TITLE IV

RESEARCH, DEVELOPMENT, TEST AND EVALUATION

The fiscal year 2020 Department of Defense research, development, test and evaluation budget request totals $102,647,545,000. The Committee recommendation provides $100,691,612,000 for the research, development, test and evaluation accounts. The table below summarizes the Committee recommendations:

(DOLLARS IN THOUSANDS)

	BUDGET REQUEST	COMMITTEE RECOMMENDED	CHANGE FROM REQUEST
RECAPITULATION			
RESEARCH, DEVELOPMENT, TEST AND EVALUATION, ARMY.....	12,192,771	12,046,783	-145,988
RESEARCH, DEVELOPMENT, TEST AND EVALUATION, NAVY.....	20,270,499	19,125,865	-1,144,634
RESEARCH, DEVELOPMENT, TEST AND EVALUATION, AIR FORCE.	45,616,122	44,795,456	-820,666
RESEARCH, DEVELOPMENT, TEST AND EVALUATION, DEFENSE-WIDE.....	24,346,953	24,502,308	+155,355
OPERATIONAL TEST AND EVALUATION, DEFENSE.....	221,200	221,200	---
GRAND TOTAL, RDT&E.....	102,647,545	100,691,612	-1,955,933

REPROGRAMMING GUIDANCE FOR ACQUISITION ACCOUNTS

The Committee directs the Under Secretary of Defense (Comptroller) to submit a prior approval reprogramming to the congressional defense committees for any reprogramming of funding above a threshold of $10,000,000 for either a procurement or a research, development, test and evaluation line.

The Committee directs the Under Secretary of Defense (Comptroller) to continue to provide the congressional defense committees quarterly, spreadsheet-based DD Form 1416 reports for Service and defense-wide accounts in titles III and IV of this Act. Reports for titles III and IV shall comply with the guidance specified in the explanatory statement accompanying the Department of Defense Appropriations Act, 2006. The Department shall continue to follow the limitation that prior approval reprogrammings are set at either the specified dollar threshold or 20 percent of the procurement or research, development, test and evaluation line, whichever is less. These thresholds are cumulative from the base for reprogramming value as modified by any adjustments. Therefore, if the combined value of transfers into or out of a procurement (P–1) or research, development, test and evaluation (R–1) line exceeds the identified threshold, the Secretary of Defense must submit a prior approval reprogramming to the congressional defense committees. In addition, guidelines on the application of prior approval reprogramming procedures for congressional special interest items are established elsewhere in this report.

FUNDING INCREASES

The Committee directs that the funding increases outlined in these tables shall be provided only for the specific purposes indicated in the tables.

RESEARCH, DEVELOPMENT, TEST AND EVALUATION SPECIAL INTEREST ITEMS

Items for which additional funds have been provided as shown in the project level tables or in paragraphs using the phrase "only for" or "only to" in this report are congressional special interest items for the purpose of the Base for Reprogramming (DD Form 1414). Each of these items must be carried on the DD Form 1414 at the stated amount specifically addressed in the Committee report. These items remain special interest items whether or not they are repeated in a subsequent explanatory statement.

CONGRESSIONAL NOTIFICATIONS

The Committee supports the use of Other Transactional Authority (OTA) by the Department of Defense as an important tool to provide flexibility for new or expanded use of rapid development and prototyping. While not governed by the Federal Acquisition Regulations, OTAs result in major contract decisions which require congressional oversight. The Committee directs the Under Secretary of Defense for Acquisition and Sustainment to notify the congressional defense committees regarding major contract actions, including those using OTA authorities.

ADVANCED MANUFACTURING CENTER OF EXCELLENCE

The Committee is encouraged that the Secretary of the Army established a Center of Excellence for Advanced Manufacturing. The National Defense Authorization Act for Fiscal Year 2019 required the Under Secretary of Defense for Acquisition and Sustainment and the Under Secretary of Defense for Research and Engineering to work with each of the Service Secretaries to establish activities that demonstrate advanced manufacturing techniques and capabilities at depot-level activities or military arsenal facilities. The Committee is supportive of this effort and directs the Secretary of Defense to submit a report to the congressional defense committees not later than 90 days after the enactment of this Act providing further detail on the activities that have been identified by each Service.

SATELLITE COMMUNICATIONS

The current military satellite communications architecture comprises independently designed, purpose-built spacecraft; ground systems; and user terminals intended to meet differing mission requirements for strategic, wideband, and narrowband communications. In fiscal year 2019, the Secretaries of the Army, Navy, and Air Force were tasked with developing an integrated architecture and acquisition strategy for wideband and narrowband communications, and were directed to consider both government and commercial systems, user terminals, and network capabilities. The Committee notes that acquisition of narrowband satellite communications systems traditionally has been the responsibility of the Navy, while the Air Force has had responsibility for wideband and strategic satellite communications. The Committee encourages the Secretaries of the Navy and the Air Force to consider whether transferring responsibility for future narrowband satellite communications systems from the Navy to the Air Force will facilitate the development and implementation of an integrated communications architecture.

HYPERSONICS CAPABILITY DEVELOPMENT

Hypersonic weapons pose a dangerous new class of threat to national security. They operate at exceptionally high speeds and have the ability to maneuver unpredictably, making them challenging to track and difficult to intercept. Potential adversaries, such as Russia and China, have recognized the value of hypersonic weapons to offset United States military capabilities and hold United States forces at risk. Adversaries have made alarming progress in developing and demonstrating such weapons, far outstripping the pace of United States advancements. The Committee supports efforts aimed at developing capabilities to hold adversaries at risk, as well as capabilities to defend against growing hypersonic threats. Therefore, the Committee strongly supports increased emphasis on research, development, testing, and demonstration of hypersonics technologies and systems. However, the Committee is concerned that the rapid growth in hypersonic research has the potential to result in stove-piped, proprietary systems that duplicate capabilities and increase costs.

The Committee recommendation includes $85,000,000 for Hypersonics Capability Development to develop and implement an integrated science and technology roadmap for hypersonics and to establish a university consortium for hypersonics research and workforce development to support Department efforts to expedite testing, evaluation, and acquisition of hypersonic weapons systems, and to coordinate current and future research, development, test, and evaluation programs across the Department of Defense.

The Committee directs the Under Secretary of Defense for Research and Engineering to submit a report to the congressional defense committees not later than 90 days after the date of enactment of this Act, and quarterly updates thereafter, on its integrated science and technology roadmap describing the short-term, mid-term, and long-term goals of the Department; progress toward achieving the goals; associated investment needed to achieve the goals; and the plans for a university consortium.

HUMAN PERFORMANCE OPTIMIZATION RESEARCH

The Committee believes that developmental programs aimed at human performance optimization in the physical, cognitive, organizational, and social domains could improve military readiness. The Committee encourages the Service Secretaries to prioritize human performance optimization research efforts that will benefit servicemembers.

F–35 JOINT STRIKE FIGHTER DEVELOPMENTAL TEST FLEET

The Committee recommendation includes a legislative provision, similar to the provision included in the Department of Defense Appropriations Act, 2019, that would allow the Secretary of Defense to use funds made available for F–35 procurement and research, development, test and evaluation to modify up to six aircraft in total, including two aircraft of each variant, to a test configuration. The Committee directs the Secretary of Defense to follow the same guidelines for the use of this authority contained in House Report 115–952.

RESEARCH, DEVELOPMENT, TEST AND EVALUATION, ARMY

Fiscal year 2019 appropriation	$11,083,824,000
Fiscal year 2020 budget request	12,192,771,000
Committee recommendation	12,046,783,000
Change from budget request	−145,988,000

The Committee recommends an appropriation of $12,046,783,000 for Research, Development, Test and Evaluation, Army which will provide the following program in fiscal year 2020:

(DOLLARS IN THOUSANDS)

		BUDGET REQUEST	COMMITTEE RECOMMENDED	CHANGE FROM REQUEST
	RESEARCH, DEVELOPMENT, TEST & EVAL, ARMY			
	BASIC RESEARCH			
1	IN-HOUSE LABORATORY INDEPENDENT RESEARCH	---	---	---
2	DEFENSE RESEARCH SCIENCES	297,976	323,480	+25,504
3	UNIVERSITY RESEARCH INITIATIVES	65,858	87,858	+22,000
4	UNIVERSITY AND INDUSTRY RESEARCH CENTERS	86,164	111,164	+25,000
5	CYBER COLLABORATIVE RESEARCH ALLIANCE	4,982	4,982	---
	TOTAL, BASIC RESEARCH	454,980	527,484	+72,504
	APPLIED RESEARCH			
10	LETHALITY TECHNOLOGY	26,961	41,961	+15,000
11	ARMY APPLIED RESEARCH	25,319	28,319	+3,000
12	SOLDIER LETHALITY TECHNOLOGY	115,274	123,900	+8,626
13	GROUND TECHNOLOGY	35,199	51,399	+16,200
14	NEXT GENERATION COMBAT VEHICLE TECHNOLOGY	219,047	246,047	+27,000
15	NETWORK C3I TECHNOLOGY	114,516	132,516	+18,000
16	LONG RANGE PRECISION FIRES TECHNOLOGY	74,327	92,327	+18,000
17	FUTURE VERTICLE LIFT TECHNOLOGY	93,601	96,601	+3,000
18	AIR AND MISSILE DEFENSE TECHNOLOGY	50,771	72,771	+22,000
20	C3I APPLIED CYBER	18,947	18,947	---
38	MANPOWER/PERSONNEL/TRAINING TECHNOLOGY	20,873	20,873	---
40	MEDICAL TECHNOLOGY	99,155	108,155	+9,000
	TOTAL, APPLIED RESEARCH	893,990	1,033,816	+139,826
	ADVANCED TECHNOLOGY DEVELOPMENT			
42	MEDICAL ADVANCED TECHNOLOGY	42,030	81,030	+39,000
47	MANPOWER, PERSONNEL AND TRAINING ADVANCED TECHNOLOGY	11,038	11,038	---
50	ARMY ADVANCED TECHNOLOGY DEVELOPMENT	63,338	63,338	---
51	SOLDIER LETHALITY ADVANCED TECHNOLOGY	118,468	119,968	+1,500
52	GROUND ADVANCED TECHNOLOGY	12,593	38,593	+26,000
59	C3I CYBER ADVANCED DEVELOPMENT	13,769	13,769	---
60	HIGH PERFORMANCE COMPUTING MODERNIZATION PROGRAM	184,755	194,755	+10,000
61	NEXT GENERATION COMBAT VEHICLE ADVANCED TECHNOLOGY	160,035	215,035	+55,000
62	NETWORK C3I ADVANCED TECHNOLOGY	106,899	107,899	+1,000
63	LONG RANGE PRECISION FIRES ADVANCED TECHNOLOGY	174,386	179,386	+5,000
64	FUTURE VERTICAL LIFT ADVANCED TECHNOLOGY	151,640	167,640	+16,000

(DOLLARS IN THOUSANDS)

		BUDGET REQUEST	COMMITTEE RECOMMENDED	CHANGE FROM REQUEST
65	AIR AND MISSILE DEFENSE ADVANCED TECHNOLOGY	60,613	60,613	---
	TOTAL, ADVANCED TECHNOLOGY DEVELOPMENT	1,099,564	1,253,064	+153,500
	DEMONSTRATION & VALIDATION			
73	ARMY MISSILE DEFENSE SYSTEMS INTEGRATION	10,987	10,987	---
74	AIR AND MISSILE DEFENSE SYSTEMS ENGINEERING	15,148	17,480	+2,332
75	LANDMINE WARFARE AND BARRIER - ADV DEV	92,915	92,915	---
77	TANK AND MEDIUM CALIBER AMMUNITION	82,146	82,146	---
78	ARMORED SYSTEM MODERNIZATION - ADV DEV	157,656	157,656	---
79	SOLDIER SUPPORT AND SURVIVABILITY	6,514	6,514	---
80	TACTICAL ELECTRONIC SURVEILLANCE SYSTEM - AD	34,890	34,890	---
81	NIGHT VISION SYSTEMS ADVANCED DEVELOPMENT	251,011	206,011	-45,000
82	ENVIRONMENTAL QUALITY TECHNOLOGY	15,132	15,132	---
83	NATO RESEARCH AND DEVELOPMENT	5,406	5,406	---
84	AVIATION - ADV DEV	459,290	475,290	+16,000
85	LOGISTICS AND ENGINEER EQUIPMENT - ADV DEV	6,254	6,254	---
86	MEDICAL SYSTEMS - ADV DEV	31,175	36,975	+5,800
87	SOLDIER SYSTEMS - ADVANCED DEVELOPMENT	22,113	26,113	+4,000
88	ROBOTICS DEVELOPMENT	115,222	115,222	---
90	ELECTRONIC WARFARE TECHNOLOGY MATURATION (MIP)	18,043	18,043	---
91	ANALYSIS OF ALTERNATIVES	10,023	10,023	---
92	FUTURE TACTICAL UNMANNED AIRCRAFT SYSTEM (FTUAS)	40,745	42,745	+2,000
93	LOWER TIER AIR MISSILE DEFENSE (LTAMID) SENSOR	427,772	402,772	-25,000
94	TECHNOLOGY MATURATION INITIATIVES	196,676	161,676	-35,000
95	MANEUVER - SHORT RANGE AIR DEFENSE (M-SHORAD)	33,100	36,600	+3,500
97	ARMY ADVANCED COMPONENT DEVELOPMENT & PROTOTYPING	115,116	103,331	-11,785
99	SYNTHETIC TRAINING ENVIRONMENT REFINEMENT AND PROTOTYPING	136,761	111,761	-25,000
100	HYPERSONICS	228,000	239,000	+11,000
102	FUTURE INTERCEPTOR	8,000	---	-8,000
106	CYBERSPACE OPERATIONS FORCES AND FORCE SUPPORT	52,102	52,102	---
103	UNIFIED NETWORK TRANSPORT	39,600	29,700	-9,900
104	MOBILE MEDIUM RANGE MISSILE	20,000	---	-20,000
107	ASSURED POSITIONING, NAVIGATION AND TIMING (PNT)	192,562	150,110	-42,452

(DOLLARS IN THOUSANDS)

		BUDGET REQUEST	COMMITTEE RECOMMENDED	CHANGE FROM REQUEST
108	ARMY SPACE SYSTEMS INTEGRATION	104,996	104,996	---
	TOTAL, DEMONSTRATION & VALIDATION	2,929,355	2,751,850	-177,505
	ENGINEERING & MANUFACTURING DEVELOPMENT			
109	AIRCRAFT AVIONICS	29,164	29,164	---
110	ELECTRONIC WARFARE DEVELOPMENT	70,539	70,539	---
113	INFANTRY SUPPORT WEAPONS	106,121	107,621	+1,500
114	MEDIUM TACTICAL VEHICLES	2,152	2,152	---
115	JAVELIN	17,897	16,055	-1,842
116	FAMILY OF HEAVY TACTICAL VEHICLES	16,745	16,745	---
117	AIR TRAFFIC CONTROL	6,989	6,989	---
118	LIGHT TACTICAL WHEELED VEHICLES	10,465	2,965	-7,500
119	ARMORED SYSTEMS MODERNIZATION (ASM) - ENG DEV	310,152	293,964	-16,188
120	NIGHT VISION SYSTEMS - SDD	181,732	166,732	-15,000
121	COMBAT FEEDING, CLOTHING, AND EQUIPMENT	2,393	7,393	+5,000
122	NON-SYSTEM TRAINING DEVICES - SDD	27,412	27,412	---
123	AIR DEFENSE COMMAND, CONTROL AND INTELLIGENCE -SDD	43,502	53,502	+10,000
124	CONSTRUCTIVE SIMULATION SYSTEMS DEVELOPMENT	11,636	11,636	---
125	AUTOMATIC TEST EQUIPMENT DEVELOPMENT	10,915	10,915	---
126	DISTRIBUTIVE INTERACTIVE SIMULATIONS (DIS) - SDD	7,801	7,801	---
127	BRILLIANT ANTI-ARMOR SUBMUNITION (BAT)	25,000	20,000	-5,000
128	COMBINED ARMS TACTICAL TRAINER (CATT) CORE	9,241	9,241	---
129	BRIGADE ANALYSIS, INTEGRATION AND EVALUATION	42,634	38,303	-4,331
130	WEAPONS AND MUNITIONS - SDD	181,023	186,323	+5,300
131	LOGISTICS AND ENGINEER EQUIPMENT - SDD	103,226	115,226	+12,000
132	COMMAND, CONTROL, COMMUNICATIONS SYSTEMS - SDD	12,595	12,595	---
133	MEDICAL MATERIEL/MEDICAL BIOLOGICAL DEFENSE EQUIPMENT	48,264	48,264	---
134	LANDMINE WARFARE/BARRIER - SDD	39,208	37,108	-2,100
135	ARMY TACTICAL COMMAND & CONTROL HARDWARE & SOFTWARE	140,637	138,137	-2,500
136	RADAR DEVELOPMENT	105,243	105,243	---
137	GENERAL FUND ENTERPRISE BUSINESS SYSTEM (GFEBS)	46,683	46,683	---
138	FIREFINDER	17,294	17,294	---
139	SOLDIER SYSTEMS - WARRIOR DEM/VAL	5,803	4,803	-1,000
140	SUITE OF SURVIVABILITY ENHANCEMENT SYSTEMS -EMD	98,698	88,698	-10,000

(DOLLARS IN THOUSANDS)

		BUDGET REQUEST	COMMITTEE RECOMMENDED	CHANGE FROM REQUEST
141	ARTILLERY SYSTEMS	15,832	10,732	-5,100
142	INFORMATION TECHNOLOGY DEVELOPMENT	126,537	116,537	-10,000
143	INTEGRATED PERSONNEL AND PAY SYSTEM-ARMY (IPPS-A)	142,773	142,773	---
144	ARMORED MULTI-PURPOSE VEHICLE	96,730	96,730	---
145	INTEGRATED GROUND SECURITY SURVEILLANCE RESPONSE CAPABILITY (IGSSR-C)	6,699	6,699	---
146	JOINT TACTICAL NETWORK CENTER (JTNC)	15,882	15,882	---
147	JOINT TACTICAL NETWORK (JTN)	40,808	40,808	---
149	GROUND-BASED OPERATIONAL SURVEILLANCE SYSTEM EXPENDITIONARY (GBOSS-E)	3,847	3,847	---
150	TACTICAL SECURITY SYSTEM (TSS)	6,928	6,928	---
151	COMMON INFRARED COUNTERMEASURES (CIRCM)	34,488	34,488	---
152	COMBATING WEAPONS OF MASS DESTRUCTION (CWMD)	10,000	10,000	---
154	NUCLEAR BIOLOGICAL CHEMICAL RECONNAISSANCE VEHICLE	6,054	6,054	---
155	DEFENSIVE CYBER TOOL DEVELOPMENT	62,262	62,262	---
156	TACTICAL NETWORK RADIO SYSTEMS (LOW-TIER)	35,654	28,404	-7,250
157	CONTRACT WRITING SYSTEM	19,682	19,682	---
158	MISSILE WARNING SYSTEM MODERNIZATION (MWSM)	1,539	1,539	---
159	AIRCRAFT SURVIVABILITY DEVELOPMENT	64,557	64,557	---
160	INDIRECT FIRE PROTECTION CAPABILITY INC 2 - BLOCK 1	243,228	74,265	-168,963
161	GROUND ROBOTICS	41,308	41,308	---
162	EMERGING TECHNOLOGY INITIATIVES	45,896	41,616	-4,280
163	ARMY SYSTEM DEVELOPMENT & DEMONSTRATION	164,883	164,883	---
165	JOINT AIR-TO-GROUND MISSILE (JAGM)	9,500	9,500	---
166	ARMY INTEGRATED AIR AND MISSILE DEFENSE (AIAMD)	208,938	203,938	-5,000
167	MANNED GROUND VEHICLE	378,400	378,400	---
168	NATIONAL CAPABILITIES INTEGRATION	7,835	7,835	---
169	JOINT LIGHT TACTICAL VEHICLE ENG AND MANUFACTURING	2,732	7,232	+4,500
170	AVIATION GROUND SUPPORT EQUIPMENT	1,664	1,664	---
172	TROJAN - RH12	3,936	3,936	---
174	ELECTRONIC WARFARE DEVELOPMENT	19,675	19,675	---
	TOTAL, ENGINEERING & MANUFACTURING DEVELOPMENT	3,549,431	3,321,677	-227,754

(DOLLARS IN THOUSANDS)

		BUDGET REQUEST	COMMITTEE RECOMMENDED	CHANGE FROM REQUEST
	RDT&E MANAGEMENT SUPPORT			
176	THREAT SIMULATOR DEVELOPMENT	14,117	14,117	---
177	TARGET SYSTEMS DEVELOPMENT	8,327	8,327	---
178	MAJOR T&E INVESTMENT	136,565	136,565	---
179	RAND ARROYO CENTER	13,113	13,113	---
180	ARMY KWAJALEIN ATOLL	238,691	238,691	---
181	CONCEPTS EXPERIMENTATION PROGRAM	42,922	42,922	---
183	ARMY TEST RANGES AND FACILITIES	334,468	334,468	---
184	ARMY TECHNICAL TEST INSTRUMENTATION AND TARGETS	46,974	51,974	+5,000
185	SURVIVABILITY/LETHALITY ANALYSIS	35,075	35,075	---
186	AIRCRAFT CERTIFICATION	3,461	3,461	---
187	METEOROLOGICAL SUPPORT TO RDT&E ACTIVITIES	6,233	6,233	---
188	MATERIEL SYSTEMS ANALYSIS	21,342	21,342	---
189	EXPLOITATION OF FOREIGN ITEMS	11,168	11,168	---
190	SUPPORT OF OPERATIONAL TESTING	52,723	52,723	---
191	ARMY EVALUATION CENTER	60,815	60,815	---
192	ARMY MODELING AND SIMULATION X-CMD COLLABORATION AND INTEG	2,527	2,527	---
193	PROGRAMWIDE ACTIVITIES	58,175	58,175	---
194	TECHNICAL INFORMATION ACTIVITIES	25,060	30,060	+5,000
195	MUNITIONS STANDARDIZATION, EFFECTIVENESS AND SAFETY	44,458	44,458	---
196	ENVIRONMENTAL QUALITY TECHNOLOGY MGMT SUPPORT	4,681	4,681	---
197	MANAGEMENT HEADQUARTERS (RESEARCH AND DEVELOPMENT)	53,820	53,820	---
198	MILITARY GROUND-BASED CREW TECHNOLOGY	4,291	4,291	---
199	RONALD REAGAN BALLISTIC MISSILE DEFENSE TEST SITE	62,069	62,069	---
200	COUNTERINTEL AND HUMAN INTEL MODERNIZATION	1,050	1,050	---
201	ASSESSMENTS AND EVALUATIONS CYBER VULNERABILITIES	4,500	4,500	---
	TOTAL, RDT&E MANAGEMENT SUPPORT	1,286,625	1,296,625	+10,000

(DOLLARS IN THOUSANDS)

		BUDGET REQUEST	COMMITTEE RECOMMENDED	CHANGE FROM REQUEST
	OPERATIONAL SYSTEMS DEVELOPMENT			
204	MLRS PRODUCT IMPROVEMENT PROGRAM	22,877	17,615	-5,262
206	ANTI-TAMPER TECHNOLOGY SUPPORT	8,491	8,491	---
207	WEAPONS AND MUNITIONS PRODUCT IMPROVEMENT PROGRAMS	15,645	15,645	---
209	LONG RANGE PRECISION FIRES (LRPF)	164,182	156,682	-7,500
211	BLACKHAWK RECAP/MODERNIZATION	13,039	13,039	---
212	CHINOOK HELICOPTER PRODUCT IMPROVEMENT PROGRAM	174,371	174,371	---
213	FIXED WING AIRCRAFT	4,545	4,545	---
214	IMPROVED TURBINE ENGINE PROGRAM	206,434	206,434	---
216	AVIATION ROCKET SYSTEM PRODUCT IMPROVEMENT AND DEVELOPMENT	24,221	5,018	-19,203
217	UNMANNED AIRCRAFT SYSTEM UNIVERSAL PRODUCTS	32,016	32,016	---
218	APACHE FUTURE DEVELOPMENT	5,448	---	-5,448
219	ARMY OPERATIONAL SYSTEMS DEVELOPMENT	49,526	49,526	---
220	FAMILY OF BIOMETRICS	1,702	1,702	---
221	PATRIOT PRODUCT IMPROVEMENT	96,430	96,430	---
222	JOINT AUTOMATED DEEP OPERATION COORDINATION SYSTEM	47,398	47,398	---
223	COMBAT VEHICLE IMPROVEMENT PROGRAMS	334,463	290,545	-43,918
225	155MM SELF-PROPELLED HOWITZER IMPROVEMENTS	214,246	180,918	-33,328
226	AIRCRAFT MODIFICATIONS/PRODUCT IMPROVEMENT PROGRAMS	16,486	11,986	-4,500
227	AIRCRAFT ENGINE COMPONENT IMPROVEMENT PROGRAM	144	144	---
228	DIGITIZATION	5,270	5,270	---
229	MISSILE/AIR DEFENSE PRODUCT IMPROVEMENT PROGRAM	1,287	1,287	---
234	ENVIRONMENTAL QUALITY TECHNOLOGY - OPERATIONAL SYSTEM	732	732	---
235	LOWER TIER AIR AND MISSILE DEFENSE (AMD) SYSTEM	107,746	97,746	-10,000
236	GUIDED MULTIPLE-LAUNCH ROCKET SYSTEM (GMLRS)	138,594	128,594	-10,000
238	SECURITY AND INTELLIGENCE ACTIVITIES	13,845	13,845	---
239	INFORMATION SYSTEMS SECURITY PROGRAM	29,185	29,185	---
240	GLOBAL COMBAT SUPPORT SYSTEM	68,976	66,576	-2,400
241	WWMCCS/GLOBAL COMMAND AND CONTROL SYSTEM	2,073	2,073	---
245	INTEGRATED BROADCAST SERVICE (IBS)	459	459	---
246	TACTICAL UNMANNED AERIAL VEHICLES	5,097	5,097	---
247	AIRBORNE RECONNAISSANCE SYSTEMS	11,177	11,177	---
248	DISTRIBUTED COMMON GROUND/SURFACE SYSTEMS	38,121	38,121	---
249	MQ-1C GRAY EAGLE	---	5,000	+5,000

(DOLLARS IN THOUSANDS)

		BUDGET REQUEST	COMMITTEE RECOMMENDED	CHANGE FROM REQUEST
250	RQ-11 UAV	3,218	3,218	---
251	RQ-7 UAV	7,817	7,817	---
252	BIOMETRICS ENABLED INTELLIGENCE	2,000	2,000	---
253	END ITEM INDUSTRIAL PREPAREDNESS ACTIVITIES	59,848	79,848	+20,000
254	SATCOM GROUND ENVIRONMENT (SPACE)	34,169	34,169	---
255	JOINT TACTICAL GROUND SYSTEM	10,275	10,275	---
	TOTAL, OPERATIONAL SYSTEMS DEVELOPMENT	1,971,553	1,854,994	-116,559
9999	CLASSIFIED PROGRAMS	7,273	7,273	---
	TOTAL, RESEARCH, DEVELOPMENT, TEST & EVAL, ARMY	12,192,771	12,046,783	-145,988

EXPLANATION OF PROJECT LEVEL ADJUSTMENTS
[In thousands of dollars]

R-1		Budget Request	Committee Recommended	Change from Request
2	DEFENSE RESEARCH SCIENCES	297,976	323,480	25,504
	Excess growth		-9,846	
	Program increase - propulsion technology		10,000	
	Program increase - ballistics and materials technology		10,000	
	Program increase - flexible LED lighting		5,350	
	Program increase - military waste stream conversion		5,000	
	Program increase - multi-layer and dynamically-responsive macromolecular composites		5,000	
3	UNIVERSITY RESEARCH INITIATIVES	65,858	87,858	22,000
	Program increase		22,000	
4	UNIVERSITY AND INDUSTRY RESEARCH CENTERS	86,164	111,164	25,000
	Program increase - artificial intelligence		20,000	
	Program increase - materials in extreme dynamic environments		5,000	
10	LETHALITY TECHNOLOGY	26,961	41,961	15,000
	Program increase - medium range railgun weapon system		10,000	
	Program increase - additive manufacturing research		5,000	
11	ARMY APPLIED RESEARCH	25,319	28,319	3,000
	Program increase - materials recovery technologies for defense supply resiliency		3,000	
12	SOLDIER LETHALITY TECHNOLOGY	115,274	123,900	8,626
	Program increase		5,000	
	Program increase - medical simulation and training		3,626	
13	GROUND TECHNOLOGY	35,199	51,399	16,200
	Program increase - environmental quality enhanced coatings		5,000	
	Program increase - additive manufacturing for artificial intelligence and machine learning		5,000	
	Program increase - earthen structures soil enhancement		4,000	
	Program increase - M1 Abrams tank track system		2,200	
14	NEXT GENERATION COMBAT VEHICLE TECHNOLOGY	219,047	246,047	27,000
	Underexecution		-2,000	
	Program increase - prototyping energy smart autonomous ground systems		10,000	
	Program increase - high performance polymers		5,000	
	Program increase - highly electrified vehicles		5,000	
	Program increase - additive metals manufacturing		3,000	
	Program increase - RPG and IED protection		3,000	
	Program increase - modeling and simulation		3,000	
15	NETWORK C3I TECHNOLOGY	114,516	132,516	18,000
	Program increase - SATCOM technology		10,000	
	Program increase - composite flywheel technology		5,000	
	Program increase - small satellite technology		3,000	

R-1		Budget Request	Committee Recommended	Change from Request
16	LONG RANGE PRECISION FIRES TECHNOLOGY	74,327	92,327	18,000
	Underexecution		-3,000	
	Program increase - composite cannon tubes		10,000	
	Program increase - hybrid projectile technology		6,000	
	Program increase - additive manufacturing to support optimized fires		5,000	
17	FUTURE VERTICLE LIFT TECHNOLOGY	93,601	96,601	3,000
	Program increase - flight control technology safety and survivability		3,000	
18	AIR AND MISSILE DEFENSE TECHNOLOGY	50,771	72,771	22,000
	Program increase - sustainable energy materials and manufacturing		12,000	
	Program increase - high energy laser technology		10,000	
40	MEDICAL TECHNOLOGY	99,155	108,155	9,000
	Program increase - military force vector borne health protection		5,000	
	Program increase - heat stress on female soldiers		2,000	
	Program increase - burn patient transfer system		2,000	
42	MEDICAL ADVANCED TECHNOLOGY	42,030	81,030	39,000
	Program increase - peer-reviewed neurotoxin exposure treatment Parkinson's		16,000	
	Program increase - peer-reviewed neurofibromatosis research		15,000	
	Program increase - peer-reviewed military burn research		8,000	
51	SOLDIER LETHALITY ADVANCED TECHNOLOGY	118,468	119,968	1,500
	Program increase - subterranean warfighter advanced technology		1,500	
52	GROUND ADVANCED TECHNOLOGY	12,593	38,593	26,000
	Program increase - electrical system safety and reliability		5,000	
	Program increase - cold regions research		5,000	
	Program increase - high-performance concrete technology		5,000	
	Program increase - lightweight airfield matting		5,000	
	Program increase - secure management of energy generation and storage		3,000	
	Program increase - rapid low energy mobile manufacturing		3,000	
60	HIGH PERFORMANCE COMPUTING MODERNIZATION PROGRAM	184,755	194,755	10,000
	Program increase		10,000	
61	NEXT GENERATION COMBAT VEHICLE ADVANCED TECHNOLOGY	160,035	215,035	55,000
	Program increase - additive manufacturing for jointless hull		20,000	
	Program increase - carbon fiber and graphite foam technology		10,000	
	Program increase - hydrogen fuel cells		10,000	
	Program increase - ATE5.2 engine development		5,000	
	Program increase - additive manufacturing of critical components		5,000	
	Program increase - advanced water harvesting technology		5,000	

R-1		Budget Request	Committee Recommended	Change from Request
62	NETWORK C3I ADVANCED TECHNOLOGY	106,899	107,899	1,000
	Underexecution		-3,000	
	Program increase - unmanned aerial systems and aerostat operations		4,000	
63	LONG RANGE PRECISION FIRES ADVANCED TECHNOLOGY	174,386	179,386	5,000
	Program increase - high energy laser development		5,000	
64	FUTURE VERTICAL LIFT ADVANCED TECHNOLOGY	151,640	167,640	16,000
	Program increase - joint tactical aerial resupply vehicle		6,000	
	Program increase - advanced helicopter seating system		5,000	
	Program increase - adhesive technology		3,000	
	Program increase - helicopter emergency oil systems		2,000	
74	AIR AND MISSILE DEFENSE SYSTEMS ENGINEERING	15,148	17,480	2,332
	Excess support costs		-7,668	
	Program increase - artificial intelligence		10,000	
81	NIGHT VISION SYSTEMS ADVANCED DEVELOPMENT	251,011	206,011	-45,000
	IVAS insufficient justification		-45,000	
84	AVIATION - ADV DEV	459,290	475,290	16,000
	Program increase - FLRAA		16,000	
86	MEDICAL SYSTEMS - ADV DEV	31,175	36,975	5,800
	Program increase - transport telemedicine		5,800	
87	SOLDIER SYSTEMS - ADVANCED DEVELOPMENT	22,113	26,113	4,000
	Program increase - cold weather clothing		4,000	
92	FUTURE TACTICAL UNMANNED AIRCRAFT SYSTEM	40,745	42,745	2,000
	Program adjustment		-5,000	
	Program increase - air launched effects early systems analysis		5,000	
	Program increase - UAV fuel systems enhancements		2,000	
93	LOWER TIER AIR MISSILE DEFENSE (LTAMD) SENSOR	427,772	402,772	-25,000
	Rapid prototyping excess funding		-25,000	
94	TECHNOLOGY MATURATION INITIATIVES	196,676	161,676	-35,000
	Lack of defined schedule		-35,000	
95	MANEUVER - SHORT RANGE AIR DEFENSE (M-SHORAD)	33,100	36,600	3,500
	Excess testing costs		-4,000	
	Program increase - proximity air burst munition		7,500	
97	ARMY ADVANCED COMPONENT DEVELOPMENT & PROTOTYPING	115,116	103,331	-11,785
	Early to need		-11,785	

R-1		Budget Request	Committee Recommended	Change from Request
99	SYNTHETIC TRAINING ENVIRONMENT REFINEMENT AND PROTOTYPING	136,761	111,761	-25,000
	Excess to need		-25,000	
100	HYPERSONICS	228,000	239,000	11,000
	Insufficient justification		-20,000	
	Transfer from RDTE,DW line 124		31,000	
102	FUTURE INTERCEPTOR	8,000	0	-8,000
	Early to need		-8,000	
103	UNIFIED NETWORK TRANSPORT	39,600	29,700	-9,900
	Early to need		-9,900	
104	MOBILE MEDIUM RANGE MISSILE	20,000	0	-20,000
	Excess to need		-20,000	
107	ASSURED POSITIONING, NAVIGATION AND TIMING	192,562	150,110	-42,452
	Pseudolites cancellation		-42,452	
113	INFANTRY SUPPORT WEAPONS	106,121	107,621	1,500
	Program increase - cannon life extension program		1,500	
115	JAVELIN	17,897	16,055	-1,842
	Qualification testing early to need		-1,842	
118	LIGHT TACTICAL WHEELED VEHICLES	10,465	2,965	-7,500
	UAH redesign unjustified request		-7,500	
119	ARMORED SYSTEMS MODERNIZATION - ENG DEV	310,152	293,964	-16,188
	Excess testing and evaluation		-6,188	
	Product development excess growth		-10,000	
120	NIGHT VISION SYSTEMS - SDD	181,732	166,732	-15,000
	Excess IVAS program management		-15,000	
121	COMBAT FEEDING, CLOTHING, AND EQUIPMENT	2,393	7,393	5,000
	Program increase - icemaking capabilities		5,000	
123	AIR DEFENSE COMMAND, CONTROL AND INTELLIGENCE - SDD	43,502	53,502	10,000
	Historical underexecution		-5,000	
	Program increase - high bandwidth cryptomodule enhancements		10,000	
	Program increase - multi-layered tactical protection system		5,000	
127	BRILLIANT ANTI-ARMOR SUBMUNITION (BAT)	25,000	20,000	-5,000
	PFAL excess		-5,000	
129	BRIGADE ANALYSIS, INTEGRATION AND EVALUATION	42,634	38,303	-4,331
	RCO support excess		-4,331	

R-1		Budget Request	Committee Recommended	Change from Request
130	WEAPONS AND MUNITIONS - SDD	181,023	186,323	5,300
	NGSW small caliber ammo excess growth		-4,700	
	Program increase - precision guidance aft		10,000	
131	LOGISTICS AND ENGINEER EQUIPMENT - SDD	103,226	115,226	12,000
	Program increase - mobile camouflage net systems		7,000	
	Program increase - next generation HMMWV shop equipment contact maintenance vehicle		5,000	
134	LANDMINE WARFARE/BARRIER - SDD	39,208	37,108	-2,100
	NGABS unjustified growth		-2,100	
135	ARMY TACTICAL COMMAND & CONTROL HARDWARE & SOFTWARE	140,637	138,137	-2,500
	CPI2 testing previously funded		-2,500	
139	SOLDIER SYSTEMS - WARRIOR DEM/VAL	5,803	4,803	-1,000
	Historical underexecution		-1,000	
140	SUITE OF SURVIVABILITY ENHANCEMENT SYSTEMS	98,698	88,698	-10,000
	Historical underexecution		-10,000	
141	ARTILLERY SYSTEMS	15,832	10,732	-5,100
	Mobile howitzer testing early to need		-5,100	
142	INFORMATION TECHNOLOGY DEVELOPMENT	126,537	116,537	-10,000
	Historical underexecution		-10,000	
156	TACTICAL NETWORK RADIO SYSTEMS (LOW-TIER)	35,654	28,404	-7,250
	Excess growth		-7,250	
160	INDIRECT FIRE PROTECTION CAPABILITY INC 2 BLOCK 1	243,228	74,265	-168,963
	Transfer to MIP,A line 4		-168,963	
162	EMERGING TECHNOLOGY INITIATIVES	45,896	41,616	-4,280
	Testing and evaluation excess growth		-4,280	
166	ARMY INTEGRATED AIR AND MISSILE DEFENSE (AIAMD)	208,938	203,938	-5,000
	Testing and evaluation excess funding		-5,000	
169	JOINT LIGHT TACTICAL VEHICLE ENG AND MANUFACTURING	2,732	7,232	4,500
	Army requested transfer from OP,A line 6		4,500	
184	ARMY TECHNICAL TEST INSTRUMENTATION AND TARGETS	46,974	51,974	5,000
	Program increase - space and missile cyber security		5,000	
194	TECHNICAL INFORMATION ACTIVITIES	25,060	30,060	5,000
	Program increase - Army geospatial enterprise		5,000	

R-1		Budget Request	Committee Recommended	Change from Request
204	MLRS PRODUCT IMPROVEMENT PROGRAM	22,877	17,615	-5,262
	HIMARS excess growth		-5,262	
209	LONG RANGE PRECISION FIRES (LRPF)	164,182	156,682	-7,500
	Excess growth		-7,500	
216	AVIATION ROCKET SYSTEM PRODUCT IMPROVEMENT AND DEVELOPMENT	24,221	5,018	-19,203
	Integrated munitions launcher early to need		-19,203	
218	APACHE FUTURE DEVELOPMENT	5,448	0	-5,448
	Unjustified request		-5,448	
223	COMBAT VEHICLE IMPROVEMENT PROGRAMS	334,463	290,545	-43,918
	Program support excess growth		-2,000	
	Fleet enhancements early to need		-41,918	
225	155MM SELF-PROPELLED HOWITZER IMPROVEMENTS	214,246	180,918	-33,328
	Testing and evaluation early to need		-33,328	
226	AIRCRAFT MODIFICATIONS/PRODUCT IMPROVEMENT PROGRAMS	16,486	11,986	-4,500
	GPS and survivability previously funded		-4,500	
235	LOWER TIER AIR AND MISSILE DEFENSE (AMD) SYSTEM	107,746	97,746	-10,000
	Testing excess to need		-10,000	
236	GUIDED MULTIPLE-LAUNCH ROCKET SYSTEM	138,594	128,594	-10,000
	Testing excess to need		-10,000	
240	GLOBAL COMBAT SUPPORT SYSTEM	68,976	66,576	-2,400
	Excess to need		-2,400	
249	MQ-1C GRAY EAGLE	0	5,000	5,000
	Program increase - additional sensor development		5,000	
253	END ITEM INDUSTRIAL PREPAREDNESS ACTIVITIES	59,848	79,848	20,000
	Program increase - technical textiles		5,000	
	Program increase - nanoscale materials manufacturing		5,000	
	Program increase - glass separators for lithium batteries		5,000	
	Program increase - additive manufacturing technology insertion		5,000	

ADVANCED PROJECTILE SYSTEMS

The Committee is aware of ongoing Army efforts to develop enhanced lethality and accuracy for dismounted soldiers. The Committee believes that emerging manufacturing technologies play a critical role in these efforts by enabling rapid flexible munitions production and cost savings for advanced projectile systems. The Committee encourages the Secretary of the Army to continue development, fabrication, and testing of extended range hybrid and affordable precision gun-launched projectiles.

COLD SPRAY ADDITIVE MANUFACTURING

The Committee supports the advancement of cold spray additive manufacturing that can be utilized to produce high performance materials. These capabilities will enable increased performance, readiness, and sustainability by the transition of the advanced additive manufacturing processes into the Army.

ASSET PROTECTION TECHNOLOGIES

The Committee recognizes the Army's advancement in developing successful technologies that support warfighter survivability and lethality. Recent innovative technologies include thermal indicating paints, active sensor systems, novel power solutions, printed and embedded sensors for Army weapons systems, and flexible electronics. The Committee encourages the Secretary of the Army to develop, demonstrate, manufacture, and deploy advanced multifunctional materials and technologies that can be combined for customizable asset protection systems and increased weapon system capabilities.

CYBER AND ELECTRONIC WARFARE FOR THE DISMOUNTED SOLDIER

The Committee remains concerned about cyber and electronic warfare vulnerabilities of the dismounted soldier at the tactical edge. The Committee encourages the Secretary of the Army to continue to develop sensors and prototyping efforts for a lightweight, low-power device that can perform cyber and electronic warfare for situational awareness and force protection for dismounted soldiers.

AGILE MANUFACTURING MATERIALS PROCESSING

The Center for Agile Materials Manufacturing Science at the Army Research Laboratory provides essential tool and material process development and accelerates the ability of the Army to enhance industrial base capabilities for improving weapon system performance, speed, fuel efficiency, and force protection. The Committee supports these innovations to reduce part assemblies and lifecycle costs, as well as to enable point-of-need part production.

RESEARCH, DEVELOPMENT, TEST AND EVALUATION, NAVY

Fiscal year 2019 appropriation	$18,510,564,000
Fiscal year 2020 budget request	20,270,499,000
Committee recommendation	19,125,865,000
Change from budget request	−1,144,634,000

The Committee recommends an appropriation of $19,125,865,000 for Research, Development, Test and Evaluation, Navy which will provide the following program in fiscal year 2020:

(DOLLARS IN THOUSANDS)

		BUDGET REQUEST	COMMITTEE RECOMMENDED	CHANGE FROM REQUEST
	RESEARCH, DEVELOPMENT, TEST & EVAL, NAVY			
	BASIC RESEARCH			
1	UNIVERSITY RESEARCH INITIATIVES	116,850	151,850	+35,000
2	IN-HOUSE LABORATORY INDEPENDENT RESEARCH	19,121	19,121	---
3	DEFENSE RESEARCH SCIENCES	470,007	458,329	-11,678
	TOTAL, BASIC RESEARCH	605,978	629,300	+23,322
	APPLIED RESEARCH			
4	POWER PROJECTION APPLIED RESEARCH	18,546	18,546	---
5	FORCE PROTECTION APPLIED RESEARCH	119,517	156,517	+37,000
6	MARINE CORPS LANDING FORCE TECHNOLOGY	56,604	61,604	+5,000
7	COMMON PICTURE APPLIED RESEARCH	49,297	42,846	-6,451
8	WARFIGHTER SUSTAINMENT APPLIED RESEARCH	63,825	63,825	---
9	ELECTROMAGNETIC SYSTEMS APPLIED RESEARCH	83,497	83,497	---
10	OCEAN WARFIGHTING ENVIRONMENT APPLIED RESEARCH	63,894	78,894	+15,000
11	JOINT NON-LETHAL WEAPONS APPLIED RESEARCH	6,346	6,346	---
12	UNDERSEA WARFARE APPLIED RESEARCH	57,075	70,075	+13,000
13	FUTURE NAVAL CAPABILITIES APPLIED RESEARCH	154,755	150,572	-4,183
14	MINE AND EXPEDITIONARY WARFARE APPLIED RESEARCH	36,074	36,074	---
15	INNOVATIVE NAVAL PROTOTYPES (INP) APPLIED RESEARCH	153,062	141,893	-11,169
16	SCIENCE AND TECHNOLOGY MANAGEMENT - ONR HEADQUARTERS	73,961	73,961	---
	TOTAL, APPLIED RESEARCH	936,453	984,650	+48,197

(DOLLARS IN THOUSANDS)

		BUDGET REQUEST	COMMITTEE RECOMMENDED	CHANGE FROM REQUEST
	ADVANCED TECHNOLOGY DEVELOPMENT			
17	FORCE PROTECTION ADVANCED TECHNOLOGY	35,286	40,286	+5,000
18	ELECTROMAGNETIC SYSTEMS ADVANCED TECHNOLOGY	9,499	9,499	---
19	MARINE CORPS ADVANCED TECHNOLOGY DEMONSTRATION (ATD)	172,847	172,847	---
20	JOINT NON-LETHAL WEAPONS TECHNOLOGY DEVELOPMENT	13,307	13,307	---
21	FUTURE NAVAL CAPABILITIES ADVANCED TECHNOLOGY DEV	231,907	216,543	-15,364
22	MANUFACTURING TECHNOLOGY PROGRAM	60,138	60,138	---
23	WARFIGHTER PROTECTION ADVANCED TECHNOLOGY	4,849	37,149	+32,300
25	NAVY WARFIGHTING EXPERIMENTS AND DEMONSTRATIONS	67,739	67,739	---
26	MINE AND EXPEDITIONARY WARFARE ADVANCED TECHNOLOGY	13,335	13,335	---
27	INNOVATIVE NAVAL PROTOTYPES (INP) ADVANCED TECHNOLOGY	133,303	125,330	-7,973
	TOTAL, ADVANCED TECHNOLOGY DEVELOPMENT	742,210	756,173	+13,963
	DEMONSTRATION & VALIDATION			
28	AIR/OCEAN TACTICAL APPLICATIONS	32,643	32,643	---
29	AVIATION SURVIVABILITY	11,919	11,919	---
30	AIRCRAFT SYSTEMS	1,473	1,473	---
31	ASW SYSTEMS DEVELOPMENT	7,172	7,172	---
32	TACTICAL AIRBORNE RECONNAISSANCE	3,419	3,419	---
33	ADVANCED COMBAT SYSTEMS TECHNOLOGY	64,694	58,467	-6,227
34	SURFACE AND SHALLOW WATER MINE COUNTERMEASURES	507,000	307,030	-199,970
35	SURFACE SHIP TORPEDO DEFENSE	15,800	15,800	---
36	CARRIER SYSTEMS DEVELOPMENT	4,997	4,997	---
37	PILOT FISH	291,148	214,935	-76,213
38	RETRACT LARCH	11,980	11,980	---
39	RETRACT JUNIPER	129,163	121,714	-7,449
40	RADIOLOGICAL CONTROL	689	689	---
41	SURFACE ASW	1,137	1,137	---
42	ADVANCED SUBMARINE SYSTEM DEVELOPMENT	148,756	147,751	-1,005

(DOLLARS IN THOUSANDS)

		BUDGET REQUEST	COMMITTEE RECOMMENDED	CHANGE FROM REQUEST
43	SUBMARINE TACTICAL WARFARE SYSTEMS	11,192	11,192	---
44	SHIP CONCEPT ADVANCED DESIGN	81,846	57,846	-24,000
45	SHIP PRELIMINARY DESIGN & FEASIBILITY STUDIES	69,084	64,084	-5,000
46	ADVANCED NUCLEAR POWER SYSTEMS	181,652	181,652	---
47	ADVANCED SURFACE MACHINERY SYSTEMS	25,408	35,408	+10,000
48	CHALK EAGLE	64,877	47,310	-17,567
49	LITTORAL COMBAT SHIP (LCS)	9,934	9,934	---
50	COMBAT SYSTEM INTEGRATION	17,251	17,251	---
51	OHIO REPLACEMENT PROGRAM	419,051	419,051	---
52	LITTORAL COMBAT SHIP (LCS) MISSION MODULES	108,505	105,595	-2,910
53	AUTOMATED TEST AND RE-TEST	7,653	37,653	+30,000
54	FRIGATE DEVELOPMENT	59,007	59,007	---
55	CONVENTIONAL MUNITIONS	9,988	9,988	---
56	MARINE CORPS GROUND COMBAT/SUPPORT SYSTEM	86,464	7,610	-78,854
57	JOINT SERVICE EXPLOSIVE ORDNANCE DEVELOPMENT	33,478	33,478	---
58	OCEAN ENGINEERING TECHNOLOGY DEVELOPMENT	5,619	5,619	---
59	ENVIRONMENTAL PROTECTION	20,564	20,564	---
60	NAVY ENERGY PROGRAM	26,514	41,514	+15,000
61	FACILITIES IMPROVEMENT	3,440	3,440	---
62	CHALK CORAL	346,800	307,392	-39,408
63	NAVY LOGISTIC PRODUCTIVITY	3,857	3,857	---
64	RETRACT MAPLE	258,519	258,519	---
65	LINK PLUMERIA	403,909	392,839	-11,070
66	RETRACT ELM	63,434	63,434	---
67	LINK EVERGREEN	184,110	115,612	-68,498
68	NATO RESEARCH AND DEVELOPMENT	7,697	7,697	---
69	LAND ATTACK TECHNOLOGY	9,086	9,086	---
70	JOINT NONLETHAL WEAPONS TESTING	28,466	28,466	---
71	JOINT PRECISION APPROACH AND LANDING SYSTEMS	51,341	51,341	---
72	DIRECTED ENERGY AND ELECTRIC WEAPON SYSTEMS	118,169	125,919	+7,750
73	F/A-18 INFRARED SEARCH AND TRACK (IRST)	113,456	112,416	-1,040
74	DIGITAL WARFARE OFFICE	50,120	22,000	-28,120

(DOLLARS IN THOUSANDS)

		BUDGET REQUEST	COMMITTEE RECOMMENDED	CHANGE FROM REQUEST
75	SMALL AND MEDIUM UNMANNED UNDERSEA VEHICLES	32,527	32,527	---
76	UNMANNED UNDERSEA VEHICLE CORE TECHNOLOGIES	54,376	41,910	-12,466
77	RAPID PROTOTYPING, EXPERIMENTATION AND DEMONSTRATION	36,197	5,000	+31,197
78	LARGE UNMANNED UNDERSEA VEHICLES	68,310	68,310	---
79	GERALD R. FORD CLASS NUCLEAR AIRCRAFT CARRIER	121,310	112,310	-9,000
80	LITTORAL AIRBORNE MCM	17,248	20,248	+3,000
81	SURFACE MINE COUNTERMEASURES	18,735	18,735	---
82	TACTICAL AIR DIRECTIONAL INFRARED COUNTERMEASURES	68,346	58,449	-9,897
84	NEXT GENERATION LOGISTICS	4,420	16,971	+12,551
85	RAPID TECHNOLOGY CAPABILITY PROTOTYPE	4,558	4,558	---
86	LX (R)	12,500	12,500	---
87	ADVANCED UNDERSEA PROTOTYPING	181,967	164,437	-17,530
88	COUNTER UNMANNED AIRCRAFT SYSTEMS (C-UAS)	5,500	5,500	---
89	PRECISION STRIKE WEAPONS DEVELOPMENT PROGRAM	718,148	534,438	-183,710
90	SPACE & ELECTRONIC WARFARE (SEW) ARCHITECTURE/ENGINE	5,263	5,263	---
91	OFFENSIVE ANTI-SURFACE WARFARE WEAPON DEVELOPMENT	65,419	65,419	---
92	ASW SYSTEMS DEVELOPMENT - MIP	9,991	9,991	---
93	ADVANCED TACTICAL UNMANNED AIRCRAFT SYSTEM	21,157	48,657	+27,500
95	ELECTRONIC WARFARE DEVELOPMENT - MIP	609	609	---
	TOTAL, DEMONSTRATION & VALIDATION	5,559,062	4,833,732	-725,330
	ENGINEERING & MANUFACTURING DEVELOPMENT			
96	TRAINING SYSTEM AIRCRAFT	15,514	15,514	---
97	OTHER HELO DEVELOPMENT	28,835	31,812	+2,977
98	AV-8B AIRCRAFT - ENG DEV	27,441	27,441	---
100	STANDARDS DEVELOPMENT	3,642	3,642	---
101	MULTI-MISSION HELICOPTER UPGRADE DEVELOPMENT	19,196	19,196	---
104	WARFARE SUPPORT SYSTEM	8,601	8,601	---
105	TACTICAL COMMAND SYSTEM	77,232	73,920	-3,312
106	ADVANCED HAWKEYE	232,752	191,071	-41,681
108	H-1 UPGRADES	65,359	60,991	-4,368
109	ACOUSTIC SEARCH SENSORS	47,013	47,013	---
110	V-22A	185,105	176,026	-9,079
111	AIR CREW SYSTEMS DEVELOPMENT	21,172	19,172	-2,000
112	EA-18	143,585	123,637	-19,948

(DOLLARS IN THOUSANDS)

		BUDGET REQUEST	COMMITTEE RECOMMENDED	CHANGE FROM REQUEST
113	ELECTRONIC WARFARE DEVELOPMENT	116,811	106,049	-10,762
114	EXECUTIVE HELO DEVELOPMENT	187,436	164,985	-22,451
116	NEXT GENERATION JAMMER (NGJ)	524,261	444,127	-80,134
117	JOINT TACTICAL RADIO SYSTEM - NAVY (JTRS-NAVY)	192,345	190,689	-1,656
118	NEXT GENERATION JAMMER (NGJ) INCREMENT II	111,068	90,419	-20,649
119	SURFACE COMBATANT COMBAT SYSTEM ENGINEERING	415,625	405,201	-10,424
120	LPD-17 CLASS SYSTEMS INTEGRATION	640	640	---
121	SMALL DIAMETER BOMB (SDB)	50,096	50,096	---
122	STANDARD MISSILE IMPROVEMENTS	232,391	227,391	-5,000
123	AIRBORNE MCM	10,916	10,916	---
124	NAVAL INTEGRATED FIRE CONTROL-COUNTER AIR SYSTEMS ENG.	33,379	30,084	-3,295
125	ADVANCED ABOVE WATER SENSORS	34,554	30,179	-4,375
126	SSN-688 AND TRIDENT MODERNIZATION	84,663	78,625	-6,038
127	AIR CONTROL	44,923	44,923	---
128	SHIPBOARD AVIATION SYSTEMS	10,632	10,632	---
129	COMBAT INFORMATION CENTER CONVERSION	16,094	16,094	---
130	AIR AND MISSILE DEFENSE RADAR (AMDR) SYSTEM	55,349	52,349	-3,000
131	ADVANCED ARRESTING GEAR (AAG)	123,490	122,495	-995
132	NEW DESIGN SSN	121,010	121,010	---
133	SUBMARINE TACTICAL WARFARE SYSTEM	62,426	62,426	---
134	SHIP CONTRACT DESIGN/LIVE FIRE T&E	46,809	46,809	---
135	NAVY TACTICAL COMPUTER RESOURCES	3,692	3,692	---
137	MINE DEVELOPMENT	28,964	28,964	---
138	LIGHTWEIGHT TORPEDO DEVELOPMENT	148,349	115,541	-32,808
139	JOINT SERVICE EXPLOSIVE ORDNANCE DEVELOPMENT	8,237	8,237	---
140	USMC GROUND COMBAT/SUPPORTING ARMS SYSTEMS - ENG DEV	22,000	20,085	-1,915
141	PERSONNEL, TRAINING, SIMULATION, AND HUMAN FACTORS	5,500	5,500	---
142	JOINT STANDOFF WEAPON SYSTEMS	18,725	16,225	-2,500
143	SHIP SELF DEFENSE (DETECT & CONTROL)	192,603	180,085	-12,518
144	SHIP SELF DEFENSE (ENGAGE: HARD KILL)	137,268	128,768	-8,500
145	SHIP SELF DEFENSE (ENGAGE: SOFT KILL/EW)	97,363	95,282	-2,081
146	INTELLIGENCE ENGINEERING	26,710	30,610	+3,900
147	MEDICAL DEVELOPMENT	8,181	33,181	+25,000

(DOLLARS IN THOUSANDS)

		BUDGET REQUEST	COMMITTEE RECOMMENDED	CHANGE FROM REQUEST
148	NAVIGATION/ID SYSTEM	40,755	45,755	+5,000
149	JOINT STRIKE FIGHTER (JSF) - EMD	1,710	1,710	---
150	JOINT STRIKE FIGHTER (JSF)	1,490	1,490	---
153	INFORMATION TECHNOLOGY DEVELOPMENT	1,494	1,494	---
154	INFORMATION TECHNOLOGY DEVELOPMENT	384,162	304,364	-79,798
155	ANTI-TAMPER TECHNOLOGY SUPPORT	4,882	4,882	---
156	CH-53K	516,955	516,955	---
158	MISSION PLANNING	75,886	72,566	-3,320
159	COMMON AVIONICS	43,187	37,055	-6,132
160	SHIP TO SHORE CONNECTOR (SSC)	4,909	4,909	---
161	T-AO (X)	1,682	1,682	---
162	UNMANNED CARRIER AVIATION	671,258	590,425	-80,833
163	JOINT AIR-TO-GROUND MISSILE (JAGM)	18,393	12,576	-5,817
165	MULTI-MISSION MARITIME AIRCRAFT (MMA)	21,472	21,472	---
166	MULTI-MISSION MARITIME AIRCRAFT (MMA) INCREMENT 3	177,234	158,199	-19,035
167	MARINE CORPS ASSAULT VEHICLES SYSTEM DEVELOPMENT AND DEMO	77,322	68,136	-9,186
168	JOINT LIGHT TACTICAL VEHICLE (JLTV) SYSTEM DEVELOPMENT AND DEMO	2,105	2,105	---
169	DDG-1000	111,435	111,435	---
172	TACTICAL CRYPTOLOGIC SYSTEMS	101,339	91,091	-10,248
173	CYBER OPERATIONS TECHNOLOGY DEVELOPMENT	26,406	756	-25,650
	TOTAL, ENGINEERING & MANUFACTURING DEVELOPMENT	6,332,033	5,819,402	-512,631
174	RDT&E MANAGEMENT SUPPORT THREAT SIMULATOR DEVELOPMENT	66,678	62,678	-4,000
175	TARGET SYSTEMS DEVELOPMENT	12,027	12,027	---
176	MAJOR T&E INVESTMENT	85,348	102,348	+17,000
178	STUDIES AND ANALYSIS SUPPORT - NAVY	3,908	3,908	---
179	CENTER FOR NAVAL ANALYSES	47,669	47,669	---
180	NEXT GENERATION FIGHTER	20,698	20,698	---

(DOLLARS IN THOUSANDS)

		BUDGET REQUEST	COMMITTEE RECOMMENDED	CHANGE FROM REQUEST
182	TECHNICAL INFORMATION SERVICES	988	988	---
183	MANAGEMENT, TECHNICAL & INTERNATIONAL SUPPORT	102,401	113,844	+11,443
184	STRATEGIC TECHNICAL SUPPORT	3,742	3,742	---
186	RDT&E SHIP AND AIRCRAFT SUPPORT	93,872	93,872	---
187	TEST AND EVALUATION SUPPORT	394,020	390,528	-3,492
188	OPERATIONAL TEST AND EVALUATION CAPABILITY	25,145	25,145	---
189	NAVY SPACE AND ELECTRONIC WARFARE (SEW) SUPPORT	15,773	12,652	-3,121
190	SEW SURVEILLANCE/RECONNAISSANCE SUPPORT	8,402	4,201	-4,201
191	MARINE CORPS PROGRAM WIDE SUPPORT	37,265	29,130	-8,135
192	MANAGEMENT HEADQUARTERS - R&D	39,673	39,673	---
193	WARFARE INNOVATION MANAGEMENT	28,750	28,750	---
196	INSIDER THREAT	2,645	2,645	---
197	MANAGEMENT HEADQUARTERS (DEPARTMENTAL SUPPORT ACTIVITIES)	1,460	1,460	---
	TOTAL, RDT&E MANAGEMENT SUPPORT	990,464	995,958	+5,494
202	OPERATIONAL SYSTEMS DEVELOPMENT HARPOON MODIFICATIONS	2,302	2,302	---
203	F-35 C2D2	422,881	422,881	---
204	F-35 C2D2	383,741	383,741	---
205	COOPERATIVE ENGAGEMENT CAPABILITY (CEC)	127,924	126,404	-1,520
207	STRATEGIC SUB & WEAPONS SYSTEM SUPPORT	157,676	124,492	-33,184
208	SSBN SECURITY TECHNOLOGY PROGRAM	43,354	43,354	---
209	SUBMARINE ACOUSTIC WARFARE DEVELOPMENT	6,815	6,815	---
210	NAVY STRATEGIC COMMUNICATIONS	31,174	28,674	-2,500
211	F/A-18 SQUADRONS	213,715	207,911	-5,804
213	SURFACE SUPPORT	36,389	34,602	-1,787
214	TOMAHAWK AND TOMAHAWK MISSION PLANNING CENTER (TMPC)	320,134	286,799	-33,335
215	INTEGRATED SURVEILLANCE SYSTEM	88,382	88,382	---
216	SHIP-TOWED ARRAY SURVEILLANCE SYSTEMS	14,449	14,449	---
217	AMPHIBIOUS TACTICAL SUPPORT UNITS	6,931	6,931	---
218	GROUND/AIR TASK ORIENTED RADAR	23,891	23,891	---
219	CONSOLIDATED TRAINING SYSTEMS DEVELOPMENT	129,873	128,673	-1,200
221	ELECTRONIC WARFARE (EW) READINESS SUPPORT	82,325	62,434	-19,891
222	HARM IMPROVEMENT	138,431	132,371	-6,060

(DOLLARS IN THOUSANDS)

		BUDGET REQUEST	COMMITTEE RECOMMENDED	CHANGE FROM REQUEST
224	SURFACE ASW COMBAT SYSTEM INTEGRATION	29,572	29,572	---
225	MK-48 ADCAP	85,973	72,265	-13,708
226	AVIATION IMPROVEMENTS	125,461	122,894	-2,567
227	OPERATIONAL NUCLEAR POWER SYSTEMS	106,192	106,192	---
228	MARINE CORPS COMMUNICATIONS SYSTEMS	143,317	142,899	-418
229	COMMON AVIATION COMMAND AND CONTROL SYSTEM	4,489	4,489	---
230	MARINE CORPS GROUND COMBAT/SUPPORTING ARMS SYSTEMS	51,788	51,788	---
231	MARINE CORPS COMBAT SERVICES SUPPORT	37,761	39,528	+1,767
232	USMC INTELLIGENCE/ELECTRONIC WARFARE SYSTEMS (MIP)	21,458	21,458	---
233	AMPHIBIOUS ASSAULT VEHICLE	5,476	5,476	---
234	TACTICAL AIM MISSILES	19,488	19,488	---
235	ADVANCED MEDIUM RANGE AIR-TO-AIR MISSILE (AMRAAM)	39,029	34,191	-4,838
239	SATELLITE COMMUNICATIONS (SPACE)	34,344	34,344	---
240	CONSOLIDATED AFLOAT NETWORK ENTERPRISE SERVICES	22,873	22,873	---
241	INFORMATION SYSTEMS SECURITY PROGRAM	41,853	41,853	---
243	JOINT MILITARY INTELLIGENCE PROGRAMS	8,913	8,913	---
244	TACTICAL UNMANNED AERIAL VEHICLES	9,451	9,451	---
245	UAS INTEGRATION AND INTEROPERABILITY	42,315	40,446	-1,869
246	DISTRIBUTED COMMON GROUND SYSTEMS/SURFACE SYSTEMS	22,042	22,042	---
248	MQ-4C TRITON	11,784	11,784	---
249	MQ-8 UAV	29,618	29,618	---
250	RQ-11 UAV	509	---	-509
251	SMALL (LEVEL 0) TACTICAL UAS (STUASLO)	11,545	3,533	-8,012

(DOLLARS IN THOUSANDS)

		BUDGET REQUEST	COMMITTEE RECOMMENDED	CHANGE FROM REQUEST
252	RQ-21A	10,914	6,000	-4,914
253	MULTI-INTELLIGENCE SENSOR DEVELOPMENT	70,612	70,612	---
254	UNMANNED AERIAL SYSTEMS (UAS) PAYLOADS (MIP)	3,704	6,704	+3,000
255	RQ-4 MODERNIZATION	202,346	202,346	---
256	MODELING AND SIMULATION SUPPORT	7,119	12,119	+5,000
257	DEPOT MAINTENANCE (NON-IF)	38,182	48,182	+10,000
258	MARITIME TECHNOLOGY (MARITECH)	6,779	6,779	---
259	SATELLITE COMMUNICATIONS (SPACE)	15,868	15,868	---
	TOTAL, OPERATIONAL SYSTEMS DEVELOPMENT	3,491,162	3,368,813	-122,349
9999	CLASSIFIED PROGRAMS	1,613,137	1,737,837	+124,700
	TOTAL, RESEARCH, DEVELOPMENT, TEST & EVAL, NAVY	20,270,499	19,125,865	-1,144,634

EXPLANATION OF PROJECT LEVEL ADJUSTMENTS
[In thousands of dollars]

R-1		Budget Request	Committee Recommended	Change from Request
1	UNIVERSITY RESEARCH INITIATIVES	116,850	151,850	35,000
	Program increase		20,000	
	Program increase - defense university research instrumentation program		10,000	
	Program increase - multi-disciplinary university research initiative program		5,000	
3	DEFENSE RESEARCH SCIENCES	470,007	458,329	-11,678
	Mathematics, computer, and information sciences unjustified growth		-11,678	
5	FORCE PROTECTION APPLIED RESEARCH	119,517	156,517	37,000
	Program increase - energy resilience efforts		5,000	
	Program increase - coastal environmental research		5,000	
	Program increase - power generation and storage research		5,000	
	Program increase - hybrid composite research		2,500	
	Program increase - platform reliability and advanced technical research		3,500	
	Program increase - advanced energetics research		10,000	
	Program increase - navy power and energy systems technology		6,000	
6	MARINE CORPS LANDING FORCE TECHNOLOGY	56,604	61,604	5,000
	Program increase		5,000	
7	COMMON PICTURE APPLIED RESEARCH	49,297	42,846	-6,451
	Applied information sciences for decision making excess growth		-6,451	
10	OCEAN WARFIGHTING ENVIRONMENT APPLIED RESEARCH	63,894	78,894	15,000
	Program increase - naval special warfare		5,000	
	Program increase - task force ocean		10,000	
12	UNDERSEA WARFARE APPLIED RESEARCH	57,075	70,075	13,000
	Program increase - undersea sensing and communications		5,000	
	Program increase - energetics and warhead technology development		8,000	
13	FUTURE NAVAL CAPABILITIES APPLIED RESEARCH	154,755	150,572	-4,183
	Sea warfare and weapons excess growth		-4,183	
15	INNOVATIVE NAVAL PROTOTYPES (INP) APPLIED RESEARCH	153,062	141,893	-11,169
	Artificial intelligence excess growth		-7,435	
	Cyber excess growth		-3,734	

R-1		Budget Request	Committee Recommended	Change from Request
17	FORCE PROTECTION ADVANCED TECHNOLOGY	35,286	40,286	5,000
	Program increase - additive manufacturing for functional alloys		5,000	
21	FUTURE NAVAL CAPABILITIES ADVANCED TECHNOLOGY DEV	231,907	216,543	-15,364
	Expeditionary maneuver warfare excess growth		-8,280	
	Surface warfare excess growth		-7,084	
23	WARFIGHTER PROTECTION ADVANCED TECHNOLOGY	4,849	37,149	32,300
	Program increase - bone marrow registry program		24,300	
	Program increase - novel therapeutic interventions research		4,000	
	Program increase - extreme environment warfighter safety research		4,000	
27	INNOVATIVE NAVAL PROTOTYPES (INP) ADVANCED TECHNOLOGY	133,303	125,330	-7,973
	Artificial intelligence excess growth		-7,973	
33	ADVANCED COMBAT SYSTEMS TECHNOLOGY	64,694	58,467	-6,227
	Project 3438 HIJENKS concurrency		-6,227	
34	SURFACE AND SHALLOW WATER MINE COUNTERMEASURES	507,000	307,030	-199,970
	Project 1234 testing delays		-4,350	
	Project 3066 limit to one LUSV		-96,420	
	Project 3066 long lead material early to need		-79,200	
	Project 3066 excess design support		-20,000	
37	PILOT FISH	291,148	214,935	-76,213
	Insufficient budget justification		-76,213	
39	RETRACT JUNIPER	129,163	121,714	-7,449
	Insufficient budget justification		-7,449	
42	ADVANCED SUBMARINE SYSTEM DEVELOPMENT	148,756	147,751	-1,005
	Project 2033 contract delays		-575	
	Project 3391 contract delays		-640	
	Project 9710 unjustified new start		-9,790	
	Program increase - small business technology insertion		10,000	
44	SHIP CONCEPT ADVANCED DESIGN	81,846	57,846	-24,000
	Future surface combatant studies duplicative efforts		-24,000	
45	SHIP PRELIMINARY DESIGN & FEASIBILITY STUDIES	69,084	64,084	-5,000
	Future surface combatant concept development concurrency		-5,000	
47	ADVANCED SURFACE MACHINERY SYSTEMS	25,408	35,408	10,000
	Program increase - silicon carbide power modules		5,000	
	Program increase - advanced power electronics integration		5,000	

R-1		Budget Request	Committee Recommended	Change from Request
48	CHALK EAGLE	64,877	47,310	-17,567
	Insufficient budget justification		-17,567	
52	LITTORAL COMBAT SHIP (LCS) MISSION MODULES	108,505	105,595	-2,910
	SUW mission package schedule delay		-2,910	
53	AUTOMATED TEST AND RE-TEST	7,653	37,653	30,000
	Program increase		30,000	
56	MARINE CORPS GROUND COMBAT/SUPPORT SYSTEM	86,464	7,610	-78,854
	Project 1558 concurrency		-6,000	
	Project 1558 excess program management		-1,387	
	Project 1964 unjustified request		-980	
	Project 2614 unjustified request		-500	
	Project 7400 insufficient budget justification		-69,987	
60	NAVY ENERGY PROGRAM	26,514	41,514	15,000
	Program increase		15,000	
62	CHALK CORAL	346,800	307,392	-39,408
	Insufficient budget justification		-39,408	
65	LINK PLUMERIA	403,909	392,839	-11,070
	Insufficient budget justification		-11,070	
67	LINK EVERGREEN	184,110	115,612	-68,498
	Insufficient budget justification		-68,498	
72	DIRECTED ENERGY AND ELECTRIC WEAPON SYSTEMS	118,169	125,919	7,750
	Project 2731 early to need		-2,250	
	Program increase - high energy laser weapon system for counter-UAS area defense		10,000	
73	F/A-18 INFRARED SEARCH AND TRACK (IRST)	113,456	112,416	-1,040
	Hardware development contract delay		-1,040	
74	DIGITAL WARFARE OFFICE	50,120	22,000	-28,120
	Project 3255 unjustified request		-25,000	
	Project 3425 unjustified growth		-3,120	
76	UNMANNED UNDERSEA VEHICLE CORE TECHNOLOGIES	54,376	41,910	-12,466
	Project 4053 duplicative efforts		-12,466	
77	RAPID PROTOTYPING, EXPERIMENTATION AND DEMONSTRATION	36,197	5,000	-31,197
	Unjustified request		-31,197	

R-1		Budget Request	Committee Recommended	Change from Request
79	GERALD R. FORD CLASS NUCLEAR AIRCRAFT CARRIER	121,310	112,310	-9,000
	Integrated digital shipbuilding insufficient budget justification		-9,000	
80	LITTORAL AIRBORNE MCM	17,248	20,248	3,000
	Program increase - coastal battlefield reconnaissance and analysis system		3,000	
82	TACTICAL AIR DIRECTIONAL INFRARED COUNTERMEASURES	68,346	58,449	-9,897
	Project 3348 product development previously funded		-9,897	
84	NEXT GENERATION LOGISTICS	4,420	16,971	12,551
	Project 2743 unjustified new start		-2,449	
	Program increase - additive manufacturing		10,000	
	Program increase - construction robotics		5,000	
87	ADVANCED UNDERSEA PROTOTYPING	181,967	164,437	-17,530
	Testing early to need		-10,000	
	Dual-vendor award acquisition strategy		-7,530	
89	PRECISION STRIKE WEAPONS DEVELOPMENT PROGRAM	718,148	534,438	-183,710
	Conventional prompt global strike excess growth		-183,710	
93	ADVANCED TACTICAL UNMANNED AIRCRAFT SYSTEM	21,157	48,657	27,500
	Program increase - mobile unmanned/manned distributed lethality airborne network and fused integrated naval network		9,000	
	Program increase - large unmanned logistics systems air development		18,500	
97	OTHER HELO DEVELOPMENT	28,835	31,812	2,977
	CH/MH-53 unjustified growth		-2,023	
	Program increase - attack and utility helicopter replacement		5,000	
105	TACTICAL COMMAND SYSTEM	77,232	73,920	-3,312
	Project 2345 duplicative efforts		-72	
	Naval operational supply system previously funded		-3,240	
106	ADVANCED HAWKEYE	232,752	191,071	-41,681
	Data fusion schedule delays		-2,473	
	Counter electronic attack early to need		-11,800	
	Theater combat identification early to need		-17,608	
	ALQ-217 electronic support measures upgrade and survivability early to need		-9,800	
108	H-1 UPGRADES	65,359	60,991	-4,368
	Weapons and sensors testing and integration unjustified growth		-4,368	

R-1		Budget Request	Committee Recommended	Change from Request
110	V-22A	185,105	176,026	-9,079
	V-22 CMV development previously funded		-2,853	
	V-22 multi-spectral sensor/helmet mounted display previously funded		-7,220	
	V-22 development, test and evaluation previously funded		-4,006	
	Program increase - active vibration control system		5,000	
111	AIR CREW SYSTEMS DEVELOPMENT	21,172	19,172	-2,000
	Schedule delays		-2,000	
112	EA-18	143,585	123,637	-19,948
	EA-18G design and avionics integration unjustified growth		-19,948	
113	ELECTRONIC WARFARE DEVELOPMENT	116,811	106,049	-10,762
	Jammer techniques optimization excess growth		-1,634	
	Special capability pod excess to need		-8,300	
	Software reprogrammable payload unjustified growth		-828	
114	EXECUTIVE HELO DEVELOPMENT	187,436	164,985	-22,451
	VH-92A improvements early to need		-22,451	
116	NEXT GENERATION JAMMER (NGJ)	524,261	444,127	-80,134
	Hardware procurement contract delays		-63,676	
	Test and evaluation delays		-16,458	
117	JOINT TACTICAL RADIO SYSTEM - NAVY (JTRS-NAVY)	192,345	190,689	-1,656
	Network tactical common data link excess growth		-1,656	
118	NEXT GENERATION JAMMER (NGJ) INCREMENT II	111,068	90,419	-20,649
	Systems engineering failure to comply with congressional direction		-9,568	
	Primary hardware development previously funded		-3,891	
	Aircraft integration early to need		-7,190	
119	SURFACE COMBATANT COMBAT SYSTEM ENGINEERING	415,625	405,201	-10,424
	Aegis development support studies and analysis early to need		-1,941	
	Aegis destroyer BL 5 upgrades schedule delays		-5,505	
	Combat systems test bed build 4 early to need		-2,978	
122	STANDARD MISSILE IMPROVEMENTS	232,391	227,391	-5,000
	Project 0439 schedule delays		-5,000	
124	NAVAL INTEGRATED FIRE CONTROL-COUNTER AIR SYSTEMS ENG	33,379	30,084	-3,295
	Project 3159 contract delays		-3,295	
125	ADVANCED ABOVE WATER SENSORS	34,554	30,179	-4,375
	Project 3408 concurrency		-4,375	

R-1		Budget Request	Committee Recommended	Change from Request
126	SSN-688 AND TRIDENT MODERNIZATION	84,663	78,625	-6,038
	Project 0775 future efforts early to need		-6,038	
130	AIR AND MISSILE DEFENSE RADAR (AMDR) SYSTEM	55,349	52,349	-3,000
	Engineering changes testing and evaluation early to need		-3,000	
131	ADVANCED ARRESTING GEAR (AAG)	123,490	122,495	-995
	AAG training schedule delay		-995	
138	LIGHTWEIGHT TORPEDO DEVELOPMENT	148,349	115,541	-32,808
	Project 3418 test set development early to need		-11,000	
	Project 3418 concurrency		-21,808	
140	USMC GROUND COMBAT/SUPPORTING ARMS SYSTEMS - ENG DEV	22,000	20,085	-1,915
	Testing early to need		-1,915	
142	JOINT STANDOFF WEAPON SYSTEMS	18,725	16,225	-2,500
	Support excess to need		-2,500	
143	SHIP SELF DEFENSE (DETECT & CONTROL)	192,603	180,085	-12,518
	Project 2178 prior year carryover		-12,518	
144	SHIP SELF DEFENSE (ENGAGE: HARD KILL)	137,268	128,768	-8,500
	Project 0173 block 2 obsolescence and redesign early to need		-7,000	
	MK 73 tracker-illuminator unjustified new start		-1,500	
145	SHIP SELF DEFENSE (ENGAGE: SOFT KILL/EW)	97,363	95,282	-2,081
	Project 3316 testing delays		-2,081	
146	INTELLIGENCE ENGINEERING	26,710	30,610	3,900
	Program increase - countermeasure development		3,900	
147	MEDICAL DEVELOPMENT	8,181	33,181	25,000
	Program increase - wound care research		10,000	
	Program increase - military dental research		10,000	
	Program increase - hypoxia research		5,000	
148	NAVIGATION/ID SYSTEM	40,755	45,755	5,000
	Program increase - micro-IFF components		5,000	
154	INFORMATION TECHNOLOGY DEVELOPMENT	384,162	304,364	-79,798
	Electronic procurement system concurrency		-5,000	
	Single point of entry excess growth		-7,083	
	Navy personnel and pay concurrency		-38,854	
	NMMES-TR excess growth		-14,767	
	Aviation logistics environment contract delay		-10,380	
	Dynamic scheduling unjustified request		-2,038	
	Vector unjustified request		-1,676	

R-1		Budget Request	Committee Recommended	Change from Request
158	**MISSION PLANNING**	75,886	72,566	-3,320
	CMBRE concurrency		-3,320	
159	**COMMON AVIONICS**	43,187	37,055	-6,132
	Ground proximity warning system/terrain awareness warning system previously funded		-1,675	
	Avionics architectures team unjustified growth		-4,457	
162	**UNMANNED CARRIER AVIATION**	671,258	590,425	-80,833
	Air segment product development excess to need		-20,600	
	Test and evaluation prior year carryover		-8,043	
	UMCS excess to need		-52,190	
163	**JOINT AIR-TO-GROUND MISSILE (JAGM)**	18,393	12,576	-5,817
	Schedule delays		-5,817	
166	**MULTI-MISSION MARITIME AIRCRAFT (MMA) INCREMENT 3**	177,234	158,199	-19,035
	Testing prior year carryover		-10,335	
	ECP concurrency - ECP 7 early to need		-16,700	
	Program increase - SBIR technology insertion		8,000	
167	**MARINE CORPS ASSAULT VEHICLES SYSTEM DEVELOPMENT AND DEMO**	77,322	68,136	-9,186
	Project 0026 excess growth		-6,985	
	ACV 1.2 training devices early to need		-2,201	
172	**TACTICAL CRYPTOLOGIC SYSTEMS**	101,339	91,091	-10,248
	SSEE Inc F previously funded		-1,700	
	Spectral delays		-8,548	
173	**CYBER OPERATIONS TECHNOLOGY DEVELOPMENT**	26,406	756	-25,650
	Tool development excess to need		-6,052	
	Common access platform early to need		-19,598	
174	**THREAT SIMULATOR DEVELOPMENT**	66,678	62,678	-4,000
	Insufficient budget justification - classified program reduction		-4,000	
176	**MAJOR T&E INVESTMENT**	85,348	102,348	17,000
	Program increase - undersea range modernization		4,000	
	Program increase - fifth generation radar ground test upgrades		8,000	
	Program increase - complex electronic warfare test equipment		5,000	
183	**MANAGEMENT, TECHNICAL & INTERNATIONAL SUPPORT**	102,401	113,844	11,443
	MTMD excess growth		-3,557	
	Program increase - printed circuit board executive agent		15,000	
187	**TEST AND EVALUATION SUPPORT**	394,020	390,528	-3,492
	Project 3386 prior year carryover		-3,492	

R-1		Budget Request	Committee Recommended	Change from Request
189	NAVY SPACE AND ELECTRONIC WARFARE (SEW) SUPPORT	15,773	12,652	-3,121
	Project 3239 unjustified growth		-3,121	
190	SEW SURVEILLANCE/RECONNAISSANCE SUPPORT	8,402	4,201	-4,201
	Insufficient budget justification - classified program reduction		-4,201	
191	MARINE CORPS PROGRAM WIDE SUPPORT	37,265	29,130	-8,135
	Project 3009 unjustified growth		-8,135	
205	COOPERATIVE ENGAGEMENT CAPABILITY (CEC)	127,924	126,404	-1,520
	Elektra early to need		-1,520	
207	STRATEGIC SUB & WEAPONS SYSTEM SUPPORT	157,676	124,492	-33,184
	D5LE2 unjustified request		-44,184	
	Program increase - next generation strategic inertial measurement unit		6,000	
	Program increase - carbon materials for thermal protection systems		5,000	
210	NAVY STRATEGIC COMMUNICATIONS	31,174	28,674	-2,500
	Project 2959 - E6B technical analysis and risk reduction schedule delays		-2,500	
211	F/A-18 SQUADRONS	213,715	207,911	-5,804
	F/A-18 Block III support prior year carryover		-7,804	
	Program increase - noise reduction research		2,000	
213	SURFACE SUPPORT	36,389	34,602	-1,787
	Military GPS user equipment previously funded		-1,787	
214	TOMAHAWK AND TOMAHAWK MISSION PLANNING CENTER (TMPC)	320,134	286,799	-33,335
	Maritime strike schedule delays		-21,237	
	JMEWS schedule delays		-12,098	
219	CONSOLIDATED TRAINING SYSTEMS DEVELOPMENT	129,873	128,673	-1,200
	Project 3356 LCS Navy training system plan execution early to need		-1,200	
221	ELECTRONIC WARFARE (EW) READINESS SUPPORT	82,325	62,434	-19,891
	Prior year carryover		-19,891	
222	HARM IMPROVEMENT	138,431	132,371	-6,060
	AARGM ER test schedule discrepancy		-6,060	
225	MK-48 ADCAP	85,973	72,265	-13,708
	TI-1 hardware development prior year carryover		-13,708	

R-1		Budget Request	Committee Recommended	Change from Request
226	AVIATION IMPROVEMENTS	125,461	122,894	-2,567
	EO4 concurrency		-2,567	
228	MARINE CORPS COMMUNICATIONS SYSTEMS	143,317	142,899	-418
	Project 2278 support costs excess to need		-9,018	
	Program increase - multi function electronic warfare		8,600	
231	MARINE CORPS COMBAT SERVICES SUPPORT	37,761	39,528	1,767
	Project 2510 prior year carryover		-1,233	
	Program increase - airborne power generation technology		3,000	
235	ADVANCED MEDIUM RANGE AIR-TO-AIR MISSILE (AMRAAM)	39,029	34,191	-4,838
	System improvement program efforts prior year carryover		-4,838	
245	UAS INTEGRATION AND INTEROPERABILITY	42,315	40,446	-1,869
	Increment III early to need		-1,869	
250	RQ-11 UAV	509	0	-509
	Excess to need		-509	
251	SMALL (LEVEL 0) TACTICAL UAS (STUASL0)	11,545	3,533	-8,012
	Lack of requirement		-8,012	
252	RQ-21A	10,914	6,000	-4,914
	Lack of requirement		-4,914	
254	UNMANNED AERIAL SYSTEMS (UAS) PAYLOADS (MIP)	3,704	6,704	3,000
	Program increase - spectral and reconnaissance imagery for tactical exploitation		3,000	
256	MODELING AND SIMULATION SUPPORT	7,119	12,119	5,000
	Program increase - joint simulation environment		5,000	
257	DEPOT MAINTENANCE (NON-IF)	38,182	48,182	10,000
	Program increase - MH-60 NRE		10,000	
9999	CLASSIFIED PROGRAMS	1,613,137	1,737,837	124,700
	Classified adjustments		124,700	

NUCLEAR SEA-LAUNCHED CRUISE MISSILE

The Committee understands that the Navy budget request includes $5,000,000 to begin an analysis of alternatives for a new Nuclear Sea-launched Cruise Missile (SLCM–N) pursuant to the 2018 Nuclear Posture Review's call for the "rapid development of a modern SLCM." The recommendation includes full funding for this request, but the Committee is concerned with the potential costs and operational impacts of this potential additive acquisition program. The Committee directs the Secretary of the Navy to submit a report to the congressional defense committees not later than 90 days after the enactment of this Act that provides the estimated cost of a SLCM–N acquisition program, an estimate of the increased operational and security costs that would be imposed on the fleet by a SLCM–N, an assessment of whether possession of a SLCM–N by Navy submarines would affect access to overseas ports and facilities, and a description of the validated military requirement. This report may be submitted with a classified annex if necessary.

SMALL BUSINESS INNOVATION RESEARCH PROGRAM

The Committee recognizes that the Small Business Innovation Research (SBIR) program is a valuable tool to engage small business and provide a pathway for innovators to conduct business with the Department of Defense. The program is designed to attract and engage small businesses to perform research and development activities and to assist those businesses in commercializing their technologies for future use by the Department of Defense. According to SBIR law, agencies are to use the SBIR awardee to the greatest extent practicable, thus giving that awardee the opportunity to perfect and scale their innovations. The Department of Defense has special acquisition flexibility in order to promote and coordinate with small businesses.

The Committee remains concerned that the Department of Defense continues to fail small businesses by not adhering to SBIR law and curtailing the innovative growth that small businesses could provide to fill critical needs in the defense industrial base. The Committee believes that the Department's resistance to permitting SBIR awardees to commercialize their technologies neglects the vital importance of entrepreneurial innovation.

This failure of the Department to capitalize on SBIR entrepreneurial innovation is demonstrated by the repeated failure of the Navy to properly resource the Automated Test and Re-test (ATRT) program, which has produced some of the Navy's most transformative technology, including the AEGIS/ATRT Virtual Twin. As such, the Committee recommendation includes $37,653,000 for the ATRT program, an increase of $30,000,000 above the fiscal year 2020 budget request, and rejects the renaming of the program to Automated Test and Analysis. The Committee expects the Secretary of the Navy to fully adhere to SBIR law and the recent directive from the Small Business Administration on the continuation of SBIR-derived research and development and commercialization of SBIR-related technologies.

BLAST INJURY

The Committee recognizes the need for additional research on what occurs inside the brain after experiencing a blast event. The Committee encourages the Secretary of the Navy, through the Office of Naval Research, to continue to leverage partnerships with academia and the national laboratories to acquire a better understanding of the human cellular response and the interface between humans and their protective equipment during blast impulses. These research efforts may lead to predicting injury following a blast event using future wearable sensor systems and may inform the design of advanced protective equipment to reduce blast injuries.

MUSCULOSKELETAL INJURIES IN FEMALE SERVICEMEMBERS

The Committee supports efforts to strengthen the resiliency, lethality, and readiness of the military and acknowledges that servicemembers involved in ground-based training and tactical missions are at risk for sustaining high rates of musculoskeletal injuries. The Committee notes that not enough research has been conducted on injury mitigation and performance needs of females who serve in these roles. The Committee urges the Commandant of the Marine Corps to support research into the musculoskeletal issues faced by female Marines serving in infantry and other combat roles.

COASTAL ENVIRONMENTAL RESEARCH

The Committee understands the importance of the littoral region to Navy operations worldwide and believes that training must replicate the operational and threat environments that submarines and unmanned systems are likely to encounter in these areas. The Committee believes that additional research of the magnetic, electric, and acoustic ambient fields in the littoral regions and the development of predictive techniques to distinguish ships and submarines from naturally occurring background features would be beneficial for littoral operations. The Committee encourages the Secretary of the Navy to conduct additional research in this area.

ENERGY RESILIENCY

The Committee recognizes the need for additional research to advance Navy efforts to create a more robust energy infrastructure and urges the Secretary of the Navy to collaborate with universities to conduct research on electrical power intermittency, integrating renewable energy sources into the grid, energy storage, improved micro-grids, grid security, local generation of zero-carbon fuels, and the inspection and structural health monitoring of critical energy infrastructure.

ADVANCED ENERGETICS RESEARCH

The Committee recognizes the requirement for continued investment in advanced energetics research and development to increase the lethality, range, and speed of weapons; develop new capabilities; and expand the domestic energetics workforce. The Committee encourages the Secretary of the Navy to support advanced

energetics research and development efforts and to incorporate successful technologies into advanced weapons systems.

LETHALITY AND SURVIVABILITY OF LITTORAL COMBAT SHIPS

The Committee supports Navy efforts to increase both the lethality and the survivability of Littoral Combat Ships but is concerned by the slow pace of improvements. The Committee directs the Secretary of the Navy to submit a report to the congressional defense committees not later than 90 days after the enactment of this Act on the specific lethality and survivability upgrades to be incorporated on Littoral Combat Ships, the timeline of installation of the upgrades, and any resources required.

RESEARCH AND WORKFORCE PARTNERSHIPS FOR SUBMARINE AND UNDERSEA VEHICLE PROGRAMS

The Committee recognizes the need for greater partnerships between Navy research labs, academia, and industry. The Committee encourages the Secretary of the Navy to coordinate efforts with its industrial base partners to ensure that funded research projects are relevant to specific engineering and manufacturing needs, as well as defined systems capabilities. Partnerships with academia should focus on specific, well-defined short- and long-term submarine and autonomous undersea vehicle research needs, accelerated technology transition, and should also include a strong workforce development component to help ensure a sustainable industrial base.

DIGITAL SECURITY OF ADDITIVE MANUFACTURING

The Committee supports the development of digital protection of additive manufacturing equipment which is critical to securing future additive manufacturing capabilities for operational requirements. Protecting and securing these essential capabilities will ensure future capabilities.

RESEARCH, DEVELOPMENT, TEST AND EVALUATION, AIR FORCE

Fiscal year 2019 appropriation	$41,229,475,000
Fiscal year 2020 budget request	45,616,122,000
Committee recommendation	44,795,456,000
Change from budget request	−820,666,000

The Committee recommends an appropriation of $44,795,456,000 for Research, Development, Test and Evaluation, Air Force which will provide the following program in fiscal year 2020:

(DOLLARS IN THOUSANDS)

		BUDGET REQUEST	COMMITTEE RECOMMENDED	CHANGE FROM REQUEST
	RESEARCH, DEVELOPMENT, TEST & EVAL, AIR FORCE			
	BASIC RESEARCH			
1	DEFENSE RESEARCH SCIENCES	356,107	356,107	---
2	UNIVERSITY RESEARCH INITIATIVES	158,859	178,859	+20,000
3	HIGH ENERGY LASER RESEARCH INITIATIVES	14,795	14,795	---
	TOTAL, BASIC RESEARCH	529,761	549,761	+20,000
	APPLIED RESEARCH			
4	MATERIALS	128,851	145,851	+17,000
5	AEROSPACE VEHICLE TECHNOLOGIES	147,724	147,724	---
6	HUMAN EFFECTIVENESS APPLIED RESEARCH	131,795	131,795	---
7	AEROSPACE PROPULSION	198,775	217,775	+19,000
8	AEROSPACE SENSORS	202,912	211,912	+9,000
9	SCIENCE AND TECHNOLOGY MANAGEMENT - MAJOR HEADQUARTERS	7,968	7,968	---
12	CONVENTIONAL MUNITIONS	142,772	142,772	---
13	DIRECTED ENERGY TECHNOLOGY	124,379	124,379	---
14	DOMINANT INFORMATION SCIENCES AND METHODS	181,562	186,562	+5,000
15	HIGH ENERGY LASER RESEARCH	44,221	44,221	---
16	SPACE TECHNOLOGY	124,667	131,667	+7,000
	TOTAL, APPLIED RESEARCH	1,435,626	1,492,626	+57,000
	ADVANCED TECHNOLOGY DEVELOPMENT			
17	ADVANCED MATERIALS FOR WEAPON SYSTEMS	36,586	49,586	+13,000
18	SUSTAINMENT SCIENCE AND TECHNOLOGY (S&T)	16,249	16,249	---
19	ADVANCED AEROSPACE SENSORS	38,292	38,292	---
20	AEROSPACE TECHNOLOGY DEV/DEMO	102,949	177,949	+75,000
21	AEROSPACE PROPULSION AND POWER TECHNOLOGY	113,973	138,473	+24,500
22	ELECTRONIC COMBAT TECHNOLOGY	48,408	48,408	---
23	ADVANCED SPACECRAFT TECHNOLOGY	70,525	70,525	---
24	MAUI SPACE SURVEILLANCE SYSTEM (MSSS)	11,878	11,878	---
25	HUMAN EFFECTIVENESS ADVANCED TECHNOLOGY DEVELOPMENT	37,542	37,542	---

(DOLLARS IN THOUSANDS)

		BUDGET REQUEST	COMMITTEE RECOMMENDED	CHANGE FROM REQUEST
26	CONVENTIONAL WEAPONS TECHNOLOGY	225,817	225,817	---
27	ADVANCED WEAPONS TECHNOLOGY	37,404	37,404	---
28	MANUFACTURING TECHNOLOGY PROGRAM	43,116	75,116	+32,000
29	BATTLESPACE KNOWLEDGE DEVELOPMENT & DEMONSTRATION	56,414	56,414	---
	TOTAL, ADVANCED TECHNOLOGY DEVELOPMENT	839,153	983,653	+144,500
	ADVANCED COMPONENT DEVELOPMENT			
31	INTELLIGENCE ADVANCED DEVELOPMENT	5,672	5,672	---
32	COMBAT IDENTIFICATION TECHNOLOGY	27,085	32,085	+5,000
33	NATO RESEARCH AND DEVELOPMENT	4,955	4,955	---
34	IBCM DLM/VAL	44,109	30,969	-13,140
36	AIR FORCE WEATHER SERVICES RESEARCH	772	772	---
37	ADVANCED ENGINE DEVELOPMENT	878,442	878,442	---
38	LONG RANGE STRIKE	3,003,899	3,003,899	---
39	DIRECTED ENERGY PROTOTYPING	10,000	30,000	+20,000
40	HYPERSONICS PROTOTYPING	576,000	576,000	---
41	INTEGRATED AVIONICS PLANNING AND DEVELOPMENT	92,600	124,600	+32,000
42	ADVANCED TECHNOLOGY AND SENSORS	23,145	23,145	---
43	NATIONAL AIRBORNE OPS CENTER (NAOC) RECAP	16,669	16,669	---
44	TECHNOLOGY TRANSFER	23,614	23,614	---
45	HARD AND DEEPLY BURIED TARGET DEFEAT SYSTEM	113,121	113,121	---
46	CYBER RESILIENCY OF WEAPON SYSTEMS-ACS	56,325	56,325	---
47	DEPLOYMENT AND DISTRIBUTION ENTERPRISE R&D	28,034	28,034	---
48	TECH TRANSITION PROGRAM	128,476	144,476	+16,000
49	GROUND BASED STRATEGIC DETERRENT	570,373	461,705	-108,668
50	LIGHT ATTACK ARMED RECONNAISSANCE (LAAR) SQUADRONS	35,000	---	-35,000
51	NEXT GENERATION AIR DOMINANCE	1,000,000	500,000	-500,000
52	THREE DIMENSIONAL LONG-RANGE RADAR	37,290	37,290	---
53	UNIFIED PLATFORM (UP)	10,000	10,000	---
54	COMMON DATA LINK EXECUTIVE AGENT (CDL EA)	36,910	36,910	---
55	CYBERSPACE OPERATIONS FORCES AND FORCE SUPPORT	35,000	35,000	---
56	MISSION PARTNER ENVIRONMENTS	8,550	8,550	---
57	CYBER OPERATIONS TECHNOLOGY DEVELOPMENT	198,864	202,364	+3,500
58	ENABLED CYBER ACTIVITIES	16,632	16,632	---
60	CONTRACTING INFORMATION TECHNOLOGY SYSTEM	20,830	20,830	---

(DOLLARS IN THOUSANDS)

		BUDGET REQUEST	COMMITTEE RECOMMENDED	CHANGE FROM REQUEST
61	NAVSTAR GLOBAL POSITIONING SYSTEM (USER EQUIPMENT) (SPACE)	329,948	329,948	---
62	EO/IR WEATHER SYSTEMS	101,222	101,222	---
63	WEATHER SYSTEM FOLLOW-ON	225,660	205,660	-20,000
64	SPACE SITUATION AWARENESS SYSTEMS	29,776	29,776	---
65	SPACE SYSTEMS PROTOTYPE TRANSITIONS (SSPT)	142,045	142,045	---
67	SPACE CONTROL TECHNOLOGY	64,231	58,231	-6,000
68	SPACE SECURITY AND DEFENSE PROGRAM	56,385	56,385	---
69	PROTECTED TACTICAL ENTERPRISE SERVICE (PTES)	105,003	105,003	---
70	PROTECTED TACTICAL SERVICE (PTS)	173,694	168,694	-5,000
71	EVOLVED STRATEGIC SATCOM (ESS)	172,206	167,206	-5,000
72	SPACE RAPID CAPABILITIES OFFICE	33,742	33,742	---
	TOTAL, ADVANCED COMPONENT DEVELOPMENT	8,436,279	7,819,971	-616,308
	ENGINEERING & MANUFACTURING DEVELOPMENT			
73	FUTURE ADVANCED WEAPON ANALYSIS & PROGRAMS	246,200	246,200	---
74	INTEGRATED AVIONICS PLANNING AND DEVELOPMENT	67,782	148,782	+81,000
75	NUCLEAR WEAPONS SUPPORT	4,406	4,406	---
76	ELECTRONIC WARFARE DEVELOPMENT	2,066	2,066	---
77	TACTICAL DATA NETWORKS ENTERPRISE	229,631	229,631	---
78	PHYSICAL SECURITY EQUIPMENT	9,700	9,700	---
79	SMALL DIAMETER BOMB (SDB)	31,241	31,241	---
80	AIRBORNE ELECTRONIC ATTACK	2	2	---
81	ARMAMENT/ORDNANCE DEVELOPMENT	28,043	28,043	---
82	SUBMUNITIONS	3,045	3,045	---
83	AGILE COMBAT SUPPORT	19,944	19,944	---
84	LIFE SUPPORT SYSTEMS	8,624	8,624	---
85	COMBAT TRAINING RANGES	37,365	37,365	---
86	F-35 - EMD	7,628	7,628	---
87	LONG RANGE STANDOFF WEAPON	712,539	712,539	---
88	ICBM FUZE MODERNIZATION	161,199	161,199	---
89	JOINT TACTICAL NETWORK CENTER (JTNC)	2,414	2,414	---
91	OPEN ARCHITECTURE MANAGEMENT	30,000	30,000	---
93	KC-46	59,561	59,561	---

(DOLLARS IN THOUSANDS)

		BUDGET REQUEST	COMMITTEE RECOMMENDED	CHANGE FROM REQUEST
94	ADVANCED PILOT TRAINING	348,473	348,473	---
95	COMBAT RESCUE HELICOPTER	247,047	192,047	-55,000
98	B-2 DEFENSIVE MANAGEMENT SYSTEM	294,400	294,400	---
99	NUCLEAR WEAPONS MODERNIZATION	27,564	27,564	---
100	MINUTEMAN SQUADRONS	1	---	-1
101	F-15 EPAWSS	47,322	47,322	---
102	STAND IN ATTACK WEAPON	162,840	162,840	---
103	FULL COMBAT MISSION TRAINING	9,797	9,797	---
106	C-32 EXECUTIVE TRANSPORT RECAPITALIZATION	9,930	9,930	---
107	PRESIDENTIAL AIRCRAFT REPLACEMENT	757,923	757,923	---
108	AUTOMATED TEST SYSTEMS	2,787	2,787	---
109	COMBAT SURVIVOR EVADER LOCATOR	2,000	2,000	---
110	GPS III FOLLOW ON (GPS IIIF)	462,875	452,875	-10,000
111	SPACE SITUATION AWARENESS OPERATIONS	76,829	71,829	-5,000
112	COUNTERSPACE SYSTEMS	29,037	27,037	-2,000
113	WEATHER SYSTEM FOLLOW-ON	2,237	2,237	---
114	SPACE SITUATION AWARENESS SYSTEMS	412,894	412,894	---
116	ADVANCED EHF MILSATCOM (SPACE)	117,290	117,290	---
117	POLAR MILSATCOM (SPACE)	427,400	427,400	---
118	WIDEBAND GLOBAL SATCOM (SPACE)	1,920	1,920	---
119	SPACE BASED INFRARED SYSTEM (SBIRS) HIGH EMD	1	1	---
120	EVOLVED SBIRS (NEXT - GENERATION OPIR)	1,395,278	1,193,688	-201,590
121	COMMERCIAL SATCOM	---	5,000	+5,000
122	NATIONAL SECURITY SPACE LAUNCH EMD	432,009	432,009	---
	TOTAL, ENGINEERING & MANUFACTURING DEVELOPMENT	6,929,244	6,741,653	-187,591

(DOLLARS IN THOUSANDS)

		BUDGET REQUEST	COMMITTEE RECOMMENDED	CHANGE FROM REQUEST
	RDT&E MANAGEMENT SUPPORT			
123	THREAT SIMULATOR DEVELOPMENT	59,693	59,693	---
124	MAJOR T&E INVESTMENT	181,663	217,663	+36,000
125	RAND PROJECT AIR FORCE	35,258	35,258	---
127	INITIAL OPERATIONAL TEST & EVALUATION	13,793	13,793	---
128	TEST AND EVALUATION SUPPORT	717,895	717,895	---
129	ACQ WORKFORCE- GLOBAL POWER	258,667	258,667	---
130	ACQ WORKFORCE- GLOBAL VIG & COMBAT SYS	251,992	251,992	---
131	ACQ WORKFORCE- GLOBAL REACH	149,191	149,191	---
132	ACQ WORKFORCE- CYBER, NETWORK, & BUS SYS	235,360	235,360	---
133	ACQ WORKFORCE- GLOBAL BATTLE MGMT	160,196	160,196	---
134	ACQ WORKFORCE- CAPABILITY INTEGRATION	220,255	220,255	---
135	ACQ WORKFORCE- ADVANCED PRGM TECHNOLOGY	42,392	42,392	---
136	ACQ WORKFORCE- NUCLEAR SYSTEMS	133,231	133,231	---
137	MANAGEMENT HQ - R&D	5,590	5,590	---
138	FACILITIES RESTORATION & MODERNIZATION - TEST & EVAL	88,445	88,445	---
139	FACILITIES SUSTAINMENT - TEST AND EVALUATION SUPPORT	29,424	29,424	---
140	REQUIREMENTS ANALYSIS AND MATURATION	62,715	68,715	+6,000
141	MANAGEMENT HQ - T&E	5,013	5,013	---
142	ENTERPRISE INFORMATION SERVICES (EIS)	17,128	17,128	---
143	ACQUISITION AND MANAGEMENT SUPPORT	5,913	5,913	---
144	GENERAL SKILL TRAINING	1,475	1,475	---
146	INTERNATIONAL ACTIVITIES	4,071	4,071	---
147	SPACE TEST AND TRAINING RANGE DEVELOPMENT	19,942	14,942	-5,000
148	SPACE AND MISSILE CENTER (SMC) CIVILIAN WORKFORCE	167,810	167,810	---
149	SPACE & MISSILE SYSTEMS CENTER - MHA	10,170	10,170	---
150	ROCKET SYSTEMS LAUNCH PROGRAM (SPACE)	13,192	13,192	---
151	SPACE TEST PROGRAM (STP)	26,097	26,097	---
	TOTAL, RDT&E MANAGEMENT SUPPORT	2,916,571	2,953,571	+37,000

(DOLLARS IN THOUSANDS)

		BUDGET REQUEST	COMMITTEE RECOMMENDED	CHANGE FROM REQUEST
	OPERATIONAL SYSTEMS DEVELOPMENT			
152	ADVANCED BATTLE MANAGEMENT SYSTEM (ABMS)	35,611	25,611	-10,000
154	SPECIALIZED UNDERGRADUATE FLIGHT TRAINING	2,584	2,584	---
156	DEPLOYMENT & DISTRIBUTION ENTERPRISE R&D	903	903	---
157	F-35 C2D2	694,455	694,455	---
158	AIR FORCE INTEGRATED MILITARY HUMAN RESOURCES SYSTEM	40,567	40,567	---
159	ANTI-TAMPER TECHNOLOGY EXECUTIVE AGENCY	47,193	47,193	---
160	FOREIGN MATERIEL ACQUISITION AND EXPLOITATION	70,083	70,083	---
161	HC/MC-130 RECAP RDT&E	17,218	17,218	---
162	NC3 INTEGRATION	25,917	25,917	---
164	B-52 SQUADRONS	325,974	321,624	-4,350
165	AIR-LAUNCHED CRUISE MISSILE (ALCM)	10,217	10,217	---
166	B-1B SQUADRONS	1,000	1,000	---
167	B-2 SQUADRONS	97,276	97,276	---
168	MINUTEMAN SQUADRONS	128,961	128,961	---
170	WORLDWIDE JOINT STRATEGIC COMMUNICATIONS	18,177	18,177	---
171	INTEGRATED STRATEGIC PLANNING & ANALYSIS NETWORK	24,261	24,261	---
172	ICBM REENTRY VEHICLES	75,571	65,671	-9,900
174	UH-1N REPLACEMENT PROGRAM	170,975	170,975	---
176	MQ-9 UAV	154,996	154,996	---
178	A-10 SQUADRONS	36,816	36,816	---
179	F-16 SQUADRONS	193,013	193,013	---
180	F-15E SQUADRONS	336,079	336,079	---
181	MANNED DESTRUCTIVE SUPPRESSION	15,521	15,521	---
182	F-22 SQUADRONS	496,298	496,298	---
183	F-35 SQUADRONS	99,943	99,943	---
184	TACTICAL AIM MISSILES	10,314	10,314	---
185	ADVANCED MEDIUM RANGE AIR-TO-AIR MISSILE (AMRAAM)	55,384	55,384	---
186	COMBAT RESCUE - PARARESCUE	281	281	---
187	AF TENCAP	21,365	21,365	---
188	PRECISION ATTACK SYSTEMS PROCUREMENT	10,696	10,696	---
189	COMPASS CALL	15,888	15,888	---
190	AIRCRAFT ENGINE COMPONENT IMPROVEMENT PROGRAM	112,505	112,505	---
191	JOINT AIR-TO-SURFACE STANDOFF MISSILE (JASSM)	78,498	78,498	---

(DOLLARS IN THOUSANDS)

		BUDGET REQUEST	COMMITTEE RECOMMENDED	CHANGE FROM REQUEST
192	AIR AND SPACE OPERATIONS CENTER (AOC)	114,864	114,864	---
193	CONTROL AND REPORTING CENTER (CRC)	8,109	8,109	---
194	AIRBORNE WARNING AND CONTROL SYSTEM (AWACS)	67,996	67,996	---
195	TACTICAL AIRBORNE CONTROL SYSTEMS	2,462	2,462	---
197	COMBAT AIR INTELLIGENCE SYSTEM ACTIVITIES	13,668	13,668	---
198	TACTICAL AIR CONTROL PARTY--MOD	6,217	6,217	---
200	DCAPES	19,910	19,910	---
201	NATIONAL TECHNICAL NUCLEAR FORENSICS	1,788	1,788	---
202	SEEK EAGLE	28,237	28,237	---
203	USAF MODELING AND SIMULATION	15,725	15,725	---
204	WARGAMING AND SIMULATION CENTERS	4,316	4,316	---
205	BATTLEFIELD ABN COMM NODE (BACN)	26,946	26,946	---
206	DISTRIBUTED TRAINING AND EXERCISES	4,303	4,303	---
207	MISSION PLANNING SYSTEMS	71,465	71,465	---
208	TACTICAL DECEPTION	7,446	7,446	---
209	OPERATIONAL HG - CYBER	7,602	7,602	---
210	DISTRIBUTED CYBER WARFARE OPERATIONS	35,178	35,178	---
211	AF DEFENSIVE CYBERSPACE OPERATIONS	16,609	16,609	---
212	JOINT CYBER COMMAND AND CONTROL (JCC2)	11,603	11,603	---
213	UNIFIED PLATFORM (UP)	84,702	84,702	---
219	GEOBASE	2,723	2,723	---
220	NUCLEAR PLANNING AND EXECUTION SYSTEM (NPES)	44,190	44,190	---
226	AIR FORCE SPACE AND CYBER NON-TRADITIONAL ISR FOR BATTLESPACE AWARENESS	3,575	3,575	---
227	E-4B NATIONAL AIRBORNE OPERATIONS CENTER (NAOC)	70,173	60,173	-10,000
228	MINIMUM ESSENTIAL EMERGENCY COMMUNICATIONS NETWORK	13,543	13,543	---
229	HIGH FREQUENCY RADIO SYSTEMS	15,881	1,000	-14,881
230	INFORMATION SYSTEMS SECURITY PROGRAM	27,726	27,726	---
232	GLOBAL FORCE MANAGEMENT - DATA INITIATIVE	2,210	2,210	---
234	MULTI DOMAIN COMMAND AND CONTROL (MDC2)	150,880	100,880	-50,000
235	AIRBORNE SIGINT ENTERPRISE	102,667	85,157	-17,510
236	COMMERCIAL ECONOMIC ANALYSIS	3,431	3,431	---
239	C2 AIR OPERATIONS SUITE - C2 INFO SERVICES	9,313	9,313	---
240	CCMD INTELLIGENCE INFORMATION TECHNOLOGY	1,121	1,121	---

(DOLLARS IN THOUSANDS)

		BUDGET REQUEST	COMMITTEE RECOMMENDED	CHANGE FROM REQUEST
241	ISR MODERNIZATION & AUTOMATION DVMT (IMAD)	19,000	3,000	-16,000
242	GLOBAL AIR TRAFFIC MANAGEMENT (GATM)	4,544	4,544	---
243	WEATHER SERVICE	25,461	33,461	+8,000
244	AIR TRAFFIC CONTROL, APPROACH, & LANDING SYSTEM (ATC)	5,651	8,651	+3,000
245	AERIAL TARGETS	7,448	7,448	---
248	SECURITY AND INVESTIGATIVE ACTIVITIES	425	425	---
249	ARMS CONTROL IMPLEMENTATION	54,546	41,546	-13,000
250	DEFENSE JOINT COUNTERINTELLIGENCE ACTIVITIES	6,858	6,858	---
252	INTEGRATED BROADCAST SERVICE	8,728	8,728	---
253	DRAGON U-2	38,939	38,939	---
255	AIRBORNE RECONNAISSANCE SYSTEMS	122,909	137,909	+15,000
256	MANNED RECONNAISSANCE SYSTEMS	11,787	11,787	---
257	DISTRIBUTED COMMON GROUND/SURFACE SYSTEMS	25,009	25,009	---
258	RQ-4 UAV	191,733	191,733	---
259	NETWORK-CENTRIC COLLABORATIVE TARGET (TIARA)	10,757	10,757	---
260	NATO AGS	32,567	32,567	---
261	SUPPORT TO DCGS ENTERPRISE	37,774	37,774	---
262	INTERNATIONAL INTELLIGENCE TECHNOLOGY AND ARCHITECTURES	13,515	13,515	---
263	RAPID CYBER ACQUISITION	4,383	4,383	---
264	PERSONNEL RECOVERY COMMAND & CTRL (PRC2)	2,133	2,133	---
265	INTELLIGENCE MISSION DATA (IMD)	8,614	8,614	---
266	C-130 AIRLIFT SQUADRON	140,425	140,425	---
267	C-5 AIRLIFT SQUADRONS	10,223	10,223	---
268	C-17 AIRCRAFT	25,101	21,101	-4,000
269	C-130J PROGRAM	8,640	8,640	---
270	LARGE AIRCRAFT IR COUNTERMEASURES (LAIRCM)	5,424	5,424	---
272	KC-10S	20	20	---
274	CV-22	17,906	17,906	---
276	SPECIAL TACTICS / COMBAT CONTROL	3,629	3,629	---
277	DEPOT MAINTENANCE (NON-IF)	1,890	1,890	---
278	MAINTENANCE, REPAIR & OVERHAUL SYSTEM	10,311	10,311	---
279	LOGISTICS INFORMATION TECHNOLOGY (LOGIT)	16,065	16,065	---
280	SUPPORT SYSTEMS DEVELOPMENT	539	539	---

(DOLLARS IN THOUSANDS)

		BUDGET REQUEST	COMMITTEE RECOMMENDED	CHANGE FROM REQUEST
281	OTHER FLIGHT TRAINING	2,057	2,057	---
282	OTHER PERSONNEL ACTIVITIES	10	10	---
283	JOINT PERSONNEL RECOVERY AGENCY	2,060	2,060	---
284	CIVILIAN COMPENSATION PROGRAM	3,809	3,809	---
285	PERSONNEL ADMINISTRATION	6,476	6,476	---
286	AIR FORCE STUDIES AND ANALYSIS AGENCY	1,443	1,443	---
287	FINANCIAL MANAGEMENT INFORMATION SYSTEMS DEVELOPMENT	9,323	9,323	---
288	DEFENSE ENTERPRISE ACNTNG AND MGT SYS (DEAMS)	46,789	46,789	---
289	GLOBAL SENSOR INTEGRATED ON NETWORK (GSIN)	3,647	3,647	---
290	SERVICE SUPPORT TO STRATCOM - SPACE ACTIVITIES	988	988	---
291	SERVICE SUPPORT TO SPACECOM ACTIVITIES	11,863	11,863	---
293	FAMILY OF ADVANCED BLOS TERMINALS (FAB-T)	197,388	192,388	-5,000
294	SATELLITE CONTROL NETWORK (SPACE)	61,891	61,891	---
297	SPACE AND MISSILE TEST AND EVALUATION CENTER	4,566	4,566	---
298	SPACE INNOVATION, INTEGRATION AND RAPID TECHNOLOGY DEVELOPMENT	43,292	38,292	-5,000
300	SPACELIFT RANGE SYSTEM (SPACE)	10,837	15,837	+5,000
301	GPS III SPACE SEGMENT	42,440	42,440	---
302	SPACE SUPERIORITY INTELLIGENCE	14,428	14,428	---
303	JSPOC MISSION SYSTEM	72,762	75,762	+3,000
304	NATIONAL SPACE DEFENSE CENTER	2,653	2,653	---
306	BALLISTIC MISSILE DEFENSE RADARS	15,881	15,881	---
308	NUDET DETECTION SYSTEM (SPACE)	49,300	49,300	---
309	SPACE SITUATION AWARENESS OPERATIONS	17,834	17,834	---
310	GLOBAL POSITIONING SYSTEM III - OPERATIONAL CONTROL SEGMENT	445,302	445,302	---
311	ENTERPRISE GROUND SERVICES	138,870	138,870	---
	TOTAL, OPERATIONAL SYSTEMS DEVELOPMENT	6,499,982	6,374,341	-125,641
9999	CLASSIFIED PROGRAMS	18,029,506	17,879,880	-149,626
	TOTAL, RESEARCH, DEVELOPMENT, TEST & EVAL, AIR FORCE	45,616,122	44,795,456	-820,666

EXPLANATION OF PROJECT LEVEL ADJUSTMENTS
[In thousands of dollars]

R-1		Budget Request	Committee Recommended	Change from Request
2	UNIVERSITY RESEARCH INITIATIVES	158,859	178,859	20,000
	Program increase		20,000	
4	MATERIALS	128,851	145,851	17,000
	Program increase - molybdenum silicon boron research		3,000	
	Program increase - coatings for corrosion control		5,000	
	Program increase - high performance materials		4,000	
	Program increase - deployable passive cooling		5,000	
7	AEROSPACE PROPULSION	198,775	217,775	19,000
	Program increase - advanced turbine technologies		2,000	
	Program increase - next generation liquid propulsion		5,000	
	Program increase - next generation hall thruster		5,000	
	Program increase - thermal management technology		7,000	
8	AEROSPACE SENSORS	202,912	211,912	9,000
	Program increase - exploitation detection		9,000	
14	DOMINANT INFORMATION SCIENCES AND METHODS	181,562	186,562	5,000
	Program increase		5,000	
16	SPACE TECHNOLOGY	124,667	131,667	7,000
	Program increase - thin-film photovoltaic energy		7,000	
17	ADVANCED MATERIALS FOR WEAPON SYSTEMS	36,586	49,586	13,000
	Program increase - metals affordability research		10,000	
	Program increase - composite materials manufacturing processes		3,000	
20	AEROSPACE TECHNOLOGY DEV/DEMO	102,949	177,949	75,000
	Unfunded requirement - Agility Prime		25,000	
	Low cost attritable aircraft technology		50,000	
21	AEROSPACE PROPULSION & POWER TECHNOLOGY	113,973	138,473	24,500
	Program increase - low spool generator capabilities		5,000	
	Program increase - advanced turbine gas generator		17,000	
	Program increase - chemical apogee engines		2,500	
28	MANUFACTURING TECHNOLOGY PROGRAM	43,116	75,116	32,000
	Program increase - thermal protection for hypersonic vehicles		10,000	
	Program increase - modeling technology for small turbine engines		4,000	
	Program increase - manufacturing technology for reverse engineering		5,000	
	Program increase - solid state battery research		3,000	
	Program increase - agile manufacturing initiatives		10,000	
34	ICBM DEM/VAL	44,109	30,969	-13,140
	Excess to need		-13,140	

R-1		Budget Request	Committee Recommended	Change from Request
39	DIRECTED ENERGY PROTOTYPING	10,000	30,000	20,000
	Unfunded requirement		20,000	
41	PNT RESILIENCY, MODS, AND IMPROVEMENTS	92,600	124,600	32,000
	Unfunded requirement		32,000	
48	TECH TRANSITION PROGRAM	128,476	144,476	16,000
	Program increase - competitively awarded technology transition initiatives		10,000	
	Program increase - advanced repair and qualification processes		6,000	
49	GROUND BASED STRATEGIC DETERRENT	570,373	461,705	-108,668
	Engineering and manufacturing development phase funds excess to need		-108,668	
50	LIGHT ATTACK ARMED RECONNAISSANCE	35,000	0	-35,000
	Unjustified request for further experimentation		-35,000	
51	NEXT GENERATION AIR DOMINANCE	1,000,000	500,000	-500,000
	Classified adjustment		-500,000	
57	CYBER OPERATIONS TECHNOLOGY DEVELOPMENT	198,864	202,364	3,500
	Program increase - cloud communication validation pilot		3,500	
63	WEATHER SYSTEM FOLLOW-ON	225,660	205,660	-20,000
	Ahead of need		-20,000	
67	SPACE CONTROL TECHNOLOGY	64,231	58,231	-6,000
	Underexecution		-6,000	
70	PROTECTED TACTICAL SERVICE (PTS)	173,694	168,694	-5,000
	Unjustified increase		-5,000	
71	EVOLVED STRATEGIC SATCOM (ESS)	172,206	167,206	-5,000
	Unjustified increase		-5,000	
74	PNT RESILIENCY, MODS, AND IMPROVEMENTS	67,782	148,782	81,000
	Unfunded requirement		81,000	
95	COMBAT RESCUE HELICOPTER	247,047	192,047	-55,000
	Engineering and manufacturing development phase funds excess to need		-15,000	
	Modernization funding poorly justified		-40,000	
100	MINUTEMAN SQUADRONS	1	0	-1
	Unjustified request		-1	
110	GPS III FOLLOW-ON (GPS IIIF)	462,875	452,875	-10,000
	Excess to need		-10,000	
111	SPACE SITUATION AWARENESS OPERATIONS	76,829	71,829	-5,000
	Underexecution		-5,000	
112	COUNTERSPACE SYSTEMS	29,037	27,037	-2,000
	Underexecution		-2,000	

R-1		Budget Request	Committee Recommended	Change from Request
120	NEXT-GENERATION OPIR	1,395,278	1,193,688	-201,590
	Unobligated balance		-13,390	
	Excess to need		-188,200	
121	COMMERCIAL SATCOM INTEGRATION	0	5,000	5,000
	Program increase - commercial satellite communications		5,000	
124	MAJOR T&E INVESTMENT	181,663	217,663	36,000
	Unfunded requirement - space test infrastructure		36,000	
140	REQUIREMENTS ANALYSIS AND MATURATION	62,715	68,715	6,000
	Unfunded requirement - development planning		2,000	
	Unfunded requirement - integrated simulation and analysis		4,000	
147	SPACE TEST AND TRAINING RANGE DEVELOPMENT	19,942	14,942	-5,000
	Underexecution		-5,000	
152	ADVANCED BATTLE MANAGEMENT SYSTEM	35,611	25,611	-10,000
	Lack of clear execution plan		-10,000	
164	B-52 SQUADRONS	325,974	321,624	-4,350
	Advanced target pod contract delay		-4,350	
172	ICBM REENTRY VEHICLES	75,571	65,671	-9,900
	Program delay		-9,900	
227	E-4B NAOC	70,173	60,173	-10,000
	Survivable SHF change in acquisition strategy		-10,000	
229	HF RADIO SYSTEMS	15,881	1,000	-14,881
	Change in acquisition strategy		-14,881	
234	MULTI-DOMAIN COMMAND AND CONTROL (MDC2)	150,880	100,880	-50,000
	Unjustified growth		-50,000	
235	AIRBORNE SIGINT ENTERPRISE	102,667	85,157	-17,510
	Follow-on SIGINT sensors - unclear requirement and acquisition strategy		-17,510	
241	ISR MODERNIZATION & AUTOMATION DEVELOPMENT	19,000	3,000	-16,000
	Core technology - poor justification		-16,000	
243	WEATHER SERVICE	25,461	33,461	8,000
	Program increase - enhanced weather prediction		3,000	
	Program increase - commercial weather data pilot		5,000	
244	ATCALS	5,651	8,651	3,000
	Program increase - infill radars		3,000	
249	ARMS CONTROL IMPLEMENTATION	54,546	41,546	-13,000
	Open Skies recap delays		-13,000	

R-1		Budget Request	Committee Recommended	Change from Request
255	AIRBORNE RECONNAISSANCE SYSTEMS	122,909	137,909	15,000
	Program increase - wide area motion imagery		15,000	
268	C-17 SQUADRONS	25,101	21,101	-4,000
	BLOS excess to need		-4,000	
293	FAB-T	197,388	192,388	-5,000
	Underexecution		-5,000	
298	SPACE INNOVATION, INTEGRATION AND RAPID TECHNOLOGY DEVELOPMENT	43,292	38,292	-5,000
	Underexecution		-5,000	
300	SPACELIFT RANGE SYSTEM (SPACE)	10,837	15,837	5,000
	Space launch services and capability		5,000	
303	JSPOC MISSION SYSTEM	72,762	75,762	3,000
	Unobligated balance		-2,000	
	Program increase - commercial capability		5,000	
999	CLASSIFIED PROGRAMS	18,029,506	17,879,880	-149,626
	Classified adjustment		-149,626	

HYPERSONIC WEAPON PROTOTYPING

The Committee recommendation fully funds the Air Force request for hypersonic weapon system research and development, including the $576,000,000 requested for two major prototyping efforts, the Air-Launched Rapid Response Weapon (ARRW) and the Hypersonic Conventional Strike Weapon (HCSW). However, the Committee is concerned by the continuing budget gap for both efforts, particularly the HCSW. The fiscal year 2020 budget request shows a significant funding shortfall for HCSW compared to the cost estimates that have been communicated to the Committee, and there is no funding programmed to continue HCSW in fiscal year 2021 and thereafter despite the Air Force goal of reaching an early operational capability within fiscal year 2022. The Committee finds that since an updated non-advocate cost assessment was adopted as the internal baseline funding requirement in March 2018, and both the ARRW and HCSW efforts were designated as Section 804 rapid prototyping programs in May 2018, ample time has allowed the Air Force to fully fund both efforts within its budget plans. The Committee is disappointed that the Air Force has failed to do so and believes that this budgetary disconnect communicates uncertainty about the Air Force's intention to see both efforts through to completion.

The Committee also believes that the Air Force needs to provide better information to the Committee about its efforts to transition each effort, assuming that prototyping is successful, to production and fielding. The Committee directs the Secretary of the Air Force to submit a report to the congressional defense committees not later than 90 days after the enactment of this Act that includes the following: an updated funding baseline for both the ARRW and HCSW rapid prototyping programs along with a plan to correct any budget shortfalls; an estimate of costs to field an early operating capability for both systems that are not included within the rapid prototyping effort; a notional schedule and cost estimate for the first five production lots; an assessment of current manufacturing readiness levels for both efforts and cost estimates to achieve the levels necessary to support initial production; and a comparative analysis of the justifications for producing and fielding multiple air-launched hypersonic weapons of comparable operational range versus down-selecting to a single type of weapon. This report may be submitted with a classified annex.

MANUFACTURING TECHNOLOGY FOR HYPERSONIC AND SPACE SYSTEMS

The Committee understands that the application of thermal protection systems is critical to hypersonic and space systems. As the Air Force continues to invest in the development of these essential capabilities, it must also develop the production processes required to manufacture thermal protection systems. The Committee encourages the Secretary of the Air Force to continue the development and transition of this technology to industry to support the future production of hypersonic and space systems.

PROPULSION FOR REUSABLE HYPERSONIC SYSTEMS

The Committee understands that the Air Force continues to research technology to support the development of reusable hypersonic systems. As this technology continues to mature, the Committee encourages the Secretary of the Air Force to conduct research into reusable hypersonic propulsion technologies including high mach turbines.

REMOTELY CONTROLLED AIRCRAFT POSITIONING SYSTEMS

The Committee understands that the Air Force is conducting research, development, testing and evaluation of remotely controlled aircraft positioning systems, including systems powered by alternative energy. The Committee supports this research and encourages the Secretary of the Air Force to continue efforts to prototype and test such systems.

REFRACTORY METAL ALLOY RESEARCH

The Committee understands that refractory metal alloys have the potential to support development of a new generation of jet engines. The Committee encourages the Secretary of the Air Force to continue research into refractory metal alloys with higher stress and temperature tolerances, as well as self-healing properties.

COATINGS FOR CORROSION CONTROL

The Committee understands that improved coating technologies have the potential to minimize corrosion, decrease aerodynamic drag, and reduce environmental and occupational hazards. In addition, improved coatings potentially can reduce life-cycle costs and improve aircraft availability. The Committee encourages the Secretary of the Air Force to continue research into coating technologies that will reduce aircraft ownership costs and increase readiness.

LOW COST ATTRITABLE AIRCRAFT TECHNOLOGY

The Committee recommendation includes an additional $50,000,000 to further develop Low Cost Attritable Aircraft Technology (LCAAT). The Committee understands that the Air Force is undergoing flight tests with a demonstrator air vehicle, the XQ–58A, to evaluate system functionality, aerodynamic performance, and launch and recovery systems. The Committee believes that LCAAT has the potential for game-changing capability and capacity across both permissive and contested environments while avoiding the high cost, long development timelines, and inflexible production lines of traditional aircraft programs. The Committee provides the additional funding for the further development, demonstration, prototyping, and integration of LCAAT air vehicles, payloads, launch and recovery concepts, datalinks, human-machine interface enhancements, manned-unmanned teaming, sustainment systems, and other LCAAT-related efforts. The Committee directs the Secretary of the Air Force to submit a spend plan to the congressional defense committees for the LCAAT funding in the budget request and the additional funding provided by the Committee not later than 90 days after the enactment of this Act.

THIN FILM PHOTOVOLTAIC MATERIALS

The Committee is aware of advancements in materials research for photovoltaic solar cells and therefore the recommendation includes an additional $7,000,000 for thin-film photovoltaic technologies. The Committee encourages the Commander of the Air Force Research Laboratory to pursue research areas suitable for space, autonomous vehicles, and soldier power applications that will deliver improved specific power, resistance to thermal cycling and mechanical reliability. The Air Force Research Laboratory should consider expanding its relationships through a competitive process to broaden the types of materials and devices under investigation while leveraging existing expertise in terrestrial thin film photovoltaic development.

NEXT GENERATION OVERHEAD PERSISTENT INFRARED PROGRAM

The fiscal year 2020 budget request for the Next Generation Overhead Persistent Infrared (OPIR) program is $1,395,278,000, an increase of $752,152,000 above the fiscal year 2019 enacted level. The Committee appreciates the importance of the OPIR mission to national security, and the urgent need to field a more resilient capability against growing space threats. However, the Committee is concerned with the rapid budget growth and the Air Force strategy of relying on significant reprogramming requests to keep the program on schedule. Further, the Committee questions whether the use of authorities for middle tier acquisition for rapid prototyping and rapid fielding under Section 804 of the National Defense Authorization Act for Fiscal Year 2016 is appropriate for this program, and whether the Department of Defense's oversight and management controls are adequate given the use of the middle tier acquisition authority. Therefore, the Committee recommendation includes $1,193,688,000 for the Next Generation Overhead Persistent Infrared program, a reduction of $201,590,000.

Further, the Committee notes that the Department of Defense lacks a comprehensive long-term architecture for overhead persistent infrared which integrates the requirements and capabilities across the military user community, to include integration of missile defense and hypersonic defense capabilities. The Committee views the current Next Generation Overhead Persistent Infrared Block 0 program as an important interim step to a currently undefined, but much needed, future comprehensive OPIR architecture. Therefore, the bill includes a legislative provision requiring the Space Development Agency and the Air Force to define the process by which the organizations will coordinate to develop a unified and integrated space architecture, to clarify roles and responsibilities in developing and demonstrating prototype capabilities and to transition the future comprehensive OPIR architectures to programs of record.

SPACE COMMON OPERATING PICTURE

The National Space Defense Center, and its predecessor organizations, have been struggling for over a decade to develop a system to provide a common operating picture that integrates the space situational awareness sensors across the intelligence community

and the Department of Defense. The Committee understands that there are commercial solutions available that could potentially provide a capability to meet some of these requirements in the near term. Therefore, the Committee provides an increase of $5,000,000 within the Joint Space Operations Center Mission System budget request for commercial capability to evaluate potential commercial solutions to provide a common operating picture.

NATIONAL SECURITY SPACE LAUNCH

Assured access to space is the foundation of a strong national security space program. The Committee commends the Air Force for its impressive track record of successful launches over the past 15 years and reliably delivering critical capabilities to orbit. While the Air Force initially resisted introducing competition for national security launch, the Committee commends the Air Force for now embracing competition and facilitating progress toward eliminating its reliance on Russian engines. The Committee notes that the national security space launch program is going through a critical transition as it phases out legacy launch systems and considers a variety of new and upgraded rockets to meet the full slate of national security mission requirements.

However, the Committee is concerned with the significant level of technical and programmatic risk this transition entails, including risk of a potential gap if any of the new, unproven rockets develop problems or experience setbacks. Therefore, the Committee recommendation fully funds the request for the National Security Space Launch program and urges the Secretary of the Air Force to proceed expeditiously with its strategy in order to minimize the risk of a gap in assured access to space.

RESEARCH, DEVELOPMENT, TEST AND EVALUATION, DEFENSE-WIDE

Fiscal year 2019 appropriation	$23,691,836,000
Fiscal year 2020 budget request	24,346,953,000
Committee recommendation	24,502,308,000
Change from budget request	+155,355,000

The Committee recommends an appropriation of $24,502,308,000 for Research, Development, Test and Evaluation, Defense-Wide which will provide the following program in fiscal year 2020:

(DOLLARS IN THOUSANDS)

		BUDGET REQUEST	COMMITTEE RECOMMENDED	CHANGE FROM REQUEST
	RESEARCH, DEVELOPMENT, TEST & EVAL, DEFENSE-WIDE			
	BASIC RESEARCH			
1	DTRA UNIVERSITY STRATEGIC PARTNERSHIP BASIC RESEARCH..	26,000	26,000	---
2	DEFENSE RESEARCH SCIENCES.....	432,284	432,284	---
3	BASIC RESEARCH INITIATIVES.....	48,874	61,374	+12,500
4	BASIC OPERATIONAL MEDICAL RESEARCH SCIENCE.....	54,122	54,122	---
5	NATIONAL DEFENSE EDUCATION PROGRAM.....	92,074	142,074	+50,000
6	HISTORICALLY BLACK COLLEGES & UNIV (HBCU).....	30,708	40,708	+10,000
7	CHEMICAL AND BIOLOGICAL DEFENSE PROGRAM.....	45,238	45,238	---
	TOTAL, BASIC RESEARCH.....	729,300	801,800	+72,500
	APPLIED RESEARCH			
8	JOINT MUNITIONS TECHNOLOGY.....	19,306	19,306	---
9	BIOMEDICAL TECHNOLOGY.....	97,771	97,771	---
11	LINCOLN LABORATORY RESEARCH PROGRAM.....	52,317	52,317	---
12	APPLIED RESEARCH FOR ADVANCEMENT S&T PRIORITIES.....	62,200	53,400	-8,800
13	INFORMATION AND COMMUNICATIONS TECHNOLOGY.....	442,556	437,556	-5,000
14	BIOLOGICAL WARFARE DEFENSE.....	34,588	34,588	---
15	CHEMICAL AND BIOLOGICAL DEFENSE PROGRAM.....	202,587	212,957	+10,370
16	CYBER SECURITY RESEARCH.....	15,118	25,118	+10,000
17	TACTICAL TECHNOLOGY.....	337,602	337,602	---
18	MATERIALS AND BIOLOGICAL TECHNOLOGY.....	223,976	223,976	---
19	ELECTRONICS TECHNOLOGY.....	332,192	326,192	-6,000
20	WEAPONS OF MASS DESTRUCTION DEFEAT TECHNOLOGIES.....	179,096	179,096	---
21	SOFTWARE ENGINEERING INSTITUTE.....	9,580	9,580	---
22	SPECIAL OPERATIONS TECHNOLOGY DEVELOPMENT.....	40,569	35,569	-5,000
	TOTAL, APPLIED RESEARCH.....	2,049,458	2,045,028	-4,430

(DOLLARS IN THOUSANDS)

		BUDGET REQUEST	COMMITTEE RECOMMENDED	CHANGE FROM REQUEST
	ADVANCED TECHNOLOGY DEVELOPMENT			
23	JOINT MUNITIONS ADVANCED TECH INSENSITIVE MUNITIONS AD	25,779	25,779	---
24	SO/LIC ADVANCED DEVELOPMENT	5,000	5,000	---
25	COMBATING TERRORISM TECHNOLOGY SUPPORT	70,517	75,517	+5,000
26	FOREIGN COMPARATIVE TESTING	24,970	24,970	---
28	COUNTERPROLIFERATION INITIATIVES--PROLIF PREV & DEFEAT	340,065	338,575	-1,490
29	ADVANCED CONCEPTS AND PERFORMANCE ASSESSMENT	14,208	19,208	+5,000
30	WEAPONS TECHNOLOGY	10,000	10,000	---
31	ADVANCED RESEARCH	20,674	27,674	+7,000
32	JOINT DOD-DOE MUNITIONS TECHNOLOGY DEVELOPMENT	18,773	18,773	---
33	ADVANCED AEROSPACE SYSTEMS	279,741	279,741	---
34	SPACE PROGRAMS AND TECHNOLOGY	202,606	190,306	-12,300
35	ANALYTIC ASSESSMENTS	19,429	18,429	-1,000
36	ADVANCED INNOVATIVE ANALYSIS AND CONCEPTS	37,645	37,645	---
37	ADVANCED INNOVATIVE ANALYSIS AND CONCEPTS - MHA	14,668	14,668	---
38	COMMON KILL VEHICLE TECHNOLOGY	13,600	13,600	---
40	DEFENSE INNOVATION UNIT	29,398	29,398	---
41	TECHNOLOGY INNOVATION	60,000	33,729	-26,271
42	CHEMICAL AND BIOLOGICAL DEFENSE PROGRAM - ADVANCED DEV	172,486	175,486	+3,000
43	RETRACT LARCH	159,688	159,688	---
44	JOINT ELECTRONIC ADVANCED TECHNOLOGY	12,063	12,063	---
45	JOINT CAPABILITY TECHNOLOGY DEMONSTRATIONS	107,359	107,359	---
46	NETWORKED COMMUNICATIONS CAPABILITIES	2,858	2,858	---
47	DEFENSE-WIDE MANUFACTURING SCIENCE AND TECHNOLOGY PROG	96,397	156,397	+60,000
48	MANUFACTURING TECHNOLOGY PROGRAM	42,834	52,834	+10,000
49	EMERGING CAPABILITIES TECHNOLOGY DEVELOPMENT	80,911	83,411	+2,500
50	GENERIC LOGISTICS R&D TECHNOLOGY DEMONSTRATIONS	10,817	15,817	+5,000
51	STRATEGIC ENVIRONMENTAL RESEARCH PROGRAM	66,157	66,157	---
52	MICROELECTRONIC TECHNOLOGY DEVELOPMENT AND SUPPORT	171,771	171,771	---

(DOLLARS IN THOUSANDS)

		BUDGET REQUEST	COMMITTEE RECOMMENDED	CHANGE FROM REQUEST
53	JOINT WARFIGHTING PROGRAM	4,846	4,846	---
54	ADVANCED ELECTRONICS TECHNOLOGIES	128,616	128,616	---
55	COMMAND, CONTROL AND COMMUNICATIONS SYSTEMS	232,134	232,134	---
56	NETWORK-CENTRIC WARFARE TECHNOLOGY	512,424	507,424	-5,000
57	SENSOR TECHNOLOGY	163,903	163,903	---
58	DISTRIBUTED LEARNING ADVANCED TECHNOLOGY DEVELOPMENT	13,723	22,446	+8,723
59	SOFTWARE ENGINEERING INSTITUTE	15,111	15,111	---
60	QUICK REACTION SPECIAL PROJECTS	47,147	47,147	---
61	ENGINEERING SCIENCE AND TECHNOLOGY	19,376	19,376	---
62	HIGH ENERGY LASER ADVANCED TECHNOLOGY PROGRAM	85,223	76,223	-9,000
63	TEST & EVALUATION SCIENCE & TECHNOLOGY	175,574	175,574	---
64	NATIONAL SECURITY INNOVATION NETWORK	25,000	25,000	---
65	OPERATIONAL ENERGY CAPABILITY IMPROVEMENT	70,536	58,900	-11,636
66	CWMD SYSTEMS	28,907	28,907	---
68	SPECIAL OPERATIONS ADVANCED TECHNOLOGY DEVELOPMENT	89,154	93,404	+4,250
69	SPACE SCIENCE AND TECHNOLOGY RESEARCH AND DEVELOPMENT	20,000	20,000	---
	TOTAL, ADVANCED TECHNOLOGY DEVELOPMENT	3,742,088	3,785,864	+43,776
	DEMONSTRATION & VALIDATION			
70	NUCLEAR AND CONVENTIONAL PHYSICAL SECURITY EQUIPMENT	42,695	42,695	---
71	WALKOFF	92,791	92,791	---
72	ACQUISITION ENTERPRISE DATA AND INFORMATION SERVICES	5,659	5,659	---
73	ENVIRONMENTAL SECURITY TECHNICAL CERTIFICATION PROGRAM	66,572	66,572	---
74	BALLISTIC MISSILE DEFENSE TERMINAL DEFENSE SEGMENT	302,761	302,761	---
75	BALLISTIC MISSILE DEFENSE MIDCOURSE DEFENSE SEGMENT	1,156,506	969,100	-187,406
76	CHEMICAL AND BIOLOGICAL DEFENSE PROGRAM	83,662	83,662	---
77	BALLISTIC MISSILE DEFENSE SENSORS	283,487	283,487	---
78	BALLISTIC MISSILE DEFENSE ENABLING PROGRAMS	571,507	571,507	---
79	SPECIAL PROGRAMS - MDA	377,098	512,098	+135,000
80	AEGIS BMD	727,479	699,479	-28,000
81	BALLISTIC MISSILE DEFENSE COMMAND AND CONTROL, BATTLE MANAGEMENT	564,206	560,756	-3,450

(DOLLARS IN THOUSANDS)

		BUDGET REQUEST	COMMITTEE RECOMMENDED	CHANGE FROM REQUEST
82	BALLISTIC MISSILE DEFENSE JOINT WARFIGHTER SUPPORT	51,532	51,532	---
83	BALLISTIC MISSILE DEFENSE INTERGRATION AND OPERATIONS CENTER (MDIOC)	56,161	56,161	---
84	REGARDING TRENCH	22,424	22,424	---
85	SEA BASED X-BAND RADAR (SBX)	128,156	128,156	---
86	ISRAELI COOPERATIVE PROGRAMS	300,000	300,000	---
87	BALLISTIC MISSILE DEFENSE TEST	395,924	392,324	-3,600
88	BALLISTIC MISSILE DEFENSE TARGETS	554,171	541,771	-12,400
89	HUMANITARIAN DEMINING	10,820	14,700	+3,880
90	COALITION WARFARE	11,316	11,316	---
91	DEPARTMENT OF DEFENSE CORROSION PROGRAM	3,365	5,365	+2,000
92	TECHNOLOGY MATURATION INITIATIVES	303,458	271,358	-32,100
93	MISSILE DEFEAT PROJECT	17,816	10,000	-7,816
95	HYPERSONIC DEFENSE	157,425	159,325	+1,900
96	ADVANCED INNOVATIVE TECHNOLOGIES	1,312,735	1,138,365	-174,370
97	TRUSTED AND ASSURED MICROELECTRONICS	542,421	547,421	+5,000
98	RAPID PROTOTYPING PROGRAM	100,957	100,957	---
99	DEFENSE INNOVATION UNIT (DIU) PROTOTYPING	92,000	17,000	-75,000
100	DOD UNMANNED AIRCRAFT SYSTEM (UAS) COMMON DEVELOPMENT	3,021	3,021	---
103	PACIFIC DISCRIMINATING RADAR	6,711	6,711	---
102	HOMELAND DEFENSE RADAR-HAWAII	274,714	274,714	---
104	WARGAMING AND SUPPORT FOR STRATEGIC ANALYSIS (SSA)	3,751	3,751	---
105	DEFENSE RAPID INNOVATION PROGRAM	14,021	---	-14,021
107	JOINT C5 CAPABILITY DEVELOPMENT, INTEGRATION AND INTEROPERABILITY	20,062	20,062	---
108	LONG RANGE DISCRIMINATION RADAR	136,423	136,423	---
109	IMPROVED HOMELAND DEFENSE INTERCEPTORS	412,363	412,363	---
110	BMD TERMINAL DEFENSE SEGMENT TEST	25,137	25,137	---
111	AEGIS BMD TEST	169,822	150,722	-19,100
112	BALLISTIC MISSILE DEFENSE SENSOR TEST	105,530	94,830	-10,700
113	LAND-BASED SM-3 (LBSM3)	38,352	38,352	---

(DOLLARS IN THOUSANDS)

		BUDGET REQUEST	COMMITTEE RECOMMENDED	CHANGE FROM REQUEST
115	BALLISTIC MISSILE DEFENSE MIDCOURSE DEFENSE SEGMENT TEST	98,139	96,439	-1,700
117	ENTERPRISE INFORMATION TECHNOLOGY SYSTEMS	1,600	1,600	---
118	JOINT ELECTROMAGNETIC TECHNOLOGY (JET) PROGRAM	3,191	3,191	---
119	CYBER SECURITY INITIATIVE	1,138	6,138	+5,000
120	SPACE TECHNOLOGY DEVELOPMENT AND PROTOTYPING	85,000	35,000	-50,000
121	SPACE TRACKING AND SURVEILLANCE SYSTEM	35,849	35,849	---
122	BALLISTIC MISSILE DEFENSE SYSEM SPACE PROGRAMS	27,565	135,565	+108,000
	TOTAL, DEMONSTRATION & VALIDATION	9,797,493	9,438,610	-358,883
	ENGINEERING & MANUFACTURING DEVELOPMENT			
123	NUCLEAR AND CONVENTIONAL PHYSICAL SECURITY EQUIPMENT	11,276	11,276	---
124	PROMPT GLOBAL STRIKE CAPABILITY DEVELOPMENT	107,000	---	-107,000
124A	HYPERSONICS CAPABILITY DEVELOPMENT	---	85,000	+85,000
125	CHEMICAL AND BIOLOGICAL DEFENSE PROGRAM	384,047	374,047	-10,000
126	JOINT TACTICAL INFORMATION DISTRIBUTION SYSTEM (JTIDS)	40,102	45,602	+5,500
127	WEAPONS OF MASS DESTRUCTION DEFEAT CAPABILITIES	13,100	13,100	---
128	INFORMATION TECHNOLOGY DEVELOPMENT	3,070	3,070	---
129	HOMELAND PERSONNEL SECURITY INITIATIVE	7,295	7,295	---
130	DEFENSE EXPORTABILITY PROGRAM	17,615	7,615	-10,000
131	OUSD(C) IT DEVELOPMENT INITIATIVES	15,653	15,653	---
132	DOD ENTERPRISE SYSTEMS DEVELOPMENT AND DEMONSTRATION	2,378	2,378	---
133	DCMO POLICY AND INTEGRATION	1,618	1,618	---
134	DEFENSE AGENCY INITIATIVES FINANCIAL SYSTEM	27,944	27,944	---
135	DEFENSE RETIRED AND ANNUITANT PAY SYSTEM (DRAS)	6,609	6,609	---
136	DEFENSE-WIDE ELECTRONIC PROCUREMENT CAPABILITIES	9,619	9,619	---
137	TRUSTED & ASSURED MICROELECTRONICS	175,032	175,032	---
138	INFORMATION SYSTEMS SECURITY PROGRAM	425	425	---
139	GLOBAL COMBAT SUPPORT SYSTEM	1,578	1,578	---
140	DOD ENTERPRISE ENERGY INFORMATION MANAGEMENT (EEIM)	4,373	4,373	---
141	CWMD SYSTEMS: SYSTEM DEVELOPMENT AND DEMONSTRATION	12,854	12,854	---
	TOTAL, ENGINEERING & MANUFACTURING DEVELOPMENT	841,588	805,088	-36,500

(DOLLARS IN THOUSANDS)

		BUDGET REQUEST	COMMITTEE RECOMMENDED	CHANGE FROM REQUEST
	RDT&E MANAGEMENT SUPPORT			
142	JOINT CAPABILITY EXPERIMENTATION	13,000	13,000	---
143	DEFENSE READINESS REPORTING SYSTEM (DRRS)	9,724	9,724	---
144	JOINT SYSTEMS ARCHITECTURE DEVELOPMENT	9,593	9,593	---
145	CENTRAL TEST AND EVALUATION INVESTMENT DEVELOPMENT	260,267	280,267	+20,000
146	ASSESSMENTS AND EVALUATIONS	30,834	30,834	---
147	MISSION SUPPORT	68,498	68,498	---
148	JOINT MISSION ENVIRONMENT TEST CAPABILITY (JMETC)	83,091	83,091	---
149	TECHNICAL STUDIES, SUPPORT AND ANALYSIS	18,079	18,079	---
150	JOINT INTEGRATED AIR AND MISSILE DEFENSE ORGANIZATION	70,038	62,805	-7,233
152	SYSTEMS ENGINEERING	37,140	37,140	---
153	STUDIES AND ANALYSIS SUPPORT	4,759	4,759	---
154	NUCLEAR MATTERS - PHYSICAL SECURITY	8,307	8,307	---
155	SUPPORT TO NETWORKS AND INFORMATION INTEGRATION	9,441	9,441	---
156	GENERAL SUPPORT TO USD (INTELLIGENCE)	1,700	13,700	+12,000
157	CHEMICAL AND BIOLOGICAL DEFENSE PROGRAM	110,363	110,363	---
166	SMALL BUSINESS INNOVATION RESEARCH/TECHNOLOGY TRANSFER	3,568	3,568	---
167	MAINTAINING TECHNOLOGY ADVANTAGE	19,936	17,936	-2,000
168	DEFENSE TECHNOLOGY ANALYSIS	16,875	16,875	---
169	DEFENSE TECHNICAL INFORMATION CENTER (DTIC)	57,716	57,716	---
170	R&D IN SUPPORT OF DOD ENLISTMENT, TESTING & EVALUATION	34,448	34,448	---
171	DEVELOPMENT TEST AND EVALUATION	22,203	22,203	---
172	MANAGEMENT HEADQUARTERS (RESEARCH & DEVELOPMENT)	13,208	13,208	---
173	MANAGEMENT HEADQUARTERS DEFENSE TECHNICAL INFORMATION CENTER (DTIC)	3,027	3,027	---
174	BUDGET AND PROGRAM ASSESSMENTS	8,017	8,017	---
175	ODNA TECHNOLOGY AND RESOURCE ANALYSIS	3,194	3,194	---
176	DEFENSE DIGITAL SERVICE (DDS) DEVELOPMENT SUPPORT	1,000	1,000	---
179	DEFENSE OPERATIONS SECURITY (OPSEC)	3,037	3,037	---
180	JOINT STAFF ANALYTICAL SUPPORT	9,216	9,216	---
183	SUPPORT TO INFORMATION OPERATIONS (IO) CAPABILITIES	553	553	---
184	DEFENSE MILITARY DECEPTION PROGRAM OFFICE	1,014	1,014	---
185	COMBINED ADVANCED APPLICATIONS	58,667	25,636	-33,031
187	INTELLIGENCE CAPABILITIES AND INNOVATION INVESTMENTS	21,081	15,871	-5,210
189	ALGORITHMIC WARFARE CROSS FUNCTIONAL TEAMS	221,235	221,235	---

(DOLLARS IN THOUSANDS)

		BUDGET REQUEST	COMMITTEE RECOMMENDED	CHANGE FROM REQUEST
191	COCOM EXERCISE ENGAGEMENT AND TRAINING TRANSFORMATION.	40,073	40,073	---
192	DEFENSE EQUAL OPPORTUNITY MANAGEMENT INSTITUTE (DEOMI)	100	100	---
193	MANAGEMENT HEADQUARTERS - MDA	27,065	27,065	---
194	JOINT SERVICE PROVIDER (JSP)	3,090	3,090	---
9999	CLASSIFIED PROGRAMS	51,471	51,471	---
	TOTAL, RDT&E MANAGEMENT SUPPORT	1,354,628	1,339,154	-15,474
	OPERATIONAL SYSTEMS DEVELOPMENT			
195	ENTERPRISE SECURITY SYSTEM (ESS)	7,945	7,945	---
196	JOINT ARTIFICIAL INTELLIGENCE	208,834	166,834	-42,000
197	REGIONAL INTERNATIONAL OUTREACH & PARTNERSHIP FOR PEAC	1,947	1,947	---
198	OVERSEAS HUMANITARIAN ASSISTANCE SHARED INFORMATION SY	310	310	---
199	INDUSTRIAL BASE ANALYSIS AND SUSTAINMENT SUPPORT	10,051	39,551	+29,500
200	OPERATIONAL SYSTEMS DEVELOPMENT	12,734	12,734	---
201	GLOBAL THEATER SECURITY COOPERATION MANAGEMENT	14,800	10,350	-4,450
202	CHEMICAL AND BIOLOGICAL DEFENSE (OPERATIONAL SYSTEMS D	54,023	54,023	---
203	PLANNING AND DECISION AID SYSTEM	4,537	4,537	---
204	C4I INTEROPERABILITY	64,122	64,122	---
210	DEFENSE INFO INFRASTRUCTURE ENGINEERING & INTEGRATION.	15,798	15,798	---
211	LONG HAUL COMMUNICATIONS (DCS)	11,166	11,166	---
212	MINIMUM ESSENTIAL EMERGENCY COMMUNICATIONS NETWORK	17,383	17,383	---
214	KEY MANAGEMENT INFRASTRUCTURE (KMI)	54,516	54,516	---
215	INFORMATION SYSTEMS SECURITY PROGRAM	67,631	67,631	---
216	INFORMATION SYSTEMS SECURITY PROGRAM	289,080	287,198	-1,882
217	INFORMATION SYSTEMS SECURITY PROGRAM	42,796	40,398	-2,398
218	GLOBAL COMMAND AND CONTROL SYSTEM	25,218	25,218	---
219	JOINT SPECTRUM CENTER (DEFENSE SPECTRUM ORGANIZATION).	21,698	19,528	-2,170
220	JOINT INFORMATION ENVIRONMENT (JIE)	18,077	16,269	-1,808
222	FEDERAL INVESTIGATIVE SERVICES INFORMATION TECHNOLOGY.	44,001	44,001	---
228	SECURITY AND INVESTIGATIVE ACTIVITIES	2,400	2,400	---
232	POLICY R&D PROGRAMS	6,301	6,301	---
233	NET CENTRICITY	21,384	21,384	---
235	DISTRIBUTED COMMON GROUND/SURFACE SYSTEMS	6,359	6,359	---
238	DISTRIBUTED COMMON GROUND/SURFACE SYSTEMS	2,981	2,981	---

(DOLLARS IN THOUSANDS)

		BUDGET REQUEST	COMMITTEE RECOMMENDED	CHANGE FROM REQUEST
241	INSIDER THREAT	1,964	1,964	---
242	HOMELAND DEFENSE TECHNOLOGY TRANSFER PROGRAM	2,221	2,221	---
250	LOGISTICS SUPPORT ACTIVITIES	1,361	1,361	---
251	PACIFIC DISASTER CENTERS	1,770	1,770	---
252	DEFENSE PROPERTY ACCOUNTABILITY SYSTEM	3,679	3,679	---
254	MQ-9 UAV	20,697	20,697	---
256	SPECIAL OPERATIONS AVIATION SYSTEMS ADVANCED DEV	245,795	253,795	+8,000
257	SPECIAL OPERATIONS INTELLIGENCE SYSTEMS DEVELOPMENT	15,484	15,484	---
258	SOF OPERATIONAL ENHANCEMENTS	166,922	166,922	---
259	WARRIOR SYSTEMS	62,332	65,332	+3,000
260	SPECIAL PROGRAMS	21,805	21,805	---
261	UNMANNED ISR	37,377	37,377	---
262	SOF TACTICAL VEHICLES	11,150	11,150	---
263	SOF MARITIME SYSTEMS	72,626	75,626	+3,000
264	SOF GLOBAL VIDEO SURVEILLANCE ACTIVITIES	5,363	5,363	---
265	SOF OPERATIONAL ENHANCEMENTS INTELLIGENCE	12,962	9,962	-3,000
266	SOF TELEPORT PROGRAM	6,158	5,542	-616
	TOTAL, OPERATIONAL SYSTEMS DEVELOPMENT	1,715,758	1,700,934	-14,824
999	CLASSIFIED PROGRAMS	4,116,640	4,585,830	+469,190
	TOTAL, RESEARCH, DEVELOPMENT, TEST & EVAL, DEF-WIDE	24,346,953	24,502,308	+155,355

EXPLANATION OF PROJECT LEVEL ADJUSTMENTS
[In thousands of dollars]

R-1		Budget Request	Committee Recommended	Change from Request
3	BASIC RESEARCH INITIATIVES	48,874	61,374	12,500
	Program increase - Minerva research initiative		2,000	
	Program increase - DEPSCOR		10,500	
5	NATIONAL DEFENSE EDUCATION PROGRAM	92,074	142,074	50,000
	Program increase - regional fabrication and certification training labs		15,000	
	Basic research program increase		35,000	
6	HISTORICALLY BLACK COLLEGES & UNIVERSITIES (HBCU) AND MINORITY-SERVING INSTITUTIONS	30,708	40,708	10,000
	Program increase		10,000	
12	APPLIED RESEARCH FOR THE ADVANCEMENT OF S&T PRIORITIES	62,200	53,400	-8,800
	Excess growth		-8,800	
13	INFORMATION AND COMMUNICATIONS TECHNOLOGY	442,556	437,556	-5,000
	Unjustified growth		-5,000	
15	CHEMICAL AND BIOLOGICAL DEFENSE PROGRAM	202,587	212,957	10,370
	Excess growth		-2,130	
	Program increase		12,500	
16	CYBER SECURITY RESEARCH	15,118	25,118	10,000
	Program increase - academic cyber institutes		10,000	
19	ELECTRONICS TECHNOLOGY	332,192	326,192	-6,000
	Unjustified growth		-6,000	
22	SPECIAL OPERATIONS TECHNOLOGY DEVELOPMENT	40,569	35,569	-5,000
	Underexecution		-5,000	
25	COMBATING TERRORISM TECHNOLOGY SUPPORT	70,517	75,517	5,000
	Program increase		5,000	
28	COUNTER WEAPONS OF MASS DESTRUCTION ADVANCED TECHNOLOGY DEVELOPMENT	340,065	338,575	-1,490
	Excess growth		-1,490	
29	ADVANCED CONCEPTS AND PERFORMANCE ASSESSMENT	14,208	19,208	5,000
	Program increase - advanced cyber capabilities		5,000	
31	ADVANCED RESEARCH	20,674	27,674	7,000
	Program increase - carbon composites manufacturing		7,000	

R-1		Budget Request	Committee Recommended	Change from Request
34	SPACE PROGRAMS AND TECHNOLOGY	202,606	190,306	-12,300
	RSGS replan excess to need		-12,300	
35	ANALYTIC ASSESSMENTS	19,429	18,429	-1,000
	Underexecution		-1,000	
41	TECHNOLOGY INNOVATION	60,000	33,729	-26,271
	Insufficient justification		-26,271	
42	CHEMICAL AND BIOLOGICAL DEFENSE PROGRAM - ADVANCED DEVELOPMENT	172,486	175,486	3,000
	Program increase - improved gas particulate filter unit		3,000	
47	DEFENSE-WIDE MANUFACTURING SCIENCE AND TECHNOLOGY PROGRAM	96,397	156,397	60,000
	Program increase		20,000	
	Program increase - national security technology accelerator		15,000	
	Program increase - manufacturing engineering programs		5,000	
	Program increase - manufacturing innovation institutes		10,000	
	Program increase - advanced manufacturing		10,000	
48	MANUFACTURING TECHNOLOGY PROGRAM	42,834	52,834	10,000
	Program increase - steel alloy development and manufacturing technology		10,000	
49	EMERGING CAPABILITIES TECHNOLOGY DEVELOPMENT	80,911	83,411	2,500
	Excess growth		-7,500	
	Program increase - high-altitude optical reconnaissance unit and sensors		10,000	
50	GENERIC LOGISTICS R&D TECHNOLOGY DEMONSTRATIONS	10,817	15,817	5,000
	Program increase - fuel conversion		5,000	
56	NETWORK-CENTRIC WARFARE TECHNOLOGY	512,424	507,424	-5,000
	Unjustified increase		-5,000	
58	DISTRIBUTED LEARNING ADVANCED TECHNOLOGY DEVELOPMENT	13,723	22,446	8,723
	Program increase		8,723	
62	HIGH ENERGY LASER ADVANCED TECHNOLOGY PROGRAM	85,223	76,223	-9,000
	Early to need		-9,000	
65	OPERATIONAL ENERGY CAPABILITY IMPROVEMENT	70,536	58,900	-11,636
	Excess growth		-16,636	
	Program increase - operational energy capability improvement fund		5,000	

R-1		Budget Request	Committee Recommended	Change from Request
68	SPECIAL OPERATIONS ADVANCED TECHNOLOGY DEVELOPMENT	89,154	93,404	4,250
	Program increase - ballistic and laser protective eyewear		4,250	
75	BALLISTIC MISSILE DEFENSE MIDCOURSE DEFENSE SEGMENT	1,156,506	969,100	-187,406
	Early to need		-147,000	
	Inadequate justification		-40,406	
78	BALLISTIC MISSILE DEFENSE ENABLING PROGRAMS	571,507	571,507	0
	FTM-44 rescoping ICBM		-2,000	
	FTM-44 rescoping non-ICBM		2,000	
79	SPECIAL PROGRAMS - MDA	377,098	512,098	135,000
	Program increase - classified unfunded requirement		135,000	
80	AEGIS BMD	727,479	699,479	-28,000
	Unjustified growth		-28,000	
81	BALLISTIC MISSILE DEFENSE C2BMC	564,206	560,756	-3,450
	Program decrease - IBCS delay		-1,550	
	FTM-44 rescoping ICBM		-1,900	
87	BMD TESTS	395,924	392,324	-3,600
	FTM-44 rescoping ICBM		-3,600	
88	BMD TARGETS	554,171	541,771	-12,400
	FTM-44 rescoping ICBM		-14,200	
	FTM-44 rescoping non-ICBM		1,800	
89	HUMANITARIAN DEMINING	10,820	14,700	3,880
	Program increase		3,880	
91	DEPARTMENT OF DEFENSE CORROSION PROGRAM	3,365	5,365	2,000
	Program increase		2,000	
92	TECHNOLOGY MATURATION INITIATIVES	303,458	271,358	-32,100
	Program decrease - neutral particle beam		-34,000	
	FTM-44 rescoping ICBM		-3,300	
	FTM-44 rescoping non-ICBM		5,200	
93	MISSILE DEFEAT PROJECT	17,816	10,000	-7,816
	Insufficient justification		-7,816	
95	HYPERSONIC DEFENSE	157,425	159,325	1,900
	Program increase - hypersonic defense		1,900	
96	ADVANCED INNOVATIVE TECHNOLOGIES	1,312,735	1,138,365	-174,370
	Insufficient justification		-174,370	

R-1		Budget Request	Committee Recommended	Change from Request
97	TRUSTED & ASSURED MICROELECTRONICS	542,421	547,421	5,000
	Program increase - supply chain risk management		5,000	
99	DEFENSE INNOVATION UNIT (DIU) PROTOTYPING	92,000	17,000	-75,000
	Insufficient justification - National Security Innovation Capital project		-75,000	
105	DEFENSE RAPID INNOVATION PROGRAM	14,021	0	-14,021
	Program decrease - DTRA insufficient justification		-14,021	
111	AEGIS BMD TEST	169,822	150,722	-19,100
	FTM-44 rescoping ICBM		-39,400	
	FTM-44 rescoping non-ICBM		20,300	
112	BALLISTIC MISSILE DEFENSE SENSORS TEST	105,530	94,830	-10,700
	FTM-44 rescoping ICBM		-15,000	
	FTM-44 rescoping non-ICBM		4,300	
115	BALLISTIC MISSILE DEFENSE MIDCOURSE DEFENSE SEGMENT TEST	98,139	96,439	-1,700
	FTM-44 rescoping ICBM		-1,700	
119	CYBER SECURITY INITIATIVE	1,138	6,138	5,000
	Program increase - manufacturing cybersecurity		5,000	
120	SPACE TECHNOLOGY DEVELOPMENT AND PROTOTYPING	85,000	35,000	-50,000
	Insufficient justification		-50,000	
122	BALLISTIC MISSILE DEFENSE SYSTEM SPACE PROGRAMS	27,565	135,565	108,000
	Program increase - hypersonic and ballistic tracking space sensor unfunded requirement		108,000	
124	PROMPT GLOBAL STRIKE CAPABILITY DEVELOPMENT	107,000	0	-107,000
	Transfer to RDTE,A line 100		-31,000	
	Classified Reduction		-76,000	
124A	HYPERSONICS CAPABILITY DEVELOPMENT	0	85,000	85,000
	Program increase		85,000	
125	CHEMICAL AND BIOLOGICAL DEFENSE PROGRAM	384,047	374,047	-10,000
	Excess growth		-10,000	
126	JOINT TACTICAL INFORMATION DISTRIBUTION SYSTEM (JTIDS)	40,102	45,602	5,500
	Program increase - encrypted and authenticated data in transit		5,500	
130	DEFENSE EXPORTABILITY PROGRAM	17,615	7,615	-10,000
	Excess growth		-10,000	

R-1		Budget Request	Committee Recommended	Change from Request
145	CENTRAL TEST & EVAL INVESTMENT DEVELOPMENT	260,267	280,267	20,000
	Program increase - hypersonic test facilities		20,000	
150	JOINT THEATER AIR AND MISSILE DEFENSE ORGANIZATION	70,038	62,805	-7,233
	Excess growth		-7,233	
156	GENERAL SUPPORT TO USD (INTELLIGENCE)	1,700	13,700	12,000
	Program increase - applied research laboratory for intelligence and security		12,000	
167	MAINTAINING TECHNOLOGY ADVANTAGE	19,936	17,936	-2,000
	Excess growth		-2,000	
185	COMBINED ADVANCED APPLICATIONS	58,667	25,636	-33,031
	Unjustified growth		-33,031	
187	INTELLIGENCE CAPABILITIES AND INNOVATION INVESTMENTS	21,081	15,871	-5,210
	Insufficient justification		-5,210	
196	JOINT ARTIFICIAL INTELLIGENCE	208,834	166,834	-42,000
	Insufficient justification		-42,000	
199	INDUSTRIAL BASE ANALYSIS AND SUSTAINMENT SUPPORT	10,051	39,551	29,500
	Program increase		10,000	
	Program increase - advanced armor piercing penetrator		12,000	
	Program increase - precision optics manufacturing		7,500	
201	GLOBAL THEATER SECURITY COOPERATION MANAGEMENT	14,800	10,350	-4,450
	Excess growth		-4,450	
216	INFORMATION SYSTEMS SECURITY PROGRAM	289,080	287,198	-1,882
	Sharkseer - transfer to line 217		-1,882	
217	INFORMATION SYSTEMS SECURITY PROGRAM	42,796	40,398	-2,398
	Unjustified growth		-4,280	
	Sharkseer - transfer to line 216		1,882	
219	DEFENSE SPECTRUM ORGANIZATION	21,698	19,528	-2,170
	Insufficient justification		-2,170	
220	JOINT REGIONAL SECURITY STACKS (JRSS)	18,077	16,269	-1,808
	Insufficient justification		-1,808	
256	SPECIAL OPERATIONS AVIATION SYSTEMS ADVANCED DEVELOPMENT	245,795	253,795	8,000
	Program increase - loitering missile		8,000	

R-1		Budget Request	Committee Recommended	Change from Request
259	**WARRIOR SYSTEMS**	62,332	65,332	3,000
	Program increase - small glide munition UAS integration		3,000	
263	**SOF MARITIME SYSTEMS**	72,626	75,626	3,000
	Program increase - diver propulsion		3,000	
265	**SOF OPERATIONAL ENHANCEMENTS INTELLIGENCE**	12,962	9,962	-3,000
	Underexecution		-3,000	
266	**TELEPORT PROGRAM**	6,158	5,542	-616
	Insufficient justification		-616	
999	**CLASSIFIED PROGRAMS**	4,116,640	4,585,830	469,190
	Classified adjustment		43,190	
	Transfer from title IX		426,000	

RENEWABLE ENERGY FOR MILITARY INSTALLATIONS

The Committee notes that ensuring a reliable and resilient electrical power supply to military installations is critical to national security. The Committee further notes that renewable sources of energy can provide electricity while reducing long-term base operating costs. The Committee encourages the Secretary of Defense to support the research and development of renewable energy technology, such as solar arrays, that are resilient against extreme environmental and seismic conditions, electromagnetic pulse, and intentional disruption.

TRUSTED FOUNDRY

The Committee recognizes the importance of obtaining microelectronics from trusted suppliers. The Committee continues to urge the Secretary of Defense to facilitate and encourage competition in the fabrication of microelectronic devices when two or more participants in the Trusted Foundry Program can provide such devices and to expand opportunities for participation in the Trusted Foundry program. Participants in the Trusted Foundry Program should have the opportunity to compete under full, open, and merit-based competition, to the extent practicable, for all Trusted Foundry contracts.

COOPERATIVE RESEARCH

The Committee is pleased with efforts by the Service Secretaries to increase communication and cooperation among the military Services on science and technology investments. Coordination of the respective research agendas and investment plans will help reduce duplication, better leverage investments in areas of mutual interest, and reduce gaps in promising areas of technology. The Committee directs the Secretary of Defense to submit a report to the congressional defense committees not later than 120 days after the enactment of this Act which identifies the strategy and goals for each specific area of ongoing cooperative research, a five-year plan of prospective areas of cooperative research, and an estimate of amounts and sources of funding to carry out such research.

WOMEN AND MINORITIES IN STEM PIPELINE

The Department of Defense faces challenges recruiting and retaining a workforce skilled in science, technology, engineering, and mathematics (STEM). While this is a nationwide concern, the Committee supports Department of Defense efforts to grow the STEM workforce pipeline, particularly for women and minorities. The Committee encourages the Under Secretary of Defense for Research and Engineering to continue these efforts by partnering with Hispanic Serving Institutions, Historically Black Colleges and Universities, and other Minority Serving Institutions on research, fellowships, internships, and cooperative work experiences at defense laboratories.

Additionally, the Committee encourages the Under Secretary of Defense for Research and Engineering to collaborate with Hispanic Serving Institutions, Historically Black Colleges and Universities, and other Minority Serving Institutions to build a pipeline for sci-

entists and engineers to enter the cyber workforce upon graduation. The Committee directs the Under Secretary of Defense for Research and Engineering to submit a report to the House and Senate Appropriations Committees not later than 90 days after the enactment of this Act on departmental efforts to collaborate with these institutions in science and engineering fields.

LEAD-FREE ELECTRONICS

The current commercial trend toward lead-free electronics may result in supply chain and procurement issues that will impact the Department of Defense. The Committee encourages the Under Secretary of Defense for Research and Engineering to establish and maintain partnerships with industry and academia to close technical gaps and increase the capacity of the defense industry to produce lead-free electronics that meet military requirements.

PROTECTING TROOPS FROM BIOLOGICAL WEAPONS

The Committee recognizes the complexity of protecting warfighters from a full spectrum of biological threats. The Committee encourages the Director of the Defense Threat Reduction Agency to collaborate with institutions of higher learning on efforts to fully protect warfighters from biological threats.

FORENSIC SCIENCE WORKFORCE

The Committee understands that the Department of Defense has a requirement to grow its forensics workforce. The Committee encourages the Under Secretary of Defense for Research and Engineering to evaluate the Department's need for forensic scientists and collaborate with colleges and universities with programs that the Department may be able to leverage.

MILITARY LANGUAGE FLAGSHIP PROGRAM

The Committee recognizes that the National Security Education Program provides training for servicemembers and civilians in languages and cultures critical to national security. The Committee encourages the Secretary of Defense to continue supporting programs that ensure warfighters receive the language and culture training needed to effectively complete missions. Additionally, the Committee directs the Secretary of Defense to submit a report to the congressional defense committees not later than 120 days after the enactment of this Act which provides the percentage of strategic language billets filled with level three foreign language speakers and identifies additional resources that may be required to address existing shortfalls in this skillset.

INTEGRATED POWER AND THERMAL SYSTEMS

The Committee recognizes the importance of emergent capabilities in the field of directed energy weapons and acknowledges that a modular and scalable integrated power and thermal system capable of powering a directed energy weapon system of 100 or more kilowatts would provide an enhanced capability. The Committee encourages the Under Secretary of Defense for Research and Engi-

neering to review requirements for an integrated power and thermal system.

DISTRIBUTED LEDGER TECHNOLOGY RESEARCH AND DEVELOPMENT

The Committee is aware that distributed ledger technologies, such as blockchain, may have potentially useful applications for the Department of Defense, which include but are not limited to distributed computing, cyber security, logistics, and auditing. Therefore, the Committee encourages the Under Secretary of Defense for Research and Engineering to consider research and development to explore the use of distributed ledger technologies for defense applications.

NATIONAL SECURITY INNOVATION BASE

The Committee supports the contributions by the Department of Defense Basic Research Office to the national security innovation base. The Committee encourages the Under Secretary of Defense for Research and Engineering to continue these efforts, and expand connections between the Department of Defense, industry, and academia to provide a strong base for research of warfighting technologies.

ADVANCED STRUCTURAL MANUFACTURING TECHNOLOGIES

The Committee supports additional development on advanced additive manufacturing technologies utilizing cold spray to accelerate the delivery of technical capabilities to warfighters and expeditiously advance technologies. The Committee encourages the Under Secretary of Defense for Research and Engineering to consider the potential benefits of cold spray in operational and modernization efforts.

OPERATIONAL TEST AND EVALUATION, DEFENSE

Fiscal year 2019 appropriation	$381,009,000
Fiscal year 2020 budget request	221,200,000
Committee recommendation	221,200,000
Change from budget request	- - -

The Committee recommends an appropriation of $221,200,000 for Operational Test and Evaluation, Defense which will provide the following program in fiscal year 2020:

EXPLANATION OF PROJECT LEVEL ADJUSTMENTS

[In thousands of dollars]

	Budget Request	Committee Recommended	Change from Request
OPERATIONAL TEST AND EVALUATION	93,291	93,291	0
LIVE FIRE TESTING	69,172	69,172	0
OPERATIONAL TEST ACTIVITIES AND ANALYSIS	58,737	58,737	0
TOTAL, OPERATIONAL TEST & EVALUATION, DEFENSE	221,200	221,200	0