

Naval Postgraduate School (NPS)  
Board of Advisors Subcommittee Meeting Minutes  
October 17, 2018  
Open Meeting

CNA Building  
3003 Washington Boulevard  
Arlington, VA

*Presentations of Agenda Items*

**Background:** The Designated Federal Official to the Board of Advisors to the President of the Naval Postgraduate School Subcommittee (NPSBOA) called the meeting to order at 8:30am on October 17, 2018. Board Chairman, VADM(Ret) David Frost gave opening remarks following the introduction of all attendees.

**NPS President's (PNPS) Update:** NPS President, VADM(Ret) Ron Route gave a status report on NPS Accomplishments and Actions to include:

**Sailing Directions.** Presented NPS Sailing Directions at the last NPS BOA Subcommittee meeting, PNPS shared the tasks and status of each (see attached slide)

**Education for Seapower (E4S) Submission.** Chartered in April 2018, Route shared NPS 60-page response with the Board.

**POM Issues.** The board was shown which items have been funded, which are pending and which need follow up.

**Community Engagement.** There have been many events at NPS allowing for community involvement. Among those were International Day; a Concert on the Lawn; Monterey Bay Defense Alliance Breakfast; Regional Summer STEM Internship and Science and Engineering Apprenticeship (SEAP) Opportunities; and Discover NPS Day.

**Guest Lecturers & Graduation Speakers.** Since the last board meeting, NPS has hosted several guest speakers most recently the Secretary of the Navy (second visit this calendar year). Former interim president, VADM(Ret) Jan Tighe and VADM Gardner Howe, Associate Director for Military Affairs, Central Intelligence Agency were June and September graduation speakers respectively.

**NPS Foundation Update.** PNPS reported that the Navy Judge Advocate and DON OGC have issued a memorandum offering a legal interpretation of the appropriate relationship between the NPS Foundation and NPS.

**Command Climate Update.** As requested by the board, PNPS provided FY17 – FY18 comparison results and highlighted the areas of improvement and which areas need continued effort. The board acknowledge improvement of "Trust in Leadership, Organizational

Cohesion", especially among women. There are however few women and minorities in leadership roles. NPS has recently chartered an "Inclusion and Diversity Council" and is soliciting volunteers to serve on this council. Communication has improved, however not all employees are aware of how to access information that effects them. Mass training sessions are being planned to show personnel how to navigate the new "MyNPS" intranet site. NPS will execute a new 2019 Command Climate Survey for new incoming president Rondeau.

**NPS Provost Update:** NPS Provost, Dr. Steve Lerman provided highlights of Strategic Plan actions already underway. Provost Lerman's brief listed the three NPS Strategic Plan themes:

Excellence/innovation in emerging fields critical to national defense involves NPS Emerging Technology Center linking with industry; all Navy-hands cyber course in the Cyber Academic Group; a CRADA with Raytheon in Undersea Warfare technologies; Quantum technologies research; and the Sea Land Air Military Research Facility (SLAMR)

Interdisciplinary education and research program;

Institutional Innovation and effectiveness which create teaching and learning commons under the new Associate Provost for Graduate Education; a teaching fellows program; designing a hybrid to deliver "stackable certificates" in the GSBPP and GSEAS; and a new nuclear C3 certificate program.

Provost Lerman indicated that NPS is expanding CRADA use and is in the process of reestablishing the Middlebury Institute of International Studies MOU as well as develop new organizational models to engage with industry and academia and expand industry-based internships for students.

Provided statistics on faculty recruitment and retention (gains, and reasons for losses). After a period of faculty decline NPS is not able to add faculty. Turn-around time for new hires is still long. Of some significant concern there are a number of retirements upcoming in key areas such as computer science.

Following Board Discussion (which will be reported in the NPS/NWC Meeting Report) the DFO asked if there were any comments from the public. Having noted none, the meeting was adjourned at 12noon on Wednesday, October 17, 2018.

Board Meeting minutes certified: electronically signed//DAVID FROST\_11.17.2018

## Appendix 1

### Board Members (or ex-officio alternate) in Attendance:

VADM(Ret) David E. Frost, NPS Subcommittee Chairman  
Dr. M. Elisabeth Pate-Cornell  
Honorable Kim Wincup  
Mr. Donald Dixon  
VADM(Ret) Ann Rondeau  
MGen William Bowers, USMC  
Ms. Elizabeth Gracia, OPNAV N12 (for Deputy CNO/MPT&E)  
Dr. David D. Dworak (for Army War College)

VADM(Ret) Lee F. Gunn (NPS/NWC Overarching Board Chairman)  
Dr. Katherine McGrady (NPS/NWC Overarching Board Member)  
Dr. Gwen Hall (NPS/NWC Overarching Board Member)  
Ms. Sally Donnelly (NPS/NWC Overarching Board Member)  
Dr. Maren Leed (NPS/NWC Overarching Board Member)  
Dr. Susan Marquis (NPS/NWC Overarching Board Member)  
Dr. John Montgomery (NPS/NWC Overarching Board Member)  
Honorable Christopher Jehn (Naval War College Chairman)  
Dr. Craig College (Naval War College Member)  
Dr. Joseph McCarthy (Naval War College Member)

### Others in Attendance:

LtCol David Forbell, USMC  
Mr. Mark Venable, OPNAV N12  
VADM(Ret) Ron Route, President NPS  
Dr. Steve Lerman, NPS Provost  
RADM Jeffrey Harley, USN  
Dr. Lewis Duncan  
LT Mario Granata, USN  
LT Arron Wilson, USN  
Ms. Jaye Panza, Designated Federal Official  
Dr. Thomas Gibbons, Alternate Designated Federal Official  
Ms. Juliet Beyler, ADCNO MPT&E  
Honorable Gregory Slavonic, ASN M&RA  
Honorable Thomas Modly, UnderSecretary of Navy  
Dr. Walter Jones, NIPO  
Mr. Robert L. Woods, Deputy ASN M&RA  
Mr. Steve Deal



## Meeting Agenda

October 17 & 18, 2018

**Purpose of Meeting:** Annual Board meeting of the NPS/NWC Board of Advisors and its two subcommittees to elicit the advice of the boards on the Naval Service’s Postgraduate Education Programs; Leader development continuum, and any other matters relating to the operations of the NPS and NWC as the board considers pertinent.

**Host and Meeting Location:** CNA Building, Dr. Katherine McGrady, President and CEO of CNA  
*(for all events)* 3003 Washington Boulevard, 2<sup>nd</sup> Floor Board Room, Arlington, VA 22201

**Dates/Times:** October 17<sup>th</sup> – 8:30am to 5:00pm; Reception/Dinner with Navy leadership – 6:00pm to 8:00pm  
October 18<sup>th</sup> – 8:00am to 4:00pm

**Parking:** 3001 Washington Boulevard (Underground) – Daily Max \$10.00 – Closes at midnight

**Lodging:** Residence Inn Arlington Courthouse  
1401 North Adams Street, Arlington, VA 22201 (703) 312-2100

**Shuttle Service:** Capital City Transportation, Ms. HJ Kim (703) 593-7509

**Navy Uniform:** Khaki (Service Equivalent)

**Civilian Dress:** Business dress

**For Dinner Event:** Jacket/Tie optional

**Action Officers/Designated Federal Official:**

Ms. Jaye Panza (831) 656-2514 (office) or (831) 402-0587 (mobile)

Alternate Designated Federal Official: Dr. Thomas Gibbons (401) 841-4008 (office) or (401) 662-3297 (mobile)

Aide to NPS President: LT Arron Wilson (309) 781-5596 (mobile)

Aide to NWC President Harley: LT Mario Granata (586) 344-8479 (mobile)

Time	TUESDAY, October 16, 2018 Event	Location
Various Times	Traveling Members Arrive (Obtain taxi or metro to hotel)	Airport

Time	WEDNESDAY, October 17, 2018 Event	Location/Lead
7:30am and 7:45am	Depart Hotel (front steps) for CNA	CCT Shuttle to 3003 Washington Blvd Arlington, VA
8:00am	Breakfast Basket and Fruit Tray	CNA 2 <sup>nd</sup> Floor Boardroom
8:30am	 Naval Postgraduate School Subcommittee Meeting Begins ➤ Welcome/Introductions ➤ Administrative Business/Chairman Instructions	Call to Order/DFO  Chairman David Frost
9:00am	NPS President's Update	President Ron Route
10:00am	<i>Break</i>	
10:15am	Provost's Update	Provost Steve Lerman
11:15am	Board Discussion	Chairman Leads
12:00pm	<i>Break for luncheon</i>	
12:00pm	  Luncheon for all participants	CNA 2 <sup>nd</sup> Floor Boardroom
1:00pm	 Naval War College Subcommittee Meeting Begins <i>(Chairman to call breaks as needed)</i>	Call to Order/DFO
	Chairman Remarks/Instructions	Chairman Chris Jehn
1:05pm	NWC President's Update	President Jeff Harley Provost Lewis Duncan
2:30pm	Board Discussion	Chairman Leads
5:00pm	Adjourn until Reception	

Time	WEDNESDAY, October 17, 2018 Event (Continued)	Location/Lead
6:00pm	 Joint NPS/NWC Boards Reception	Escorted to Rooftop of CNA Building
7:00pm	Dinner Meeting Begins	2 <sup>nd</sup> Floor Multi-Purpose Room
8:30pm	Dinner Meeting Adjourns	CCT Shuttle to Hotel
Time	THURSDAY, October 18, 2018 Event	Location/Lead
7:30am and 7:45am	Depart Hotel (front steps) for CNA	CCT Shuttle to 3003 Washington Blvd. Arlington, VA 22201
8:00am	Continental Breakfast	CNA 2 <sup>nd</sup> Floor Boardroom
8:30am	 Joint NPS/NWC BOA Meeting Begins <i>(with both Subcommittees in attendance)</i> Chairman Remarks/Board Discussion after SecNav's remarks	Call to Order/DFO  Chairman Lee Gunn
9:00am	DOPMA Reform Initiatives	Mr. Dave Menzen Leads
10:00am	<i>Break/Group Photo</i>	Michelle/CNA

Time	THURSDAY, October 18, 2018 Event ( <i>Continued</i> )	Location/Lead
10:15am	Out briefs from Subcommittees ➤ Board Member Discussion	Chairmen Lead
11:45am	<i>Break for Luncheon for all participants</i>	
1:00pm	Membership Update	Chairman/DFO
1:30pm	Board Discussion ➤ Report Action Items	Chairmen Lead
4:00pm	Meeting Adjourned	CCT Shuttle to Hotel Taxi or Metro to Airport

**FOR YOUR CALENDAR -**  
**Future Meetings:**

**NWC BOA Subcommittee April 4 - 5, 2019**  
**(Newport, RI)**

**NPS BOA Subcommittee April 24 - 25, 2019**  
**(Monterey, CA)**

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**Fall 2018 Joint Meetings October 16 - 17, 2019**  
**(Arlington, VA)**

*Thank you for your support!*



DEPARTMENT OF THE NAVY  
NAVAL POSTGRADUATE SCHOOL  
1 UNIVERSITY CIR  
MONTEREY, CA 93943-5000

IN REPLY REFER TO:  
5400  
Ser 00/426  
6 Jul 18

From: President, Naval Postgraduate School  
To: Under Secretary of the Navy

Subj: RESPONSE TO EDUCATION FOR SEAPOWER REQUESTED INFORMATION

Ref: (a) UNSECNAV Memo, DON Education for Seapower Study, dtd 19 APR 2018  
(b) UNSECNAV Memo, E4S Scope and Requested Information, dtd 29 May 2018

Encl: (1) OPNAV NOTICE 5400  
(2) Draft OPNAVINST 5450.210E  
(3) NPS Strategic Plan 2018-2023, dtd 23 April 2018  
(4) Sailing Directions to Support the Strategic Vision, dtd 27 April 2018  
(5) NPS Info Paper: Developing Tactics and Assessing the Value of the New Technology in Naval Warfare, NPS Military Operations Research Society Symposium, dtd May 2018  
(6) NPS Wargaming Activity Hub Quarterly Report, Spring AY2018  
(7) NPS POM 17-20 Program Requirements Summary, dtd June 2018  
(8) NPS Itr to ASN (FMC), Categorical Waiver Request for 51 Percent Rule, dtd 24 May 2018  
(9) Air Education and Training Command Force Development Commander, dtd 26 Oct 2017  
(10) NPS and Foundation Memorandum of Understanding, dtd 3 December 2013  
(11) NPS Institutional Priorities for 2018, Ltd to NPS Foundation, dtd 17 January 2018  
(12) NPS WSCUC Thematic Pathway for Reaffirmation Proposal, dtd 14 May 2018

1. The Naval Postgraduate School (NPS) commends the initiative outlined in reference (a) and appreciates the opportunity to provide detailed input in response to the questions and further guidance directed in reference (b). With the recent publication of a new *Strategic Plan* and enabling *Sailing Directions* memorandum to support its execution, NPS firmly believes this institution is on the right trajectory in support of the nation's maritime and national security strategies. We look forward to working with your staff on this important and impactful Education for Seapower (E4S) initiative and responding to its recommendations and conclusions in support of the same objectives.

2. As directed in reference (b), NPS provides the following responses.

a. General Questions

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(1) What are the roles and responsibilities of your educational institution, and how do they contribute to establishing a permanent process of continuous learning?

(a) NPS recently updated its mission statement via Director of the Navy Staff (DNS) approval of enclosure (1). The mission statement was recently updated in order to provide a more accurate description of the thesis and research experiences available to our students and the inherently joint, inter-agency and international programs available at NPS. There was no change to command location, manpower assigned, or financial support provided NPS as a result of this action. Enclosure (1) modified the NPS mission to the following:

1. To provide relevant and unique advanced education and research programs to increase the combat effectiveness of commissioned officers of the naval service to enhance the security of the United States. In support of the foregoing, and to sustain academic excellence, foster a program of relevant and meritorious research that provides thesis and research experiences for NPS students, informs the curricula, supports the needs of Navy and Department of Defense, and builds the intellectual capital of NPS faculty. To support the core Navy mission, NPS's programs are inherently joint, inter-agency, and international.

(b) In addition to the updated mission statement, the NPS Mission and Function instruction, OPNAVINST 5450.210E in enclosure (2), reflects the more detailed breakdown of this mission statement and its supporting functions. The instruction is currently in final draft staffing with the CNO Staff and is expected to be approved soon. It reiterates the mission statement above and outlines several supporting NPS functional areas and supporting activities. These areas are further defined and provided below.

1. NPS Education Program

a. Naval and Total Force Education. Educate, as CNO may direct, commissioned U.S. naval officers to the level essential for professional performance. Educate other authorized U.S. and allied military officers and civilians consistent with the requirements of the individual services, DoD, and foreign governments, within available resources. Educate civilian and enlisted personnel within the U.S. Government consistent with their sponsoring organizational needs and within available resources. Provide education programs that support intellectual innovation and growth throughout the careers of the total force.

b. Military and International Education. Maintain direct liaison with the other services' graduate education program managers and international student program managers concerning their requirements, curricula content, curricula establishment, and curricula status.

c. Reserve, Civilian, Contractor Education. Under Navy's total force concept, provide education to support reserve naval forces, civilians, and contractors, as authorized by law, to meet requirements in fulfillment of Navy mission and as resources allow.

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d. Graduate Academic Programs. Design graduate academic programs to equip officers with enhanced intellectual and analytical capacity, and make them more effective warriors and specialists. Align NPS programs with the rapidly changing needs of the naval services to support our national security.

e. Education for Navy Career Paths. Coordinate with appropriate Navy leadership to educate and provide opportunities to those Navy officers and civilians who require education, but whose career paths do not always permit full time resident education.

f. Education Development. Research and exploit innovative learning technologies, pedagogy and practices to enhance the educational experience for NPS students and provide cost-effective education.

g. Navy Fleet Concentration Areas. Operate fleet concentration area offices to coordinate educational opportunities for naval personnel and provide information on available programs to interested personnel.

h. Education/Academic Infrastructure. Maintain library, information technology, and laboratory facilities to support the graduate education program. Conduct long-range planning of library, information technology and laboratory requirements and means to achieve optimum utilization of these resources.

i. Curriculum Reviews. Conduct, at least biennially, subspecialty reviews for all curricula offered by NPS resident and civilian institution (CIVINS) programs resulting in a degree per reference (b). Coordinate subspecialty reviews with major area sponsors (MAS) and subject matter experts. Endorse recommendations of MAS, on educational skill requirements (ESRs), the program content to meet those ESRs, and educational resources which should be used to most effectively meet curricula (i.e., NPS, other DoD, or CIVINS) requirements. Director, Total Force Manpower, Training and Education Requirements (OPNAV (N12)) has final approval authority for subspecialty reviews.

j. Guest Lecture Program. Conduct a program of relevant and distinguished guest lectures to enhance currency of curricula taught. This lecture series enhances the academic experience for our students and provides opportunities to hear from senior leaders about their personal and professional lives, what worked and what didn't. The lectures also provide opportunities for students to ask questions and learn more, with each lecture a time to reflect on one's own experience and leadership skills and what could be improved.

## 2. Research Program and Faculty Expertise

a. Research. Engage in research to satisfy mission requirements and maintain accreditation as a graduate institution. Coordinate and approve Navy student officer research at NPS. Maintain a strong, relevant and viable faculty research effort at the NPS to support student, Navy and DoD research requirements. Research assures the continued relevance of the NPS

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faculty capabilities and that the latest processes, materials, and technologies can be transferred to Navy and Marine Corps to help strengthen the nation's defense.

b. Develop Relevant Faculty Expertise. Recruit and maintain a faculty under reference (b) that is fully competent to support the required advanced programs of study and capable of applying their expertise in support of the naval service and DOD.

c. NPS Naval Research Program. Administer the NPS Naval Research Program (NRP) to provide relevant thesis and capstone project opportunities for NPS students, to provide operational awareness for NPS faculty, and to contribute to problem solving and increased capabilities across the naval service.

d. Interdisciplinary Expertise. To sustain its role as a leading center for education, research and technological development, NPS should continue to build its programs in interdisciplinary areas. This development should enhance the education of NPS students and assure the NPS faculty remain globally competitive in research and teaching.

### 3. Executive Education / Professional Development Education

a. Executive Education/Professional Development Education. Provide executive and continuing education programs that support innovation and intellectual growth throughout the careers of the total force.

b. Professional Education. Plan, produce, conduct and administer programs of educational services to help naval officers, authorized U.S. military officers and authorized government service civilian personnel acquire, maintain and improve their competence through continuing education and update their abilities in a cost effective manner.

c. NPS Naval Flag Executive Education. Design, develop, manage, and conduct a unique and relevant executive education program for the Navy's senior leaders that provides results-oriented seminars, workshops and tailored-support short courses. Through NPS's Center for Executive Education (CEE), create strategic-oriented educational opportunities that prepare Navy senior officers and leaders, and their staffs, to lead effectively in increasing complex US Navy and Joint organizations.

d. Joint Professional Military Education (JPME). In partnership with the Naval War College, provide opportunities for students to complete Joint Professional Military Education Phase I as a part of their NPS residential program.

e. Defense Resources Management Institute (DRMI). Direct and supervise the daily operations of the Defense Resources Management Institute, Monterey, CA, in management education courses.

### 4. Civilian Institutions (CIVINS)

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a. CIVINS Management. Conduct program administration, management and resource control for Navy funded graduate education programs for naval officers attending civilian universities through the Civilian Institutions Programs Office, including fully funded graduate education, advanced education, and law education programs.

b. CIVINS Student Management. Supervise, administer, control and monitor all officers enrolled in fully funded graduate education at CIVINS and select DoD institutions through the designated reporting and administrative senior officers. Publish appropriate directives to the supervisory officers to ensure efficient military supervision of students using standardized administrative and managerial procedures.

#### 5. Navy Education Support

a. Navy Doctoral Program. Conduct administrative academic screening and administration of applicants for the Doctoral Studies Program. Recommend the selection of institutions and qualified applicants to Chief of Naval Personnel.

b. NAVPERSCOM. Maintain direct liaison with Navy Personnel Command (NAVPERSCOM) Distribution Management (PERS-45) and appropriate assignment and or placement officers concerning routine "duty under instruction" officer status changes.

c. Student Personnel Records. Maintain student and academic records on all students pursuing graduate education at NPS and CIVINS. Ensure all students' fully-funded graduate education academic achievements are reported to appropriate NAVPERSCOM personnel management offices to guarantee appropriate subspecialty coding and/or education level coding in personnel databases in a timely and accurate manner, as well as NAVPERSCOM documentation of service obligation and NAVPERSCOM follow-up in the case of those students not completing degree requirements prior to detachment from NPS.

d. Academic Profile Codes. Determine academic profile codes (APC) and maintain a database of APCs and transcript abstracts for NAVPERSCOM official use in the selection of personnel for graduate education.

#### 6. Relationships and Partnerships

a. Relationships/Partnerships to Advance the Force. Develop and maintain strong working relations with combatant commanders, type commanders, Office of the Chief of Naval Operations (OPNAV) organization, Naval Warfare Development Command, industry, and other organizations and universities. Ensure the integration of NPS graduate students with faculty working on advanced concepts to ensure our forces remain dominant across the full spectrum of military operations.

b. University/Industry/International Partnerships. Develop and maintain partnerships with other colleges and universities, business and industry, government and the

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international community. Achievements by NPS when working in collaboration with others have resulted in both direct and indirect impact on warfare developments, technical and research support for DoD, and the creation of new technologies and new military applications of technology.

c. FCA University Partnerships. Enter into partnerships with other universities in fleet concentration areas to achieve NPS and Navy objectives.

d. International Relationships. Serve as an effective instrument of U.S. foreign policy by initiating and continuing action programs which promote positive relations between the command and other nations with regard to graduate level and continuing education in support of DoD programs.

e. Partnership for Peace. Act as the United States North Atlantic Treaty Organization (NATO) Partnership for Peace Training and Education Center. Note: NPS was designated the NATO Partnership for Peace Training and Education Center (PTEC) in May 2004 by SECSTATE as part of the U.S. commitment to a revitalized NATO and its Partnerships concept to expand NATO to the east. This was an acknowledgement of the value NPS brings to the alliance and its partnership network with high-quality graduate-level programs and academic courses. NPS has proven itself to be a valuable member and leader within this PTEC community for the past 14 years.

## 7. Governance

a. Board of Advisors. Manage the Board of Advisors to the Presidents of NPS and the Naval War College and its subcommittees per reference (e).

## 8. Business and Financial Activities

a. University Reimbursable Model. Operate using a hybrid financial model built upon both direct Navy appropriations and the acceptance of significant reimbursable funding. NPS receives substantial funding both from annual direct appropriated Navy funds through its budget submitting office and from reimbursable funds from sponsors. Sponsor funding is comprised of Department of the Navy, Department of Defense and other federal agency reimbursable resourcing that supports advanced education, research, and professional development education. Accomplishment of NPS's full mission and functions requires, and is predicated on, the receipt and execution of substantial reimbursable funding.

b. Funding and Tuition. Exercise budgetary and funding control over funds allocated by CNO; develop and coordinate long and short-range financial plans and programs. Collect the cost of instruction from the Department of the Army, the Department of the Air Force, the Department of Homeland Security, other agency and defense industry contractors for instruction provided to their members.

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c. Reimbursable Funding. Receive and control funding in concert with reimbursable work including research projects at NPS.

d. Reimbursable Work Acceptance Process. Maintain a Work Acceptance Process (WAP) at NPS that reviews all proposed reimbursable work in terms of: 1) Alignment with the naval core mission, 2) Enhancement of NPS Mission and Functions, and 3) Accomplishment within NPS's FTE authorization. The "Core Mission" for NPS is defined as the education of Naval Officers (USN and USMC), including supporting research and professional development education. NPS's "Mission and Functions" is defined by this Instruction. The WAP will be applied to all NPS reimbursable activities, including: a) reimbursable education, b) reimbursable research, c) reimbursable professional development, and d) reimbursable support activities.

e. Managers' Internal Control Program (MICP). NPS recognizes MICP as a critical tool and integrates it into key processes to improve governance and mitigate risks. The program also contributes directly to audit readiness. In the end, NPS leverages MICP to ensure we have reasonable assurance, supported with appropriate documentation, that our operations are effective and efficient, that our reports are reliable, and that we comply with applicable laws and regulations. This, in turn, enables NPS to exercise purposeful management in support of accomplishing the mission and achieving the goals and objectives we set in support of this world-class institution.

f. As a premier graduate education and advanced research institution in DoD, NPS plays a key role in providing rigorous in-residence advanced education that serves as the key element in the professional development of our naval force while targeting junior to mid-grade officers at a pivotal period in their career for maturing strategic and critical thinking skills. NPS has also been a key institution in developing distance learning opportunities that provide advanced education to a broader audience of DoD professionals. Furthermore, the institution's development of graduate certificates in relevant and burgeoning disciplines provides avenues to support continuous learning throughout a career. These relatively new opportunities illustrate that NPS is committed to evolving and perfecting advanced education programs in response to a dynamic and complex national security environment.

(2) What is your vision regarding the future role of your educational institution?

(a) NPS's vision of its future role as an educational institution is reflected in our recent five year *Strategic Plan*, enclosure (3). The supporting requirements to execute this plan were defined in enclosure (4), *Sailing Directions to Support the Strategic Vision*. The strategic plan is publicly available at <https://my.nps.edu/strategic-plan>. The plan describes thematic areas and actions that best fulfill our recently-revised and approved mission statement.

(b) Briefly summarized, the plan calls for NPS to expand interdisciplinary teaching and research, grow new programs in important and emerging fields of technology, and improve

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the effectiveness of our teaching and administrative processes. The strategic plan lists concrete actions in ten distinct areas:

1. Education improvement
2. Operations effectiveness
3. Innovation
4. Talent management
5. Ethics
6. Global Strategy
7. Emerging technologies
8. Data science
9. Environment
10. Cyber operations

(c) Some of the actions in these ten areas have already been initiated using available resources. Other areas will require new resources and new partnerships, particularly coordinating with the private sector to a much greater extent than in the past. In addition, some proposed actions may require new authorities that make it possible to create and manage consortia with industry and the non-profit sector, operate more like a working capital organization, incorporate seed funding in our indirect cost rate, and serve a wider range of students.

(3) How well do you inculcate the ability for critical strategic assessment and thinking on the part of your students and graduates?

(a) The competency of strategic assessment and thinking is an attribute NPS takes great pride in developing across multiple curricula and programs. While each degree program develops unique skills and attributes in our students, a consistent objective in all of our programs is for students to develop critical thinking and strategic analysis skills. If a student encountered a novel problem, new type of issue, or even a question, would an NPS education help them resolve that problem, understand that issue or answer that question? We feel confident that the answer to that question is “yes.” The goal of our pedagogy is to inculcate students with the theory, relevant empirical knowledge and methodology needed to undertake critical thinking and assessment. We teach students to evaluate the situation, explore competing hypotheses in the search for causal factors, and then to select an appropriate diagnosis, policy response or technical solution based on theory, logic and empirics.

(b) Each of our curricula are based in academic disciplines that utilize the scientific method. While they embrace different subjects, highly diverse paradigms and different methodologies, they each introduce the student to the scientific method, which is the foundation of “critical strategic assessment and thinking.” Our capstone exercise usually takes the form of a Master’s Thesis, which is designed to allow the student to practice critical thinking and assessment under controlled conditions. Faculty advisors evaluate the quality of the thesis along several important dimensions in an effort to evaluate curricula effectiveness—especially our success at fostering students’ critical thinking.

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(c) To illustrate the above, in the NPS Strategic Studies program, students will possess a comprehensive knowledge of US national security and defense policy and military

strategy. They will have the ability to develop and coordinate national and military strategy; to develop concepts and plans to employ military forces at the national and theater levels; to write strategic- and operational-level vision and guidance documents; and to formulate, articulate, and coordinate the employment of all dimensions of military power to support the ends of American national policy. The Strategic Studies program is a multi-disciplinary degree program grounded in the fields of history, international relations, comparative politics, and political economy, and requires completion of a Master's thesis as the capstone degree requirement.

(d) Moreover, in the NPS Operations Research and Systems Engineering Analysis programs, students integrate quantitative assessments in warfare analysis between the United States, China, and Russia. Both programs require Navy students to take the Joint Campaign Analysis course. The Joint Campaign Analysis class leverages previous course work in simulation, optimization, decision analysis, search theory, and probability theory by challenging our officers to apply them in a campaign level scenario. In this class students must develop a concept of operation to meet campaign objectives, model that concept to assess risk using appropriate measures for their objective, and assess "new" technical capabilities introduced by comparing them to their base line concept analytical results. The results are quantitative military assessments of new concepts and technologies, identification of force capability gaps, and risk assessments. These students are then allowed the opportunity to apply these lessons in a follow course of wargaming to obtain the human decision element.

(e) Further, Operations Research students will frequently conduct additional warfare analysis for their thesis. Systems Engineering Analysis students conduct a cross campus interdisciplinary study on a warfare topic selected by OPNAV N9I in lieu of a thesis. Our objective is to enhance our students' educational experience and sharpen their combat skills. Enclosure (5) is provided as an info paper exemplary of this activity at NPS. The paper was written for the recently held Military Operations Research Society Symposium on developing naval tactics and assessing the value of new technology in maritime warfare at NPS. It is clear evidence that NPS does develop critical thinking and strategic assessment skills in our graduates and indeed *Educates for Seapower*.

(4) How often do you review and update curricula in order to respond to the changing environment, demands, and requirements, and who oversees the implementation of these reviews?

(a) Curriculum Review

1. The Naval Postgraduate School conducts curriculum reviews on a biennial cycle. These reviews enable a continuous review and refinement of curricula by means of Core Skill Requirements (CSRs) and Education Skill Requirements (ESRs) that are intended to align a

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set of quantifiable skills, traits, expertise, and educational objectives to allow officers to perform effectively in subspecialty-coded billets. Communication with major area sponsors on curricula is constant.

2. Per SECNAVINST 1524.2C, "Each curriculum leading to an academic degree shall be formally reviewed every 2 years by the curriculum sponsor. NPS shall maintain an ongoing dialog with curriculum sponsors to ensure curriculum relevancy, sound investment of limited resources, and that educational content fulfills the needs of the DON."

3. Per OPNAVINST 1520.23C, "Periodic review of curricula and learning outcomes is fundamental to developing a military force of adaptive, proficient, innovative leaders and experts with the knowledge and skills relevant to the strategic and technological challenges of today and tomorrow."

4. The NPS President acts as academic coordinator for all Navy graduate education programs and maintains approved curricula by means of the review process. Each curriculum has a Major Area Sponsor (MAS) who is responsible for defining current and future Navy requirements in terms of CSRs and ESRs. The President, NPS Provost, and MAS jointly validate any changes to curriculum with OPNAV N12 approval.

Academic Program Review:

a. In parallel to the curriculum review process with Navy/DON/DOD curriculum sponsors, NPS maintains an Academic Program Review (APR) process. APRs are reviews of our academic departments and programs conducted by an expert team of external reviewers selected from academia. APRs are common practice in higher education and expected for maintaining accreditation. APRs provide NPS with an objective assessment of the quality, effectiveness and currency of our programs by peer academics. APRs are conducted for each NPS departments on an approximately 5-year cycle.

(4) In your critical view, how well do you prepare your students for future assignments?

(a) NPS works closely with stakeholders and major area sponsors to ascertain and codify billet requirements so that they are reflected in the Core Skill Requirements (CSRs) and subsequently embedded into the Educational Skill Requirements (ESRs). This is accomplished in conjunction with the biennial curricula review process addressed separately within this document. Once ESRs are agreed upon and approved, the curricula and corresponding matrices are tailored to reflect the stakeholder and community needs. This process is implemented to provide each graduate with the necessary educational skills and competencies for future coded assignments.

(b) NPS oversight on the curriculum review ensures that all proposed changes to courses meet all (100%) of the ESRs. Therefore, NPS is highly successful in preparing students for future assignments in accurately coded subspecialties. Having a graduate level education in

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general broadens the perspective of Naval Officers and strengthens soft skills as well as technical expertise to meet the demands of future naval leaders.

(c) Graduate Education Learning Outcomes

1. Attention to ESRs assure that each of our curricula will prepare officers appropriately for specific job assignments. ESRs will differ depending on the curriculum and field of study. Beyond that, all of our master's degree programs are designed to satisfy general, institutional-level educational outcomes. All NPS master's degree programs provide graduate-level education with these objectives to be achieved:

a. Subject Matter Competence. Student demonstrates graduate-level knowledge and competencies in their academic field.

b. Methods and Technical Merit. Student demonstrates the ability to apply technical expertise and appropriate methodological rigor in conducting research and analysis.

c. Critical Thinking. Student demonstrates the ability to apply critical thinking and logical reasoning to research questions and to implement creative or innovative approaches to answer them.

d. Communication Skills. Student demonstrates proficiency in communicating and presenting the results of their inquiry and learning in written documents and/or oral presentations.

e. Defense Relevance. Student demonstrates the ability to apply education and learning to problems of relevance in the defense or national security community.

(d) These general educational objectives reflect the core benefit from a graduate education: Knowledge, Competence, Critical Thinking, Communications – all applied in a Defense setting. NPS believes these core skills prepare officers to better fulfill **all** future assignments—“Every tour is a payback tour!”

(5) Based on your mission statement and list of required knowledge and learning, what is your critical assessment of how well you are achieving both? What are the strengths, weaknesses, and gaps of your institution in providing your graduates with these necessary skill sets?

(a) As referred to in the previous question, the required knowledge and learning is established by defining and maintaining the Education Skill Requirements (ESRs) and Core Skill Requirements (CSRs) with Major Area Sponsors, stakeholders, subject matter experts, community managers and sponsors. NPS curriculum reviews promote the necessity of ESRs and CSRs to be linked to specific knowledge, skills and abilities defined in Navy billet requirements. CSRs specify the functional areas covered by a subspecialty discipline. They are a set of quantifiable skills, traits and experiences that a sub-specialist must possess to perform acceptably

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in a coded billet. ESRs are the degree program elements required to meet a subspecialty's CSR. NPS degree programs require a formal education curriculum that meets these occupational requirements.

(b) The NPS Curriculum review process is one of the critical strengths to achieving the required learning and knowledge objectives to meet ESRs. However, as requirements change or evolve with current operational needs and emerging warfare capabilities, there is a finite amount of available classroom time, length of program, and resources within each curriculum to accommodate further growth. The challenge becomes prioritizing which skills sets and competencies are most critical for our graduates. Some NPS curricula are experiencing academic overload and along with JPME qualification becomes a depth versus quantity challenge.

(6) How do you assess the quality of your faculty, as well as your ability to recruit faculty and maintain standards? What are those standards?

(a) NPS expects incoming and onboard faculty to be subject matter experts in their field of study, excellent instructors, and providers of DoD/DoN relevant research and instruction. NPS recruits the core tenure-track faculty from top Ph.D. granting institutions, with the majority having earned their degree from top 50 universities. By number, the largest sources of NPS' tenure-track faculty are:

1. UC Berkeley
2. MIT
3. Stanford
4. USC
5. UCLA

(b) NPS has both advantages and disadvantages in recruiting new faculty and maintaining quality. Major reasons new faculty are attracted to NPS include:

1. NPS' unique defense-oriented mission and programs – where it's a fit
2. Desired balance of teaching and research workload and expectations
3. Appealing Monterey location
4. Mature, committed students

(c) Major challenges in attracting new faculty (and sometimes retaining existing ones) include:

1. Non-competitive compensation for PhD-qualified faculty (particularly at higher ranks and in engineering/technical/business fields)
2. High cost of living
3. Expectation that scholarship and research activities should align with defense community interest and needs

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4. Federal government rules and regulations that constrain “normal” faculty work activities

(d) Departments often leave vacancies unfilled if no candidate meets the standards. Some faculty positions at NPS are hard to fill based on an inability to compete on salaries with other educational institutions and/or commercial entities. (Current challenging areas to hire include cyber/computers, data science, accounting, finance, engineering fields.)

(e) While at NPS, faculty are evaluated regularly and thoroughly. Expectations for faculty work activities and accomplishments vary depending on faculty type (Tenure-Track vs. Lecturers vs. Research Faculty). NPS’ workload model and performance expectations for tenure-track faculty are appropriate to a graduate-level, research-oriented civilian university. Similar to peer universities, tenure-track faculty are evaluated on Teaching/Instruction, on Research/Scholarship, and on Service.

(f) Various review processes and methods are employed to evaluate faculty accomplishments and effectiveness. A few examples include: Instructional effectiveness evaluated by students (Course Evaluation Forms). Scholarship and publication reviewed by peers as part of the normal publication process. Sponsored research, or other sponsored work, assessed by reimbursable sponsors. Annual reviews performed by department chairs and/or senior faculty. “Third Year Review” for new tenure-track faculty. Formal promotion and tenure review by NPS’ institutional P&T process. While the vast majority of candidates receive tenure, the process itself still enforces standards because faculty who do not anticipate meeting the standards often leave before the tenure process begins or convert to non-tenure track positions.

(7) Do tenure, right to publish, and ability to research constitute major issues that need review?

(a) Awarding tenure, allowing faculty to publish, and facilitating faculty research activities are all essential aspects of NPS’ university and faculty model. Accomplishment of NPS’ mission requires it to operate as a graduate-level, research-oriented institution. To attract top faculty, NPS must provide a faculty work environment that is comparable and competitive with peer civilian universities. Tenure, publishing and research are each necessary to attract and retain an NPS faculty capable of accomplishing NPS’ mission.

(b) Permitting and maintaining tenure, research and publishing at NPS does not need review, and compromising any of these activities would be significantly detrimental to NPS and the performance of the NPS mission.

(c) Generally, NPS’ current environment with respect to tenure, publishing and research activities is satisfactory. NPS’s ability to tenure faculty members (defined by the “Pink Book”) and the process of doing so are adequate and do not need review. Faculty at NPS have full academic freedom to publish with an appropriate policy of publication review. In terms of conducting research, NPS’s faculty workload model incentivizes faculty to maintain a relevant

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and continuous research program, which in turn feeds back into the instructional mission. In all, the ability of faculty at NPS to access reimbursable research funding is good, with strong relationships with sponsors across DoN, DoD, and beyond. (Pink Book is the Naval Post Graduate School Policy Regarding Appointment, Promotion, Salary, and Tenure of Office of the Civilian Members of the Faculty, dtd 26 January 2015)

(d) Nevertheless, there are serious issues related to conducting research, mostly centered around externally imposed business practices and oversight that go beyond the requirements of compliance and auditability. These are addressed in the *Sailing Directions* memo addressed in this document. There are also special issues, a consequence of NPS faculty being federal government employees, that result in additional hurdles to publication not experienced by faculty at civilian universities (e.g., intellectual property and copyright control; security review of publications). Relaxing such constraints, if possible, would enhance the research and publication environment at NPS.

(8) How is the DON-wide requirement of audit addressed in your curricula?

(a) The following table reflects the percentage of audit readiness material in each of the Graduate School of Business and Public Policy (GSBPP) courses listed below.

<b>Audit Content in School Curricula</b>			
<b>Course Name</b>	<b>To Whom Offered</b>	<b>Content</b>	<b>% of Content</b>
Financial Reporting & Analysis	All MBA students, regardless of subspecialty; all EMBA students	This is our first quarter core financial accounting class. We compare corporate accounting to government accounting. Students learn the types of audit opinions (unqualified, qualified, adverse, and disclaimer). We review the DON annual report and discuss the disclaimer of opinion and the internal control weaknesses that the auditor identifies as the basis for the opinion.	20%
Defense Budget Policy & Financial Management Systems	All MBA and EMBA students, plus students in MS (Mgmt.), MS (Contract Mgmt.), MS (Program Mgmt.), MS (Systems Analysis), MS (Cost Estimating)	This is our key public policy and budgeting class. Faculty discuss auditing as a policy issue where students learn to compare accrual-based accounting to budgetary accounting, and discuss the public policy aims of the Chief Financial Officers Act and other pertinent legislation.	10%
Defense Financial Management Practice	All MBA-FM students, plus students in EMBA, MS (Systems	Where the budget policy class covers strategy and the processes that result in broad budget allocations to support that strategy, this class is focused on the detailed budget formulation and	30%

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	Analysis), and MS (Cost Estimating)	execution processes. The class is framed by internal controls to ensure an accurate budget, compliance with fiscal law, and proper accounting for reimbursable and the NWCF.	
Conrad Seminar in Financial Management	All MBA-FM students	Taught by a former OPNAV N8, this seminar features a number of presentations on matters of practical and current interest to Navy FM, including presentations by FMO on Navy audit readiness.	10%
Internal Control and Audit	All MBA-FM students	In this auditing class, we cover both industry auditing standards as well as Government Auditing Standards (The Yellow Book), both the COSO Internal Control Integrated Framework as well as Standards for Internal Control in the Federal Government (The Green Book), and fraud issues in the military and the federal government. We also cover Financial Improvement and Audit Readiness (FIAR) and DOD Instruction and guidance related to the MICP and audit readiness in DOD, DON, and other federal agencies. In addition, we discuss auditing from both the auditor and the auditee perspectives.	100%
Financial Management for Acquisition Professionals	Students in MS (Program Mgmt.) and MS (Systems Engineering)	While this course is designed for the unique aspects of budgeting and financial management for acquisition programs, the importance of the audit requirement is covered and how proprietary accounting differs from budgetary accounting.	10%

Course Name	To Whom Offered	Content	% of Content
Financial Management in the Armed Forces	Required for students in MS (Info Tech Mgmt.) and MS (Network Operations); commonly taken as elective by students in other programs.	This course is a hybrid of the budget policy and budget practice courses described above and is designed for students outside the School of Business and Public Policy. Auditing topics emphasize the policy aims of the audit requirement and the role of IT systems in achieving auditability.	10%
<b>Other</b>			
Certification Preparation	Elective courses, taken primarily by MBA-FM students	We offer prep courses for the following professional certifications: Certified Management Accountant (CMA), Certified Fraud Examiner (CFE), and Certified Defense Financial Manager (CDFM).	10-20%
Navy Senior Leader Seminar (Center for Executive Education)	Navy O-6 and GS-15; 7 classes per year.	Every class includes a presentation and discussion on the background, status, and importance of audit readiness, and what seminar participants can expect to experience during an audit and what they can do to assist.	10%

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(b) The following table reflects the GSBPP programs and the corresponding audit readiness attributes included within the curriculums.

Program	Policy Requirement & Status of DoN	Internal Controls	What to Expect When Being Audited	Compare Proprietary & Budgetary Accounting	Compare Corporate & Federal Accounting	Auditing Standards
MBA (all subspecialties)	X		X	X	X	
MBA (FM subspecialty)	X	X	X	X	X	X
EMBA	X	X	X	X		
MS (Management)	X			X	X	
MS (Program Mgmt.)	X	X	X	X		
MS (Contract Mgmt.)	X	X	X	X	X	
MS (Systems Analysis)	X	X	X	X	X	
MS (Cost Estimation & Analysis)	X	X	X	X	X	
MS (Systems Engineering)	X	X	X	X		
MS (Information Technology Mgmt.)	X	X	X	X		
MS (Network Operations & Technology)	X	X	X	X		
Navy Senior Leader Seminar (Executive Education)	X		X			

(9) What are the views of your graduates as to the quality of the education received, and where change and improvements are needed? What kind of sampling is achieved in these surveys?

(a) The Naval Postgraduate School has administered a Graduating Student Survey (GSS) since 1993. Approximately 60% of expected graduates respond each quarter. The survey is comprised of 40+ questions with responses on a 5-point scale. Questions cover students' experience with their curriculum, instructors, thesis, satisfaction, labs, classrooms and the library.

(b) The survey ends with an open-ended comments section. Many students express their positive experience and thanks in the comments section. Examples include:

1. NPS has been one of the best experiences of my career thus far. The staff were heavily invested in my education and growth as both a student and a professional military

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officer. The training afforded a means to explore complex military challenges in a less traditional manner.

2. The experience at NPS has been truly rewarding. It has provided me with a broad intellectual horizon: capacity and capabilities to think and analyze unforeseen problems and provide a just and workable solution. That is my take-away from my scholarly engagement at NPS.

3. The experience and knowledge I gained at NPS has been a tremendous benefit to my professional career as well as benefits to my command in the quality of the work and analysis I can provide.

4. I consider myself extremely privileged to have been given the opportunity to participate in such an informative and knowledge-rich program. I am eternally grateful for the experience.

5. NPS fills a critical niche in defense-related graduate education. My experience here exceeded my expectations.

6. I am honored and very appreciative of the opportunity and knowledge that I gained at NPS. Thank you.

7. From the GSS, NPS aggregates responses from specific questions to measure Student Engagement. The underlying premise is that high student achievement follows from students being highly interested in, actively involved, and “engaged” with their studies. Aspects the students’ education experience we assess via Student Engagement include:

- a. Enrichment – Diverse Learning Experiences
- b. Challenge and Involvement
- c. Student Satisfaction
- d. Student-Faculty Interactions
- e. Enrichment – Student Diversity
- f. Defense Relevance of the Program
- g. Capstone/Thesis Experience

(c) The most current Student Engagement report in 2016 found:

1. In general, NPS students score NPS very highly on each of the seven dimensions, with average scores between 4 (Positive) and 5 (Strongly Positive).

2. Two areas are consistently highest: NPS students are most strongly satisfied with their program at NPS (Student Satisfaction) and their interactions with NPS faculty (Student-Faculty Interaction). Although still positive, one area is consistently lower: Students are less satisfied with the Diversity of their Learning Experience.

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3. In the Student Satisfaction dimension, graduating students would overwhelmingly recommend NPS to other officers or government civilians (4.50 score 2016, 4.55 average score 2007-2016).

4. Highly important is the Defense Relevance dimension, where students report on the alignment of their education programs to their military/defense career. While it's not a surprise, given NPS' education mission, to see high ratings here, it's still satisfying to know students appreciate the relevance of their education from NPS.

(d) Students also write comments regarding their instructors, programs, policies. They provide feedback on the campus library, the condition of the classrooms, and issues unrelated to their education (health services and housing provided by outside agencies). Comments are gathered (anonymously) and distributed to NPS administration, school deans and chair people for their analysis.

(e) Beyond the GSS, NPS employs other student surveys that provide additional assessments of NPS' programs. To mention three:

1. Department/Program Surveys: Exit surveys are also conducted by several of the academic departments at NPS. These surveys have questions related to the specific curricula and programs within each department. Student assessments from these department or program surveys are collected and utilized by the individual departments, and are used to inform the Curriculum Reviews.

2. Course Evaluation Forms (CEFs): Formerly called Student Opinion Forms (SOFs). CEFs are administered for each individual course taught at NPS. CEFs provide student feedback on the effectiveness of instruction and the learning experience in the course.

3. Alumni Survey: Although not conducted recently, NPS has previously surveyed its alumni population, to assess the value of NPS' program later in graduates' careers. NPS is in the initial stages of designing and conducting its next alumni survey.

(10) Describe your integration with the other parts of the DON educational enterprise, the Navy's Fleet components, and Fleet Marine Force, as well as other non-DoD academic institutions. What is your integration with Fleet Warfare Development Centers and nodes that educate officers and enlisted personnel on the operational level of war (OLW)?

(a) NPS is highly integrated with the Navy and Marine Corps through curriculum sponsors on the education side and research sponsors on the research side. Navy and Marine Corps senior leaders actively participate in curriculum reviews to ensure the NPS degree programs are meeting the current and emerging requirements for the sponsor. The normal cycle for a curriculum review is every two years with regular contact between the sponsor and the department in the intervening period. That periodicity is just right as more frequent changes

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would be disruptive for students and faculty. On the research side, the Navy and Marine Corps engage with NPS through reimbursable research and the Naval Research Program. On the reimbursable side, the research portfolio includes the Fleet Warfare Development Centers, Naval War College's Warfare Analysis Group, USFF, NAVAIR, NAVSEA, the Marine Corps Warfighting Lab, Marine Corps University, NRL, ONR, NAVSEA, Navy Cyber Warfare Development Group, OPNAV, and Space and Naval Warfare Systems Centers (SSC). The Naval Research Program connects NPS to a broader group of research sponsors across every code in OPNAV, Fleet Forces, Marine Corps Operating Forces and Supporting Establishment.

(b) This dedicated funding draws NPS faculty and students to work on the most urgent or important issues facing the various commands within each service. The wargaming classes integrate real world sponsors into the classroom. As students learn to design, develop, and execute a wargame, they are given actual commands to design, develop, and execute a game, then must analyze and summarize the game's results for the sponsor. Sponsors include United States Fleet Forces command; Commander, Naval Surface Forces Command; SPAWAR; and NAVWARCOM. Issues addressed by the students include advancing the Distributed Maritime Operations; integration of MEU/ARG assets in war at sea strikes; concept of employment for the Undersea Constellation; and the future role of naval special warfare.

(c) NPS also conducts a campus-wide and annual Warfare Innovation Continuum. This continuum addresses a major topic of maritime warfare interest and provides a common unclassified great power scenario for use by relevant faculty across the campus. Past topics included "Distributed Air and Surface Warfare," "Leveraging the Undersea Environment," and "Cross Domain Operations." The continuum activities include capstone courses like the wargaming class, Joint C4I class, tactical oceanography class, the joint campaign analysis class; the Warfare Innovation Workshop; the Total Ship Systems Engineering design sequence; and CRUSER research efforts. It is not uncommon for 400 faculty, students, and sponsors to be involved in this effort. An annual executive report is distributed to interested Navy commands and OPNAV. Enclosure (6), the NPS Wargaming Activity Hub Quarterly Report (Spring 2018), provides a recent summary of campus wargaming activities for faculty and students.

(d) Notably, NPS has recently established a resident network of Warfare Community Chairs on staff, including those representing USW, MIW, Surface, Aviation, IW, NSW, and USMC. These Warfare Chairs, all of which are at the O-6 or above level, are fully integrated with our respective schools and students, and ensure an institutional linkage with each of their respective DON Type Command (i.e., SUBFOR, SURFOR, AIRFOR, IFOR and CNSWC) and Warfare Development Command (NUWDC, NSMWDC, NAWDC, NSWDEVGRU, MCCDC). The warfare chairs facilitate access to research and the flow of current, relevant Fleet data and information to NPS leadership, faculty and students. One recent example of our Warfare Chair impact: Our MIW Chair, a RADM(Ret), organized the recent 13<sup>th</sup> International Mine Warfare Technology Symposium for OPNAV N95, ONR, Mine Warfare Association, and NPS sponsors. There were Navy, laboratory, acquisition, industry, and about 25 International attendees. This symposium is the only U.S. Navy sponsored Mine Warfare Event. NPS students and faculty

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attended free of charge and five NPS student groups presented their thesis and thesis equivalent projects to Symposium attendees.

(e) Regarding cooperation with non-DoD academic institutions, NPS at one point had fruitful and ongoing relations with a number of FFRDCs and UARCs. Unfortunately, activities along these lines has dwindled, perhaps as an unintended byproduct of the 2012 IG inspection and attendant management oversight restrictions. It would be to the benefit of DoN and DoD to have a renaissance in the relationships between NPS and the FFRDCs/UARCs, to provide for cooperative research and faculty/student experience tours.

(f) Looking forward, NPS should be more integrated with the broader DON educational enterprise and other academic institutions mentioned above. Many Navy professional military educational programs are clustered in Newport, Rhode Island. Most Marine Corps professional military educational programs are clustered in Quantico Virginia. On the positive side, NPS is unique in DoD and very distinct from being another PME (read JPME) institution. On the negative side, NPS is disconnected from the education of the majority of officers in the Navy and Marine Corps. Those officers in the normal PME pipeline who are not

familiar with NPS do not know how to leverage its educational and research programs. More importantly, those officers in the general PME pipeline do not get exposed to the latest developments in fields such as data science, machine learning, space systems, and information warfare. By contrast, officers at NPS must complete their normal (J)PME program while completing their rigorous academic program. NPS students get the benefit of PME and a high quality master's program. Officers in the Navy and Marine Corps PME pipeline do not get the benefit of the NPS graduate education experience. Brigadier General Bowers, USMC, Commanding General of Education Command in Quantico Virginia, identified this problem and is developing opportunities for students at Marine Corps University system to work with their peers at NPS. This is a model that should be expanded and applied across the DON.

(10) What is the role of your advisory board? Where is it most helpful, and how can its contribution be improved?

(a) The NPS and the Naval War College (NWC) currently share one overarching Advisory Board with two separate and distinct subcommittees overseeing each institution. The charter of the NPS and NWC Board of Advisors specifies that it provides advice to the Secretary of the Navy (SECNAV) on naval graduate education programs. The overarching Board and both subcommittees meet in the Washington DC area in the fall. Each subcommittee also meets at their respective institution in the spring. This allows each of the subcommittees to interface with students and faculty and get to know the institutions to provide feedback and recommendations to improve. The Navy Staff has a representative on each of the subcommittees as a conduit for information. Formal reports from these meetings are then furnished to the SECNAV (via the CNO and Commandant of USMC) with the members' independent perspectives on issues vital to the operation of the institutions, to include the administration, facilities, state of the student body, fiscal affairs, faculty, and overall climate of the institutions.

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(b) NPS and NWC are graduate institutions with degree-granting authority accredited by the Senior College Commission of the Western Association of Schools and Colleges (WASC) and the New England Association of Schools and Colleges (NEASC). WASC and NEASC accreditation requires that institutions have “an independent governing board or similar authority that...exercises appropriate oversight over institutional integrity, policies, and ongoing operations.” The accreditation agencies also require that institutions show clear lines of responsibility and resource allocation policies. At present, the Board of Advisors to the Presidents of NPS and NWC is considered as this independent governing board uniquely established to provide appropriate oversight.

(c) The current advisory board structure for NPS is well functioning and value-added. For minimal resources (total annual cost for both NPS and NWC is approx. \$33K), the advisory board provides effective oversight and timely input to both the President and SECNAV.

(11) The 2018 National Defense Strategy calls for a force that is more lethal, resilient, and agile. How are you contributing to this mandate, or making changes to do so?

(a) NPS recently modified its Mission and Strategy to ensure alignment with the National Defense Strategy. NPS strives to provide relevant and unique advanced education and research programs to increase the combat effectiveness of commissioned officers of the naval service to enhance the security of the United States. NPS maintains a program of defense-relevant research to provide thesis and research experiences for Navy Officers, to improve the curricula, to support the needs of Navy and Department of Defense, and to build the intellectual capital of NPS faculty. To support NPS’ core Navy mission, NPS’ programs are inherently joint, inter-agency, and international.

(b) In general, NPS recognizes a continuing need to remain cognizant of the changing defense environment and, where appropriate, to evolve its programs accordingly. It’s a standing practice of NPS to monitor and review major strategy, policy and guidance reports from DON and DOD. NPS both circulates for attention and keeps a library of such documents on a “From the Pentagon” intranet webpage, highlighted with the most current documents on the site’s homepage. Recent entries and attention includes:

1. National Defense Strategy 2018
2. CNO Way Forward for 2018
3. SECDEF Memo on Stewardship 2018
4. DOD Nuclear Posture Review 2018
5. US Navy Health of the Force 2018
6. National Security Strategy 2017
7. Navy - Strategic Readiness Review 2017
8. Navy - Comprehensive Review 2017
9. Navy Leader Development Framework 2017

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(c) NPS' new *2018 Strategic Plan* addressed earlier in this document was developed with reference to the National Defense Strategy and the current broader defense context. This *Strategic Plan* set directions for NPS as an institution.

(d) At the academic program level, continuous review and refinement of the curricula, at least once every two years, using subject matter experts and critical stakeholders, provides a means to evaluate, assess, and identify needed adjustments to adapt to the current national/defense/security strategy and environment, and provide the required capabilities to support.

(d) More broadly, NPS' education mission itself puts us in a position to support the 2018 National Defense Strategy. While curricula differ widely in their technical subjects, the objective of all NPS' education programs is to further develop the analytical reasoning and critical thinking abilities of our students. We strive to inculcate innovative and agile thinking into the officer corps.

(12) How are your student bodies changing over time (trends) in terms of background, curiosity, experience, intellectual capacity, aspirations, and basic skills?

(a) In general, the current NPS student body has the same career goals, aspirations, and thirst for knowledge as previous generations. But to attract the best officers and future leaders, our naval officers must be convinced their education will be appreciated and utilized. In the 1960s, line officers wanted technical and engineering education because it had obvious use to the fleet. Gradually, line officers came to realize – in fact they were told – that fleet skills (i.e., in the air) counted more than the education and skill necessary to improve the machines they operated or to develop new tactics. Additionally, current officers want to know their skills are valued and appropriately considered at promotion and selection boards. Simply put, they desire an honest opportunity to achieve their individual definition of success by applying their interests and talents.

(b) In practical terms, a higher fraction of NPS students coming to the Physics, Mechanical Engineering and Systems Engineering programs are requiring refresher quarters than in previous years. In fact, the June 2018 influx of students included 13 students (of 64 total) requiring refreshers. And five (5) of those 13 needed two refreshers (note: requiring two refreshers has always been very unusual). This may be a reflection of a lower STEM population in undergraduate programs in general, creating a smaller pool for DON Detailers to fill quotas with qualified people. Without qualified applicants, but with the same demand to produce graduates with subspecialty codes, NPS is adding time to some student's programs in order to get them from a lower input baseline up to graduation. That said, recent students who have come directly from the USNA have been top notch—better than in the past (~10 years ago).

(c) The student population is becoming more diverse as the military becomes more diverse. Students are current and comfortable with technology and want to embrace it in the classroom, however, not all of them want to program it or rush off to start their own business.

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The students have the intellectual capacity to complete the NPS program; however, there have been a few who did not have the proper undergraduate education to succeed without a lot of extra work on the part of the instructors. Also, another graduate student trend is as the technology is becoming more complex, they have less familiarity with what drives the technology they use. Some students approach problems with a “black box” mindset (i.e., they understand that X goes into the box and Y comes out of the box), but they don’t have even a conceptual understanding of what happened inside the box.

(d) In general terms, it is difficult to quantify curiosity, aspirations, background, and intellectual capacity across a student body. That said, the opinions offered by multiple post-major command O6s on staff at NPS suggest the current student body is as talented and motivated a group as ever. In one CAPT’s experience—now in his fourth command tour, having led a squadron conducting combat operations, a fleet replacement squadron training our youngest Sailors and officers, and a wing command for 22 fleet squadrons—our young military members are as good or better than he’s observed over 31 years in the Navy. Much has been said about the millennial generation—some have said they have short attention spans, entitled attitudes, and an expectation of immediate gratification. While there may be some elements of truth there, this generation—when given a meaningful task and the resources to succeed—is as capable, often smarter, more inclusive, and more creative than any other generation. NPS is confident our DON recruiting efforts are succeeding in delivering the best and brightest. Our challenge as leaders is to stay far enough ahead of them to keep them engaged.

(13) How much authority do you have in budget flexibility and working with your resource sponsors? How is your budget sourced and decided upon, and how might that process be improved? What pivotal constraints have you experienced?

(a) For direct mission funds NPS has one resource sponsor—the Chief of Naval Personnel (CNP/OPNAV N1). CNP/OPNAV N1 is also the fiscal authority as their Comptroller serves as the Budget Submitting Office (BSO-22). NPS direct funding is programmed and advocated for via the same BSO office. As a result, funding issued to NPS is well known in advance of each year and in-year adjustments occur (up or down) as a result of Congressional action or priorities set by SECNAV, CNO or CNP.

(b) The NPS President has a standing bi-weekly meeting with OPNAV N12 and the BSO Comptroller to discuss current and future issues. The NPS Comptroller has a similar monthly meeting with the BSO Deputy Comptroller. Notably, while NPS is designated as an Echelon II command, the school is financially subordinate to CNP/OPNAV N1. As a result, NPS’ budget flexibility is tied to the overall funding status and priorities of BSO-22 and CNP/OPNAV N1. All NPS priorities and unfunded requirements compete against BSO-wide priorities and unfunded requirements, many of which are separate and distinct from the mission of graduate education and research.

(c) NPS budget resources historically have been derived from previous POM submissions to CNP/N1. In recent POM cycles, only a few NPS issue submissions above our

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core requirements have been approved. Enclosure (7) provides a compilation of the past four NPS POM issue submissions; a summary of each POM submission is provided below. Those issues that were approved for funding are noted accordingly; all other issues were not approved in that budget cycle.

1. POM20. *All issues are still pending funding approval*

- a. FSEP Funding Continuation
- b. NPS All-Student General Cyber Course
- c. NPS Learning Spaces Upgrades
- d. Recapitalization NPS Laboratories
- e. Classified Computing Modernization
- f. Data Science Center of Excellence
- g. Sea Land Air Military Robotics (SLAMR) Facility

2. POM19

- a. Civilian Institutions (CIVINS) FYDP Add-On—*Issue Funded*
- b. Recapitalization to Support Naval Operational Curricula
  
- c. Recapitalization to Support Naval Technical Curricula
- d. Recapitalization NPS Laboratories
- e. Naval Distance Learning Education Evolution
- f. NPS All-Student Cyber Course
- g. Navy Talent Management Data Repository

3. POM18

- a. Civilian Institutions (CIVINS) FYDP Add-On—*Issue Funded*
- b. Recapitalization to Support Naval Operational Curricula

4. POM17

- a. Command Business Practices/Compliance—*Issue funded via FTE plus-up in Direct Funding*
- b. CIVINS Tuition
- c. NPS Learning Spaces Upgrades
- d. Naval Force Education
- e. Educational/Technological Infrastructure
- f. Cyber Certificate-To-Degree Program
- g. Systems Engineering P-Code DL Program

(d) NPS has established and funded (internally) new programs of instruction; however, NPS attempts to be as flexible as possible when new educational requirements are

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executed. The problem with the existing process is that requirements for educational programs are requested by Navy leadership but without additional funding. As a result, NPS must cut something out of existing programs or forgo planned equipment procurement, classroom recapitalization or laboratory upgrades.

(e) NPS Total Obligational Authority (TOA) is comprised of Navy direct O&M, and RDT&E funding and reimbursable funds from various federal and non-federal sources. The O&M/RDT&E funds and reimbursable funding is roughly evenly split. NPS may execute its direct Navy non-labor (O&M) without constraints; however, reimbursable funds have been significantly reduced the past five years due to policy constraints primarily related to the Navy “51 percent rule” for accepting reimbursable work. Due to the nature of NPS research and sponsored activities, requirements often conflicted with the Navy Comptroller’s directive that a minimum of 51 percent of reimbursable work be completed in-house. While waivers may be requested, from 2015 to mid-2018, no waivers were submitted or entertained. In May 2018, NPS submitted the first 51 percent rule waiver via enclosure (8). ASN (FMC) approved this categorical waiver for hiring post-doctoral candidates on 2 July 2018. NPS intends to submit additional categorical 51-percent waiver requests to ASN (FMC) in the coming weeks. We expect these waivers will dramatically improve NPS’ ability to accept reimbursable activities and perform substantively more graduate research activity.

(14) What constraints have you experienced regarding the execution of your vision for the future? How can this Study best help you in that regard?

(a) The new NPS *Strategic Plan* in enclosure (3) reflects the expansive and cutting-edge relevancy the Secretary of the Navy articulated for the school in early 2018. As previously addressed, the plan was also accompanied by an NPS memorandum to the Secretary of the Navy titled *Sailing Directions to Support the Strategic Vision*, enclosure (4). This memorandum defined the barrier removal, enablers and policy actions necessary to achieve the Secretary’s shared vision for NPS and it’s well suited to address this question.

1. The contents of the *Sailing Directions* memo are included below.

a. NPS recently submitted a revised Mission and Functions instruction for approval. The new instruction provides a revised mission statement and multiple other key updates related to our education programs, research and faculty expertise, relationships and partnerships as well as business processes. NPS requests immediate approval of this important overarching instruction. In addition, NPS continues to evaluate its relationship with the NPS Foundation and how it can be expanded into a more robust and productive partnership. NPS appreciates your staff counsel’s continued support and collaboration with this critical initiative.

b. Regulations and rule sets that have been imposed or reinterpreted to manage oversight of a standard annual appropriations command have created significant barriers and often paralysis within our academic institution and its complex business model. NPS

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requires flexibility with discrete, targeted waivers to current regulations in order to effectively execute its advanced research and education mission. More specifically, NPS requires:

(1) ASN(FMC) and CNP/OPNAV N1 approval of NPS:

(a) Authority to waive the 51 percent rule on Economy Act Orders to support sponsored education and research. This waiver would be used on a case-by-case basis when the NPS President assesses it's in the best interest of the Navy for education and research funded by DoN/DoD sponsors.

(b) Authority to charge overhead using a total direct cost model for reimbursable work. The current cost model is limited to labor and travel only and does not accurately or equitably capture indirect costs across all reimbursable work.

(c) Authority to coordinate all contracting support for any NPS centers (e.g., Center for Homeland Defense and Security, and Center for Civil-Military Relations) with Naval Supply Systems Command (NAVSUP) via NPS memorandum of agreement when that support is funded via other sponsors.

c. To execute the mission effectively, NPS needs to maintain a world-class faculty and staff. In the academic world this requires enablers such as a more flexible salary cap and the ability to approve faculty appointments longer than one year. More specifically, NPS requires:

(1) ASN(M&RA) and CNP/OPNAV N1 approval of NPS:

(a) Authority to increase the DoN faculty pay schedule "Pay Cap" to enable NPS to compensate our tremendous faculty where appropriate, based upon distinct positions, qualifications and specialty.

(b) Authority to establish time-limited General Schedule (GS) positions under Schedule A in the excepted service to support variable reimbursable work performed in the academic schools. The key words here: time-limited.

(c) Authority to hire foreign nationals under Schedule A of the excepted service on a limited case basis and based upon critical subject matter expertise that will serve in key non-critical sensitive faculty positions.

d. As stated in (the SECNAVs) 1 February speech, NPS serves as "a critical component in the retention, education, and development of the talent we have in the Navy-Marine Corps team, our fellow services and government entities." To continue to attract and educate the best students, NPS requires the Navy to place an increased value on in-residence graduate education. Further, the Navy should leverage our international relationships to enhance

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this in-residence education and build maritime partnerships with an increase in foreign students. Specifically, NPS requires:

(1) ASN(RDA), CNP OPNAV N1 and/or OPNAV N3/N5 approval and support of:

(a) Ability to attract the most talented and career competitive naval students possible, to include due course officers in the unrestricted line communities.

(b) Adjustment of promotion and administrative screen board precepts to reflect the distinct nature and career value of in-resident graduate education.

(c) Efforts to increase international student enrollment by enhancing the visibility and stature of NPS in DoD security cooperation and maritime partnership efforts. This action would in turn enhance in residence education and build further trust and interoperability with our international partners.

(b) The actions summarized in the above paragraphs will provide NPS the academic agility and regulatory flexibility to enable the Strategic Plan while operating in an effective and innovative manner. This will in turn raise our national and global profile as a world class institution of advanced research and graduate education, creating an institution that is laser-focused on relevancy in direct support of the National Defense Strategy and the Design for Maintaining Maritime Superiority.

(c) The NPS Team looks forward to coordinating with the Education for Seapower Executive Board to continue to enable this plan and vision.

(15) If you could make major changes to your institution and to the naval educational enterprise, what might they be?

(a) NPS addressed this question in the *Sailing Directions* memorandum referred to in the previous question. The answer is included below.

(b) Long term, the Navy may need to develop a new paradigm and organizational construct for NPS, one less constrained by ubiquitous bureaucratic processes and barriers; a construct that could allow the institution to function in an innovative and more effective manner with an ability to truly leverage the best practices of the non-DoD academic and research domain. NPS recommends the Navy charter an independent study to evaluate new organizational alignment and operational constructs for NPS, such as that of a working capital fund or a federally funded research and development center.

(16) Does the DON have a consistent culture of learning, and if so, how can we improve it, and if not, why, and how would you create one?

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(a) The DON has a consistent culture of learning the same things over and over again. If we define learning as “the acquisition of knowledge or skills through experience, study, or by being taught,” then the DON excels at imparting knowledge and skills to incoming personnel. The DON possesses a well-defined and smoothly operating network of training and educational institutions to replicate its existing organization, practices, and operations. The existing training and education framework ensures all personnel achieve the required minimum standards of performance in their positions. All that said, while there are many examples of individual commanders instilling a “culture of learning” in their units, a “culture of learning” does not exist across the Department of Navy or across the services.

(b) The DON lacks a “culture of learning” that inspires a desire to learn in each individual to achieve levels of performance that exceed the minimum standard required. In this case, the “culture of learning” is measured by the number of personnel that exceed the minimum standard and pursue excellence through self-directed education. This self-directed education includes a professional reading program, participation in conferences, publishing in professional journals, and instilling a passion to improve in peers and subordinates. This culture of learning exists in specific commands with particular leaders at specific moments in time. LtGen Van Riper created such a “culture of learning” while assigned as Commanding General, Marine Corps Combat Development Command (MCCDC) in 1995-1997. As Commandant of the Marine Corps, General Krulak promoted that “culture of learning” through organizational constructs such as the Marine Corps Warfighting Lab, interactions with new officers at The Basic School, and an emphasis on professional military education.

(c) The greatest challenge to instilling a true “culture of learning” is the tyranny of the urgent. Commanders at all levels expect instantaneous feedback to email taskers. Unit training and exercise schedules are packed with activities and have minimal white space by design. Learning requires “reps and sets” as General Robert Neller, USMC, has often stated. Learning requires reflection and informed discussion. The DON has systematically increased the general training and administrative burden over the last fifteen years, often for good reasons, but the net effect was to appropriate the majority of commanders’ time to requirements for pre-deployment training, unit training, and administrative tasks—with little room for anything else. It is impossible to create a culture of learning unless there is a systematic effort to create white space for leaders and units at all levels.

(d) The Navy recognizes fleet skills are perishable, which is why, for example, it provides refresher training for aviation and surface officers returning to the fleet. Although there are opportunities with continuous learning programs and certificates, there is no comparable, formalized program for refreshing educational skills. Technology and cyber warfare are changing so rapidly that officers must have refreshers to stay current in science and engineering. This presents the challenge of upholding the level of importance of continuous learning when compared to operational requirements and training for those operational requirements. This real-world constraint—which tightens the time on a shrinking fleet and its personnel—demands the organization places most value on those career choices which optimize at sea time or positions supporting operational forces. One solution to this challenge is end strength. If manning

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requirements were artificially expanded to account for additional officer and senior enlisted educational time (similar to buying additional aircraft for training purposes), and additional qualification designators and select sub-specialties were valued in promotion and selection and educational boards selected personnel for specific programs, we may be able to increase the value of education in the institution.

(e) Instilling a “culture of learning” requires space, time, and command interest. The DON should require all of its members to get involved. SECNAV could identify a book for the DON to read. During subsequent visits to a unit, ship, or installation, the SECNAV could ask who read the book, what insights they gained and what they recommend moving forward. In short order, all DON personnel would be very interested in reading. CNO and CMC could identify a topic for discussion during a quarter and provide facilitator packages to leaders at every level. Personnel should be encouraged to provide feedback online, at scheduled symposia, and in conversation when senior leaders visit. This example from the top could be explicitly discussed at commander’s courses, new flag and general officer courses, and in entry level training.

(f) Moreover, higher level education (not training) should be mandatory for promotion (for O-6 and above) as a demonstration of critical thinking skills and capability. Progression within all USN warfare designations should have an explicitly defined construct of required stages for promotion, tailored to the needs of the specific USN warfare community: initial qualification, practical application and experience, JPME, tactical level mastery, higher level education, joint billeting/JMO2, warfare command, major command. This experience and education construct will be longer than the traditional “up and out” timeline and require longer durations of time in rank (i.e., the stage has been set with “above zone” removal).

(g) Within NPS, there is no real metric to capture the relevance of our research and learning efforts to the larger DoN and DoD. While some faculty research and student theses have had direct impacts on shaping Navy policy and technological development, many theses seem to just “sit on the shelf” in the library with their true value untapped. Thus, one recommendation NPS intends to consider is creating a sponsor feedback mechanism whereby each student thesis or faculty research paper should, within 90 days of publication, receive a short statement from the sponsoring organization describing whether that product is providing value and if it is likely to influence follow-on policy or research/technical development.

(h) Lastly, the SECNAV and OPNAV should carefully study current USAF initiatives to supplant the P-code system with a more nuanced and detailed composite indicators of skills by individuals over a career continuum, which combines an officer’s unique education, training, and experience into a portfolio of skills accessible to a more flexible detailing marketplace. Enclosure (9), the USAF’s concept of operations on addressing education across an Airman’s entire career, is provided via our resident NPS USAF Military Associate Dean.

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(17) What is the impact of JPME (both Phases I and II) upon your curricula, your students' opportunity for education while in residence, and in your opinion, their capacity for addressing complexity and added lethality? How would you deliver JPME differently?

(a) The Naval War College (NWC) Monterey, a satellite office of the United States NWC, College of Distance Education (CDE) is located on the NPS campus in Monterey. In partnership with NPS, NWC provides qualified officers and select DoD civilians attending NPS with the opportunity to earn a Naval War College Command and Staff program diploma. The NWC program is designed to educate professional naval officers in areas that will enhance their performance in command and in decision making positions on major staffs. NWC Command and Staff program graduates are eligible for "joint coded" billets and those officers can negotiate class dates for the Joint Forces Staff College (JPME phase II) with their detailers or await assignment to a senior level service school.

(b) Eligible officers and select DoD civilians who wish to earn a Command and Staff program diploma need to complete an NWC course in all three core disciplines: Strategy and War (S&W); Theater Security Decision Making (TSDM); and Joint Maritime Operations (JMO). Course options include Fleet Seminar, Web-enhanced correspondence, and NWC Monterey courses. Courses may be completed in any order and in any combination of course options. Students do not earn a NWC Masters degree in Monterey as the program does not offer Fleet Seminar course requirements for the degree.

(c) As part of the agreement between NWC and NPS, the program is structured at NPS so that students enrolled in a Masters Degree program are able to earn a NWC, College of Distance Education Command and Staff diploma in four quarters. The NPS and NWC agreement stipulates a level of effort equating to four (4) credit hours per quarter which can be achieved by enrolling in one course per quarter. NPS and NWC assess this construct is optimal for allowing JPME and graduate education completion during the same tour for the majority of our students. The only exception is for NPS students who are too junior (ENS, LTJG) to receive the diploma. This group of students is typically small and represents newly commissioned officers who attend NPS immediately after commissioning (note: NPS has two such groups—Bowman Scholars are slated for the Nuclear Power Program, and the Shoemaker Scholars are slated for the Aviation Pipeline).

(d) In summary, the advantage of the NWC at NPS program is that NPS students study the profession of arms in a multi-service and multi-academic discipline environment which allows them to bring their NPS academic experience to bear as they proceed through the NWC program. This exposure to academic and intellectual tools increases officers' ability to address complexity and increase lethality through their own skill set, reaching out to peers with needed skills, or reaching back to the school house. While studying the profession of arms can assist officers to select proper weapons and apply current doctrine, these added intellectual tools can increase the probability that officers will plan operations that will create conditions to optimize their desired effect. Consequently, the impact of the NWC at NPS program has been very positive. The added benefit of having NWC in Monterey is that students who successfully

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complete both programs depart NPS with their Master's Degree, subspecialty code, NWC diploma, and JPME Phase I credit. It's hard to fathom a more optimal construct to provide this breadth of advanced professional military educational.

(18) How should critical thinking and strategic thinking best be taught? Where should it be taught? When?

(a) Critical thinking is best taught the same way you teach a 3-year old how to ride a two wheeled bicycle. To the child, riding the bike appears to be based on some form of magic, and a lengthy technical description of how to do it or an exposition on the physics behind the matter is not going make things easier. In any event, the child will be able to ride the bike in less than an hour if you remove the pedals and lower the seat so the child's feet can touch the ground. In other words, give the child the right tools, a mental picture of how to proceed, and a little practical application and things will progress naturally to the desired end state.

(b) While most of the neophytes in our classrooms do not believe that critical and strategic thinking is based on hocus-pocus, most of them do believe that it is just a lot of hokum. Growing up in a world where it appears that validity is based on the emotional ferocity with which an opinion is expressed, some of them are rather incredulous to learn that people actually believe that it is possible to select among competing alternatives based on theory, logic and data. Many actually see the world as being driven largely by opinion, and in their mind's their opinion is better than the other guy's opinion. In any event, we generally proceed in the same way as the bike lesson: classroom assignments and our Capstone Exercise, which usually takes the form of a Master's Thesis, are designed to allow the student to practice critical thinking. Their diploma is a permission slip to put the pedals back on the bicycle.

(c) Strategic thinking is the art of using all the resources under one's control to get a target to act in a way that suits one's political purposes. At a minimum, strategic thinking entails coordination across the different levels and domains of conflict and an appreciation of the causal factors that govern the situation. Strategists seek to manipulate the dialectic inherent in conflict in all its dimensions.

(d) Critical thinking is a pre-requisite to strategic thinking because it gives the strategists the tools needed to understand how the world works in general, and how a specific conflict is unfolding in particular. Strategy is about manipulating those causal factors so the situation evolves in one's favor. Not every critical thinker is a strategist, but every strategist must be a critical thinker. Strategic thinking can be taught the same way as critical thinking, but some worry that attempting it for the first time on the job can carry a heavy price tag. Students must first be educated as critical thinkers, then they can proceed to an education that focuses on an appreciation and manipulation of conflict's dialectic, i.e., strategy. People exposed to strategic education who lack any appreciation of the scientific method usually just come away with a trove of war stories and half-baked rules of thumb.

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(e) Critical thinking skills and strategic thinking are well taught through scenario case studies at every Navy educational institution. These case studies can be applied at the tactical, operational, or strategic level at all officer ranks. This is against common wisdom, until one recognizes that strategic choices are greatly influenced by tactical capabilities or vulnerabilities.

(f) As an example, inculcating strategic analysis and critical thinking skills occurs in the National Security Affairs Department by the following:

1. Students have to take a mix of foundational courses that ensure exposure to multiple disciplinary approaches to national security challenges. These foundational courses introduce analytical concepts and theoretical debates that train students to think in terms of competing perspectives and alternative hypotheses

2. Students have to take a minimum of eight courses for their specific degree track, exposing them to multiple topics, faculty, readings, and assignments. This produces both breadth and depth of knowledge and provides opportunities to hone critical thinking and writing skills

3. Students are required to write a substantial thesis based on independent research of a problem relevant to national security. This capstone follows the scientific method and encourages students to demonstrate higher levels of knowledge synthesis and knowledge production

4. Students are encouraged to hone their oral communicative skills through class discussions and formal presentations. Extensive writing assignments hone their written communicative skills and they receive additional support through the Graduate Writing Center at NPS

5. Students take advantage of out-of-classroom learning opportunities by participating in international educational events (CCMR Mobile Education Teams) and attending a range of speaker series events that feature national and international speakers

(18) What should be our priorities for STEM education and its uses for greater lethality, at the undergraduate and graduate levels? The proper balance between strategic education, STEM, and the operational arts?

(a) The 2018 National Defense Strategy characterizes the current operational environment:

1. This increasingly complex security environment is defined by rapid technological change, challenges from adversaries in every operating domain, and the impact on current readiness from the longest continuous stretch of armed conflict in our Nation's history. In this environment, there can be no complacency—we must make difficult choices and prioritize what is most important to field a lethal, resilient, and rapidly adapting Joint Force.

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(b) Officers cannot be successful at operating in an environment of rapid technological change in domains such as Space and Cyberspace without a minimum STEM background. Being able to operate at the tactical, operational, and strategic level requires a basic understanding of the science and that minimum level will only increase in the future. Mesh networks, autonomous systems, machine learning, and cyber operations require a minimum technical background to employ successfully and understand the risks associated with each system.

(c) Operational art is the use of military forces to achieve strategic goals through the design, organization, integration, and conduct of strategies, campaigns, major operations, and battles. Just as a commander or military planner must know the capabilities and limitations of their assigned forces to plan effectively, the commander or military planner must understand the operational environment. The operational environment is characterized by rapid technological change, the integration of physical and cognitive dimensions of conflict, and significant uncertainty. Adversaries can adopt technologies and practices at an extraordinarily rapid rate based on low barriers to entry and open information environment.

(d) Commanders and military planners must understand the basics of technology, the domains of warfare, and the limitations of adversary capabilities to effectively plan and execute military operations.

(e) The proper balance for technical understanding, operational art, and strategic education is dependent on the level of officer. The entry-level naval officer requires a minimum STEM background to operate the units and platforms currently in service and to adopt new technology. The minimum STEM requirement may be different for each service, but should include at least two math courses and two hard science or engineering courses regardless of degree program. NPS has several multi-disciplinary academic groups that offer well-rounded curricula as opposed to programs of study dedicated to a single traditional academic discipline. However, the NPS recognizes that any blend of STEM and non-STEM education at the graduate level requires a strong STEM education integrated systemically in undergraduate education, where operational and strategic education is of relatively less value. A well-balanced STEM undergraduate is well-prepared to study STEM, operational, and strategic topics later in life, while a non-STEM undergraduate education, may in general, restrict opportunities for later graduate education in STEM-related fields without the cost and time of remedial education.

(f) A company grade officer requires an even balance between technically focused education and how to integrate technical capabilities into tactical and operational level planning. A field grade officer requires refresher education on STEM subjects and exposure to the current technical capabilities built around a focused education on the operational art and the operational environment. The field grade officer should be familiar with the development and application of strategy to exercise the operational art. The senior officer at top level school requires a refresher on STEM subjects and exposure to the latest technological developments built around a focused education on strategy and policy. The rapid pace of change in science and technology requires senior naval officers to constantly refresh their understanding of what is technically possible,

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ethically sound, and fiscally supportable. In the absence of that education, the bureaucracy will continue to slow roll progressive ideas and stymie the best efforts to adopt new practices.

(g) At present, a variety of factors appear to be hindering the sustainment of sufficient STEM education across the naval service: societal trends, generational perceptions, changes in the mix of commissioning sources, and the inherent difficulty level of STEM-based curricula. This shift away from STEM-based education appears particularly pronounced among the URL communities (Submarine Officers excepted) and should be addressed via a variety of incentives. The unrestricted line community must have career-spanning opportunities to obtain STEM competencies at the right level, at the right time and place in their careers, and this drives a requirement to develop a new paradigm away from episodic education of select individuals towards fleet-wide, throttle-able education in a culture of lifelong learning.

(h) When naval members (unrestricted and restricted line) encounter opportunities for education, convenient options must become readily available of the right duration, complexity, and appropriateness of skill and academic discipline linked to their career development needs. Long-term educational competencies and pedigrees must be separable into smaller opportunities (e.g., degrees that are comprised of certificates that are in-turn composed of courses of several types: full-length graduate courses; condensed, intensive versions of full-length graduate courses; and non-credit continuing education courses that are particularly useful to maintain currency in STEM topics that dissipation over time).

(i) To summarize, there are four factors that the Navy should consider when developing a balanced graduate education quota plan for the service:

1. Needs of the Navy. At present, this priority is represented merely by examining the P-coded billet base and generating quotas based on expected vacancies. There does not seem to be any mechanism for senior leadership to examine what mix of skill sets are needed for their organizations and articulate that in a structured manner. All that can be done is add or delete P-coded billets, which is a cumbersome and somewhat opaque process. I wonder if most senior leaders are aware of what billets they have that are P-coded? The Navy's focus on STEM education at the undergraduate level would send a clear message as would initial officer training with a heavy stem application that would allow non-STEM undergraduates early opportunity to exhibit and/or acquire STEM skills (and possibly to identify the need for improved focus or remedial efforts). Junior to mid-grade officers could have opportunity to focus on STEM graduate education based on identified Navy needs.

2. Needs of the Institution (NPS). In order to create a viable means of educational delivery, each institution has constraints in terms of cohort size minimums. NPS is particularly vulnerable to cohort shortfalls for hard-to-fill curriculums. This is one area where many civilian institutions have an advantage.

3. Needs of the Detailing System. The detailing system favors degree programs which are short in duration in order to minimize number of Not Observed FITREPs and ensure

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career timeline is maintained. Similarly, detailers value curriculums which have multiple annual convening so that they have flexibility in officer sequencing. Unfortunately, the hard-to-fill curriculums often are forced to drop convening due to inability to meet cohort minimums, exacerbating their challenges.

4. Desires of the Individual. Graduate education is a powerful recruitment and retention incentive, but to be effective in those roles, it must be responsive to the “demand signals” from the target demographic. If a generation of junior officers comes to value certain degrees over others, the less desired ones will become harder to fill. Generationally, MBA and International Relations programs tend to be viewed as particularly desirable by the junior officer demographic, which is why there is seldom any difficulty in filling those quotas.

(j) As a general recommendation, OPNAV should establish an overarching requirement and fiscal incentives for under-manned educational skill sets. This might look similar to the old CREO groups for enlisted ratings which would inform the amount of retention bonus offered; areas where there was an excess of inventory would get no bonus, areas properly manned would get a modest bonus, and undermanned areas would get big bonuses. OPNAV should also consider enhancing and strengthening selection board precepts as they relate to key educational disciplines. Lastly, OPNAV should draft a formal requirements document recognized by NETC and Navy Personnel Management to fund creation of and continual support for a permanent process of continuing learning for the fleet. The tasking and recommendation being addressed here cites the 19 April memo from the Undersecretary as “setting the requirement for instilling and integrating a culture of continuous learning throughout the naval services”, but a formal requirements document is a must.

(19) For those with supporting foundations, how do these add value to your institution, and can these organizations be of greater assistance?

(a) The NPS Foundation—a non-federal entity (NFE) and 501(c) 3—provides direct support to the NPS within DoD regulations. The Foundation has been providing support to NPS for over 40 years, with its charter and sole purpose to support NPS’ Mission, Vision and Priorities. The organization’s primary purpose is to support the students, faculty, and staff of NPS above the level of appropriated funds with funding and resources that provide a margin of excellence in support of strategic institutional priorities identified by NPS leadership. The Foundation’s ability to provide support to NPS is governed by the Joint Ethics Regulations, and its relationship with NPS is governed by a 2013 memorandum of understanding approved by both parties, enclosure (10). The NPS Foundation forecasts significant growth potential for the Foundation over the next five years based on an assessment of the donor base and NPS’ unique brand of cutting edge DoD research initiatives. The current objective is to be a \$25M Foundation within five years with a floor of \$10M.

(b) NPS addressed improving the relationship with the NPS Foundation in the *Sailing Directions* memo in enclosure (4). While the Foundation provides critical margin of excellence support to the school, that support has been encumbered the past few years by overly restrictive

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rules and/or regulations or legal interpretations thereof. As the Foundation is well postured to expand its support for the school, NPS continues to evaluate its relationship and how it can be expanded into a more robust and productive partnership. In response to our *Sailing Directions* memo, the Acting General Counsel of the Navy and the Judge Advocate General of the Navy provided substantive legal guidance to NPS that defined how the school could expand its partnership with the Foundation. NPS is currently evaluating that guidance but we are confident the school can expand its Foundation partnership in a deliberative and effective manner.

(c) NPS submitted our institutional priorities to the Foundation in April 2018 via enclosure (11). To support these priorities, the NPS Foundation 2017 vision forecasts significant growth potential for the Foundation over the next five years based on an assessment of the donor base and NPS' unique brand of cutting edge DoD research initiatives. The below table provides the 2018 Foundation Priority Project allocation.

<b>Funding for NPS "Margin of Excellence" Priority Projects – 2018</b>			
<b>Research Programs</b>			
2018 SEED Program Phase 2 Projects		\$80,000.00	Per NPSFI ltr dtd 19Oct2015, Ph2 allocates \$10K designed to turn NPS Faculty "Big Idea" research into a detailed project plan. This funding will support Phase 2 funds for 2018 projects.
SEED Program Phase 3 Projects		\$1,500,000.00	Per NPSFI ltr dtd 19Oct2015, Ph3 selects Ph2 research projects plans for follow-on funding which will be provided in staged funding to PI's on a quarterly basis.
<b>Mission / In-Kind Support</b>			
Big Ideas Exchange (BIX)		\$15,000.00	NPS Initiative that brings forward new and potentially game-changing thinking developed by NPS faculty and students to address grand challenges in American national security. These fresh approaches can become the lifeblood of future innovations in military and naval organizations, doctrine and strategy.
Institution Advancement		\$40,000.00	Supports NPS efforts to engage potential students, military and defense leaders, and the citizens of the United States in understanding the strategic value and importance of NPS to our national and international security. Includes Discover NPS Day.
Cyber Engagement		\$50,000.00	Supports NPS Cyber conference such as Cyber Endeavour, Hack the Machine.

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NSA Global Speaker Series		\$35,000.00	Speaker series engages students and faculty in conversation with experts in the field of security studies to gain insight into the latest research and development affecting America's national security interests and emerging threats.
<b>TOTAL:</b>		<b>\$1,720,000.00</b>	

(d) Moving forward, NPS and the Foundation both recognize that graduate universities have long been the most fertile ground for innovation for both industry and the military. The phenomenon that has become Silicon Valley grew from cooperative public-private research in the electronics and later the integrated circuit and computer design industries resident in the Bay Area and elsewhere. Private support of graduate universities provides essential fuel for this innovation engine. The only graduate school in the nation wholly dedicated to the advancement of innovative research and education in naval technology, policy, business practices, and processes is NPS. Unlike other leading academic research institutions, NPS is currently restricted in how it partners with the Foundation and all other private and academic organizations.

(20) How do you deal with accreditation? Is it an advantage, or a constraint?

(a) NPS is required by Title 10 legislation (para 7048) to maintain accreditation by “the appropriate civilian academic accrediting agency”. NPS has been accredited by WSCUC (Western Association of Schools and Colleges, WASC, Senior College and University Commission) since 1955. WSCUC is the regional accreditation agency responsible for accrediting NPS as an institution.

(b) Additionally, selected NPS departments and programs are accredited by professional accrediting agencies, as follows:

1. ABET: Accredits NPS’ master’s programs in Engineering fields (three NPS departments – Mechanical, Electrical and Systems Engineering)

2. AACSB: Accredits NPS’ master’s programs in the Graduate School of Business and Public Policy.

3. NASPAA: Accredits NPS’ master’s programs in Public Affairs and Administration.

(c) Accreditation by these professional accrediting agencies is not required for NPS, but NPS’ policy has been that it will seek (and achieve) accreditation, not only for the institution, but for all major programs for which it is eligible. Why? NPS distinctly views accreditation as an advantage (not a constraint). There are two major benefits from accreditation:

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1. The accreditation process is a form of peer review for the institution that provides assurance of maintenance of standards of performance and effectiveness. Accreditation motivates continuous improvement of NPS' academic programs.

2. Successful accreditation is a mark of the quality of NPS. This is beneficial to NPS in both attracting top faculty, and in collaborating and partnering with other universities.

(d) NPS has gained a strong, positive reputation in higher education, in part because of the visibility provided and the successful results achieved via accreditation.

(e) NPS was last accredited by WSCUC in 2010. WSCUC accreditation periods (assuming positive accreditation) typically range from seven to a maximum of ten years, with only ~10% to 15% of universities achieving the maximum 10. NPS was among the set of universities re-accredited for 10 years. NPS' next accreditation review will be in 2020, but the run-up to that re-accreditation has already begun. As a benefit of the previous 10-year accreditation, NPS has been selected to be in the first cohort of universities that will be permitted to follow a new, abbreviated "pathway" to re-accreditation, based on "themes". NPS submitted its Thematic Proposal to WSCUC this past spring (and accepted by WSCUC in June), per enclosure (12). The Thematic Proposal outlines areas where NPS will work to advance itself over the next couple of years, and provides the framework in which the 2020 accreditation review will occur. NPS' Themes outline initiatives related to the Curriculum, to Teaching and Learning, and to Support for Faculty.

(21) What is the selectivity (admission) rate for applicants to your institution?

(a) Admissions Rate

1. The Naval Postgraduate School (NPS) is not comparable to other universities in regards to a selectivity (admission) rate. NPS is asked to screen applications for potential enrollment of naval officers early in their careers, with actual enrollment to occur in both the current academic year or in a future academic year. NPS' review of applicants serves to screen individuals in terms of academic qualifications for potential enrollment in various curricula. Assuming satisfaction of minimum admissions qualifications, actual selection of officers is made by BUPERS and the officers' community. We can create an admission rate or "selectivity" rate by comparing the # of admissions applicants reviewed per year with the # of enrollments per year. This statistic (enrollments/applications) is, on average, about 30%. Understand this percentage is skewed and does not directly portray a selectivity rate. The nature of our application review process for all the services may have an applicant enrolled 2-5 years after their record has been officially reviewed by NPS Admissions for academic eligibility. The services then make their selections of their service members to attend NPS. Some of those that have applied may never be selected by their service, may attend other universities or may leave the service before they receive any graduate education.

(b) Waiver Rate

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1. Minimum qualifications for admissions to individual NPS curricula are specified by an Academic Profile Code (APC). The APC, a 3-digit score, sets the minimum academic qualifications required for candidate students to enter individual curricula, and reflects 1) undergraduate GPA, 2) mathematics background and preparation, 3) technical background and preparation. STEM curricula will require higher degrees of math and technical preparation. The NPS admissions process will initially screen applicants for satisfaction of the minimum APC, but deeper review of applicants (conducted by faculty in the relevant academic departments) can permit a waiver of the minimum APC and eventual enrollment. It is part of NPS' mission, and its education model, to admit and enroll officers who may not sufficiently qualified or prepared to enter graduate programs at civilian universities. For entering students admitted with a waiver of admissions requirements, NPS provides "refresher" education to bring officers up to speed to enter the graduate program. NPS keeps statistics on the percentage of waiver admissions and the success of these students in the graduate program. Overall, about 24% of students enrolled at NPS required a waiver (more in the tech curricula ~30%; less in the non-tech curricula ~18%). Ultimately, students admitted by waiver perform almost as well as non-waiver students (graduate rates and graduate GPA are only marginally lower). Accepting students who require an admissions waiver is not a significant detriment to success at NPS. In general, NPS' education model supports these students through our programs effectively.

(c) Comparison to Admissions Standards at Civilian Universities

1. A different indicator of selectivity is a direct comparison of the academic qualifications of actual NPS students with stated admissions standards at civilian universities. We've conducted ad hoc comparisons from time-to-time. Citing one: We compared the undergraduate GPAs of students enrolled in NPS' Graduate School of Business and Public Policy with the stated minimum undergraduate GPA required for admission to graduate business programs at three universities in the San Diego fleet concentration area (San Diego State Univ, Univ of San Diego, UC San Diego). Comparisons revealed that 55% of enrolled NPS students met the SDSU minimum; 43% met the USD minimum, only 20% met the UCSD minimum. In summary: Only 55% of NPS enrolled students would have met the lowest (stated) GPA threshold for admissions at these San Diego fleet concentration area civilian universities. Comparisons in other disciplines (e.g., engineering) with other civilian universities (e.g., in the Norfolk area) come to the same conclusion – that NPS' GPA threshold for admissions is generally lower.

(d) The Bottom Line is NPS is not highly selective in admissions – at least in the traditional sense of requiring high undergraduate GPA and undergraduate preparation. But this is largely by design. NPS' mission includes accepting students whose academic qualifications may not permit them to be admitted into top civilian graduate programs. NPS' accepts students, in part, based the Navy's (or other services') choice of officers they wish to invest in by sending to Grad Ed. NPS' education model then provides the necessary refresher education to permit students with lesser academic qualifications to succeed at the graduate level. But what NPS' student population may lack in initial preparation for Grad Ed, they make up for in personal characteristics. Officer students typically arrive at NPS with significant responsible work

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experience, and approach their studies with a maturity and discipline that allows them to succeed.

(22) How many students failed any of your full-time courses last year?

(a) NPS' Average Onboard (AOB) enrollment in academic programs last year, Academic Year 2017 (AY17), totaled 2697, with 1432 in resident degree programs, 909 in distance learning degree programs, and 356 in non-degree programs (both resident and DL). Students are enrolled all four quarters of the year, with resident degree students typically taking 4-5 courses per quarter, DL degree students typically taking 2 courses. Failures of individual courses are few. This table summarizes both instances and rates of course failure in AY17:

	# Course Failures	Rate of Course Failures
Resident	71	.24%
Distance Learning	110	.69%

(b) To graduate, NPS students must achieve a minimum QPR (Quality Point Rating, AKA GPA) across all courses taken of 3.00 (a "B" average). While we don't have ready comparison statistics for peer graduate universities, we believe these course failure rates, while low, and are quite typical for graduate school programs. One of the joys of teaching at NPS is the maturity and discipline of NPS' student body, which is reflected in high rates of passing their academic courses.

(23) How many admitted students failed to graduate?

(a) NPS tracks two measures of graduate rates: "On Time" Graduation Rate (graduated at completion the standard length for a program) and "Overall" Graduation Rate (total graduates, by additionally including "late" graduates). And NPS tracks graduation rates by: 1) student type, 2) education mode (resident vs DL), and 3) program or curriculum. This table summarizes graduation rates over the 2002-2017 period.

Mode	Students	On Time Rate	Overall Rate
<b>Resident</b>			
	All	87%	94%
	Naval (USN/USMC)	88%	94%
<b>Distance Learning</b>			
	All	72%	81%
	Naval	82%	85%
<b>All Programs</b>			
	All	83%	90%
	Naval	87%	92%

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(b) The single summary number reflecting all students and all programs is 90% of admitted students graduate, 10% fail to graduate. But there are interesting differences to note. Naval students (active duty USN and USMC) graduate at slightly higher rates than non-Naval students, although there is not an overwhelming difference.

(c) More significant is the different graduation rates between resident and DL, with resident about 13% higher. Contrasting them:

1. Resident:

a. Overall Grad Rate: 94%

b. Resident students are almost entirely full-time students, sent by the Navy or other services for full time duty under instruction (DUI), for a specified period at NPS to complete their program.

c. Although there are administrative and/or disciplinary reasons a resident student may fail to graduate, or occasional failure in coursework, the single largest reason is failure to complete the Graduate Thesis (or Capstone) requirement of the master's degree programs.

2. Distance Learning:

a. Overall Grad Rate: 81%

b. DL students are almost entirely part-time students, each working a full-time job at their home command. DL programs from NPS usually require enrollment in two courses per quarter, about ½ the load of a full-time student. So work-life demands are significant for these students adding education on top of their jobs.

c. Our analysis shows that, of the students who fail to complete DL programs, over 40% of them have dropped from the program within the first two quarters of enrollment. The principal reason for leaving are not academic. Students choosing to leave a DL program do so because of work-life pressures and, even more so, because they report that the program did not meet their expectations concerning its alignment with their job needs or value to their career.

(24) For the past five years, what percentage (by year) of your students (after admittance, or while in attendance) have ever been passed over for promotion to the next rank or paygrade?

(a) NPS does not track or maintain all the data to accurately answer this question. However, preliminary estimates for 2016 are: 3.39%, 2017: 4.03%, and 2018: 3%. We are

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coordinating with the Chief of Naval Personnel Staff to provide a complete response and expect that to be completed in the next few weeks.

(25) For the past five years, what percentage of your military faculty (by year) have ever been passed over for promotion to the next rank or paygrade?

(a) NPS does not track or maintain all the data to accurately answer this question. However, preliminary estimates for 2016: 14.63%, 2017: 19.41%, and 2018: 12.20%. We are coordinating with the Chief of Naval Personnel Staff to provide a complete response and expect that to be completed in the next few weeks.

(26) For the past five years, what percentage of your military faculty were considered (in any zone) by any administrative command screen (major sea, major shore, operational, special mission, or their equivalent) board? What percentage of those officers were subsequently selected for command as a member of your faculty?

(a) NPS does not track or maintain the data to accurately answer this question. We are coordinating with the Chief of Naval Personnel Staff to provide a complete response and expect that to be completed in the next few weeks.

(27) What do you consider your "peer" institutions, and what do you think they are getting right?

(a) Depending on the reason for comparison, NPS uses three sets of peer institutions used for reference:

1. DOD Education Institutions: e.g., NWC, USNA, MCU, AFIT, NDU, etc.

2. California Institutions: e.g., University of California (various), Stanford, Cal Tech

3. Selected National Universities: In 2008, NPS identified a specific set of universities with institutional characteristics that would be useful for benchmarking NPS. Criteria used to identify the peer group focused on 1) graduate programs, 2) technical/engineering emphasis, 3) quality.

(b) Major criteria included:

1. Percent Graduate Degrees > 30%

2. Percent Technical/Engineering Graduate Degrees > 50%

3. US News Ranking Engineering Graduate Schools

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4. US News Rank within top 50

(c) The resultant list of 15 peer National Universities is:

<u>1.</u> California Institute of Technology	Cal Tech
<u>2.</u> Carnegie Mellon University	Carnegie Mellon
<u>3.</u> Claremont Graduate University	Claremont
<u>4.</u> Duke University	Duke
<u>5.</u> Georgia Institute of Technology	Georgia Tech
<u>6.</u> Illinois Institute of Technology	Illinois Tech
<u>7.</u> Massachusetts Institute of Technology	MIT
<u>8.</u> North Carolina State University	NC State
<u>9.</u> Rensselaer Polytechnic Institute	Rensselaer
<u>10.</u> Rice University	Rice
<u>11.</u> Stanford University	Stanford
<u>12.</u> Stevens Institute of Technology	Stevens Tech
<u>13.</u> University of California, Santa Barbara	UC Santa Barbara
<u>14.</u> University of Illinois, Urbana-Champaign	UI Urb.-Champ
<u>15.</u> University of Southern California	USC

(d) While the last comprehensive benchmarking study vis-à-vis this peer group was conducted a decade ago, NPS has continued to use this set of institutions as a comparison reference group during the years since. NPS is a unique institution with a mission unique in higher education across the country. There are few institutions that have only graduate programs, few still with the defense-focus of NPS, and none with the exact characteristics of NPS. Hence comparisons are always to be made with caution. We note four areas where NPS lags relative to the peer group, and thus represent areas for NPS improvement.

1. Faculty Compensation: Once comparable (over a decade ago), NPS' faculty salaries for most tenure/tenure-track ranks and disciplines are no longer competitive with peer institutions. Recruiting and maintaining a quality faculty has become more challenging.

2. Research Activity: NPS was once in the "middle" of this peer group on indicators of research activity or intensity (e.g. research dollars per tenure-track faculty). But the past five years have seen a decline in NPS research funding to about 40% of its prior peak. This decline is explained principally by increased constraints on reimbursable activity at NPS in recent years. This is one major area where the peer institutions are "getting it right" compared to NPS.

3. Diversity: NPS historically has a smaller percentage of females, both students and faculty, than civilian institutions. This is explainable by NPS military orientation and composition, but none-the-less and area for attention. (Is in NPS' strategic plan.)

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4. Support: Although as a federal entity NPS is difficult to compare with civilian peers, NPS' Staff/Faculty ratio is low when compared to the peer reference group. This is a somewhat crude metric, but is a rough indicator of "support" for faculty activities.

(28) What is your opinion of the quality of students entering your institutions? Trends? What could be done to improve?

(a) The quality of the students entering the Naval Postgraduate School varies by service and by community. "Quality" has two dimensions when describing students: academic aptitude, and professional excellence. Academic aptitude describes the likelihood the student will do well in the academic environment. Professional excellence defines the likelihood the student will promote and be selected for screened positions over the course of a long military career.

(b) All incoming students must meet minimum academic standards for enrollment, but the USN is not consistent in screening naval students for professional excellence. The USMC, USAF, and USA students ARE screened for professional excellence—only the best officers in these services with a track record of sustained superior military performance are offered the NPS opportunity. Many restricted line communities in the USN also screen candidates to ensure the best, most professional candidates get one of the few available quotas. Historically, however, the USN has not offered NPS to the best unrestricted line officers (aviation, surface, submarine). There are multiple reasons for this:

1. First, due-course, upwardly mobile, unrestricted line officers are in high demand. The number of billets that require a proven strong performing URL officer often outstrips available inventory.

2. Second, the "unobserved" FITNESS reports officers collect while attending in-residence postgraduate education do not compete well against operational or major staff FITNESS reports in competitive summary groups. Consequently, the USN URL communities have often filled NPS quotas with officers that are not in high demand, do not have a proven track record of professional excellence, and are not upwardly mobile.

3. Third, as long as individual graduate education is viewed by the Navy's personnel command as a retention tool instead of an instrument to improve the value for the organization's educational strength, we will continue to receive average "due course" officers from the staff, restricted line, surface warfare, and submarine community, and very few aviators other than those whose operational careers are ending.

(c) Notably, the number of unrestricted line officers in warfare related curricula like Undersea Warfare, Operations Research, Systems Engineering Analysis, and Joint Operational Logistics is decreasing due to decreasing quota assignments, decreasing quota fills, and simply less URLs in the Navy. Consequently, the USN URL communities have often filled NPS quotas

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with officers that are not in high demand, do not have a proven track record of professional excellence, and are not upwardly mobile.

(d) In an effort to reverse the above trends, many USN URL communities are changing detailing policy and selection board precept language. Of the two, detailing policy changes will be most impactful. As an example, PERS-43, the aviation detailing office, plans to send top performing post-department head O4 officers to an in-residence postgraduate education institution. If all strong candidates for O5 promotion and O5 command screen have a series of non-observed FITNESS reports from an academic institution, then none of them will be disadvantaged at future selection boards. Changing precept language to make a postgraduate degree from an in-residence institution a prerequisite for O6 or for major command screen will also increase the likelihood of increasing the number of proven, professional, career minded officers enrolled in NPS and other postgraduate institutions.

(e) Lastly, the Navy's organizational education strength is of concern to the most senior Navy leadership and therefore should be managed at a level beyond the personnel system. Quotas and the sub-special system lag behind organizational needs by years (two examples being cyber warfare and data science). This system requires major overhaul where a Navy Education Board representing operational and OPNAV commands establish annual needs based on fleet, system command, warfare centers, and OPNAV input. Officers can then be selected for those requirements and assigned an appropriate educational institution to receive those skills. After graduation, officers can be slated either to operational positions or staff positions for those skills. In lieu of a "sub specialty" system, the Additional Qualification Designator system should be used to increase these officers' use across the naval organization.

(29) How is research, testing, development, and evaluation for educational/learning systems funded for your institution? Who is your SYSCOM for learning?

(a) NPS has several formal "education/learning" systems currently in use to support conducting and delivering our academic programs, including, but not limited to:

1. PYTHON: Student registration and information system. Course information and scheduling system.
2. SAKAI: Course learning management system.
3. Collaborate: Distance Learning course delivery system
4. FAIRS: Faculty activity and information reporting system
5. COEUS: Faculty research management system

(b) These enterprise systems are funded principally via an annual internal allocation of NPS' core mission funds, the amount determined in the annual budget process. Investments

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in these enterprise education/learning systems has been and will continue to be important for NPS to maintain state-of-the-art instructional capability. In recent years, NPS has included in the annual POM process funding requests to support continued upgrading of our education/learning systems, but such requests for a sustained increased funding stream to support continued upgrading of these systems have not been satisfied. (Exception: A couple of times, OPNAV has provide ad hoc within-year funds to support systems.)

(c) Concerning our "SYSCOM", we interpret this as asking who at NPS has the responsibility for developing and implementing learning systems. The planning, requirements and choice of learning systems is a joint effort by several offices at NPS. NPS has a steering group, the Academic System Planning Committee (ASPC), but leading members include the NPS CIO (LoPiccolo), Vice Provost for Academic Affairs (Moses), Associate Provost for Graduate Education (Gera), Registrar (Andersen), Director for Distance Learning (Master), Institutional Research (Laney) and others as appropriate. The NPS CIO has lead responsibility for the development, implementation and operations of these learning support systems.

(d) In addition to our enterprise systems, we might also interpret "education/learning systems" more broadly to include the departments and functions at NPS whose role is to directly support the education and learning of our students. Other examples exist, but we'll note the recent creation of a new Associate Provost for Graduate Education position (now filled by Professor Ralucca Gera) and the establishment of a Teaching and Learning Commons (TLC). These efforts are in line with NPS' new strategic plan, and are intended to coordinate activities across NPS to put additional attention and focus on teaching and learning in our academic programs. In particular, TLC will be a forum for advancing pedagogical practices of the faculty and incorporating new and innovative teaching/learning technology into the classroom. Resourcing for these activities comes from two sources: 1) an internal allocation of NPS mission funds, and 2) reimbursable funds created from faculty-initiated research projects and grants related to advancing teaching and learning practice at NPS.

(30) If you had a 5-10 percent budget cut, what function would you cut?

(a) In the past, NPS typically responded to reduced budgets by making small cuts to many different areas, including both administrative and academic activities. We believe that this approach would not be the best way to respond to any future cut of the scale of 5-10 percent.

Given that even at our current funding level, we have a wide range of unfunded requirements, we believe that best way to accommodate such a cut would be to select one or more academic degree or certificate programs to be closed entirely. This would be no different than our standing practice of always asking ourselves what we can stop doing to free up resources for higher priority activities.

(b) While it impossible to state precisely which programs would be closed, the programs we would consider for closure would be based on the following criteria:

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1. The importance of the program to the Navy, determined by considerations such as the demand signal for graduating students, and discussions with Navy leadership about future plans and the relevance of the program to those plans;

2. The number of Naval and non-Naval students in the program;

3. The cost of delivering the program, including the number of credit-hours taught, whether the program needed expensive lab facilities, and the extent to which we offer courses specific entirely to a program so that closure of the program allows us to stop teaching courses;

(c) It should be noted that the non-Naval services pay tuition to NPS for their students to attend. In some cases, it might be possible to expand non-Naval enrollments to generate additional revenue that might offset reductions in our direct navy funding.

(d) As usual, we would also explore ways to reduce costs in the administrative parts of NPS's budget, particularly in those areas that have grown to meet compliance requirements. These cuts would ideally be aligned with reductions in compliance requirements and greater stability in financial and other supporting software systems. The consequences of such cuts could include a lengthier response time to data calls from DON or DOD, slower processing of travel requests, and a longer period to handle financial transactions, reduced frequency of internal inspections, and longer response times to various inquiries such as FOIA requests.

(31) If you received a 10-20 percent budget plus up, what would you buy, and how would that make a difference in your mission?

(a) NPS would expend any increases in funding on investments in actions detailed in our new strategic plan. As discussed in our response to the question 2, this new strategic plan reflects our current view on what are the most significant opportunities for NPS to better fulfill its overall mission.

(b) However, in brief, an expanded budget would be largely committed to actions that either: directly improve the education; or expand our capabilities in areas we think will be most critical to the future of the Navy and the rest of our military.

(c) In the area of educational improvements, we would:

1. Increase our faculty in areas for which there is currently high student demand, including cyber operations, global strategy, data science and emerging technologies;

2. Fulfill our currently unfunded requirements for improved classroom and lab facilities, including updating the technology infrastructure that serves our classrooms and labs, implementing improved uses of technology in our classrooms by creating "classrooms of the

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future” tailored to serve different pedagogical methods, and supporting teaching innovation, particularly in distance learning.

(d) The areas in which we would expand our educational and research programs include:

1. Data science and analytics;
2. Additive manufacturing;
3. Quantum technologies, including quantum computing, communications and sensing;
4. The ethics of warfare
5. Cyber operations
6. Military applications of blockchain technology
7. Autonomous vehicles and systems
8. Talent management
9. Global strategy
10. Advanced materials relevant to military needs
11. Modeling, simulation, visualization and virtual reality technologies

(32) Where is the tipping point in Navy vs. Joint vs. Interagency student makeup in a seminar when the class can no longer focus on high-end maritime warfighting?

(a) In general, the composition of a class is less important than the topic the class is considering. The “tipping point” assumes that all students and faculty are equal in their influence on a seminar discussion. There is not a one-size-fits-all response. For example, one or two motivated and proactive Navy or Marine students in a seminar of 12-15 officers might have more influence on maintaining focus on the maritime fight than 10 Navy or Marine officers who are not fully engaged. In addition, an Air University seminar focusing on the USAF contribution to at sea strike and how to integrate it across the Joint Maritime Operations Center and Joint Air Operations Center can be as valuable as an all Navy officer seminar at the Naval War College considering the same topic. In view of these two examples, the tipping point should be viewed through a qualitative lens than an artificial quantitative constraint. Of course, faculty also determine the level of focus on high-end maritime warfighting by what they require from the students and what they enable the students to pursue.

(b) Due to the focus of the last two decades on the low-end ground fight, having a certain percentage of Navy and Marine students is no guarantee that they will be focused on the high-end maritime fight. With the release of the 2018 National Defense Strategy and the focus from senior leaders, students are focused on the high-end maritime fight even when they lack personal operational experiences in that regard. The percentage of naval officers needed to maintain a focus on the high-end maritime fight includes international students. International students from a partner Navy or Marine Corps add significantly to the high-end maritime fight focus.

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(c) At NPS, particularly within the Defense Analysis and Operations Research curriculums, we focus on maritime scenarios but we ensure to integrate our joint and allied (international) officers to explore how they may contribute to this domain. For example, Army and USMC land-launched anti-ship cruise missile capabilities were explored as a technical warfighting capability at NPS almost ten years ago. Army Tactical Missile System (ATACMS) and High Mobility Artillery Rocket System (HIMARS) are now being considered to fill that role. Of larger concern is when NPS doesn't have sufficient unrestricted line officers in analytical and technical curricula to provide the subject matter experts in maritime warfare. This is not a question of having less joint officers, but more Navy officers with Fleet operational experience.

(d) In the NPS technical programs (i.e., Mechanical Engineering, Systems Engineering and Physics), there is no perceived or measurable negative impact by increasing the diversity of student makeup. In fact, a diverse student body of any share which includes USN, USA, USCG, USMC and international students, improves the overall the educational experience. This benefit is primarily because the classroom subject material in these STEM programs is fundamental engineering and science principles, applicable to all students. A high-end warfighting focus comes once a STEM student is involved in their individual thesis research. How each student's own research area drives the application of science and technology into various joint/interagency applications, serves as a further educational experience benefiting the other students as they learn the breadth of the potential applications. Seeing science and technology principles outside their traditional area of professional applications, only broadens their understanding. The bottom line in STEM subjects is the broader application of fundamental principles, brought about through a diverse student make up in the class, only serves to expand and improve the understanding of the subject material.

(e) NPS produces graduates with a set of academic tools in a wide array of academic disciplines that will prepare students to better solve tactical, operational, and strategic fleet challenges throughout their careers. Having a strong mix of joint, interagency, and foreign perspectives at NPS only serves to expand students' perspectives and improves agility of thought. As a general proposition, if 50 percent of students in the seminar are from the Navy and Marine Corps, then it is likely that the focus will remain on the maritime domain. Recent resident student demographics have held combined Navy/Marine Corps/Coast Guard enrollment at approximately 55 percent of the student body which, when combined with international students of naval background, is sufficient to ensure a majority representation of sea services across campus. NPS recommends that SECNAV and OPNAV set a threshold for resident enrollment such that a minimum of 50 percent of the student body must be Navy-Marine Corps in order to ensure this majority is sustained.

(33) What percentage of instruction is held at the classified level?

(a) As of June 2018, 3.4 percent (54 of 1554) of NPS course instruction is held at the classified level. Additionally, 13 percent (12 of 92) of NPS curriculum is held at the classified level. Of those 12 classified curriculums, five are offered at the unclassified level if requested or desired by an international student.

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(34) Do you think we need to create an entirely new higher education institution for the USN and if so, what should it do that would be additive to the service?

(a) In short, NO! NPS is the ideal Institution for DoN higher education, with a world class faculty, a professional student body representing all of DoD and our international partners, and a graduate education and research program that provides the environment and opportunities for advanced learning. As addressed above in question “q”, NPS suggests the Navy should reevaluate how NPS is structured and aligned within the Navy to perform its critical role and mission in lieu of establishing a new higher education institution.

b. Specific Questions for NPS

(1) What differentiates the Public Policy and Business colleges from similar programs offered by civilian schools, and how are the naval services making use of this asset?

(a) The mission of the Graduate School of Business and Public Policy (GSBPP) sets it apart from schools of business and management in other universities:

1. To serve our Nation by educating U.S. and allied military officers as well as defense civilians in defense-focused business and public policy, by conducting research in defense management and public policy, and by providing intellectual resources for leaders and organizations concerned with defense business management practices and policies.

(b) GSBPP’s degree programs differ from other universities’ programs in their explicit focus on defense business and systems management. GSBPP’s programs consist of a core sequence of business and management courses, together with several defense-specific courses in one of the following specializations and degrees:

1. Resident curricula

- a. Financial Management – Master of Business Administration (MBA)
- b. Acquisition and Contract Management - MBA
- c. Program Management - MBA
- d. Supply Chain Management – MBA
- e. Transportation Management - MBA
- f. Materiel Logistics Management - MBA
- g. Logistics Information Technology - MBA
- h. Manpower Systems Analysis – MS in Management
- i. Defense Systems Analysis – MS in Management

2. Nonresident (distance learning) curricula

- a. Executive MBA (emphasis in financial and acquisition management)
- b. MS in Program Management

c. MS in Contract Management

(c) Naval students who complete GSBPP degrees are awarded an appropriate subspecialty code (P-code or MOS) in a functional area, demonstrating that they have satisfied that area's requirements for specialized knowledge and skills. For example, USN officers completing GSBPP's Financial Management MBA are awarded the 3110 subspecialty code.

(d) Additionally, for those functional specializations with unique (e.g., Defense Acquisition Workforce Improvement Act (DAWIA)) certification requirements, GSBPP graduates satisfy those requirements. For example, naval officers who complete the Program Management and Contract Management programs (both MBA and MS) satisfy DAWIA requirements in those career fields. No civilian university offers such a range of defense-focused programs, nor with the depth of defense-related content, as those delivered by GSBPP.

(e) Another distinctive aspect of GSBPP that does not exist at civilian schools is its relationship with curriculum sponsors. Flag/SES-level sponsors are designated for each of the subspecialty curricula listed above. For example, DASN (Acquisition and Procurement) sponsors GSBPP's contract management programs, and Director, Office of Budget and Fiscal Management Division (N82) sponsors the financial management programs. These sponsors and other sponsors identify to GSBPP the specialized knowledge and skill requirements for their respective subspecialties, and GSBPP in turn tailors its graduate courses to satisfy those requirements. Sponsors are then able to observe and assess graduates' performance in their subspecialty assignments. Sponsors' requirements and how GSBPP meets them are the subjects of biennial reviews, thus providing a means for continual review, assessment, and improvement.

(f) The clear distinctions between GSBPP's programs and those of civilian schools were noted in 2015 by two separate and successful accreditation site visit teams from AACSB and NASPAA whose members were administrators from five different civilian universities. Some extracts from the teams' reports are included below:

1. The mission and vision for [GSBPP] clearly articulate its distinctive emphasis on "educating US and allied military officers as well as civilians in defense-focused business and public policy" as well as conducting research for this population and providing intellectual resources for its leaders. It is the only accredited business school within the federal government and occupies not just a distinctive but indeed a unique place in business education in higher education.

2. The impact of the School's programs for the navy officers and others who pursue them has been profound and positive. They have near immediate feedback on the ability of their graduates to succeed in the GSBPP-degree-enabled career paths to which they return upon completion, The GSBPP program leaders meet regularly with the sponsoring organizations to assess—and improve—curricula and program experiences.

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3. The [Site Visit Team] was impressed with the thoroughness of [the curriculum review] process, its integration, and the line of sight to the organizational mission, particularly as stakeholder requirements are nested in the work of the program and in each course and activity, leaving us with no concerns.

4. The GSBPP program's ability to integrate key stakeholders in alignment of its strategies, structures, and systems with its mission may be unique, but to the extent that this model is transferrable, it is a very well-documented, organized system for continuous improvement and program development. The system is worthy of showcasing at a NASPAA conference and would be beneficial to programs experiencing difficulty with the nexus between course delivery and mission/vision/stakeholder engagement.

(g) GSBPP's reputation and distinctiveness are reflected in the most recent US News & World Report rankings. GSBPP ranked number one nationally among schools with "Homeland/National Security" specialization and in the top 20 percent of all public affairs schools.

(h) Utilization of Naval officer graduates

1. Since 1986, over 4,700 Naval officers have graduated from GSBPP degree programs, for an average of about 150 graduates per year. A list of representative subspecialty jobs and assignments filled by these graduates follows:

a. Logistics Management Curricula

- (1) NAVSUP, NAVAIR, NAVSEA, SPAWAR
- (2) Fleet and Industrial Supply Centers
- (3) DLA Defense Supply Centers
- (4) Aircraft Intermediate Maintenance Departments (ashore and afloat)
- (5) Marine Corps Systems Command
- (6) Joint Staff or Joint Command (TRANSCOM, CENTCOM, etc.)

b. Acquisition Management Curricula

- (1) Comptroller: Naval Bases/Naval Air Stations/SYSCOMs
- (2) Budget Analyst: Office of Budget, N-82 SYSCOMS, U.S. STRATCOM
- (3) Business Financial Managers: Program Offices
- (4) Action Officer/Program Analyst: OSD
- (5) Budget Analyst: OPNAV

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(6) Budget Officer: CINPACFLT/CUSFFC

c. Logistics Information Technology Curriculum

(1) Project /Program Manager – NAVSEA, NAVAIR, SPAWAR

(2) Project Officer, PEO/CIO

d. Defense Systems Analysis Curriculum

(1) HQ USMC - Defense Systems Analyst

e. Manpower Systems Analysis Curriculum:

(1) Military Personnel Policy and Career Progression (N13)

(2) Joint Manpower Management Branch, JCS (J-1)

(3) Manpower Resources Branch, Director Total Force  
Programming/Manpower (N12)

(4) Manpower Plans, COMCDR PAC/COMCDRLANT (N1)

(5) Naval Manpower Analysis Center (NAVMAC)

(6) Headquarters - United States Marine Corps Manpower and Reserve  
Affairs (M&RA)

(7) Marine Corps Combat Development Command (MCCDC)

(2) Regarding the National Security Affairs college, what is the uniqueness of the foreign officers course and is NPS the best place for it?

(a) The Navy Foreign Area Program sends the majority of new Foreign Area Officers (FAO) through the National Security Affairs (NSA) Department's regional studies programs. This Department is part of the NPS School of International Graduate Studies (SIGS). The NSA Department offers unique military-centric curricula that can't be duplicated at any other civilian university. NSA's tailored courses meet the needs and requirements developed and approved by the FAO community guaranteeing our young officers have the toolset to excel in their future assignments. NSA's Regional Security Studies Program is time tested and globally recognized. Established in 1974, NSA offers specialized military-centric Regional Studies Programs not found on any civilian campus. Many civilian universities offer a regional studies degree focused on International Affairs; NSA offers a blended approach of teaching International Relations with

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a regional and historical perspective, but the relevant and unique NPS curriculum provides FAOs the operational skills to succeed in real-world operations.

(b) Courses and curriculums are exclusively designed for FAOs in that the NSA Department tailors their regional programs to meet the unique military centric needs of new DoD FAOs. The Department created regional study curriculums that comply with the U.S. Army's academic requirements for new FAOs, but they exceed the Army standards by emphasizing national security in all of NSA's regional courses. While many civilian programs may offer specialized FAO-like courses, there is wide variance on the content and quality and no guarantee the topics taught meet the needs of our new FAOs.

(c) A key aspect of the NSA curricula is Navy sponsor engagement and support. Every two years NSA's sponsor (OPNAV N3/5) certifies and approves all of the regional curricula. This unique relationship between NPS and its sponsors ensures sponsors play a key role in tailoring the curricula to meet DON needs and it ensures senior Navy FAO leadership receive the properly educated FAOs to meet their real-world requirements. Simply put, no civilian university would likely allow this sponsor relationship and permit a military component to dictate their curriculum content. The Department also has significant in-house regional security expertise. The majority of NSA's faculty are not only recognized regional experts, but are also well schooled in regional national security issues. The majority of their sponsored research and published work is focused on national security and NPS's military-centric nature is unmatched by civilian universities and provides a unique insight and opportunity for FAO students.

(d) Another key distinction is the ability to offer classified courses. NPS has the capability and infrastructure to offer coursework and research opportunities at the Secret/Top Secret Level. No civilian university has this capability, and NPS FAOs are provided a classified understanding of regional engagement.

(e) The majority of NSA Instructors are civilians with PhDs and there are no Teaching Assistants. NSA class size is usually small (less than 20) and our students have a much closer relationship with the NSA tenured faculty and lecturers. There is also strong student mentorship provided by a mix of civilian and military faculty. This is not true at most civilian universities.

(f) NPS has a unique FAO synergy and strategic benefit of learning in a joint, allied, and whole of government environment. The Department leverages a combination of in-resident international military students, the Center for Civil Military Affairs (CCMR), who oversees/teaches 400+ educational events for foreign military/civilian students annually, and the nearby Defense language Institute (DLI) makes NPS unique in educational opportunities for FAOs. This synergy offers a peer network of opportunities with US officers from the other services and officers from allied nations, which is how DoD typically fights wars.

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(g) Notably, as a U.S. Army command at the Presidio of Monterey, the DLI mission and location provides the perfect setting for educating FAOs and offers the following areas of cooperation that NPS fully leverages with all of our applicable academic programs.

1. The DLI is located three miles away from the NPS campus. Having DLI in close proximity to NPS brings educational flexibility and opportunity.

2. The NPS NSA regional curricula allows for a successful completion of language training at the DLI to serve as partial substitute for a Master's thesis along with a comprehensive exam.

3. The NPS NSA academic certificate programs at NPS allows for language maintenance courses to be taken simultaneously at DLI.

4. The DLI also provides availability for FAOs who have already learned a language to work out arrangements to keep current using its contacts and facilities. In addition, NPS FAOs have the opportunity to attend the annual Joint FAO Conference at DLI with no travel costs.

5. The NPS/DLI relationship is a one-stop-shop for graduate education and language training which produces significant PCS cost savings and supports family harmony and stability.

(g) Beyond the cost savings associated with a single PCS for both requirements, the presence of DLI in Monterey facilitates a seamless transition from regional studies at NPS to language training. FAOs find their regional training reinforced at DLI as they learn not only about the language, but also about regional culture. DLI benefits from the presence of NPS in its ability to tap foreign-language-speaking faculty for its speakers' programs, practical exercises, and conferences. Theme-oriented, foreign-language events at DLI also make use of the faculty from the Monterey Middlebury Institute of International Studies, where there are many foreign-language-speaking professors as well, many of them native speakers. In addition, students can also attend foreign-language events at the Middlebury Institute, where visiting lectures often give presentations in foreign languages. These points highlight the synergies of the Monterey area for educating FAOs in regional and language studies in NPS-DLI nexus.

(h) NPS has a large international military student population, which throughout the last decade has averaged over 200 international students from 40 to 50 countries at any given time. These students are enrolled in the same classes as their U.S. counterparts, they live in the same housing areas, and they socialize with U.S. students. There are over 65 graduate degrees and PhD curricula currently offered to international students, which provide a full range of educational options for international students, much of it tailored to the needs of the sponsor or international audience. Although not fully utilized, NPS also offers graduate level certificates available for foreign students on select subjects lasting about one academic quarter. NPS graduate education programs build international capacity across a wide range of disciplines and

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enhance defense cooperation with partners across the globe. The presence of international students at NPS not only enhances the capabilities of partner nations by educating and developing critical thinking skills, but also benefits the US by exposing DoD students to personnel from partner nations and developing long-lasting relationships.

(i) Unlike the War Colleges, NPS's wide variety of educational disciplines offer a unique opportunity to target skillsets the U.S. wants to propagate in our Partners, Allies and Friends. Because the international students work side by side with their US student counterparts in specific academic disciplines, the relationships they form are extremely valuable in building lasting international partnerships. For example, if a foreign Navy LT studies Cybersecurity with U.S. students, not only is there a long term investment, but there is a long term partnership established in the critical area of cybersecurity. Also, International students tend to attend NPS earlier in their careers than other PME institutions. Consequently, these students may have 20-30 years of further service to their host countries, increasing the cost-benefit ratio for PME investment.

(j) Flexible year-round enrollment and modular curriculum structure can accommodate the operational tempo of our naval officers and ensure high on-time graduation rates. NPS has start dates four times a year and can provide graduate level education for FAOs in three different ways: 18-month thesis required regional degrees; one-year graduate level degrees when accompanied by language training, and a regional Certificate Program. The Certificate Program is ideal for new FAOs who already has graduate degree, but not in a regional studies discipline or for a FAO who is changing regions. The certificates are completed in one quarter which allows the student to be on TDY instead of PCS orders. And the students have support structures to ensure that they graduate. In addition, Joint PME Phase I is available at NPS as the Naval War College offers Joint PME phase one on the NPS campus. This enables our FAO students to complete their graduate education and PME requirement at the same time. The PME courses are included in the curriculum matrix.

(k) Additionally, following the bombing of USS COLE (DDG 67) in Aden, Yemen, in 2001, NPS developed a program to provide continuing education on historical perspectives, political-military contexts, and United States' regional objectives for Naval Forces deploying overseas. At the direction of the Chief of Naval Operations and Fleet Commanders, this Regional Security Education Program (RSEP) is delivered by teams of Subject Matter Experts, usually Ph.D.'s in the fields of National Security Affairs and Defense Analysis, who embark in deploying carrier and expeditionary strike groups, special missions groups such as hospital ships with medical teams involved in Pacific Partnership and Southern/African Partnership programs, as well as independently deploying ships and units. Ashore, RSEP teams deliver cogent regional expertise and perspectives for major naval exercise groups, SEAL Teams, Marine Corps Units and Naval Reserve units. At the request of Combatant Commanders in 2005, RSEP was expanded to include education on cultural awareness and military diplomacy focused on countries that deploying forces plan to interact with and visit. Under direction of the Secretary of Defense's program for Language, Regional Expertise and Culture (LREC) for each of the Services, RSEP became the primary education syllabus for the Navy, under OPNAV (N1) as

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Navy's Language Authority, delivering regional expertise and cultural awareness education to thousands of Navy and Marine Corps personnel annually with ever-increasing demand from deploying and reserve forces.

(1) In summary, the NPS FAO education is relevant and aligned with the strategic priorities of the DON and DoD. The NSA curriculum is responsive to DON demand signals, which in recent years included offering curriculum on energy security and cyber security. As a result, the coursework is more adaptable to changing DON priorities through the biennial review process and formalized Educational Skills Requirements. Our faculty are selected, retained, and promoted based on their ability to produce defense relevant knowledge and they fund 25 percent of their pay by attracting defense related research and educational funding opportunities. Experienced civilian faculty leverage their strong service knowledge to tailor their education and research to military problem sets. And the students learn in a cohort that share similar concerns, backgrounds and career-paths with the added synergy of professional international military students. The scope of academic disciplines, flexibility, customization and variety of teaching options is not matched at any civilian or other PME program to meet U.S. military engagement requirements.

(3) What percent of the total student body are: Navy officers and enlisted; Marine officers and enlisted, Navy unrestricted line officers, restricted line officers, and staff? In your view, how are the naval services making best use of the education offered at Naval Postgraduate School?

(a) The composition of the student body differs significantly between the full-time resident program(s) and the part-time distance learning program(s). Summary percentages are:

1. Resident Education:

a. Naval: 41% Navy Officers and Enlisted and 16% Marine Corps Officers and Enlisted.

b. Non-Naval: 43% (principally USA, USAF and international officers)

c. Navy Composition: 36% Navy URL officers, 47% Navy RL officers and 16% Navy Staff Corps/LDO and 1% Enlisted.

2. Distance Learning Education

a. Naval: 31% Navy Officers and Enlisted and 3% Marine Corps Officers and Enlisted.

b. Non-Naval: 66% (principally DOD civilians, dominantly DON)

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c. Navy Composition: 77% Navy URL officers, 12% Navy RL officers and 11% Navy Staff Corps/LDO.

(b) From the Navy's perspective, assessing the "best use of the education offered" has often been gaged using utilization rates – defined as a payback tour in a subspecialty-coded billet. The Navy has historically calculated utilization as "payback within two shore tours." More recently, attention has shifted to the "DOD Utilization" rate, determined as payback anytime within an officer's full career.

1. Recent summary statistics for DOD Utilization rates: \*

a. URL: 81%

b. RL: 94%

c. Staff: 94%

(c) These patterns are well-known: Most all RL and Staff officers serve directly in subspecialty billets (often more than once) during their career. URL officers serve in a subspecialty billet at a lower rate, although the large majority do have a direct payback tour during their career.

(d) If subspecialty utilization is deemed most important, the Navy could benefit from enhanced tracking and distribution of subspecialty coded officers to ensure the all funded graduate education is not only leveraged in multiple future assignments, but cultivated and advanced through continuous experience and learning. Each Major Area Sponsor could work across community managers and detailers to maximize the return on investment of educated officers.

(e) However, we caution on the over-reliance on billet payback utilization data as a measure of the sole value of graduate education. Evolving fleet requirements and OPTEMPO can impact utilization opportunities and timing, especially in the URL communities. More importantly, there is a broader, less quantifiable impact of higher education, as it develops critical thinking skills, analytical reasoning capabilities, proficiencies in written and verbal communication, and broadens a student's Navy and Joint strategic perspective. These benefits have a payoff in all billets in which an officer may serve. Every tour is a payback tour.

(4) What is your balance between and among education, basic and practical research?

(a) The Naval Postgraduate School recognizes that high-quality graduate level education is predicated on combining traditional instruction with cutting-edge research, which may be at the basic or applied level. In addition to their coursework, all NPS graduate students complete a thesis or CAPSTONE project to meet the degree requirements as well as the education skill requirements specified by the curriculum sponsors in the Navy and Marine Corps.

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The core mission of NPS defined above in question a. recognizes this inextricable link between education and research.

(b) To support this joint instructional and research mission, the NPS business model follows the standard practice of graduate universities. That is, faculty at NPS are expected to both teach and conduct research. As individuals, they are responsible for identifying and competing for resources within their respective disciplines. It is these faculty-generated projects that provide the opportunities for students to participate in research in their areas of interest. In addition, NPS faculty members are expected to direct their research efforts toward those topics that are most relevant to DOD, particularly as they mature in their careers.

(c) While the faculty research projects fill the spectrum between basic and applied research, the preponderance of research activities conducted by students at the master's level can be characterized as applied research. This leverages the operational experience of the unique NPS student body and their connections to their communities of practice. Students in the master's programs lack the time to engage in basic research and complete their theses in the limited time frame of their course work. Student course loads of 16-18 hours per quarter also limit their ability to engage in basic research. Most student's in master's level programs at NPS leverage the academic program to address concerns from their personal experiences, challenges facing their specific communities, or problems identified by faculty. By contrast, PhD students tend to conduct research at the basic level due to their requirements for original research and the additional time available in those programs.

(d) In addition to providing research opportunities for students, NPS faculty conduct research to build their own intellectual capital, improve the overall educational experience, and develop the underlying concepts to support future applied research. The majority of NPS research sponsors from across DOD focus on applied research. Additionally, within NPS administered programs such as the Naval Research Program (NRP) and the Consortium for Robotics and Unmanned Systems Education and Research (CRUSER), topic sponsors allocate funding to support mostly applied research. When working with sponsors such as the National Science Foundation, the Office of Naval Research, or DARPA, a larger percentage of the work is focused on basic research. By having faculty conduct basic research today, NPS is able to remain current across its diverse curricula while building capacity and relationships to support applied research in the future. Furthermore, the margin between basic research and applied research is narrowing because technological changes are accelerating.

(e) Quantum computing offers a compelling example of the close linkage between basic and applied research. Dr. Narducci, Dr. Luscombe, and Dr. Huffnire are working towards establishing a quantum computing research lab at NPS. They are updating their Quantum Computing course, which was last taught in 2010. Dr. Narducci is a physicist and an expert in the field of optics. Dr. Luscombe is also a physicist and an expert on the Ising model, an aspect of quantum physics. Dr. Huffnire is a computer scientist with expertise in computer architecture, hardware-oriented security/trust, and quantum information science. Dr. Luscombe and Dr. Huffnire co-taught the course in 2009 and 2010. Dr. Luscombe taught the physics fundamentals.

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Dr. Huffmire taught the computer science fundamentals. Dr. Luscombe explained several alternative technologies for the practical realization of quantum bits and logic gates. In 2010, the education and research related to quantum computing was considered basic research. In 2018, a NPS student programmed the IBM Quantum Computer that is connected to the Internet and is available for anyone to use for free. In 2010, quantum computing was considered basic research. By 2018, a master's student programmed a quantum computer leveraging the education provided by Dr. Luscombe and Dr. Huffmire. If Dr. Luscombe, Dr. Narducci and Dr. Huffmire had not been conducting basic research in 2010, the faculty would not have possessed the capacity to guide a student's applied research in 2018.

(f) In another example, Dr. Tim Chung pioneered swarms of unmanned aerial systems while on the faculty at NPS. The algorithms and underlying behaviors Dr. Chung pioneered several years ago in his basic research built the foundation for swarm-on-swarm experiments executed by faculty and students at Camp Roberts in 2017. The original, basic research created a critical mass of faculty and students required to execute and assess swarms and counter swarms at the applied level. Dr. Chung is now at DARPA as a program manager. DARPA supports the basic research to move swarms from theory into actual applications. The faculty and students use opportunities such as the DARPA Swarm challenge to develop applied research to move the Navy and Marine Corps forward through adoption of the technology.

3. The point of contact for this response is CAPT Mike Ward, NPS Chief of Staff. He can be reached at (831) 656-2511 or [john.ward@nps.edu](mailto:john.ward@nps.edu).



RONALD A. ROUTE  
Vice Admiral, U.S. Navy (Ret.)



THE UNDER SECRETARY OF THE NAVY  
WASHINGTON DC 20350-1000

April 19, 2018

MEMORANDUM FOR DISTRIBUTION

Subj: DEPARTMENT OF THE NAVY EDUCATION FOR SEAPOWER (E4S) STUDY

Continuous learning – and sharing hard-won knowledge – represents a combat-proven key to victory for our naval services. Our flagship educational institutions, including the United States Naval Academy, Naval Postgraduate School, Marine Corps University, and Naval War College, along with the many outstanding national colleges and universities associated with the Reserve Officers Training Corps, have long and well served the nation in educating our future leaders. They inculcate not only the finest sense of honor and integrity, but also creativity and deep rigor in thinking about the future of naval warfare, especially in times of great change.

As the Secretary of Defense indicates clearly in his summary of the 2018 National Defense Strategy, a new age of great power competition and strategic complexity has dawned, finding our former competitive edge relatively diminished. Once again, our forces must find new, ever-more agile and resilient strategies to dissuade our potential adversaries, and when necessary, prevail in conflict. To shape this more lethal force, we must begin by thinking anew about how those strategies and capabilities are developed in the first place – with our most critical resource – human creativity and talent.

At the same time, a revolution in the art and science of learning is currently taking place throughout the globe. New uses of digital technology and artificial intelligence are now being applied to a deeper and more holistic understanding of learning psychology, resulting in speed and capacity increases that have the potential to leap well beyond today's analog expectations – by orders of magnitude. To ensure every possible advantage for our sons and daughters sent into harm's way, we must turn our energies towards a new and comprehensive study of all aspects of naval education, challenging every assumption of roles, responsibilities, and interconnections while pursuing the highest fidelity of learning technology.

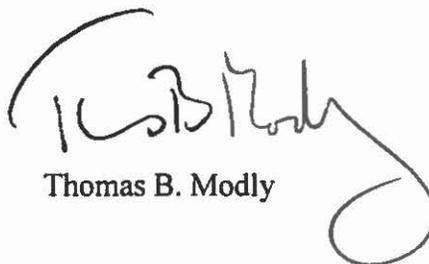
With this mandate firmly in mind, I am forming an independent subject matter expert team to conduct a comprehensive study of learning throughout the Department of the Navy. The Department of the Navy (DON) Education for Seapower (E4S) study team will seek input from experts and proven national-level leaders from government, academia, and private industry. They will use this information to develop a series of observations and recommendations for knowledge-based continuous learning throughout the naval services. In order to be effective, the results of this study must be just as consequential and pervasive as the challenges to our national security, as expressed in the 2018 National Defense Strategy.

The DON E4S study will interact with the various flagship naval educational institutions as outlined above, as well as top-flight civilian educational nodes. Interviews with thought leaders on the future of learning, from academe, the military, and corporate America will be held

Subj: DEPARTMENT OF THE NAVY EDUCATION FOR SEAPOWER (E4S) STUDY

to glean the best possible array of ideas on educating for seapower. An official report containing observations, conclusions, and recommendations will be presented to me no later than December 7, 2018. I will personally review the recommendations of the DON E4S report, and plan to issue my recommendations to the Secretary of the Navy on January 5, 2019.

I hereby request that all leaders in the DON fully support the many and disparate efforts of this team: from visits to educational institutions, to requests for historical data and background, to the many options available to gather thoughts and opinions on the way ahead. Good ideas have no rank. This will be a fully transparent and open study, using the panoply of digital communications and sharing tools at our disposal. I will consider every viewpoint tendered before making my final recommendations to the Secretary, and the report will be made widely available to all.



Thomas B. Modly

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THE UNDER SECRETARY OF THE NAVY  
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MEMORANDUM FOR DISTRIBUTION

To: Superintendent, United States Naval Academy  
President, Naval War College  
President, Marine Corps University  
President, Naval Postgraduate School  
Commander, Naval Service Training Command (ROTC)

Subj: EDUCATION FOR SEAPOWER (E4S) SCOPE AND REQUESTED INFORMATION

REF (A): UNSECNAV MEMORANDUM DTD 19 APR 2018

1. As you know, the Secretary of the Navy and I have initiated a review of all phases of naval education. Our purpose is to assess and, where necessary, to strengthen the impact of naval education in enhancing American seapower and therefore the security and well-being of our nation. Reference (a) announces and frames the imperative for this study, while setting the requirement for instilling and integrating a culture of continuous learning throughout our naval services.
2. This study requires a critical self-analysis and assessment of your institution to determine how well it meets the knowledge and learning standards that are set for your graduates, as well as an evaluation of the relevance and applicability of these standards in order to determine if change is needed. It also requires your candid insights and recommendations for improving not only your institution, but the entire educational enterprise -- and how your institution is linked to career paths and our larger warfighting mission. Your responses will be included in the E4S Final Report as written, without editing.
3. Further, this review will examine naval education to determine strengths, weaknesses, gaps and most importantly actions to improve this vital component of the naval services, and to set the course for a future in which a culture of continuous learning must become a greater and more permanent part of the naval ethos. In addition to your responses, this review will also examine best practices in education across the other U.S. services and where appropriate for foreign militaries; civilian academic and research institutions; and the private sector.
4. Two sets of questions follow for each institution to consider and to respond. The first applies to all. The second applies to specific institutions. I request that each of you address these questions in writing, and be prepared to meet with the Executive Board during two planned sessions this summer, July 13 and August 10, 2018, at the National Defense University at Fort Leslie J. McNair, Washington, D.C. Please identify a point of contact to liaise with my Study Director, Steve Deal, CAPT(Ret), USN, per my previous email and

Subj: EDUCATION FOR SEAPOWER (E4S) STUDY SCOPE AND REQUESTED INFORMATION

reference (a).

5. The E4S Executive Board will likely have further questions, either initial or follow-up, that will hold the same weight as those expressed in this Memorandum. As always, I stand ready to discuss your views, and look forward to listening and learning from each of you.

**General Questions:**

What are the roles and responsibilities of your educational institution, and how do they contribute to establishing a permanent process of continuous learning?

What is your vision regarding the future role of your educational institution?

How well do you inculcate the ability for critical strategic assessment and thinking on the part of your students and graduates?

How often do you review and update curricula in order to respond to the changing environment, demands, and requirements, and who oversees the implementation of these reviews?

In your critical view, how well do you prepare your students for future assignments?

Based on your mission statement and list of required knowledge and learning, what is your critical assessment of how well you are achieving both? What are the strengths, weaknesses, and gaps of your institution in providing your graduates with these necessary skill sets?

How do you assess the quality of your faculty, as well as your ability to recruit faculty and maintain standards? What are those standards?

Do tenure, right to publish, and ability to research constitute major issues that need review?

How is the DON-wide requirement of audit addressed in your curricula?

What are the views of your graduates as to the quality of the education received, and where change and improvements are needed? What kind of sampling is achieved in these surveys?

Describe your integration with the other parts of the DON educational enterprise, the Navy's Fleet components, and Fleet Marine Force, as well as other non-DoD academic institutions. What is your integration with Fleet Warfare Development Centers and nodes that educate officers and enlisted personnel on the operational level of war (OLW)?

What is the role of your advisory board? Where is it most helpful, and how can its contribution be improved?

Subj: EDUCATION FOR SEAPOWER (E4S) STUDY SCOPE AND REQUESTED INFORMATION

The 2018 National Defense Strategy calls for a force that is more lethal, resilient, and agile. How are you contributing to this mandate, or making changes to do so?

How are your student bodies changing over time (trends) in terms of background, curiosity, experience, intellectual capacity, aspirations, and basic skills?

How much authority do you have in budget flexibility and working with your resource sponsors? How is your budget sourced and decided upon, and how might that process be improved? What pivotal constraints have you experienced?

What constraints have your experience regarding the execution of your vision for the future? How can this Study best help you in that regard?

If you could make major changes to your institution and to the naval educational enterprise, what might they be?

Does the DON have a consistent culture of learning, and if so, how can we improve it, and if not, why, and how would you create one?

What is the impact of JPME (both Phases I and II) upon your curricula, your students' opportunity for education while in residence, and in your opinion, their capacity for addressing complexity and added lethality? How would you deliver JPME differently?

How should critical thinking and strategic thinking best be taught? Where should it be taught? When?

What should be our priorities for STEM education and its uses for greater lethality, at the undergraduate and graduate levels? The proper balance between strategic education, STEM, and the operational arts?

For those with supporting foundations, how do these add value to your institution, and can these organizations be of greater assistance?

How do you deal with accreditation? Is it an advantage, or a constraint?

What is the selectivity (admission) rate for applicants to your institution?

How many students failed any of your full-time courses last year?

How many admitted students failed to graduate?

For the past five years, what percentage (by year) of your students (after admittance, or while in attendance) have ever been passed over for promotion to the next rank or paygrade?

For the past five years, what percentage of your military faculty (by year) have ever been

Subj: EDUCATION FOR SEAPOWER (E4S) STUDY SCOPE AND REQUESTED INFORMATION

passed over for promotion to the next rank or paygrade?

For the past five years, what percentage of your military faculty were considered (in any zone) by any administrative command screen (major sea, major shore, operational, special mission, or their equivalent) board? What percentage of those officers were subsequently selected for command as a member of your faculty?

What do you consider your "peer" institutions, and what do you think they are getting right?

What is your opinion of the quality of students entering your institutions? Trends? What could be done to improve?

How is research, testing, development, and evaluation for educational/learning systems funded for your institution? Who is your SYSCOM for learning?

If you had a 5-10 percent budget cut, what function would you cut?

If you received a 10-20 percent budget plus up, what would you buy, and how would that make a difference in your mission?

Where is the tipping point in Navy vs. Joint vs. Interagency student makeup in a seminar when the class can no longer focus on high-end maritime warfighting?

What percentage of instruction is held at the classified level?

Do you think we need to create an entirely new higher education institution for the USN, and if so, what should it do that would be additive to the service?

**Specific Questions:**

For the Naval Academy, ROTC, and OCS:

What balance are you striking between bachelor degree completion and preparation for immediate duty in the Fleet/Fleet Marine Force as competent warfighters?

Given changes in the backgrounds of incoming students, how is your curricula changing to keep up with social and cultural changes (technology, networking, etc.)?

For the Naval Postgraduate School:

What differentiates the Public Policy and Business colleges from similar programs offered by civilian schools, and how are the naval services making use of this asset?

Regarding the National Security Affairs college, what is the uniqueness of the foreign officers

Subj: EDUCATION FOR SEAPOWER (E4S) STUDY SCOPE AND REQUESTED INFORMATION

course, and is NPS the best place for it?

What percent of the total student body are: Navy officers and enlisted; Marine officers and enlisted, Navy unrestricted line officers, restricted line officers, and staff? In your view, how are the naval services making best use of the education offered at Naval Postgraduate School?

What is your balance between and among education, basic and practical research?

For the Naval War College:

What percent of the total student body are: Navy officers and enlisted; Marine officers and enlisted, Navy line officers and staff? How are the naval services making best use of the education offered at the Naval War College?

How do you continually increase the relevancy of NWC to the naval services? In your view, how is NWC war-gaming utilized in OPNAV resourcing considerations, war planning and Fleet/Joint exercises?

Of your student body, what is your quota for senior officers, and how is that being met?

What is your assessment of how you are contributing to the development of critical strategic thinking and analyses, and where might this be strengthened?

How is NWC contributing to enhancing warfighting (strategic, operational) capacity amongst your students?

For the Marine Corps University:

What percent of the total student body are: Marine officers and enlisted; Navy line officers and staff? In your view, how are the naval services making best use of the education offered there?

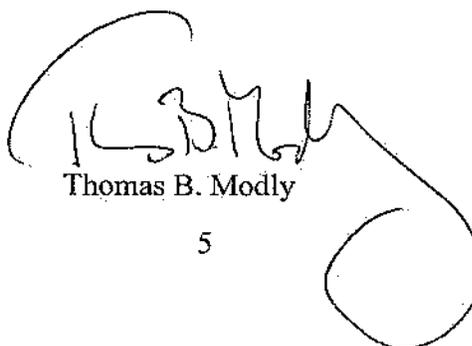
How is MCU connected to the career paths of Marine officers and enlisted? What part does it play in career advancement and placement?

What is the Marine Corps' vision of continuous learning, and how does MCU play a part?

How is MCU connected to warfighting and advancing the operational art of war?

How does MCU identify future strategists?

Thanks in advance for your help with this  
P. I.

  
Thomas B. Modly

Subj: EDUCATION FOR SEAPOWER (E4S) STUDY SCOPE AND REQUESTED  
INFORMATION

Distribution:

CNO

CMC

ASN (RD&A)

ASN (FM&C)

ASN (M&RA)

ASN (EI&E)

GC

VCNO

ACMC

DUSN (P)

DIR OCMO

DON/AA

DNS

DMCS

JAG

DON CIO

CHINFO

CLA

CNP

MCCDC

Superintendent, USNA

President, NPS

President, NWC

President, MCU

NSTC

SECNAV FRONT OFFICE

SECNAV PA

SECNAV SAL

SECNAV AA



# Faculty Recruitment and Retention

- After period of decline, we are now able to add faculty
- Turn-around time for new faculty hires still long, but much of that is in the selection process, particularly for tenure track faculty
- Significant number of retirements upcoming in key areas, e.g. computer science



# Non Tenure-Track (NTT) Gains/Loses

	2012	2013	2014	2015	2016	2017	2018	Total
Transfer	7	5	6	3	5	1	3*	30
End	10	44	21	11	17	6	15	124
Resigned	7	34	23	17	14	3	9	107
Retired	5	10	11	15	12	14	18	85
Deceased	0	1	0	0	0	1	1	3
<b>Total Loses</b>	<b>29</b>	<b>94</b>	<b>61</b>	<b>46</b>	<b>48</b>	<b>25</b>	<b>46</b>	<b>349</b>
<b>Total hires</b>	<b>15</b>	<b>2</b>	<b>2</b>	<b>8</b>	<b>16</b>	<b>31</b>	<b>41</b>	<b>115</b>
<b>Net</b>	<b>-14</b>	<b>-92</b>	<b>-59</b>	<b>-38</b>	<b>-32</b>	<b>6</b>	<b>-5</b>	<b>-234</b>

\* AD to GS conversion

NTT Onboard  
AY12 - 635  
AY18 - 381

41	Pipeline
4	Onboard date
7	Selection w Onboard TBD
21	Pending Selections
5	Announcement Out
4	Pending Announcement



# Tenure-Track (TT) Gains/Loses

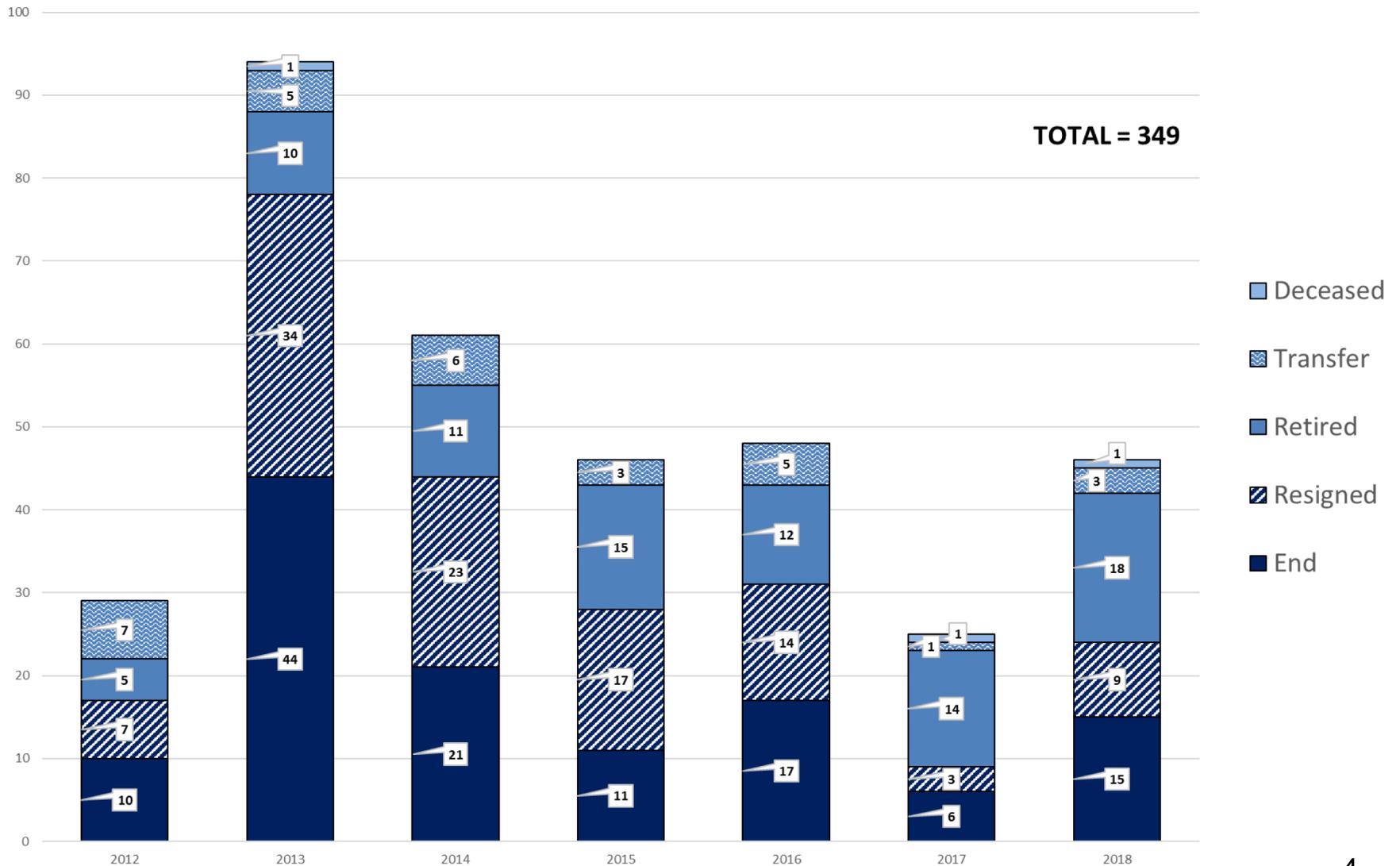
	2012	2013	2014	2015	2016	2017	2018	Total
Transfer	0	1	1	3	1	1	0	7
End	0	1	1	2	1	0	0	5
Resigned	0	1	9	15	4	3	6	38
Retired	4	10	7	7	9	8	6	51
Deceased	0	0	1	0	0	0	0	1
<b>Total Loses</b>	<b>4</b>	<b>13</b>	<b>19</b>	<b>27</b>	<b>15</b>	<b>12</b>	<b>12</b>	<b>102</b>
<b>Total hires</b>	<b>1</b>	<b>1</b>	<b>3</b>	<b>8</b>	<b>14</b>	<b>14</b>	<b>15</b>	<b>56</b>
<b>Net</b>	<b>-3</b>	<b>-12</b>	<b>-16</b>	<b>-19</b>	<b>-1</b>	<b>2</b>	<b>3</b>	<b>-46</b>

TT Onboard  
AY12 - 270  
AY18 - 231

20	Pipeline
1	Onboard date
1	Selection w Onboard TBD
5	Pending Selections
8	Announcement Out
5	Pending Announcement

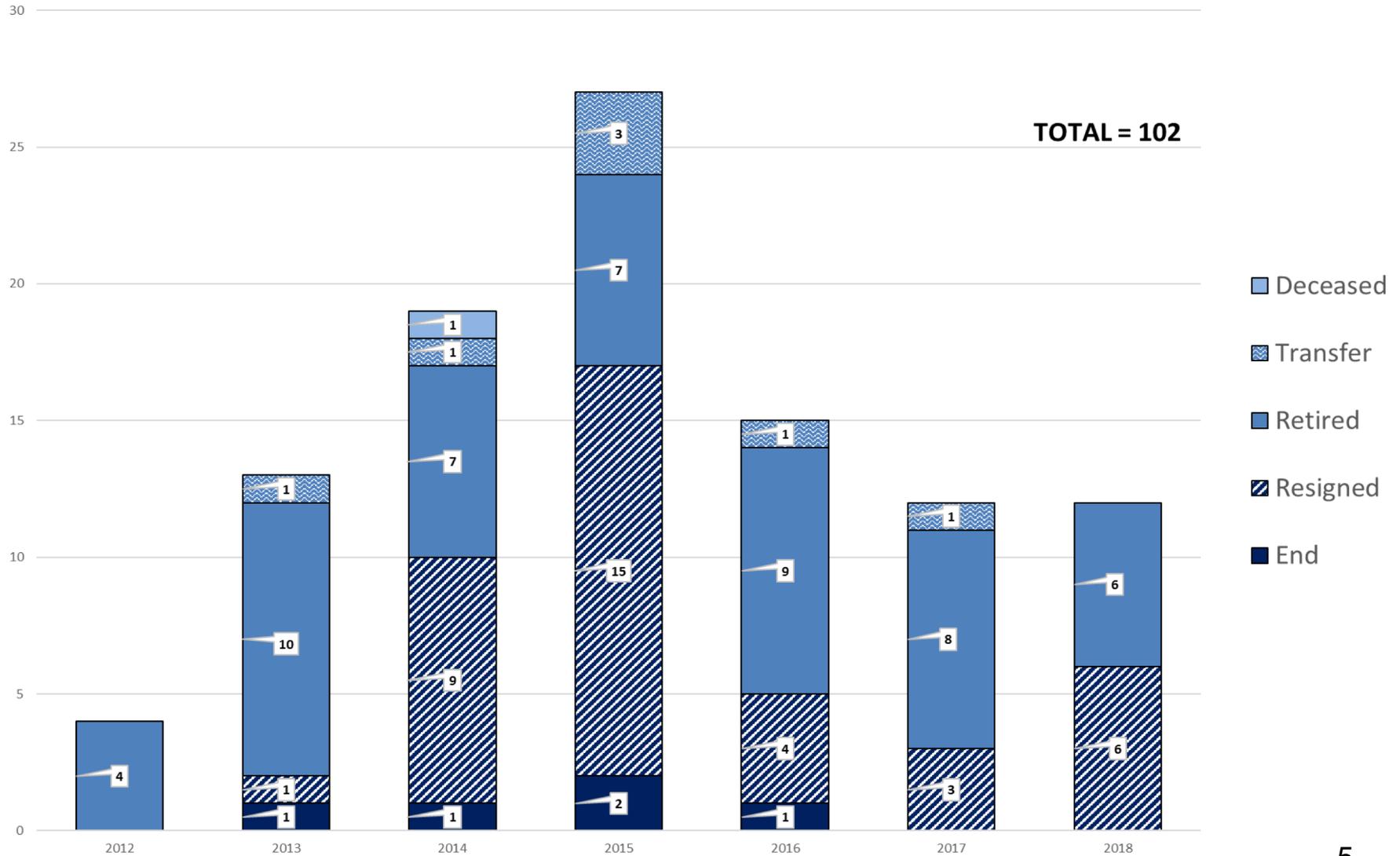


# Reasons for NTT Faculty Leaving NPS





# Reasons for TT Faculty Leaving NPS





NAVAL  
POSTGRADUATE  
SCHOOL

# NPS Provost Update

*Board of Advisors Meeting  
17-18 October 2018  
Arlington, VA*

Monterey, California

[WWW.NPS.EDU](http://WWW.NPS.EDU)



## NPS Strategic Plan Themes

- Theme 1: Excellence and innovation in emerging fields critical to national defense
- Theme 2: Interdisciplinary education and research programs
- Theme 3: Institutional Innovation and Effectiveness

<https://nps.edu/strategic plan>



# Strategic Plan

## *Innovation in Emerging Fields*

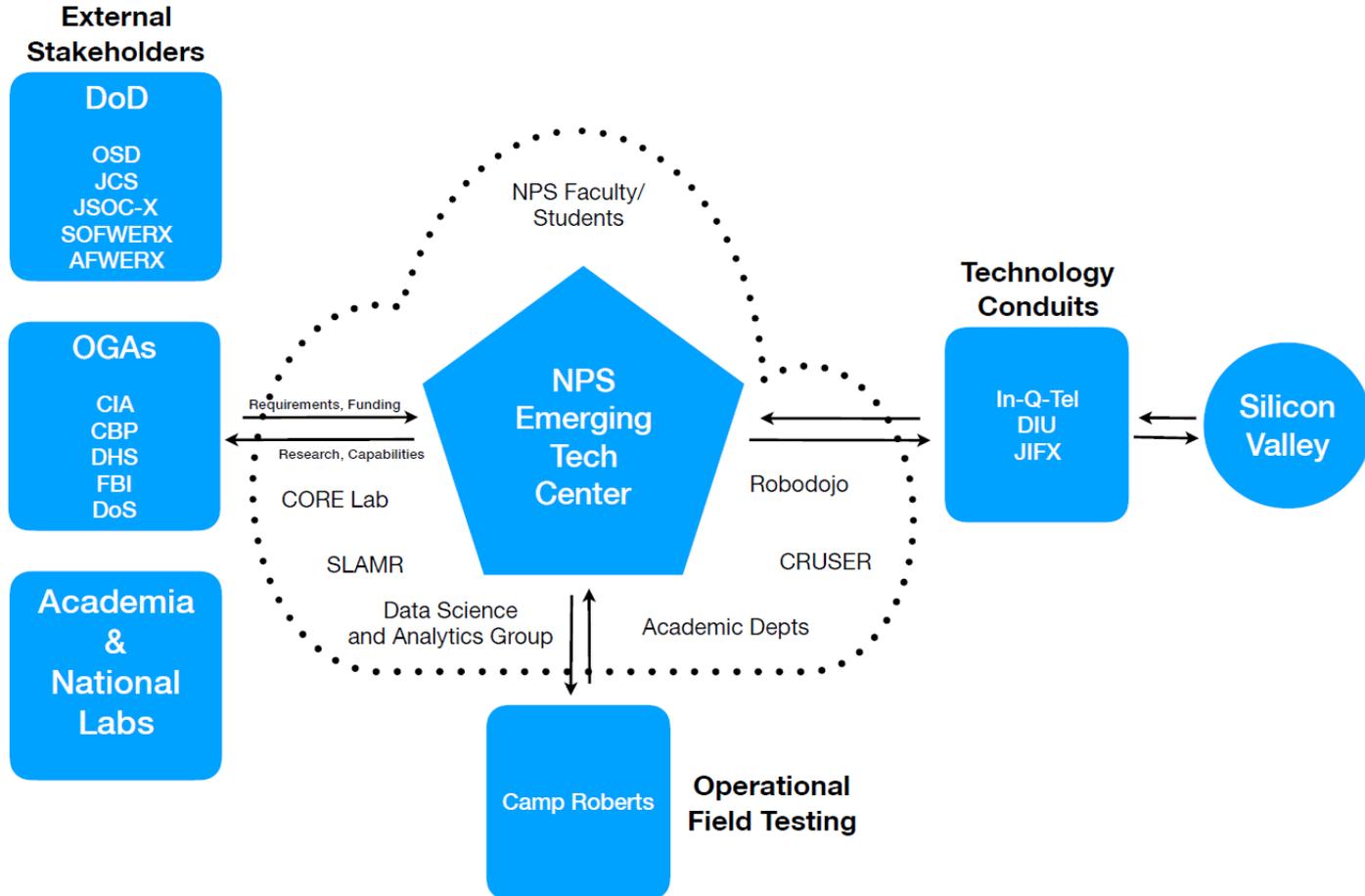
- Planning NPS Emerging Technology Center to link industry, NPS, In-Q-Tel
- Continued planning for Monterey Cyber Institute – industry/foundation/NPS partnership
- Cyber Academic Group – all Navy hands cyber course
- Data Science and Analytics Group – new interdisciplinary unit for research and teaching
- CRADA with Raytheon in Undersea Warfare technologies
- SLAMR - Sea Land Air Military Research Facility
- Quantum technologies research



# Strategic Plan

## Concept for Emerging Technology Center

### NPS Emerging Technology Center Structure and Workflow





- Create Teaching and Learning Commons under new Associate Provost for Graduate Education
- Technology grants for educational innovation
- Planning next generation classrooms
- New nuclear C3 certificate program
- Teaching fellows program
- Development and pilot use of online tutorial systems for refresher mathematics
- Design of hybrid delivered “stackable certificates” in GSBPP and GSEAS
- Planned development of software-based cyber labs for all Navy hands cyber course



## *Institutional Innovation and Effectiveness*

- Sailing Directions Actions
- Expanded CRADA use
- Establish coordinated institutional advancement strategy and new, full-time Director
- Reestablishing MIIS MOU
- Developing new organizational models to engage with industry and academia
- Expanding Industry-based internships for students



# NPS President's Update

Board of Advisors Meeting  
17-18 October 2018  
Arlington, VA



- Accomplishments / Actions
  - Sailing Directions Update
  - E4S Submission
  - POM Issues
  - Community Engagement
  - Guest Lectures & Graduation Speakers
- Command Climate Update



## NPS Supports U.S. National Security Requirements

We all have an interest in ensuring NPS endures as the postgraduate research and educational institution of choice for the Navy-Marine Corps team and our partners. But going even further, I want this institution to be the primary educational and research based enterprise that partners with the private sector and academia to provide solutions to the vexing problems facing national security across the whole of government. We will do so by:

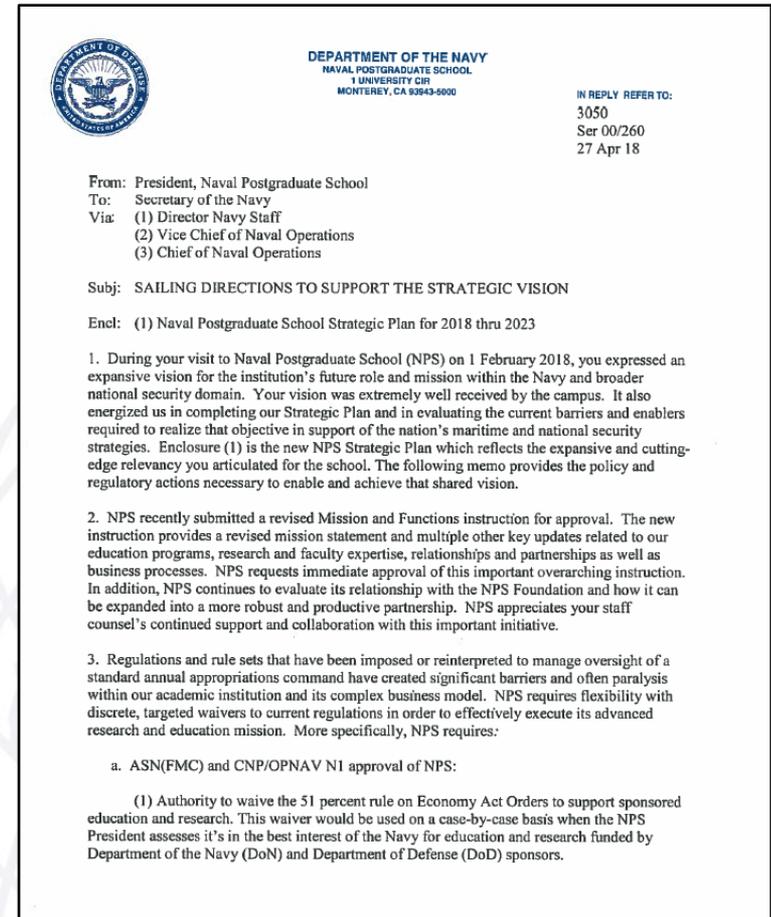
- continuing attract the best students through elevated admission standards
- competing for and attracting and retaining a first rate faculty;
- placing an emphasis on relevant research that builds capabilities; and
- leveraging partnerships across government, industry, and educational institutions.

**Secretary of the Navy, Richard V. Spencer: NPS  
February 1, 2018**



# Sailing Directions Memo

- **NPS Memo to SECNAV Context** – During SECNAV’s visit to NPS on 1 February 2018, he expressed an expansive vision for the institution's future role and mission within the Navy and broader national security domain. His vision was extremely well received by the campus. It also energized us in completing our Strategic Plan and in evaluating the current barriers and enablers required to realize that objective in support of the nation's maritime and national security strategies. The memo defines the policy and regulatory actions necessary to enable and achieve that shared vision.





# Sailing Directions Tracker

USN POC	Task	Status	OPR	Due Date
ASN(FMC)	51% Waiver Approvals	<u>Complete</u>	DBO	✓
	Overhead & Total Direct Cost Model	<u>Complete</u> (except 3% lab recap), ASN(FMC) memo 24 May 18	DBO VPAA	✓
	Coord. Contract Support w/ NAVSUP	In-work – DBO Coordinating w/ PMO to redefine action to NAVSUP	DBO PMO/CLM	UNK

51% Rule Waiver Requests	Status	OPR	Due Date
Post-Doc Research	<u>Completed</u> – Approved by ASN (FMC), 24 May 18	DBO	✓
Equipment Fabrication	<u>Completed</u> – Request submitted to ASN(FMC), 25 Jul 18	DBO	✓
Academic and Industry Partnerships	<u>Completed</u> – Request submitted to ASN(FMC), 1 Aug 18	DBO	✓
Internal Government Support	<u>Completed</u> – Request submitted to ASN(FMC), 1 Aug 18	DBO	✓
Curricula Dev. & Course Delivery	<u>Completed</u> – Request submitted to ASN(FMC), 1 Aug 18	DBO	✓



# Sailing Directions Tracker, cont.

USN POC	Task	Status	OPR	Due Date
ASN(MRA)	<b>Increase DoN Faculty Pay Schedule "Pay Cap"</b>	ICW N1/MRA, NPS to collect internal data on R3 use and market analysis	COS/DBO/ HRO	FY2020
	<b>Authority to Establish Time-limited GS Under Sched A</b>	NPS info paper submitted to N1/MRA Staff – Telcon held 4 OCT. Way-ahead in work.	COS/DBO/ HRO	30 Nov 18
	<b>Ability to Hire Foreign National</b>	Coord w/ N1B/MRA/DUSN(P) – Action complete.	COS/DBO/ HRO/OOC	
ASN(MRA)	<b>Attract the Best Naval Students</b>	In work – icw E4S Study	VPAA	5 Jan 2019 <i>Study due to SECNAV</i>
	<b>Adjust Promotion and Admin Board Precepts to Value GRAD-ED</b>	In work – icw E4S Study	VPAA	5 Jan 2019 <i>Study due to SECNAV</i>
	<b>Increase Intl. Student Enrollment</b>	NPS/IGPO coord. w/ DoS. Reclama memo for Pres signed and sent to DoS.	IGOP/ VPAA	TBD
DNS	<b>Delegation of Auth. to enter Tuition Exchange Partnerships</b>	Per 10 USC § 7047, enable an exchange agreement with MIIS	Ltr to DNS. SECNAV Approved.	



# Under SECNAV DON Education for Seapower (E4S) Study

- **E4S Study – Chartered in April 2018**

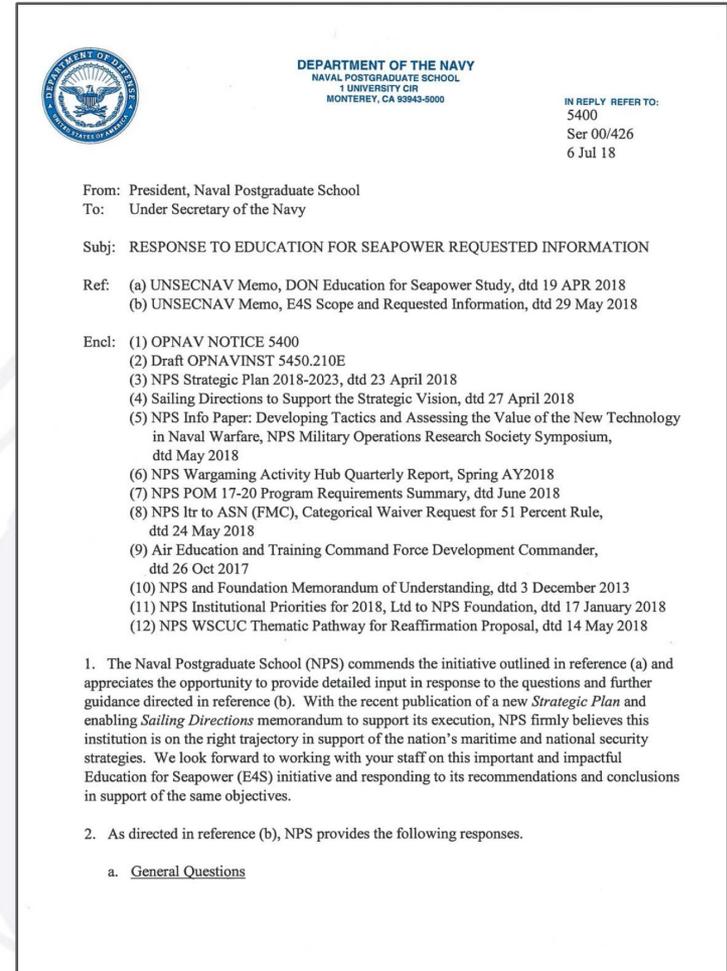
“...a new age of great power competition and strategic complexity has dawned, finding our former competitive edge relatively diminished.”

“To shape this more lethal force, we must begin by thinking anew about how those strategies and capabilities are developed in the first place - with our most critical resource - human creativity and talent.”

“I am forming an independent subject matter expert team to conduct a comprehensive study of learning throughout the DON. They will... develop a series of observations and recommendations for knowledge-based continuous learning throughout the naval services. In order to be effective, the results of this study must be just as consequential and pervasive...”

- **NPS E4S RFI response (60 pgs) – July 18**

- **DON E4S Report to SECNAV – Dec 18**



**NPS RFI Input to E4S – 6 July 18**



## • POM 20

- FSEP\* Funding Continuation: **NEEDS FOLLOW-UP**
- All-student General Cyber Course: **PENDING**
- Learning Spaces Upgrades
- Recapitalization of Laboratories
- Classified Computing Modernization
- Data Science Center of Excellence
- SLAMR \*\* Facility

## • POM 19

- Civilian Institutions FYDP Add-On: **FUNDED**
- Recapitalization to Support Naval Operational Curricula
- Recapitalization to Support Naval Technical Curricula
- Naval Distance Learning Education Evolution
- All-Student General Cyber Course
- Navy Talent Management Data Repository

## • POM 18

- Civilian Institutions Tuition: **FUNDED**
- Cyber Security Operations Center: **FUNDED**
- Educational/Technological Infrastructure Recapitalization

## POM 21 (TBD / In-work)

- FSEP\*
- General Cyber Course
- Center for Executive Education
- Emerging Technologies Infrastructure
- SLAMR\*\*
- Classified Computing Upgrades
- Digital Learning Environments
- Cloud Services
- Cable Plant Replacement

*~ not in priority order ~*

\* FSEP – Fleet Scholars Education Program  
\*\* SLAMR – Sea Land Air Military Robotics Facility



- International Day – 28 April 2018
- Concert on the Lawn – 28 May 2018
- Monterey Bay Defense Alliance Breakfast – 29 June 2018
- Regional Summer STEM Internship Opportunities – Science and Engineering Apprenticeship Program (SEAP) – 10 August 2018
- Higher Education and Research Summit – 12 September 2018
- Discover NPS Day – 26 October 2018



## Secretary of the Navy Guest Lectures

- 01 February, 2018, The Honorable Richard Spencer, Secretary of the Navy
- 24 July 2018, VADM Bruce Lindsey, Deputy Commander, U.S. Fleet Forces Command
- 15 August 2018, Mr. Ross Perot, Jr., American Businessman
- 28 August 2018, CAPT (Ret) Paul Rinn, Former Commanding Officer of USS SAMUEL B ROBERTS (FFG 58)
- 10 October 2018, The Honorable Richard Spencer, Secretary of the Navy

## Graduation Speakers

- 15 June 2018, VADM Jan Tighe, Deputy Chief of Naval Operations for Information Warfare
- 21 September 2018, VADM Gardner Howe, Associate Director for Military Affairs, Central Intelligence Agency



- **NPS Liaison Officer Growth**
- **OJAG / AGC Memo – June '18**
- **Foundation Speaker Series**
- **SEED Project Process Improvement**
- **Alumni Affairs Program**



## FY-18 COMMAND CLIMATE SURVEY PRESIDENT'S REPORT

- FY-17 to FY-18 Comparison Results
- Areas of Improvement
- Areas of Continued Effort
- POA&M



## FY-17 to FY-18

# ORGANIZATIONAL EFFECTIVENESS

	Org Commit	Trust in Leader	Org Perform	Org Cohesion	Leader Cohesion	Job Satisfact	Org Process	Diversity Mgt	Help Seeking	Exhaust
Minority	3.20	2.80	2.90	2.90	2.84	3.20	2.79	2.77	2.96	2.97
Majority	3.09	2.71	2.80	2.81	2.66	3.12	2.75	2.71	3.00	2.76
Women	2.97	2.54	2.72	2.68	2.56	3.04	2.57	2.58	2.99	2.70
Men	3.14	2.81	2.85	2.88	2.74	3.17	2.84	2.79	2.96	2.87
Officer	3.31	3.21	3.12	3.12	3.16	3.27	3.14	3.09	3.07	2.97
Enlisted	2.84	3.02	2.97	2.85	2.91	2.84	2.85	3.09	3.20	2.86
Junior Enlisted	2.79	3.03	2.94	2.81	2.83	2.77	2.75	3.04	3.21	2.77
Senior Enlisted	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Junior Officer	3.29	3.48	3.25	3.21	3.21	3.25	3.20	3.14	2.86	2.71
Senior Officer	3.32	3.12	3.08	3.09	3.14	3.27	3.13	3.07	3.14	3.05
Military	3.14	3.14	3.07	3.02	3.07	3.11	3.03	3.09	3.12	2.93
Civilian	3.07	2.66	2.76	2.77	2.62	3.12	2.70	2.65	2.95	2.77
Junior Civilian	3.23	2.75	2.91	2.93	2.88	3.23	2.84	2.80	3.02	2.96
Senior Civilian	3.05	2.64	2.74	2.75	2.58	3.10	2.68	2.63	2.94	2.75

Naval Postgraduate School Organizational Effectiveness								
	Commit	Senior Leader	Org Perform	Group Cohesion	Trust in Leader	Job Satisfact	Org Process	Engage
Minority	75%	68%	75%	75%	81%	75%	59%	87%
Majority	74%	67%	70%	64%	78%	82%	59%	87%
Women	68%	56%	68%	62%	70%	77%	46%	87%
Men	75%	73%	71%	65%	83%	79%	64%	86%
Enlisted	64%	76%	74%	65%	83%	48%	65%	70%
Officer	84%	85%	79%	72%	91%	83%	82%	91%
Junior Enlisted	56%	71%	69%	57%	79%	37%	59%	63%
Senior Enlisted								
Junior Officer	97%	100%	94%	94%	100%	100%	97%	94%
Senior Officer	79%	79%	74%	63%	87%	77%	76%	90%
Military	77%	82%	77%	69%	88%	71%	76%	83%
Civilian	73%	63%	70%	64%	76%	76%	53%	86%
Junior Civilian	71%	63%	70%	67%	77%	76%	51%	83%
Senior Civilian	78%	65%	71%	64%	77%	76%	56%	90%
Non-Supervisor	68%	60%	67%	61%	74%	75%	48%	85%
Supervisor	88%	74%	79%	76%	84%	78%	68%	92%
Your Unit	72%	66%	70%	64%	78%	78%	57%	86%



Red = Below Service Average    Blue = Near Service Average    Green = Above Service Average

Improvement Needed Below 50% favorable responses    Caution Between 50-69% favorable responses    Adequate Between 70-89% favorable responses    Excellent 90% and above favorable responses



## FY-17 to FY-18 SAPR FINDINGS

	Perceptions of Safety	Chain of Command Support	Publicity of SAPR Information	Unit Reporting Climate	Zero Perceived Barriers to Reporting	Unit Prevention Climate	Restricted Reporting Knowledge
Minority	3.63	3.42	3.04	3.46	35.90	3.47	71.03
Majority	3.77	3.36	2.77	3.48	37.61	3.68	73.01
Women	3.59	3.23	2.70	3.31	25.18	3.65	69.64
Men	3.81	3.43	2.90	3.56	42.59	3.62	74.17
Officer	3.90	3.75	3.32	3.76	37.93	3.75	85.52
Enlisted	3.53	3.39	2.82	3.63	58.82	3.74	88.24
Junior Enlisted	3.42	3.30	2.67	3.53	61.54	3.70	87.69
Senior Enlisted	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Junior Officer	3.86	3.67	3.33	3.63	14.29	3.70	82.86
Senior Officer	3.91	3.78	3.32	3.80	45.45	3.77	86.36
Military	3.76	3.62	3.14	3.71	45.65	3.75	86.52
Civilian	3.73	3.31	2.77	3.43	34.24	3.62	70.44
Junior Civilian	3.76	3.35	2.87	3.57	36.84	3.65	73.68
Senior Civilian	3.72	3.31	2.75	3.41	33.85	3.61	69.96



	SAPR			
	SA Prevent	SA Report Knowledge	SA Response	SA Retaliation
Minority	73%	50%	85%	78%
Majority	76%	56%	88%	83%
Women	66%	49%	82%	72%
Men	80%	57%	89%	86%
Enlisted	80%	73%	86%	84%
Officer	91%	79%	95%	93%
Junior Enlisted	76%	69%	83%	81%
Senior Enlisted				
Junior Officer	95%	88%	89%	95%
Senior Officer	89%	76%	97%	93%
Military	87%	77%	92%	90%
Civilian	71%	47%	86%	78%
Junior Civilian	66%	45%	84%	73%
Senior Civilian	76%	50%	85%	82%
Non-Supervisor	67%	45%	83%	75%
Supervisor	84%	56%	95%	86%
Your Unit	74%	54%	86%	80%

Red = Below Service Average    Blue = Near Service Average    Green = Above Service Average

Improvement Needed Below 50% favorable responses    Caution Between 50-69% favorable responses    Adequate Between 70-89% favorable responses    Excellent 90% and above favorable responses



# Command Climate Update

## FY-17 to FY-18 EQUAL OPPORTUNITY/ EQUAL EMPLOYMENT OPPORTUNITY / FAIR TREATMENT FACTORS

	Sexist Behavior	Sexual Harass	Sex Discrim	Racist Behavior	Disabil Discrim	Racial Discrim	Age Discrim	Religious Discrim	Demean Behavior	Hazing Behavior
Minority	3.27	3.25	3.18	3.32	3.25	3.16	3.09	3.36	3.19	3.54
Majority	3.37	3.23	3.21	3.51	3.23	3.33	3.16	3.42	3.31	3.63
Women	3.23	3.10	2.93	3.40	3.16	3.15	3.03	3.34	3.10	3.55
Men	3.41	3.28	3.33	3.49	3.24	3.34	3.20	3.42	3.35	3.61
Officer	3.43	3.38	3.47	3.52	0.00	3.47	0.00	3.44	3.40	3.63
Enlisted	3.31	3.39	3.31	3.43	0.00	3.45	0.00	3.47	3.31	3.71
Junior Enlisted	3.26	3.38	3.26	3.44	0.00	3.44	0.00	3.49	3.23	3.64
Senior Enlisted	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Junior Officer	3.19	3.29	3.29	3.29	0.00	3.29	0.00	3.29	3.57	3.86
Senior Officer	3.50	3.41	3.53	3.59	0.00	3.53	0.00	3.48	3.35	3.56
Military	3.38	3.38	3.41	3.49	0.00	3.46	0.00	3.45	3.37	3.66
Civilian	3.34	3.18	3.15	3.46	3.21	3.25	3.12	3.38	3.25	3.58
Junior Civilian	3.37	3.18	3.18	3.41	3.18	3.26	3.08	3.41	3.22	3.57
Senior Civilian	3.34	3.18	3.14	3.46	3.21	3.24	3.13	3.38	3.26	3.58

Red = Below Service Average

Blue = Near Service Average

Green = Above Service Average



	EO/EEO/Fair Treatment			
	Inclusion	Discrim	SH	SH Retaliation
Minority	69%	65%	73%	77%
Majority	68%	77%	76%	82%
Women	59%	63%	67%	70%
Men	72%	81%	79%	86%
Enlisted	73%	72%	76%	84%
Officer	80%	88%	93%	95%
Junior Enlisted	69%	66%	71%	81%
Senior Enlisted				
Junior Officer	94%	87%	95%	100%
Senior Officer	75%	88%	91%	93%
Military	78%	82%	87%	91%
Civilian	65%	71%	72%	77%
Junior Civilian	63%	65%	68%	72%
Senior Civilian	69%	78%	77%	78%
Non-Supervisor	60%	67%	68%	73%
Supervisor	83%	85%	86%	87%
Your Unit	67%	73%	74%	79%

Improvement Needed  
Below 50% favorable responses

Caution  
Between 50-69% favorable responses

Adequate  
Between 70-89% favorable responses

Excellent  
90% and above favorable responses



## FY-18

### AREAS OF IMPROVEMENT

- Trust in Leadership, Organizational Cohesion
  - Especially amongst women
- Engagement from Leadership to staff and faculty
- Knowledge of SA Response and SA Retaliation



## FY-18 AREAS OF CONTINUED IMPROVEMENT

### Administrative Processes

- SAPR-C (Civilian) Training
  - Civilian women lack reporting knowledge
    - POAM: SAPR Training has been combined (MIL & CIV) at NPS GMT, will include New Employee Orientation as well
- Expanding Communication
  - Communication has improved, however not all employees are aware of how to access the information
    - POAM: Show personnel in mass training sessions how to navigate the new *MyNPS* intranet site; explore alternative ways to communicate



## FY-18 AREAS OF CONTINUED IMPROVEMENT

### Mentorship

- DPMAP online in FY-19
  - POAM: DPMAP includes scheduled meetings between employee and supervisor providing an opportunity for mentorship and feedback
- TWMS
  - Civilian employees unaware TWMS has a mentorship tab that matched mentors with mentees
    - POAM: Include training in New Employee Orientation and send bulk mail to current employees



## FY-18 AREAS OF CONTINUED IMPROVEMENT

### HR Practices and Perceptions

- Hiring Process too Slow
  - POAM: Stennis has reorganized which has begun to expedite the process, HR will continue to monitor and report on performance metrics
- HR Not Accessible (Key Lock on Outside Door)
  - POAM: Contracting Department move is in work, but an alternative is to place cypher locks on individual doors



## FY-18 AREAS OF CONTINUED IMPROVEMENT

### Leadership Concerns

- Few Women and Minorities in Leadership Roles
  - POAM: Inclusion and Diversity Council Charter complete with ongoing solicitation & selection of volunteers for council membership
- Workplace Conduct
  - POAM: Update current training to include USN training videos



## NPS performed review of 2018 Command Climate Survey Comments (113 pages) – Focus was on faculty comments

- General themes of Review (**from Faculty**)
  - **Goods:** Communication (From Top), Student Interaction, Pride in Mission
  - **Others:** Communication (From Mid/Lower), Staff Support (Comptroller, HR, Contracting), Bureaucratic Rules & Regs (Burden of Compliance), Tenured vs Non-tenured Friction (Favoritism, Little Upward Mobility), Diversity – Leadership All White Males (Deans, Chairs)
- NPS will execute 2019 Command Climate Survey for new President
  - Survey results to be evaluated by Command Resiliency Team (CRT), including dedicated Focus Groups, then out-briefed to leadership Team