuals and have brought approximately $1.25 billion of Department of Defense (DoD) dollars directly into the region in fiscal year 2016.

- The recovery in spending from the effects of sequestration and the continued increased focus of the military on the Pacific Rim should slightly boost the economic impact of the defense spending in FY 2017. The total number of DoD personnel based in San Diego is projected to hold at about 134,000 while total direct spending rises 2.4% to $23.9 billion.
• The network of Sailors, Marines, members of the Reserves, civilian employees, aerospace firms, shipbuilders, electronics companies, software developers, researchers, and the various supply chains in San Diego represent a vital military ecosystem unparalleled anywhere else in the world.

• A key synergy exists between San Diego and the military. While the region’s defense ecosystem enables the nation to carry out its security objectives worldwide, military-linked spending delivers economic benefits to the region far exceeding those of any other sector.

Military Creates 1 Out of Every 5 San Diego Jobs

**SHARE OF TOTAL, FY 2016**

- **Jobs Supported by Defense Spending:** 20%
- **Other:** 80%

Source: FBEI

Ships Bring Jobs and Income to San Diego

**DOLLARS, FY 2016**

<table>
<thead>
<tr>
<th>Class</th>
<th># of Ships</th>
<th># of People</th>
<th>Spending</th>
<th>Economic Impact</th>
<th># of People</th>
<th>Spending</th>
<th>Economic Impact</th>
</tr>
</thead>
<tbody>
<tr>
<td>CVN</td>
<td>2</td>
<td>3,200</td>
<td>$214,491,516</td>
<td>$770,120,233</td>
<td>6,400</td>
<td>$428,983,033</td>
<td>$1,540,240,467</td>
</tr>
<tr>
<td>SSN</td>
<td>5</td>
<td>141</td>
<td>$22,805,721</td>
<td>$44,757,722</td>
<td>705</td>
<td>$114,028,607</td>
<td>$223,788,608</td>
</tr>
<tr>
<td>CVN</td>
<td>53</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>23,243</td>
<td>$1,980,388,769</td>
</tr>
</tbody>
</table>

* Surface ships include CG, DDG, LCS, LHA, LHD, LPD, LSD, and MCM

Source: FBEI
Study Purpose and Scope

For years everyone was aware of the presence of the military and various companies dependent on defense contracts, but how big was the economic impact? If the military were to diminish in importance, could other industries easily take up the slack or would the void be exceedingly hard to fill? During the past several years the San Diego Military Advisory Council has commissioned annual reports to answer these questions. This year’s 8th Annual San Diego Military Economic Impact Study (SDMEIS) presents and quantifies the most accurate and comprehensive picture possible of defense-related spending and its total impact on the region’s economy. It also explores how geopolitical and financial forces will affect the San Diego-military nexus in the period ahead.

The study describes the footprint of the defense sector in terms of the people who work here, live here, and visit the area. It tracks the flow of funds from outside the region through various channels, ranging from military payrolls and defense contracts to Veterans’ benefits and tourism. It analyzes the total impact on jobs, personal income, and GRP after accounting for all of the ripple or multiplier effects. This year’s SDMEIS updates last year’s analysis on the impact by ship class and analysis of Navy Medicine. The Conclusions section discusses some of the steps business, local government, and military leaders should consider to maximize the synergies between the nation’s defense strategy and San Diego.
SECTION I

The Economic Impact

The Military’s Influence on San Diego

The military and defense spending have historically occupied a dominant role in San Diego. Even with the region’s diversification into other key sectors, such as tourism, life sciences, health care, and education, the defense cluster represents San Diego’s most important and largest economic driver.

Funds devoted to carrying out the nation’s defense priorities flow into San Diego through three primary channels. First, compensation supports the Navy, Marine Corps, civilian employees, and Reserves stationed in the region. Second, contract outlays on materials, equipment, construction, and research, along with various grants and tourist dollars linked to the military’s local presence, contribute to the economy. Finally, benefit payments flow to military and DoD civilian retirees who have served the military in some capacity over the course of their lifetimes.

For fiscal 2016, $23.3 billion is estimated to have come to San Diego through these three principal channels. This amount equals about $7,100 for every San Diego resident. Approximately 42% will represent the wages, salaries, and benefits for active duty, civilian employees, and members of the Reserves. Another 38% will be the result of various procurement contracts, and smaller purchases by the local military commands, research grants, and the expenditures by business and leisure travelers from outside the region. A final 20% will be dedicated to the payment of retirement and other benefits accruing to Veterans, retired military, and retired civilian DoD employees. (See Exhibit 1)
San Diego’s Military Face: The People

Approximately 134,000 uniformed Military and DoD civilians currently work in various locations throughout San Diego County. (See Exhibit 2) These include active duty members of the Navy and Marines, civilian employees, and members of the Reserves.

Over 55,000 of these are members of the U.S. Navy, which represents one of every six members of the nation’s total Naval force. The largest share of the region’s Navy (24,000) is at Naval Base San Diego, including Sailors who may be deployed on various ships during the year. (See Exhibit 3) More than 51,000 Marines are based in San Diego, including the average number of recruits located here during the year (an estimated 3,900 in fiscal year 2016). 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 36,000 of San Diego’s Marines.

An additional 21,500 civilian employees on the payrolls of the DoD support the operations of active duty personnel throughout the region. Defense dollars support approximately 6,300 members of the Armed Forces Reserves who reside in San Diego County. These individuals take part in various training exercises throughout the year and support crisis situations that may develop either in the U.S. or abroad. The Navy and Army each account for about one-third of San Diego residents serving in the Reserves. Another 22% serve with the Marines, while the remaining 11% are reservists with the Air Force.

The 134,000 total employee count of FY 2016 includes only DoD employees (Active Duty, civilian, and Reserves). Not included are employees of the Department of Veterans Affairs (VA) or members of the Coast Guard who are part of the Department of Homeland Security. San Diego’s total DoD employment for FY 2016 will represent a gain from the 131,000 total of FY 2015 as an increased number of Navy personnel offset reductions in the numbers of civilian employees. For FY 2017, the total is...
projected to level out at about 134,000, with little change in the counts for Navy, Marines, Reserves, or civilian personnel. *(See Exhibit 4)*

Individuals employed as Active Duty members, members of the Reserves, or civilians 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 Navy 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.

There are 67,000 retired military and retired civilian DoD employees living in San Diego County. Military retirees number about 44,000, with about three-fourths of them previously with the Navy. The number of civilians living in San Diego who previously worked for the DoD is an estimated 23,000 as of FY 2016.

San Diego’s defense face is also defined by the approximately 229,000 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 War on Terrorism. A large number of younger Veterans also are now in San Diego. The ending of the U.S. military commitments in Iraq and Afghanistan continues to drive increases in our Veteran population as San Diego is a primary destination of military personnel returning from those areas.

### Space and Naval Warfare Systems Command (SPAWAR)

SPAWAR (pronounced spay-wôr) is one of San Diego County’s most important assets. A special report, commissioned by SDMAC, was published in April 2014 which analyzed SPAWAR’s total economic impact on the region. SPAWAR directly employs nearly half of all the cyber security jobs in San Diego and its presence in San Diego is a huge contributing factor for many cyber companies to remain located in San Diego. Its expansive research facilities and cutting edge laboratories located in Point Loma are a unique national asset.

SPAWAR’s information technology and cybersecurity products and services transform ships, aircraft, and vehicles from individual platforms into integrated battle forces, delivering and enhancing information warfare capability, and awareness among Navy, Marine, joint forces, federal agencies, and international allies. SPAWAR supports the full product lifecycle from the initial research and development, to acquisition and deployment, to operations and logistics support. SPAWAR develops, delivers, and sustains communications and information capabilities for warfighters, keeping them connected anytime and anywhere.

As the Navy’s Information Warfare systems command and information technology technical authority, SPAWAR conducts research and development for Navy cyberspace capabilities and provides the hardware, software, and firmware to connect our manned and unmanned systems at sea, on land, in the air, and in space. SPAWAR is one of six major Department of Navy acquisition commands.

SPAWAR consists of 10,224 active duty military and civil service professionals located around the world. SPAWAR is close to the Fleet and at the forefront of research, engineering, and acquisition. Half of all SPAWAR employees (5,024: 287 military, 4737 civilian) work in San Diego contributing more than $734 million in salaries and benefits in the San Diego economy. Personnel conducting high-level cyber and information systems research and development at Space and Naval Warfare Systems Command (SPAWAR) are included in the numbers for the Naval Base Point Loma in Exhibit 3.
SPAWAR's total budget in FY15 was $6.8 billion, with $5.0 billion (74%) going to contracts with private industry. SPAWAR distributed these funds worldwide to support its mission, with the San Diego region receiving over $1.1 billion in SPAWAR contract obligations. Of that, more than $397 million of those obligations went to small businesses in San Diego. As a major acquisition command, SPAWAR’s presence in San Diego benefits from the large number of advanced technology and defense industry companies that bring the additional expertise necessary to develop and field cutting-edge information technologies for the Navy.

SPAWAR is highly engaged with local colleges and universities. In addition to research and academic partnerships, SPAWAR offers a wide array of student employment programs. SPAWAR is also dedicated to helping nurture the next generation of science, technology, engineering, and mathematics (STEM) professionals and hosts a wide variety of K-12 education outreach events, internships, and mentorship activities.

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

The Inflow of Defense Dollars

Each of the three principal ways in which defense-related dollars (compensation, benefit payments, contracts and other spending) enter the region’s economy has distinct characteristics and effects. It is also important to break these broad groups into more distinct streams of influence. (See Exhibit 5) Total spending will amount to $23.3 billion in FY 2016, a gain of 2.8%, or about $600 million over the prior year. The flow of defense-linked dollars is projected to increase about 2.4% to $23.9 billion in FY 2017.

Total Compensation

The total payroll in terms of wages, salaries, and benefits of Navy, Marine Corps (including recruits), civilian workers, and personnel in the Reserves will total an estimated $9.8 billion in fiscal 2016. The Navy and Marines Corps will have a total payroll of approximately $7.8 billion, while the civilian payroll will total about $1.9 billion. Wages and salaries paid to members of the Reserves will sum to about $108 million. (See Exhibit 6)

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 2016, the average housing allowance for a mid-grade Petty Officer in the Navy or mid-grade sergeant in the Marine Corps living in San Diego County is about $2,000 per month ($1,800 in the Camp Pendleton area). Officers of higher ranks receive a monthly BAH of about $2,700 throughout the County.

Active duty personnel also receive compensation for spending on food (termed the Basic

<table>
<thead>
<tr>
<th>Defense Dollars Boost San Diego’s Economy</th>
<th>EXHIBIT 5</th>
</tr>
</thead>
<tbody>
<tr>
<td>MILLIONS OF DOLLARS, FISCAL YEARS</td>
<td>2015</td>
</tr>
<tr>
<td>----------------------------------------</td>
<td>---------</td>
</tr>
<tr>
<td>Total Compensation</td>
<td>$9,354</td>
</tr>
<tr>
<td>Retirement and Veterans’ Benefits</td>
<td>$4,415</td>
</tr>
<tr>
<td>Government Outlays</td>
<td>$8,602</td>
</tr>
<tr>
<td>Government Purchase Cards</td>
<td>$66</td>
</tr>
<tr>
<td>Grants</td>
<td>$88</td>
</tr>
<tr>
<td>Tourism</td>
<td>$144</td>
</tr>
<tr>
<td>Total</td>
<td>$22,669</td>
</tr>
</tbody>
</table>

e=estimate  f=forecast  Source: FBEI; DoD; USAspending.gov

<table>
<thead>
<tr>
<th>Military Compensation Totals $9.8 Billion in San Diego</th>
<th>EXHIBIT 6</th>
</tr>
</thead>
<tbody>
<tr>
<td>BILLIONS OF DOLLARS, FY 2016e</td>
<td>EXHIBIT 6</td>
</tr>
<tr>
<td>Navy and Marines</td>
<td>$7.8</td>
</tr>
<tr>
<td>Civilians</td>
<td>$1.9</td>
</tr>
<tr>
<td>Reserves</td>
<td>$0.1</td>
</tr>
</tbody>
</table>

$0.0  $2.0  $4.0  $6.0  $8.0  $10.0  $12.0  $14.0  $16.0  $18.0  $20.0

Source: FBEI; DoD

08
Allowance for Subsistence or BAS). Officers in 2016 will receive a monthly BAS of $254 per month, while enlisted members receive $368 per month. Civilian DoD employees receive non-wage benefits in the form of health care, life insurance, and contributions to a savings plan for retirement, which equals approximately 30% of their basic pay.

Total compensation is projected to rise about 2.0% in fiscal year 2017 to $10.0 billion from $9.8 billion in the prior year. This will reflect a stabilizing of the total number of personnel employed together with modest rises in wages and benefits due to cost-of-living adjustments.

**Retirement and Veterans’ Benefits**

In fiscal year 2016, approximately $4.6 billion will go to various San Diego residents who are retired military members, retired DoD civilian employees, and Veterans. (See Exhibit 7) The DoD funds the first two groups, while the VA funds the latter. These funds provide a vital base supporting income and spending in the region.

Payments to nearly 230,000 Veterans residing in San Diego County in fiscal year 2016 will total an estimated $2.5 billion. Close to one-half of this amount will represent pensions, while the remainder will be split between funding for medical care and educational or vocational training. (See Exhibit 8) In addition, Veterans have access to insured and guaranteed loans, which help support San Diego’s real estate and housing sectors.

Total retirement and Veterans’ benefits are projected to increase about 4.5% in FY 2017 to $4.8 billion from the prior year’s $4.6 billion. This will reflect higher numbers of retirees and Veterans as well as increases in the average level of retiree and Veterans’ benefits.

**Procurement Outlays**

During fiscal year 2016, an estimated $8.6 billion will flow into San Diego County from procurement contracts with various branches of the DoD. Local industries heavily involved with defense contracts include aircraft and parts, shipbuilding, engineering, transportation services, electronic components, construction, and scientific research. (See Exhibit 9) San Diego has a large cluster of firms that benefit from military contracts. Among the leaders of this group are General Atomics, Northrop Grumman, General Dynamics National Steel and Shipbuilding Company (GDNASSCO), BAE Systems, and Cubic. (See Exhibit 10)

Contract outlays in fiscal year 2016 are estimated to be essentially flat relative to the prior year’s total. Contract outlays are finally stabilizing after the declines of the past three years. New contract awards are projected to ease this year after the 19% rebound of fiscal year 2015 from the cutbacks under sequestration. (See Exhibit 11)

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 ship building 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. *(See Exhibit 12)* 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.

Other firms contract with the Navy and Marine Corps to provide a wide range of goods and services to carry out the operations and maintenance functions of the facilities based in the County. These include food service, janitorial, telecommunications, logistics, and other facilities support functions.

For FY 2017 total contracts are projected to rise 4.3% to $9.1 billion, while outlays rise a more modest 1.5% to $8.7 billion. One construction project of special note is the new $1 billion Coastal Campus on Coronado that broke ground last year. This project, which will take about ten years to complete, and will provide a new training facility for the Navy SEALs of the Naval Special Warfare Command (NSWC).

**Government Purchase Cards**

In addition to the goods and services furnished to military operations based in San Diego County through various procurement contracts, smaller transactions (less than $3,000) are carried out using government purchase cards (GPC). These purchases, which are estimated to total about $67 million in fiscal 2016, benefit a wide range of businesses in the region. These include construction companies (frequently hired for
reparations), various business services (such as printing), retailing (such as automotive parts), building materials, electronic components, and laboratory instruments. A modest rise in total GPC outlays to $68 million is projected for FY 2017.

**Grants**

Grants from the Defense Department represent another funding channel for San Diego firms, with the total estimated at about $95 million for fiscal year 2016. Underwriting a variety of research efforts, grants related to medical, weapons, alternative energy, intelligence, and other military issues have been funded across the County. The majority of grants go to local universities for research in these areas. A sizeable portion of grants also go to elementary and secondary schools for enrichment programs in math, science, and engineering. Further grant funding supports various community food, housing, and rehabilitations services along with environmental issues. For FY 2017, DoD Grants are forecast to rise about $2 million to $97 million.

**Tourism**

Completing the total procurement and spending stream of the military’s influence on San Diego, tourism injects funds into the area. While not funded by the government as are the other components of defense-related dollars, visits by government officials, business travelers, and family members or friends of military personnel and civilian workers employed by the DoD bring a significant sum of funds from outside the region into San Diego each year.

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 fiscal year 2016, about 16,000 individuals will graduate from the facility in 42 ceremonies over the course of the year. Approximately 63,000 family members and friends will come to celebrate these events, spending an estimated $27 million on hotels, food, and entertainment.

MCRD trains about 1,500 recruiters during the year in six sessions, each lasting slightly over seven weeks. It also hosts an annual workshop for about 800 teachers, school counselors, and representatives of the media to educate them about the Marine Corps.

Conferences and conventions related to the military bring tourist dollars to the region. Two major professional organizations host significant conventions and industry conferences in San Diego each year. The Armed Forces Communications and Electronics Association (AFCEA) stages a major convention for the West Coast focusing on communications, electronics, intelligence, warfare systems, imaging, and other issues. The NDIA (National Defense Industrial Association) also holds important conferences, including its annual Gold Coast meeting that focuses on opportunities for small business.

SPAWAR partners with large numbers of business and government entities on various projects during the year. These face-to-face meetings are often essential for implementing and coordinating complex initiatives. Approximately 55,000 visitor badges are issued each year for access to the controlled and restricted areas of SPAWAR at its Topside, Seaside, and Bayside locations. Government officials and medical practitioners also visit the military’s two major hospitals in the region to observe and learn from some of the groundbreaking treatment and systems used at these facilities.

Spending by individuals visiting those currently employed in San Diego because of the military’s operations here represent additional tourist dollars.

Tourism linked to the military’s presence in the region is estimated at a total of $151 million in fiscal year 2016. Of that amount, restaurants will receive about $70 million, hotels will see about $53 million in revenues, and entertainment facilities will gain approximately $28 million. (See Exhibit 13)
Total tourist spending linking to the military is projected to rise by 4.0% in FY 2017 to $157 million. This will reflect an increased number of MCRD graduates and some gains in convention, business, and personal travel by families and friends.

---

**Tracking the Ripple Effects of Defense Dollars**

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 14)*

The estimated $23.3 billion of direct defense-related spending represents a primary catalyst for San Diego’s economy in fiscal 2016. *(See Exhibit 15)* Incorporating all of the ripple or multiplier effects, the military will be responsible for about 301,000 of the total number of jobs existing in the County this year. These jobs are generating $19.6 billion in income or earnings for wage and salary workers and for various small business owners. The total impact of defense-related spending will create an estimated $44.7 billion of output or GRP in the San Diego region in FY 2016. This represents about 20% or one-fifth of the region’s total output.
The military, either directly or indirectly, will be responsible for one of our every five jobs in San Diego County during fiscal year 2016. (See Exhibit 16) The jobs will span a broad array of industries, including food services, retail trade, health care, engineering, transportation, real estate, construction, and shipbuilding. (See Exhibit 17)

Cybersecurity has become integral to all business and personal transactions. As information technology’s pervasiveness has grown, so too have the threats to these networks and the spending to defend them. SPAWAR employees and contractors make up nearly half of the 7,600 cybersecurity professionals in San Diego County.

The network of Sailors, Marines, members of the Reserves, civilian employees, aerospace firms, shipbuilders, electronics companies, software developers, researchers, and the various supply chains in San Diego represent a vital military ecosystem. Combined with the region’s natural features of a deep-water port, air, land, and sea training ranges, and position on the Pacific Rim, San Diego’s defense ecosystem represents a unique asset that cannot be replicated anywhere else in the nation.

The military creates 1 out of every 5 San Diego jobs. (See Exhibit 16)

Military Stimulates Widespread Employment

The Budget and National Defense Spending

Defense spending as a share of the U.S. economy has generally trended lower since 1970. Including expenditures for national security outside the DoD, total military spending as a percentage of U.S. GDP has declined from 7.8% in FY 1970 to an estimated 3.2% in FY 2017. Military spending’s share of the economy did rise briefly following the 9/11 terrorist attack, but the downward trend has again resumed. (See Exhibit 18)
Three major forces currently confront U.S. defense spending: budget constraints, growing international security threats, and political disagreement regarding what should be the nation’s spending priorities. The outcome of national elections this fall could shape the trend of defense spending going forward.

In December 2015, Congress approved legislation to lift the budget caps of the Budget Control Act of 2011 and remove the threats of sequestration for two years. DoD Budget Authority for FY 2016 is $580 billion, up from the $560 billion of FY 2015. *(See Exhibit 19)* Congress again failed to pass a Defense appropriations bill before the start of fiscal year 2017. Instead, a Continuing Resolution (CR) was approved to provide funding through December 9. Spending will be held at the FY 2016 level until an appropriations bill is passed, which might not occur until the new Administration takes office early next year. Larger questions will then surround the defense budget for FY 2018 as budget caps and the threat of automatic spending cuts or sequestration return.

The Outlook for Defense Outlays and San Diego in FY 2017

The recovery in spending from the effects of sequestration and the continued increased focus of the military on the Pacific Rim should slightly boost the economic impact of defense spending on the San Diego region in FY 2017. As the DoD moves forces and more of its fleet from the Atlantic to the Pacific, San Diego will be integral to the rebalance. The number of Navy ships homeported in San Diego will rise to 57 from 53 in FY 2016 and 49 in FY 2015. *(See Exhibit 20)*

The total number of DoD personnel based in San Diego is projected to hold at about 134,000, while total direct spending rises 2.4% to $23.9 billion in FY 2017. All components of spending are projected to show some gains, led by retirement and Veterans’ benefits. Including all of the multiplier or ripple effects, defense spending will account for about $45.2 billion of San Diego County’s economy in FY 2017, while it generates a total of 302,000 jobs and $20.0 billion of total personal income. The defense complex will remain the region’s most important economic driver while it represents a core element of the nation’s military strategy.
The Defense Cluster’s Future in San Diego

Several priorities of U.S. defense policy and San Diego’s strengths point to continued strong synergies and a further strong military presence in the region:

- Rebalance to the Pacific Region. As the DoD moves forces and more of its fleet from the Atlantic to the Pacific, San Diego will be integral to the rebalance.

- San Diego’s shipbuilding industry. The region’s strong network of shipbuilding and repair firms will support the demand for new ships, upgrading of older vessels, and ongoing maintenance of an expanding West Coast fleet.

- The need for flight training. Essential training on new aircraft will highlight the importance of San Diego’s bases since two-thirds of the nation’s military training airspace is in the Southwest.

- Cybersecurity. As the battlefield moves to an increasing exposure on the internet, cybersecurity will be a national priority. San Diego has a strong cluster of firms well positioned in this field.

- Special operations forces. The complexity of global threats is making 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.

- Use of unmanned systems. As the DoD relies more on unmanned aircraft and systems, San Diego firms that have established leading expertise in this field will gain added prominence.

- Focus on technology. A strategic decision by the DoD to develop a smaller, but more technologically capable, force will align well with the capabilities of San Diego companies specialized in developing new and more sophisticated software.

- 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 reinforce efforts promoted both by California and the San Diego region.

Risks also exist regarding the future size and scope of the defense presence and role in the region:

- Rising tensions in the Middle East. Increased instability and military threats, such as from Russia, could slow the efforts to shift more of the Navy’s fleet to the Pacific.

- Sequestration. Steep cuts in defense spending could return unless Congress again defers or softens the caps of the Budget Control Act.

- Crowding out of defense spending. A rising public demand for more investment in the nation’s infrastructure, along with growing spending on health care, could come at the expense of higher defense outlays.

- Base Realignment and Closure (BRAC). While little congressional support currently exists for another round of base closings, the Pentagon has argued that another review is necessary to eliminate redundancy and improve efficiency.

- Military benefits. Congress could advance efforts to curb pay raises and various benefits provided to service members for housing, food, health care, and education.

- Limits on unmanned vehicles. Safety and security concerns could limit the potential expansion of the unmanned vehicle industry in San Diego together with the critical development of new technologies important to the nation’s defense efforts.

- Housing costs. The cost of renting or owning a home in San Diego could reduce the attractiveness of the region to defense contractors as well as to retiring civilian and Active Duty DoD employees.

Conclusions

Defense and military-related activities will remain San Diego’s most important and largest economic catalyst in 2016, but the dollars and amount of economic impact appear to be leveling out.

The need for deficit reduction will clash with growing and increasingly complex global
security risks during the next several years. While progress in reducing the growth of the national debt will ultimately require slowing increases in spending on entitlement programs, such as social security and health care, a new Congress and Administration are likely to have little appetite to address those issues. The result is that defense and other discretionary spending (requiring annual appropriations by Congress) could bear the brunt of cutbacks at least in the near term.

To safeguard the military’s continued presence in the region and maximize the synergies between San Diego and the defense cluster, several steps will be important in the year ahead.

- The region’s political, civic, and business leaders need to fully understand San Diego’s comparative strengths and the importance of the region in implementing the nation’s defense strategy. These officials and military leaders must realize that it is not a “one way street.” They need to appreciate what the military brings to San Diego, why San Diego is so valuable to the military, and what this synergy and the San Diego military ecosystem means to the nation’s defense and the region’s economy.

- Local, state, and federal government leaders need to ensure that policies advance rather than impede operations of the Navy and Marine Corps. State leaders need to be engaged to back legislation and policies that will support military operations and facilities in California. The supportive voices of local, state, and federal leaders are essential to maintain the military’s presence in the area.

- The community needs to integrate even more fully members of the military and their families into various cultural, sports, educational, and civic activities. Some might still view the military as a separate and distinct group. More help could also be provided in terms of financial education, access to credit, mentoring, and tutoring.

- Although San Diego leads the nation in organizations and programs to assist Veterans, there is still much to be done in this important area. San Diego faces a continuing large influx of returning Veterans. Helping these individuals find jobs and successively integrate back into a non-combat environment should continue to receive our top priority.

- Companies should increase their efforts to attract members of the military who transition out of the service because of the skills, technical proficiency, discipline, and reliability they bring to the region’s work force.

- Local recruiting efforts, including information provided to teachers and counselors, could be raised so that San Diego’s best and brightest young people are aware and consider a military career.

- Businesses currently dependent on military contractors will continue to need to diversify their customer base by finding new applications for their products and services in commercial and consumer markets.

- San Diego firms will need to improve their lead in cutting-edge technologies as competition for a piece of a smaller procurement budget pie intensifies.

- SPAWAR and private firms need to build further on their relationships to facilitate the transfer of the large amounts of valuable technology from the Navy’s research labs to the private sector.

- Greater efforts need to be made to share the advances in cybersecurity between the private and defense sectors.

- San Diego’s defense and private sectors need to expand further programs to boost STEM (science, technology, engineering, and mathematics) education and to attract more young people into the field.

- Public awareness of the damage of a CR needs to be publicized and emphasized to persuade Congress and the Administration to address budget and defense priorities in a rational and sound manner.

The military and defense-linked activities will have a strong influence on San Diego’s economy for many years into the future. The size and scope of that role, however, is far from assured. San Diego firms and policymakers need to partner with the defense community to safeguard the vital synergy between the military and the region. A closer collaboration could accelerate the development of defense-related technologies and the creation of new products, markets, jobs, and income.
The Impact Of Navy Ships On San Diego

San Diego is home to a key part of the nation’s vital Pacific Fleet and is critical to defending the interests of the United States and its allies in the Asia-Pacific region. Each ship homeported here can be considered an engine of economic growth, generating jobs, incomes, and output in San Diego County. This section seeks to identify the economic contribution from the different types of ships based here as well as to analyze the total economic impact provided by the region’s total fleet.

The Fleet’s Structure

The Naval fleet in San Diego includes 46 surface combatants, two nuclear powered aircraft carriers and five nuclear powered submarines for a total of 53 operational ships. Each ship type possesses distinct characteristics to carry out the nation’s defense strategies. (See Exhibit 21)

Aircraft Carriers

- CVN-2 ships

Submarines

- SSN-5 ships

Surface Ships

- DDG (destroyers)-17 ships
- CG (guided missile cruiser)-8 ships
- LCS (littoral combat ship)-6 ships
- LHA-LHD (amphibious assault ship)-4 ships
- LPD (amphibious transport ship)-4 ships
- LSD (dock landing ship)-4 ships
- MCM (mine countermeasure ship)-3 ships

53 USN Ships Homeported in San Diego

<table>
<thead>
<tr>
<th>NUMBER OF SHIPS PER CLASS, FY 2016</th>
<th>EXHIBIT 21</th>
</tr>
</thead>
<tbody>
<tr>
<td>DDG</td>
<td></td>
</tr>
<tr>
<td>CG</td>
<td></td>
</tr>
<tr>
<td>LCS</td>
<td></td>
</tr>
<tr>
<td>SSN</td>
<td></td>
</tr>
<tr>
<td>LPD</td>
<td></td>
</tr>
<tr>
<td>LHA-LHD</td>
<td></td>
</tr>
<tr>
<td>LSD</td>
<td></td>
</tr>
<tr>
<td>MCM</td>
<td></td>
</tr>
<tr>
<td>CVN</td>
<td></td>
</tr>
</tbody>
</table>

Source: FBEI; CNRSW

(See Exhibit 21)
Ships and People

More than 23,000 Sailors work aboard San Diego’s Naval fleet. Even as ships have become more automated, sizable numbers of personnel are required to make each operate efficiently. The number of people working on each ship varies according to the ship’s size, its complexity, and its specific mission. A total of 100 or fewer Sailors typically man Littoral Combat Ships (LCS) or mine countermeasure ships (MCM), while an aircraft carrier typically requires about 3,200 people. Amphibious assault ships (LHA-LHD) generally require an average of about 1,060 Navy personnel for operations. Other types of ships frequently have 200-400 personnel on board, while subs are manned by about 140 individuals.

Ships and Dollars

The amount of DoD dollars flowing into San Diego to operate San Diego’s share of the Pacific Fleet is sizable at an estimated $2.0 billion in fiscal year 2016. (See Exhibit 22) Approximately three-fourths of the total represents employee compensation. That amount includes the wages and salaries of ship personnel together with the value of housing provided to them. About one-fifth of the total spending on ships goes for contracted ship repair, other procurement contracts, port services, and smaller purchases (under $3,000) for items the ship may need either when docked in San Diego or deployed overseas. Food and utilities represent the final 5% of total ship expenditures. Electricity and water are the primary utility expenses, with electricity representing the dominant one. All ships have the capability of distilling fresh water from sea water when underway.

Charting the Ripple Effects and Total Economic Impact

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 start to feed through the region. As discussed in Section I, these secondary and tertiary effects involve both supply chain, or businesses-to-business, and consumption components. When a ship purchases goods and services, companies receiving those orders will need to purchase materials and equipment or possibly hire more workers. Much of the consumer spending supported by incomes earned by ship personnel plus from those employed along the supply chains will also feed into the economy.

Wages and salaries of personnel assigned to different ships are spent primarily in the San Diego region either by active duty members or 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, smaller purchases, food, utilities, and port services also primarily benefits the local economy.

The average amount of total direct spending on each type of ship ranges from about $23 million for submarines and $31 million for surface ships, to $214 million for aircraft carriers. The total economic impact for various types of ships ranges from an average of about $45 million for a submarine and $91 million for a surface ship to $770 million for a carrier. (See Exhibit 23)

Adding up the total contribution of San Diego’s Navy fleet yields a total economic impact, or contribution to the region’s total output (GRP) of $6.0 billion for fiscal 2016. This sum is comprised of the $2.0 billion of total direct outlays plus
another $4.0 billion of ripple or multiplier effects achieved through the supply channels and induced consumer spending. *(See Exhibit 24)*

## The Fleet’s Future in San Diego

Approximately one of every eleven dollars of defense-related direct spending in San Diego goes to support San Diego’s fleet of 53 ships. The total economic impact generated by the ships homeported here accounts for about 13% of the total contribution made directly and indirectly from overall defense-related spending in the region.

The effect on the region of either losing or gaining a ship is underscored by the example of more than $750 million of output generated by an aircraft carrier. Despite further possible pressures on the defense budget, San Diego’s vital role in helping the nation rebalance its forces towards the Asia Pacific should see the size and value of its ship base expand further during the coming decade.

### Ships Bring Jobs and Income to San Diego

<table>
<thead>
<tr>
<th>Class</th>
<th># of Ships</th>
<th># of People</th>
<th>Direct Outlays</th>
<th>Multiplier Effects</th>
<th>Economic Impact</th>
<th>Ship Class Totals</th>
</tr>
</thead>
<tbody>
<tr>
<td>CVN</td>
<td>2</td>
<td>3,200</td>
<td>$214,491,516</td>
<td>$770,120,233</td>
<td>6,400</td>
<td>$428,983,033</td>
</tr>
<tr>
<td>SSN</td>
<td>5</td>
<td>141</td>
<td>$22,805,721</td>
<td>$44,757,722</td>
<td>705</td>
<td>$114,028,607</td>
</tr>
<tr>
<td>CVN</td>
<td>53</td>
<td>23,243</td>
<td>$1,980,388,769</td>
<td></td>
<td></td>
<td>$5,951,454,243</td>
</tr>
</tbody>
</table>

* Surface ships include CG, DDG, LCS, LHA, LHD, LPD, LSD, and MCM

**Source:** FBEI

### San Diego Ships Add $6.0 Billion to Region

<table>
<thead>
<tr>
<th>BILLIONS OF DOLLARS, FY 2016e</th>
<th>EXHIBIT 24</th>
</tr>
</thead>
<tbody>
<tr>
<td>Direct Outlays</td>
<td>Multiplier Effects</td>
</tr>
<tr>
<td>2.0</td>
<td>4.0</td>
</tr>
</tbody>
</table>

*e=estimate

**Source:** FBEI
SECTION III
San Diego County Navy Medicine And Its People

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 8,200 workers. (See Exhibit 25)

Military Treatment Facilities

**Naval Medical Center San Diego**

The larger of the two military treatment facilities is Naval Medical Center San Diego (NMCSD), adjacent to Balboa Park, which services Active Duty service members, families, retirees, and Veterans. In addition to its main campus at Balboa, NMCSD operates 20 branch health and dental clinics located at several military bases and neighborhoods throughout the County and two in El Centro, CA. NMCSD employs 2,328 enlisted personnel, 1,299 officers, and 2,357 civilians. (See Exhibit 26) This year NMCSD contributed more than 500 Active Duty personnel to the USNS Mercy mission in support of the multinational humanitarian deployment. As the second largest academic medical center in San Diego, NMCSD participates in numerous mutual collaboration programs with multiple local private sector hospitals and academic medical centers.

**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 973 enlisted personnel, 364 officers, and 901 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. The NHRC team is made up of top researchers in the fields of kinesiology, physiology, infectious diseases, biostatistics, and epidemiology. NHRC’s research has expanded over the years to include studies that examine environmental physiology for heat stress and cold weather training, the reproductive health effects of military service, tactical medical logistics, identification of and response to emerging infectious diseases, and the largest health study in military history with over 200,000 participants. NHRC is comprised of 16 active duty officers and 54 civilians.

Total Direct Spending by the Navy Hospitals

The two Navy hospital facilities have injected about $1.25 billion of funds into the region during FY 2016 (See Exhibit 27) These expenditures include compensation to employees, pharmaceuticals, surgical appliances, family services, and electronic equipment support. Navy Medicine provides a central part of San Diego’s overall health care system.
SECTION IV

San Diego and the Military

The History of the Navy in San Diego

The U.S. Navy has held a presence in San Diego since the USS Cyane sailed into San Diego harbor in July 1846. Congressman William Kettner (1913-1921) played a critical role in bringing a naval base to San Diego by supporting a federal appropriation to dredge San Diego Bay to allow large ship access into the harbor. Harbor and base development continued with President Woodrow Wilson’s 1917 authorization to acquire North Island for Army and Navy flight training. Construction began on Naval Air Station San Diego in 1918, which today is recognized as the “Birthplace of Naval Aviation.” Chief of Naval Operations officially established the position of Commandant of Naval Base San Diego in 1919, welcoming Rear Admiral Roger Welles. Navy General Order Number 514 stated: “The naval base at San Diego, California is hereby established and shall consist of the naval air station, the naval fuel depot, the naval hospital, the Marine barracks, radio stations, and such other naval activities as are now or may be established in San Diego or in the immediate vicinity.”

The History of the Marine Corps in San Diego

Since 1911, the U.S. Marine Corps has maintained a continuous presence in San Diego. Early temporary encampments were established at North Island and later at what is now known as Balboa Park. In 1921, a permanent operating base was established at Dutch Flats and was commissioned officially as Marine Advanced Expeditionary Base San Diego. Much of the land was later converted to an air field (now Lindbergh Field), and the remainder became the current location of Marine Corps Recruit Depot San Diego. Between the 1930s and the 1980s, additional Marine Corps bases were established throughout San Diego. Camp Matthews was established and is now the site of the University of California San Diego. Camp Pendleton was dedicated by President Franklin D. Roosevelt in 1942 and would later house Marine Corps Air Station Camp Pendleton. Marine Corps Air Station Miramar was established in 1997 after fifty years of Navy ownership.

Today, West Coast Marine Corps installations are home to more than 60,000 Marines, 5,500
Sailors, and 10,000 civilian employees, of which more than 57,000 Marines, 5,500 Sailors, and 9,000 civilian employees are in the state of California (51,500 Marines, 4,800 Navy personnel, and 3,800 civilian employees are stationed at Marine Corps installations within San Diego County). These installations are an integral part of their respective communities and remain critical to overall combat readiness.

Synergistic Partners

The synergy, integration, and relationship between the San Diego region and the military is exemplary and is continually cited by sources inside and outside the defense establishment as the model for the rest of the country. In addition to the military’s role as the largest economic cluster for the region by a factor of two over the next largest economic driver and its contribution of one-fifth of the region’s economy, there are many synergies or mutual benefits between the San Diego region and the military.

- San Diego communities welcome and accept members of the military and their families into the fabric of their lives. San Diegans give military members assurance that their families will be taken care of while they are deployed. Military members and their spouses are active participants and contributors to their communities, volunteering and involving themselves in youth activities, churches, schools, and charity organizations that help others.

- San Diego businesses, institutions, and the military 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.

- The military has proven to be a good steward of the environment and many times sets the trend for the region in environmental efforts, especially in the protection of endangered species, alternative energy, and the conservation of water.

- 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.

- 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 military.

The San Diego region is critical to the military. The largest concentration of military anywhere in the world is in the San Diego region and the region is essential to the military’s ability to meet its national security objectives.

The specific combination of tenant commands, geography, proximity to other commands, and
training opportunities provides an environment that cannot be duplicated anywhere in the world and supports the global effort of our national defense strategy. Because land, air, and sea training are within practical traveling distance from most home bases, our Sailors and Marines can train as they fight, while maximizing their time home with families and in our communities.

San Diego also benefits from the Navy’s strategic rebalance to the Pacific with roughly 60% of the fleet’s ships and seagoing assets scheduled to be stationed in this theater. San Diego is a Fleet Concentration Area (FCA) providing support services, coordination among operational units, and training synergy.

The Asia-Pacific focus includes or supports:

- 40 nations
- 40% of the world’s GDP
- More than 50% of the world’s surface area
- 60% of the world’s population
- 70% of the world’s oil transits (through the Strait of Malacca)

Our top 4 trading partners:

- Canada       •       China
- Mexico       •       Japan

The 4 largest militaries:

- China       •       U.S.
- India       •       Russia

The network of Sailors, Marines, members of the Reserves, civilian employees, aerospace firms, shipbuilders, electronics companies, software developers, researchers, and the various supply chains in San Diego represent a vital military ecosystem unparalleled anywhere else in the world. This ecosystem enables the U.S. to carry out its mission of national security, while the defense structure delivers economic benefits to the region exceeding those of any other sector.
APPENDIX

Methodology

Overall Economic Analysis of the Impact of Defense Expenditures

The methodology of this study entailed two major phases. First, data on the different aspects of the primary channels through which defense-related spending affects San Diego was collected, estimated, and forecast for the three fiscal years, 2015 through 2017. Second, the IMPLAN modeling program was used to estimate the ripple impacts on the economy in terms of employment, income, and gross regional product through supply channel and consumption effects. IMPLAN is a well-known economic programming model widely used in economic impact studies.

Direct Spending Inputs

The dollar amounts linked to national security flowing into the region were organized into seven categories.

1. Compensation for Active Duty, Reserve Members, and Civilian Personnel

The number of Active Duty, Reserve members, and civilian workers, together with average total payroll amounts, were obtained from DoD records as available. Average annual wage rates were calculated for each year, with estimated wage rates projected based on pay raises announced by the DoD. The housing portion of active duty compensation was based on the BAH established by the DoD each year. The BAH for E4 enlisted personnel and 03 for officers was used as an average with an even split between the BAH given to employees with dependents and those without. The Camp Pendleton BAH number was assigned to Active Duty members residing in the Camp Pendleton area, while the San Diego BAH was used for other Active Duty personnel. The value of housing provided to active members living on base was assumed to be equal to the BAH.

The BAS used the numbers published each year by the DoD for officers and enlisted personnel. Estimates were made for the ratios of officers to enlisted personnel for both the Navy and Marines Corps. Civilian benefit payments for health care, savings plan contributions, and insurance were estimated as equal to 30% of total wages.

2. Retirement and Veterans Benefits

The numbers of retired and civilian workers together with their total benefits for fiscal year 2016 were obtained from DoD sources where available. These numbers were supplemented by FBEI estimates based on expected retirement plans, location trends in San Diego, and inflation adjustments.

Total benefit payments made to veterans in San Diego County were obtained for fiscal year 2015 from the VA. FBEI estimated the number of veterans for fiscal year 2016 and 2017 based on expected separation rates from the Armed Forces, demographic trends, and location patterns in San Diego. FBEI projected the
average Veteran benefit payments for health care, education and vocational training, and pensions for fiscal years 2016 and 2017. Total benefit payments were then computed.

3. Procurement Contracts

DoD procurement data for fiscal years 2006 through 2015 was obtained from the government sponsored website, USASpending.gov. FBEI collected data based on location of contract performance and used only zip codes located in San Diego County. The data was next sorted in ascending order of dollars spent by NAICS category to determine the industries receiving the largest amounts of procurement funding. The data was also sorted by corporation to determine which companies receive the largest amounts of procurement funding.

Allocation distribution rates (indicating the annual outlay rates on various types of contracts, such as aircraft, shipbuilding, electronics, research, and other procurement orders) over a period of years were obtained from the Comptroller, Office of the Under Secretary of Defense. Specific allocation rates for the Navy were used where appropriate and available.

FBEI projected procurement contract values for fiscal years 2016 and 2017 based on DoD budget estimates and assumptions about congressional final decisions and the impact on San Diego defense sectors. Annual spending totals were then calculated for individual industries for each year by summing amounts accruing from the contracts of the current and preceding years.

4. Government Purchase Cards

Government Purchase Card data was obtained for 2012 through 2016 as available from CNRSW and the Naval Supply Systems Command Fleet Logistics Center. These numbers were augmented by FBEI estimates based on spending trends, personnel levels at the various San Diego military facilities, and budget targets.

5. Grants

DoD grant data for fiscal year 2015 was obtained through the USASpending.gov website. FBEI sorted the data by county and deleted any samples that were not in San Diego County. This was completed in much the same way as in the procurement part of the study. The data was organized in ascending order of dollars spent by NAICS category and summed for a total in each fiscal year. The industry categories were then matched to the industry codes used in the IMPLAN modeling system. FBEI estimated grant totals for the different sectors based on recent trends and DoD strategic priorities for fiscal years 2016 and 2017.

6. Tourism

Tourism related dollars were divided into several categories: visitors for Marine recruits graduating each year; educator and recruiter workshops at MCRD; visits from family members and friends visiting Active Duty and civilian workers employed by the DoD in San Diego County; visitors to defense-related conferences, travel by business and government officials connected with SPAWAR, and visits by government officials and others to the Navy’s two major hospital facilities and research center.

The number of graduates from the MCRD for fiscal years 2015 through 2017 was obtained from MCRD. Based on data from the San Diego Convention & Visitors Bureau and MCRD, an average of 4.0 visitors was assumed to travel to San Diego for each graduation and stay in the region for 3.5 days. The number of room nights booked for each year, hotel rates, and average spending on food and entertainment was determined for each year based on data from travel sources and surveys, together with estimates by FBEI. Based on guidance provided by the San Diego Convention & Visitors Bureau and MCRD, it was assumed that 95% of visitors and money spent over the course of each visit comes from outside the San Diego region.

MCRD provided estimates for numbers of educators enrolled in the annual workshop and recruiters in its several training sessions conducted during the year. It also gave guidance on the costs of housing, food, and other expenses associated with these programs.

For Active Duty and civilian DoD employees, FBEI assumed that each would attract four visitor days per year (e.g., two individuals staying for two days each or one spending four days) from outside the San Diego region. It was assumed that half of these visitor days require a hotel room at the prevailing average $155 San Diego daily rate based on 2016’s number from Smith Travel Research and applying a 3% inflation factor for 2017. Food expenditures were estimated at $86 per visitor day for 2016, while average spending for entertainment was assumed at an average of $42 per visitor day. Inflation adjustments and the estimated number of DoD personnel were used to calculate the 2017 figure.

For convention business related to the defense industry, FBEI obtained estimates of attendance to the NDIA and AFCEA events, along with estimates of the average number of hotel nights required and the proportion of attendees coming from
outside the region. Estimates of hotel rates, food costs, and entertainment expenses were calculated as above.

SPAWAR provided baseline numbers on visitors to its various offices, which FBEI then used to project numbers for 2016 and 2017. Average stays of two days were assumed and FBEI then estimated daily spending on hotels and meals.

For visitors to Navy Medicine's facilities, an estimated 150 people per quarter, or 600 annually from outside the County, were assumed to visit the region. Each person was assumed to stay an average of three days and require three nights of lodging. Food expenditures were estimated for three days along with two days of entertainment expense. The daily rates for hotels, food, and entertainment noted above were used for this segment.

### Economic Impact Analysis

The IMPLAN model was used to map and analyze the dynamics and total impact of each of the channels of defense spending on San Diego County for each of the years 2015, 2016, and 2017.

The direct effect of military operations in the region was analyzed by inputting the information on total personnel counts and total payroll dollars. The estimated value of housing benefits was included as part of total compensation. Benefit data for retired workers and Veterans was analyzed by inputting the benefit dollar totals for different household income groups.

Annual spending totals for procurement contract allocations, grants, and Government Purchase Cards were inputted into the various appropriate industry classifications for each year. Spending on hotels, food services, and entertainment was inputted for the appropriate industries to model the impact from the tourism channel.

All calculations were performed in current dollars (i.e., before adjustment for inflation). The model produced estimates for each year for the supply chain, consumption, and total impact of the various channels of direct spending in terms of employment, income, and gross regional product. The impact on individual industries was also computed. All results, including implied multipliers, were checked for accuracy and consistency.

### Ship Analysis Methodology

The ship data used for this study was compiled from a number of different sources. The primary source was CNRSW (Command Navy Region Southwest) with additional data from FOIA requests to NAVSUP (Naval Supply Systems Command), CNSP (Command Naval Surface Force), CNAP (Command Naval Air Forces Pacific), and CSP (Command Submarine Force Pacific). Nine major cost components were examined for each ship and ship class: compensation, procurement, purchase card, utilities, subsistence, hazmat, sewage, postal, and miscellaneous non labor expenses. Where data was incomplete, FBEI estimates were supplemented based on previous year’s data.

Total compensation was determined by calculating an average gross compensation rate for enlisted and officer personnel aboard CVN, SSN, and Surface class ships using the methodology described above for Active Duty personnel.

All data was compiled on a per ship basis for fiscal year 2015. Some of the expenses were consistent across all ships in a given class, while other cost items were unique to each particular category of ship (e.g., LCS versus DDG). An average of each of these cost items was taken and used for each ship class. Some costs, such as pay and food, are dependent on the average number of employees assumed for each ship class. Others, such as procurement, purchase cards, utilities, and port costs, are more dependent on other factors, such as ship size. Average expenditure levels for various classes were adjusted with different inflation factors to derive spending amounts for fiscal 2016. Once all of the per-ship costs were averaged for the class, the total figures by ship class were calculated. The ship class count figures for fiscal 2015, 2016, and 2017 were provided by CNRSW.

The IMPLAN Model was used to map and analyze the dynamics and total impact of each of the ship classes on the value of total output, or GRP, for San Diego in 2016. Three different models were constructed for the different classes: CVN class (aircraft carriers), SSN class (submarines), and all other surface class ships. Compensation and employee counts were inputted for the payroll expenditures. All other expenditure items were then allocated across the various industries affected by increases in sales or orders. The model was then simulated for each ship class to derive the supply chain, consumption, and total economic effects for fiscal year 2016.
APPENDIX

Index of Exhibits

EXHIBIT 1  DEFENSE FUNDS TO SAN DIEGO EQUAL $23.3 BILLION 05
EXHIBIT 2  MILITARY DIRECTLY EMPLOYS 134,000 IN SAN DIEGO 06
EXHIBIT 3  ACTIVE DUTY AND DOD CIVILIANS DISPERSED ACROSS VARIOUS INSTALLATIONS 06
EXHIBIT 4  SAN DIEGO’S MILITARY TO STABILIZE 07
EXHIBIT 5  DEFENSE DOLLARS BOOST SAN DIEGO’S ECONOMY 08
EXHIBIT 6  MILITARY COMPENSATION TOTALS $9.8 BILLION IN SAN DIEGO 08
EXHIBIT 7  RETIREE AND VETERANS’ BENEFITS REACH $4.6 BILLION 09
EXHIBIT 8  SAN DIEGO VETERANS RECEIVE $2.5 BILLION IN BENEFITS 09
EXHIBIT 9  AIRCRAFT, SHIPBUILDING, AND ENGINEERING, LEAD SAN DIEGO’S DEFENSE CONTRACTING 10
EXHIBIT 10  DEFENSE CONTRACTS LIFT SAN DIEGO COMPANIES 10
EXHIBIT 11  PROCUREMENT CONTRACTS AND OUTLAYS LEVEL OUT 10
EXHIBIT 12  PROCUREMENT CONTRACTS DISBURSED OVER TIME 11
EXHIBIT 13  SAN DIEGO’S MILITARY GENERATES $15 MILLION OF TOURIST DOLLARS 12
EXHIBIT 14  DEFENSE DOLLARS SUPPORT REGIONAL GRP 12
EXHIBIT 15  DEFENSE SPENDING REMAINS SAN DIEGO’S KEY ECONOMIC CATALYST 12
EXHIBIT 16  MILITARY CREATES 1 OUT OF EVERY 5 SAN DIEGO JOBS 13
EXHIBIT 17  MILITARY STIMULATES WIDESPREAD EMPLOYMENT 13
EXHIBIT 18  U.S. DEFENSE SHARE OF GDP TRENDS LOWER 13
EXHIBIT 19  DOD BUDGET AUTHORITY FLATTENS OUT 14
SAN DIEGO SHIP COUNT EXPANDS
53 USN SHIPS HOMEPORTED IN SAN DIEGO
SHIP SPENDING TOTALS $2.0 BILLION
SHIPS BRING JOBS AND INCOME TO SAN DIEGO
SAN DIEGO SHIPS ADD $6.0 BILLION TO REGION
NAVY’S TWO HOSPITALS EMPLOY OVER 8,200 PEOPLE
NAVY HOSPITALS EMPLOY BOTH ACTIVE DUTY PERSONNEL AND CIVILIANS
NAVY MEDICINE INJECTS $1.3 BILLION INTO SAN DIEGO’S ECONOMY
# List of Acronyms

<table>
<thead>
<tr>
<th>Acronym</th>
<th>Full Form</th>
</tr>
</thead>
<tbody>
<tr>
<td>APF</td>
<td>Appropriated Funds</td>
</tr>
<tr>
<td>BAH</td>
<td>Basic Allowance for Housing</td>
</tr>
<tr>
<td>BAS</td>
<td>Basic Allowance for Subsistence</td>
</tr>
<tr>
<td>BCA</td>
<td>Budget Control Account</td>
</tr>
<tr>
<td>BEA</td>
<td>Bureau of Economic Analysis</td>
</tr>
<tr>
<td>BRAC</td>
<td>Base Realignment Closure</td>
</tr>
<tr>
<td>C&amp;D</td>
<td>Construction and Demolition</td>
</tr>
<tr>
<td>CALFIRE</td>
<td>California Department of Forestry and Fire Protection</td>
</tr>
<tr>
<td>CBO</td>
<td>Congressional Budget Office</td>
</tr>
<tr>
<td>CFFR</td>
<td>Consolidated Federal Funds Report</td>
</tr>
<tr>
<td>CNRSW</td>
<td>Commander, Navy Region Southwest</td>
</tr>
<tr>
<td>CR</td>
<td>Continuing Resolution</td>
</tr>
<tr>
<td>CRADA</td>
<td>Cooperative Research and Development Agreement</td>
</tr>
<tr>
<td>DECA</td>
<td>Defense Commissary Agency</td>
</tr>
<tr>
<td>DMDC</td>
<td>Defense Management Data Center</td>
</tr>
<tr>
<td>DOD</td>
<td>Department of Defense</td>
</tr>
<tr>
<td>DOL</td>
<td>Department of Labor</td>
</tr>
<tr>
<td>DON</td>
<td>Department of Navy</td>
</tr>
<tr>
<td>EMS</td>
<td>Environmental Management System</td>
</tr>
<tr>
<td>FBEI</td>
<td>Fermanian Business and Economic Institute</td>
</tr>
<tr>
<td>FEDFIRE</td>
<td>San Diego Federal and Metro Fire and Emergency Services</td>
</tr>
</tbody>
</table>
FIRST FOR INSPIRATION AND RECOGNITION OF SCIENCE AND TECHNOLOGY
FPDS FEDERAL PROCUREMENT DATA SYSTEM – NEXT GENERATION
FRCSW FLEET READINESS CENTER SOUTHWEST
FY FISCAL YEAR (OCT. 1 – SEPT. 30)
GDP GROSS DOMESTIC PRODUCT
GPC GOVERNMENT PURCHASE CARD
GRP GROSS REGIONAL PRODUCT
GSP GROSS STATE PRODUCT
HUD DEPARTMENT OF HOUSING AND URBAN DEVELOPMENT
LEED LEADERSHIP IN ENERGY AND ENVIRONMENTAL DESIGN
MAG MARINE AIRCRAFT GROUP
MAW MARINE AIR WING
MCAS MARINE CORPS AIR STATION
MCB MARINE CORPS BASE
MCRD MARINE CORPS RECRUIT DEPOT
MCI MARINE CORPS INSTALLATIONS
MHPI MILITARY HOUSING PRIVATIZATION INITIATIVE
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
NBC NAVAL BASE CORONADO
NBPL NAVAL BASE POINT LOMA
NBSD NAVAL BASE SAN DIEGO
NHCP NAVAL HOSPITAL CAMP PENDLETON
NMAWC NAVAL MINE AND ANTI-SUBMARINE WARFARE COMMAND
NOSC NAVAL OPERATIONS SUPPORT CENTER
<table>
<thead>
<tr>
<th>Abbreviation</th>
<th>Full Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>NEX</td>
<td>NAVAL EXCHANGE SERVICE COMMAND</td>
</tr>
<tr>
<td>NMCSD</td>
<td>NAVAL MEDICAL CENTER SAN DIEGO</td>
</tr>
<tr>
<td>NRSW</td>
<td>NAVY REGION SOUTHWEST</td>
</tr>
<tr>
<td>NSWC</td>
<td>NAVAL SPECIAL WARFARE COMMAND</td>
</tr>
<tr>
<td>NWS</td>
<td>NAVY WEAPONS STATION</td>
</tr>
<tr>
<td>OCO</td>
<td>OVERSEAS CONTINGENCY OPERATIONS</td>
</tr>
<tr>
<td>OMB</td>
<td>OFFICE OF MANAGEMENT AND BUDGET</td>
</tr>
<tr>
<td>RDTA&amp;E</td>
<td>RESEARCH, DEVELOPMENT, TESTING, ACQUISITION AND EVALUATION</td>
</tr>
<tr>
<td>SCEP</td>
<td>STUDENT CAREER EMPLOYMENT PROGRAM</td>
</tr>
<tr>
<td>SDMEIS</td>
<td>SAN DIEGO MILITARY ECONOMIC IMPACT STUDY</td>
</tr>
<tr>
<td>SDPTA</td>
<td>SAN DIEGO PORT TENANTS ASSOCIATION</td>
</tr>
<tr>
<td>SPAWAR</td>
<td>SPACE AND NAVAL WARFARE SYSTEMS COMMAND</td>
</tr>
<tr>
<td>STEM</td>
<td>SCIENCE, TECHNOLOGY, ENGINEERING, AND MATHEMATICS</td>
</tr>
<tr>
<td>STEP</td>
<td>STUDENT TEMPORARY EMPLOYMENT PROGRAM</td>
</tr>
<tr>
<td>TSC</td>
<td>TRAINING SUPPORT CENTER</td>
</tr>
<tr>
<td>USN</td>
<td>US: NAVY</td>
</tr>
</tbody>
</table>