Coalition for
National Security Research

March 1, 2018

The Honorable Thad Cochran
Chairman, Subcommittee on Defense
Committee on Appropriations
United States Senate
Washington, DC 20510

The Honorable Kay Granger
Chairwoman, Subcommittee on Defense
Committee on Appropriations
House of Representatives
Washington, DC 20515

The Honorable Richard Durbin
Ranking Member, Subcommittee on Defense
Committee on Appropriations
United States Senate
Washington, DC 20510

The Honorable Pete Visclosky
Ranking Member, Subcommittee on Defense
Committee on Appropriations
House of Representatives
Washington, DC 20515

Dear Chairman Cochran, Chairwoman Granger, and Ranking Members Durbin and Visclosky,

As Congress begins the fiscal year (FY) 2019 appropriations process, enclosed please find the Coalition for National Security Research's (CNSR) recommendations for funding levels for the Defense Science and Technology (S&T) program, and select program elements (PEs) that support innovations that ensure U.S. military technical superiority now and in the future. CNSR comprises the nation's top research universities and institutes, scientific and professional associations, and non-profit organizations that work with the U.S. Department of Defense (DOD) to advance the scientific research that helps create new weapon systems, defensive capabilities, and technologies that protect the warfighter and heal the wounded. CNSR members conducted more than $5.2 billion in DOD-sponsored scientific research in FY 2016.

While the President's FY 2019 budget request is an improvement over the FY 2018 budget request, it would reduce the Defense S&T program below levels in the House and Senate FY 2018 Defense Appropriations bills. Given that the 2018 National Defense Strategy acknowledges an erosion of the American military's longstanding competitive advantage, now is not the time to reduce our commitment to the Defense S&T program. Reducing overall Defense S&T funding, including basic research funding, would harm technological developments critical to maintaining our military superiority across land, sea, and air. More specifically, we are concerned that the FY 2019 budget request would reduce funding for the Army and Navy's University Research Initiatives, Army basic research programs overall, Army S&T, and the Defense-Wide Manufacturing S&T Program. These programs have proven track records of producing technologies and military capabilities used in the battlefield.

Our recommendations stem from *Innovation: An American Imperative* (Innovation Imperative), a statement signed by the CEOs of Northrop Grumman, Lockheed Martin, Boeing, and Microsoft and endorsed by over 500 other leading organizations from industry, academia, and science and engineering. Specifically, the Innovation Imperative urges Congress to provide steady and sustained growth in funding of at least four percent for basic scientific research at numerous agencies, including DOD. As a cosigner of the Innovation Imperative, CNSR believes that if the U.S. is to maintain its technological superiority, we must prioritize federal scientific research

investments and support policies that promote innovation. We believe the Innovation Imperative is consistent with the Administration's National Security Strategy, which says, "Losing our innovation and technological edge would have negative implications for American prosperity and power." Providing steady and sustained growth in Defense S&T, including defense basic research, is one way to ensure we do not lose our innovation and technological edge over our adversaries.

Basic Research PE Recommendations

The defense basic research programs serve as the seed corn that has given rise to many of the military technologies deployed on the battlefield today. As a result of investments in defense basic research, our military has utilized night vision, stealth technology, near-real-time delivery of battlefield information, navigation systems, and precision munitions. CNSR members have conducted basic research that helped create military drones, nanotechnology, portable detection systems for improvised explosive devices (IEDs), and dramatically improved telecommunications systems.

We remain particularly concerned about the Multidisciplinary University Research Initiative (MURI) program. Since FY 2014, the program has only been able to support slightly over 20 projects on an annual basis. Each year, there are roughly between 50 and 60 proposals that go unfunded. Additionally, FY 2017 award funding declined by 2.5 percent from FY 2014 and saw a decrease in university participation of approximately 16 percent. Many of the technologies mentioned above were supported by MURI funding. Underfunding this program could result in the military technologies of tomorrow being discovered by other nations willing to invest in fundamental scientific research. ***We urge Congress to increase funding for the MURI program and related programs such as Young Investigator Programs (YIP), National Defense Science & Engineering Graduate Fellowships, Vannevar Bush Faculty Fellowships, the Minerva Research Initiative, and the Manufacturing Engineering Education Program (MEEP).***

Applied Research PE Recommendations

Fundamental scientific research is just the first step to creating new military technologies. Researchers and scientists must apply the fundamental knowledge learned through basic research in order to solve military problems and develop the systems and components for potential solutions. The private sector is unable to solely assume the risk of applying fundamental knowledge to field the military technologies of tomorrow.

An example of a successful applied research program is the Defense-Wide Manufacturing Science and Technology Program, which provides resources for DOD's contribution to the Manufacturing USA Network. The public-private partnership established through the Network is helping move discoveries in the nation's universities and research laboratories to the defense industrial base, and focusing resources on developing the skilled workforce required to support a revitalized and modern U.S. manufacturing sector. Manufacturing USA is enabling innovation throughout the defense manufacturing industry, ensuring that the U.S. is able to domestically manufacture the world's most respected and capable weapons systems, such as the F-35 fighter jet, the M1-A2 tank, and the Ohio Class submarine, while also securing our economic prosperity. Furthermore, the Network acts as a catalyst to spur private investment in our national security

technology. In fact, every federal dollar invested in the Manufacturing USA Network so far has spurred $2.05 of private sector investment into technologies to further our national security.

Finally, the 2018 National Defense Strategy says, “We cannot expect success fighting tomorrow’s conflicts with yesterday’s weapons or equipment.” CNSR wholeheartedly agrees. It is absolutely critical that Congress support the enclosed program elements within the Defense S&T program and basic research programs that provide the resources to maintain our technical superiority over our adversaries. In addition to supporting robust funding for DOD’s science and engineering enterprise, we plan to work with you to urge the Department’s leadership to sustain increased funding levels for these activities in future years, ensuring the longevity of a science and technology pipeline that will meet the goals of the National Defense Strategy and guard against evolving threats.

We thank you for your commitment to American security and prosperity. Please do not hesitate to contact us cnsr.dodresearch@gmail.com if we can be of any service to you.

Sincerely,

John Latini
Chairman
Coalition for National Security Research (CNSR)

Coalition for
National Security Research

Coalition for National Security Research (CNSR) FY 2019 PE Recommendation

PE Number	Agency/Account	Program Element (PE) *($ in Thousands)*	FY17 Enacted	FY18 HAC-D	FY18 SAC-D	FY19 PBR	FY19 CNSR Request
		DOD RDT&E	***$72,301,587***	***$82,654,976***	***$85,967,322***	***$90,616,098***	***N/A***
		DOD 6.1 Basic Research	***$2,276,332***	***$2,279,529***	***$2,259,019***	***$2,269,206***	***$2,370,710***
		DOD 6.2 Applied Research	***$5,296,175***	***$5,242,866***	***$5,336,221***	***$5,100,359***	***$5,549,670***
		DOD 6.3 Advanced Technology Development	***$6,438,722***	***$6,277,251***	***$6,346,808***	***$6,292,102***	***$6,696,271***
		DOD Science & Technology (S&T)	***$14,011,229***	***$13,799,646***	***$13,942,048***	***$13,661,667***	***$14,616,651***
Army Basic Research Program Elements							
601102A	Army RDT&E	Defense Research Sciences	$293,116	$263,590	$273,590	$276,912	$304,841
601103A	Army RDT&E	University Research Initiatives	$69,166	$67,027	$67,027	$65,283	$71,933
601104A	Army RDT&E	University and Industry Research Centers	$112,280	$107,395	$102,395	$92,115	$116,771
		Army 6.1 Basic Research	***$486,943***	***$450,022***	***$455,022***	***$445,895***	***N/A***
Army Applied Research Program Elements							
602105A	Army RDT&E	Materials Technology	$82,533	$33,640	$58,640	$28,600	General Support
602120A	Army RDT&E	Sensors and Electronic Survivability	$51,109	$35,730	$81,230	$32,366	General Support
602307A	Army RDT&E	Advanced Weapons Technology	$53,803	$32,785	$27,785	$29,502	General Support
602308A	Army RDT&E	Advanced Concepts and Simulation	$30,688	$28,650	$28,650	$28,500	General Support
602716A	Army RDT&E	Human Factors Engineering Technology	$23,671	$24,127	$24,127	$24,131	General Support
602783A	Army RDT&E	Computer and Software Technology	$13,811	$14,041	$14,041	$14,958	General Support
603461A	Army RDT&E	High Performance Computing Modernization	$222,190	$182,331	$221,331	$183,322	General Support
		Army 6.2 Applied Research	***$1,220,274***	***$1,097,552***	***$1,119,382***	***$919,609***	***N/A***
		Army 6.3 Advanced Technology Development	***$1,360,065***	***$1,168,377***	***$1,364,177***	***$1,026,698***	***N/A***
		Army Science & Technology (S&T)	***$3,067,282***	***$2,715,951***	***$2,938,581***	***$2,392,202***	***N/A***
Navy Basic Research Program Elements							
601103N	Navy RDT&E	University Research Initiatives	$121,714	$134,130	$118,130	$119,433	$139,495
601153N	Navy RDT&E	Defense Research Sciences	$422,748	$458,333	$458,333	$458,708	$477,056
		Navy 6.1 Basic Research	***$562,970***	***$611,901***	***$595,901***	***$597,378***	***N/A***
Navy Applied Research Program Elements							
602131M	Navy RDT&E	Marine Corps Land Force Technology	$69,765	$53,936	$55,936	$59,607	General Support
602235N	Navy RDT&E	Common Picture Applied Research	$41,185	$36,450	$36,450	$36,348	General Support
602236	Navy RDT&E	Warfighter Sustainment Applied Research	$50,467	$48,649	$48,649	$56,197	General Support
602271N	Navy RDT&E	Electromagnetic Systems Applied Research	$120,941	$79,598	$85,598	$83,800	General Support
602435N	Navy RDT&E	Ocean Warfighting Environmental Applied Research	$81,618	$62,411	$49,911	$42,998	General Support
602750N	Navy RDT&E	Future Naval Capabilities Applied Research	$157,103	$149,836	$156,805	$147,771	General Support
603680N	Navy RDT&E	Manufacturing Technology Program	$56,712	$57,797	$57,797	$58,657	General Support
0604536N	Navy RDT&E	Advanced Undersea Prototyping	$59,479	$66,543	$66,543	$87,669	General Support
		Navy 6.2 Applied Research	***$980,326***	***$899,110***	***$962,579***	***$891,471***	***N/A***
		Navy 6.3 Advanced Technology Development	***$823,888***	***$686,019***	***$765,042***	***$750,995***	***N/A***
		Navy Science & Technology (S&T)	***$2,367,184***	***$2,197,030***	***$2,323,522***	***$2,239,844***	***N/A***
Air Force Basic Research Program Elements							
601102F	Air Force RDT&E	Defense Research Sciences	$380,812	$342,919	$342,919	$348,322	$396,044
601103F	Air Force RDT&E	University Research Initiatives	$150,044	$152,923	$147,923	$154,991	$161,191
601108F	Air Force RDT&E	High Energy Laser Research Initiatives	$14,168	$14,417	$14,417	$14,506	$15,086
		Air Force 6.1 Basic Research	***$545,024***	***$510,259***	***$505,259***	***$517,819***	***N/A***
Air Force Applied Research Program Elements							
602102F	Air Force RDT&E	Materials	$159,152	$129,264	$144,264	$125,373	General Support
602202F	Air Force RDT&E	Human Effectiveness Applied Research	$111,647	$128,284	$108,784	$112,518	General Support
602204F	Air Force RDT&E	Aerospace Sensors	$162,674	$152,782	$159,282	$166,534	General Support
602605F	Air Force RDT&E	Directed Energy Technology	$127,163	$132,993	$132,993	$141,898	General Support
602788F	Air Force RDT&E	Dominant Information Sciences and Methods	$166,650	$172,818	$189,318	$162,420	General Support
602890F	Air Force RDT&E	High Energy Laser Research	$42,300	$43,049	$43,049	$43,359	General Support
		Air Force 6.2 Applied Research	***$1,325,652***	***$1,332,114***	***$1,391,714***	***$1,312,342***	***N/A***
		Air Force 6.3 Advanced Technology Development	***$807,705***	***$794,017***	***$859,117***	***$814,797***	***N/A***
		Air Force Science & Technology (S&T)	***$2,678,381***	***$2,636,390***	***$2,756,090***	***$2,644,958***	***N/A***
Defense-Wide Basic Research Program Elements							
6010000BR	Defense-Wide RDT&E	DTRA Basic Research Initiatives	$35,436	$37,201	$37,201	$37,023	$38,689
601110D8Z	Defense-Wide RDT&E	Basic Research Initiatives	$68,154	$40,612	$40,612	$42,702	$70,880
601120D8Z	Defense-Wide RDT&E	National Defense Education Program	$79,345	$74,298	$103,298	$85,919	$107,430
		Defense-Wide 6.1 Basic Research	***$681,395***	***$707,347***	***$702,837***	***$708,114***	***N/A***
Defense-Wide Applied Research Program Elements							
602668D8Z	Defense-Wide RDT&E	Cyber Security Research	$12,183	$14,775	$14,775	$14,969	General Support
603680D8z	Defense-Wide RDT&E	Defense-Wide Manufacturing S&T Program	$158,398	$136,159	$176,159	$114,637	$191,159
603833D8Z	Defense-Wide RDT&E	Engineering Science and Technology	$22,659	$25,395	$25,395	$19,415	General Support
		Defense-Wide 6.2 Applied Research	***$1,769,923***	***$1,914,090***	***$1,862,546***	***$1,976,937***	***N/A***
		Defense-Wide 6.3 Advanced Technology Development	***$3,447,064***	***$3,628,838***	***$3,358,472***	***$3,699,612***	***N/A***
		Defense-Wide Science & Technology (S&T)	***$5,898,382***	***$6,250,275***	***$5,923,855***	***$6,384,663***	***N/A***
DARPA Program Elements							
	Defense-Wide DARPA	***DARPA Total***	***$2,889,036***	***$3,070,390***	***$3,030,461***	***$3,438,766***	***ıpport Request***
Medical Research Program Elements							
602787A	Army RDT&E	Medical Technology	$79,111	$85,434	$83,434	$90,075	General Support
603002A	Army RDT&E	Medical Advanced Technology	$107,365	$98,780	$75,780	$62,496	General Support
603807A	Army RDT&E	Medical Systems Advanced Development	$54,120	$33,491	$35,491	$34,284	General Support
	DHP RDT&E	Research, Development, Test and Evaluation Research	$9,097	$9,796	$9,796	N/A	N/A
	DHP RDT&E	Exploratory Development	$58,517	$64,881	$64,881	N/A	N/A
	DHP RDT&E	Undistributed Medical Research/Peer-Reviewed/CDMRPs	$1,279,200	$627,100	$931,500	$0	$1,330,368

The Coalition for National Security Research (CNSR) is a broad-based alliance of research universities and institutes, scientific and professional organizations, and non-profits committed to advocating for a strong Defense Science & Technology enterprise.