Department of Defense FY 2020 President's Budget Exhibit R-1 FY 2020 President's Budget Total Obligational Authority (Dollars in Thousands)

Appropriation	FY 2018 (Base + OCO)	FY 2019 Base Enacted	FY 2019 OCO Enacted	FY 2019 Total Enacted
Research, Development, Test & Eval, Navy	18,465,332	18,490,002	167,812	18,657,814
Total Research, Development, Test & Evaluation	18,465,332	18,490,002	167,812	18,657,814

Department of Defense FY 2020 President's Budget Exhibit R-1 FY 2020 President's Budget Total Obligational Authority (Dollars in Thousands)

FY 2020 OCO for FY 2020 Direct War FY 2020 FY 2020 FY 2020 OCO for Base and Enduring Total Total Appropriation Base Requirements Costs OCO (Base + OCO) Research, Development, Test & Eval, Navy 20,270,499 164,410 164,410 20,434,909 Total Research, Development, Test & Evaluation 20,270,499 164,410 164,410 20,434,909

Department of Defense FY 2020 President's Budget Exhibit R-1 FY 2020 President's Budget Total Obligational Authority (Dollars in Thousands)

Summary Recap of Budget Activities		FY 2019 Base Enacted		FY 2019 Total Enacted
Basic Research	604,634	679,772		679,772
Applied Research	975,419	1,018,795		1,018,795
Advanced Technology Development	900,071	851,710		851,710
Advanced Component Development & Prototypes	4,210,640	4,139,479	33,300	4,172,779
System Development & Demonstration	6,037,909	5,863,466	1,100	5,864,566
Management Support	1,388,936	1,023,070		1,023,070
Operational Systems Development	4,347,723	4,913,710	133,412	5,047,122
Total Research, Development, Test & Evaluation	18,465,332	18,490,002	167,812	18,657,814
Summary Recap of FYDP Programs				
Strategic Forces	192,820	240,310		240,310
General Purpose Forces	1,514,837	1,914,231	16,130	1,930,361
Intelligence and Communications	816,404	608,772		608,772
Research and Development	13,991,927	13,937,905	34,400	13,972,305
Central Supply and Maintenance	40,084	73,844		73,844
Administration and Associated Activities	1,820	1,579		1,579
Space	49,738	42,858		42,858
Classified Programs	1,857,702	1,670,503	117,282	1,787,785
Total Research, Development, Test & Evaluation	18,465,332	18,490,002	167,812	18,657,814

Department of Defense FY 2020 President's Budget Exhibit R-1 FY 2020 President's Budget Total Obligational Authority (Dollars in Thousands)

FY 2020 OCO for
FY 2020 Direct Way

Summary Recap of Budget Activities	FY 2020 Base	Requirements	OCO for Direct War and Enduring Costs	OCO	FY 2020 Total (Base + OCO)
Basic Research	605,978				605,978
Applied Research	936,453				936,453
Advanced Technology Development	742,210				742,210
Advanced Component Development & Prototypes	5,559,062		40,006	40,006	5,599,068
System Development & Demonstration	6,332,033		1,122	1,122	6,333,155
Management Support	990,464				990,464
Operational Systems Development	5,104,299		123,282	123,282	5,227,581
Total Research, Development, Test & Evaluation	20,270,499		164,410	164,410	20,434,909
Summary Recap of FYDP Programs					
Strategic Forces	239,019				239,019
General Purpose Forces	1,835,959		15,000	15,000	1,850,959
Intelligence and Communications	692,089				692,089
Research and Development	15,828,006		41,128	41,128	15,869,134
Central Supply and Maintenance	44,961				44,961
Administration and Associated Activities	1,460				1,460
Space	15,868				15,868
Classified Programs	1,613,137		108,282	108,282	1,721,419
Total Research, Development, Test & Evaluation	20,270,499		164,410	164,410	20,434,909

Department of the Navy FY 2020 President's Budget Exhibit R-1 FY 2020 President's Budget Total Obligational Authority (Dollars in Thousands)

Summary Recap of Budget Activities		FY 2019 Base Enacted		FY 2019 Total Enacted
Basic Research	604,634	679,772		679,772
Applied Research	975,419	1,018,795		1,018,795
Advanced Technology Development	900,071	851,710		851,710
Advanced Component Development & Prototypes	4,210,640	4,139,479	33,300	4,172,779
System Development & Demonstration	6,037,909	5,863,466	1,100	5,864,566
Management Support	1,388,936	1,023,070		1,023,070
Operational Systems Development	4,347,723	4,913,710	133,412	5,047,122
Total Research, Development, Test & Evaluation	18,465,332	18,490,002	167,812	18,657,814
Summary Recap of FYDP Programs				
Strategic Forces	192,820	240,310		240,310
General Purpose Forces	1,514,837	1,914,231	16,130	1,930,361
Intelligence and Communications	816,404	608,772		608,772
Research and Development	13,991,927	13,937,905	34,400	13,972,305
Central Supply and Maintenance	40,084	73,844		73,844
Administration and Associated Activities	1,820	1,579		1,579
Space	49,738	42,858		42,858
Classified Programs	1,857,702	1,670,503	117,282	1,787,785
Total Research, Development, Test & Evaluation	18,465,332	18,490,002	167,812	18,657,814

Department of the Navy FY 2020 President's Budget Exhibit R-1 FY 2020 President's Budget Total Obligational Authority (Dollars in Thousands)

FY 2020 OCO for

Summary Recap of Budget Activities	FY 2020 Base	FY 2020 OCO for Base Requirements	OCO for Direct War and Enduring Costs	OCO	FY 2020 Total (Base + OCO)
Basic Research	605,978				605,978
Applied Research	936,453				936,453
Advanced Technology Development	742,210				742,210
Advanced Component Development & Prototypes	5,559,062		40,006	40,006	5,599,068
System Development & Demonstration	6,332,033		1,122	1,122	6,333,155
Management Support	990,464				990,464
Operational Systems Development	5,104,299		123,282	123,282	5,227,581
Total Research, Development, Test & Evaluation	20,270,499		164,410	164,410	20,434,909
Summary Recap of FYDP Programs					
Strategic Forces	239,019				239,019
General Purpose Forces	1,835,959		15,000	15,000	1,850,959
Intelligence and Communications	692,089				692,089
Research and Development	15,828,006		41,128	41,128	15,869,134
Central Supply and Maintenance	44,961				44,961
Administration and Associated Activities	1,460				1,460
Space	15,868				15,868
Classified Programs	1,613,137		108,282	108,282	1,721,419
Total Research, Development, Test & Evaluation	20,270,499		164,410	164,410	20,434,909

Department of the Navy FY 2020 President's Budget Exhibit R-1 FY 2020 President's Budget Total Obligational Authority (Dollars in Thousands)

Appropriation: 1319N Research, Development, Test & Eval, Navy

	Program Element Number	Item 	Act	FY 2018 (Base + OCO)	FY 2019 Base Enacted	FY 2019 OCO Enacted	FY 2019 Total Enacted	S e l c
1	0601103N	University Research Initiatives	01	137,515	161,433		161,433	U
2	0601152N	In-House Laboratory Independent Research	01	19,035	19,237		19,237	U
3	0601153N	Defense Research Sciences	01	448,084	499,102		499,102	U
	Basic	Research		604,634	679,772		679,772	
4	0602114N	Power Projection Applied Research	02	23,028	27,643		27,643	U
5	0602123N	Force Protection Applied Research	02	182,614	180,549		180,549	U
6	0602131M	Marine Corps Landing Force Technology	02	54,526	63,212		63,212	Ū
7	0602235N	Common Picture Applied Research	02	35,846	36,348		36,348	U
8	0602236N	Warfighter Sustainment Applied Research	02	48,606	65,782		65,782	Ū
9	0602271N	Electromagnetic Systems Applied Research	02	83,640	76,497		76,497	Ū
10	0602435N	Ocean Warfighting Environment Applied Research	02	72,530	89,998		89,998	U
11	0602651M	Joint Non-Lethal Weapons Applied Research	02	6,230	6,299		6,299	U
12	0602747N	Undersea Warfare Applied Research	02	59,644	78,049		78,049	U
13	0602750N	Future Naval Capabilities Applied Research	02	147,219	137,701		137,701	U
14	0602782N	Mine and Expeditionary Warfare Applied Research	02	35,430	38,214		38,214	Ū
15	0602792N	Innovative Naval Prototypes (INP) Applied Research	02	160,884	154,085		154,085	U

Department of the Navy FY 2020 President's Budget Exhibit R-1 FY 2020 President's Budget Total Obligational Authority (Dollars in Thousands)

FY 2020

Appropriation: 1319N Research, Development, Test & Eval, Navy

	Program Element Number	Item	Act	FY 2020 Base	OCO for Direct War and Enduring Costs	FY 2020 Total OCO	FY 2020 Total (Base + OCO)	S e c
1	0601103N	University Research Initiatives	01	116,850			116,850	U
2	0601152N	In-House Laboratory Independent Research	01	19,121			19,121	U
3	0601153N	Defense Research Sciences	01	470,007			470,007	U
	Basic	Research		605,978	 		605,978	
4	0602114N	Power Projection Applied Research	02	18,546			18,546	U
5	0602123N	Force Protection Applied Research	02	119,517			119,517	U
6	0602131M	Marine Corps Landing Force Technology	02	56,604			56,604	U
7	0602235N	Common Picture Applied Research	02	49,297			49,297	U
8	0602236N	Warfighter Sustainment Applied Research	02	63,825			63,825	U
9	0602271N	Electromagnetic Systems Applied Research	02	83,497			83,497	U
10	0602435N	Ocean Warfighting Environment Applied Research	02	63,894			63,894	U
11	0602651M	Joint Non-Lethal Weapons Applied Research	02	6,346			6,346	U
12	0602747N	Undersea Warfare Applied Research	02	57,075			57,075	U
13	0602750N	Future Naval Capabilities Applied Research	02	154,755			154,755	U
14	0602782N	Mine and Expeditionary Warfare Applied Research	02	36,074			36,074	U
15	0602792N	Innovative Naval Prototypes (INP) Applied Research	02	153,062			153,062	U

Department of the Navy FY 2020 President's Budget Exhibit R-1 FY 2020 President's Budget Total Obligational Authority (Dollars in Thousands)

Appropriation: 1319N Research, Development, Test & Eval, Navy

	Program Element Number	Item	Act	FY 2018 (Base + OCO)	FY 2019 Base Enacted		S e l c
16		Science and Technology Management - ONR Field Acitivities			64,418	64,418	
	Applie	ed Research		975,419	1,018,795	 1,018,795	
17	0603123N	Force Protection Advanced Technology	03	52,785	32,615	32,615	U
18	0603271N	Electromagnetic Systems Advanced Technology	03	9,231	8,804	8,804	U
19	0603640M	USMC Advanced Technology Demonstration (ATD)	03	164,992	174,809	174,809	U
20	0603651M	Joint Non-Lethal Weapons Technology Development	03	13,090	13,313	13,313	U
21	0603673N	Future Naval Capabilities Advanced Technology Development	03	215,946	214,184	214,184	U
22	0603680N	Manufacturing Technology Program	03	66,173	58,657	58,657	U
23	0603729N	Warfighter Protection Advanced Technology	03	42,895	41,377	41,377	U
24	0603747N	Undersea Warfare Advanced Technology	03	9,657			U
25	0603758N	Navy Warfighting Experiments and Demonstrations	03	63,867	65,885	65,885	U
26	0603782N	Mine and Expeditionary Warfare Advanced Technology	03	14,826	39,672	39,672	U
27	0603801N	Innovative Naval Prototypes (INP) Advanced Technology Development	03	246,609	202,394	202,394	
	Advano	ced Technology Development		900,071	851,710	 851,710	
28	0603207N	Air/Ocean Tactical Applications	04	47,422	29,747	29,747	U
29	0603216N	Aviation Survivability	04	5,450	7,050	7,050	U

Department of the Navy FY 2020 President's Budget Exhibit R-1 FY 2020 President's Budget Total Obligational Authority (Dollars in Thousands)

FY 2020

Appropriation: 1319N Research, Development, Test & Eval, Navy

	Program Element Number		Act	FY 2020 Base	FY 2020 OCO for Base Requirements	OCO for Direct War and Enduring Costs	FY 2020 Total OCO	FY 2020 Total (Base + OCO)	S e c
16	0602861N	Science and Technology Management - ONR Field Acitivities	02	73,961				73,961	Ū
	Appli	ed Research		936,453				936,453	
17	0603123N	Force Protection Advanced Technology	03	35,286				35,286	U
18	0603271N	Electromagnetic Systems Advanced Technology	03	9,499				9,499	U
19	0603640M	USMC Advanced Technology Demonstration (ATD)	03	172,847				172,847	U
20	0603651M	Joint Non-Lethal Weapons Technology Development	03	13,307				13,307	Ū
21	0603673N	Future Naval Capabilities Advanced Technology Development	03	231,907				231,907	U
22	0603680N	Manufacturing Technology Program	03	60,138				60,138	U
23	0603729N	Warfighter Protection Advanced Technology	03	4,849				4,849	U
24	0603747N	Undersea Warfare Advanced Technology	03						U
25	0603758N	Navy Warfighting Experiments and Demonstrations	03	67,739				67,739	U
26	0603782N	Mine and Expeditionary Warfare Advanced Technology	03	13,335				13,335	U
27	0603801N	Innovative Naval Prototypes (INP) Advanced Technology Development	03	133,303				133,303	
	Advan	ced Technology Development		742,210				742,210	
28	0603207N	Air/Ocean Tactical Applications	04	32,643		2,400	2,400	35,043	U
29	0603216N	Aviation Survivability	04	11,919				11,919	U

Department of the Navy FY 2020 President's Budget Exhibit R-1 FY 2020 President's Budget Total Obligational Authority (Dollars in Thousands)

Appropriation: 1319N Research, Development, Test & Eval, Navy

	Program Element Number	Item	Act	FY 2018 (Base + OCO)	FY 2019 Base Enacted	FY 2019 OCO Enacted	FY 2019 Total Enacted	S e l c
30	0603251N	Aircraft Systems	04	693	793		793	U
31	0603254N	ASW Systems Development	04	7,466	7,044		7,044	U
32	0603261N	Tactical Airborne Reconnaissance	04	3,692	3,540		3,540	U
33	0603382N	Advanced Combat Systems Technology	04	4,450	39,240		39,240	U
34	0603502N	Surface and Shallow Water Mine Countermeasures	04	69,906	120,348		120,348	U
35	0603506N	Surface Ship Torpedo Defense	04	24,174	7,100		7,100	U
36	0603512N	Carrier Systems Development	04	9,184	5,440		5,440	U
37	0603525N	PILOT FISH	04	111,278	136,533		136,533	U
38	0603527N	RETRACT LARCH	04	32,608	11,745	18,000	29,745	U
39	0603536N	RETRACT JUNIPER	04	126,210	113,679		113,679	U
40	0603542N	Radiological Control	04	716	740		740	U
41	0603553N	Surface ASW	04	1,092	1,122		1,122	U
42	0603561N	Advanced Submarine System Development	04	91,927	105,809		105,809	U
43	0603562N	Submarine Tactical Warfare Systems	04	13,597	12,374		12,374	U
44	0603563N	Ship Concept Advanced Design	04	23,856	74,603		74,603	U
45	0603564N	Ship Preliminary Design & Feasibility Studies	04	18,369	13,348		13,348	U
46	0603570N	Advanced Nuclear Power Systems	04	329,500	256,137		256,137	U
47	0603573N	Advanced Surface Machinery Systems	04	22,406	27,109		27,109	U
48	0603576N	CHALK EAGLE	04	188,927	29,353		29,353	U

Department of the Navy FY 2020 President's Budget Exhibit R-1 FY 2020 President's Budget Total Obligational Authority (Dollars in Thousands)

FY 2020

Appropriation: 1319N Research, Development, Test & Eval, Navy

Program Line Element No Number	Item	Act	FY 2020 Base	FY 2020 OCO for Base Requirements	OCO for Direct War and Enduring Costs	FY 2020 Total OCO	FY 2020 Total (Base + OCO)	S e c -
30 0603251N	Aircraft Systems	04	1,473				1,473	U
31 0603254N	ASW Systems Development	04	7,172				7,172	U
32 0603261N	Tactical Airborne Reconnaissance	04	3,419				3,419	U
33 0603382N	Advanced Combat Systems Technology	04	64,694				64,694	U
34 0603502N	Surface and Shallow Water Mine Countermeasures	04	507,000				507,000	U
35 0603506N	Surface Ship Torpedo Defense	04	15,800				15,800	U
36 0603512N	Carrier Systems Development	04	4,997				4,997	U
37 0603525N	PILOT FISH	04	291,148				291,148	U
38 0603527N	RETRACT LARCH	04	11,980		22,000	22,000	33,980	U
39 0603536N	RETRACT JUNIPER	04	129,163				129,163	U
40 0603542N	Radiological Control	04	689				689	U
41 0603553N	Surface ASW	04	1,137				1,137	U
42 0603561N	Advanced Submarine System Development	04	148,756				148,756	Ū
43 0603562N	Submarine Tactical Warfare Systems	04	11,192				11,192	U
44 0603563N	Ship Concept Advanced Design	04	81,846				81,846	U
45 0603564N	Ship Preliminary Design & Feasibility Studies	04	69,084				69,084	U
46 0603570N	Advanced Nuclear Power Systems	04	181,652				181,652	U
47 0603573N	Advanced Surface Machinery Systems	04	25,408				25,408	U
48 0603576N	CHALK EAGLE	04	64,877				64,877	U

Department of the Navy FY 2020 President's Budget Exhibit R-1 FY 2020 President's Budget Total Obligational Authority (Dollars in Thousands)

Appropriation: 1319N Research, Development, Test & Eval, Navy

Line No 	Program Element Number	Item 	Act	FY 2018 (Base + OCO)	FY 2019 Base Enacted	FY 2019 OCO Enacted	FY 2019 Total Enacted	S e c
49	0603581N	Littoral Combat Ship (LCS)	04	49,308	37,997		37,997	U
50	0603582N	Combat System Integration	04	15,471	16,351		16,351	U
51	0603595N	Ohio Replacement	04	775,624	542,846		542,846	U
52	0603596N	LCS Mission Modules	04	100,470	103,559		103,559	U
53	0603597N	Automated Test and Analysis	04	24,145	37,931		37,931	U
54	0603599N	Frigate Development	04	137,655	132,775		132,775	U
55	0603609N	Conventional Munitions	04	13,699	9,307		9,307	U
56	0603635M	Marine Corps Ground Combat/Support System	04	771				U
57	0603654N	Joint Service Explosive Ordnance Development	04	77,409	47,857	13,900	61,757	U
58	0603713N	Ocean Engineering Technology Development	04	8,853	5,915		5,915	U
59	0603721N	Environmental Protection	04	23,237	19,811		19,811	U
60	0603724N	Navy Energy Program	04	42,425	32,656		32,656	U
61	0603725N	Facilities Improvement	04	2,794	5,301		5,301	U
62	0603734N	CHALK CORAL	04	237,402	267,477		267,477	U
63	0603739N	Navy Logistic Productivity	04	2,882	2,913		2,913	U
64	0603746N	RETRACT MAPLE	04	287,865	318,878		318,878	U
65	0603748N	LINK PLUMERIA	04	375,595	381,268		381,268	U
66	0603751N	RETRACT ELM	04	52,080	58,192		58,192	U
67	0603764N	LINK EVERGREEN	04	47,115				U

Department of the Navy FY 2020 President's Budget Exhibit R-1 FY 2020 President's Budget Total Obligational Authority (Dollars in Thousands)

FY 2020

Appropriation: 1319N Research, Development, Test & Eval, Navy

Line I	Program Element Number	Item	Act	FY 2020 Base	FY 2020 OCO for Base Requirements	OCO for Direct War and Enduring Costs	FY 2020 Total OCO	FY 2020 Total (Base + OCO)	S e c
49 (0603581N	Littoral Combat Ship (LCS)	04	9,934				9,934	U
50 (0603582N	Combat System Integration	04	17,251				17,251	U
51 (0603595N	Ohio Replacement	04	419,051				419,051	U
52 (0603596N	LCS Mission Modules	04	108,505				108,505	U
53 (0603597N	Automated Test and Analysis	04	7,653				7,653	U
54 (0603599N	Frigate Development	04	59,007				59,007	U
55 (0603609N	Conventional Munitions	04	9,988				9,988	U
56 (0603635M	Marine Corps Ground Combat/Support System	04	86,464				86,464	U
57 (0603654N	Joint Service Explosive Ordnance Development	04	33,478		14,178	14,178	47,656	U
58 (0603713N	Ocean Engineering Technology Development	04	5,619				5,619	U
59 (0603721N	Environmental Protection	04	20,564				20,564	U
60 (0603724N	Navy Energy Program	04	26,514				26,514	U
61 (0603725N	Facilities Improvement	04	3,440				3,440	U
62 (0603734N	CHALK CORAL	04	346,800				346,800	U
63 (0603739N	Navy Logistic Productivity	04	3,857				3,857	U
64 (0603746N	RETRACT MAPLE	04	258,519				258,519	U
65 (0603748N	LINK PLUMERIA	04	403,909				403,909	U
66 (0603751N	RETRACT ELM	04	63,434				63,434	U
67 (0603764N	LINK EVERGREEN	04	184,110				184,110	U

Department of the Navy FY 2020 President's Budget Exhibit R-1 FY 2020 President's Budget Total Obligational Authority (Dollars in Thousands)

Appropriation: 1319N Research, Development, Test & Eval, Navy

	Program Element Number	Item 	Act	FY 2018 (Base + OCO)	FY 2019 Base Enacted	FY 2019 OCO Enacted	FY 2019 Total Enacted	S e c
68	0603790N	NATO Research and Development	04	8,752	9,652		9,652	U
69	0603795N	Land Attack Technology	04	16,684	5,700	1,400	7,100	U
70	0603851M	Joint Non-Lethal Weapons Testing	04	23,934	27,581		27,581	U
71	0603860N	Joint Precision Approach and Landing Systems - Dem/Val	04	103,984	101,566		101,566	U
72	0603925N	Directed Energy and Electric Weapon Systems	04	92,856	142,814		142,814	U
73	0604014N	F/A -18 Infrared Search and Track (IRST)	04		108,689		108,689	U
74	0604027N	Digital Warfare Office	04	14,476	20,000		20,000	U
75	0604028N	Small and Medium Unmanned Undersea Vehicles	04		16,717		16,717	U
76	0604029N	Unmanned Undersea Vehicle Core Technologies	04		27,483		27,483	U
77	0604030N	Rapid Prototyping, Experimentation and Demonstration.	04	25,225	28,596		28,596	U
78	0604031N	Large Unmanned Undersea Vehicles	04	23,886	60,304		60,304	U
79	0604112N	Gerald R. Ford Class Nuclear Aircraft Carrier (CVN 78 - 80)	04	82,549	83,121		83,121	U
80	0604126N	Littoral Airborne MCM	04	11,314	14,625		14,625	U
81	0604127N	Surface Mine Countermeasures	04	12,525	15,527		15,527	U
82	0604272N	Tactical Air Directional Infrared Countermeasures (TADIRCM)	04	51,311	47,278		47,278	U
83	0604286M	Marine Corps Additive Manufacturing Technology Development	04	6,168				U

Department of the Navy FY 2020 President's Budget Exhibit R-1 FY 2020 President's Budget Total Obligational Authority (Dollars in Thousands)

FY 2020

Appropriation: 1319N Research, Development, Test & Eval, Navy

Program Line Element No Number	Item 	Act	FY 2020 Base	FY 2020 OCO for Base Requirements	OCO for Direct War and Enduring Costs	FY 2020 Total OCO	FY 2020 Total (Base + OCO)	S e c -
68 0603790N	NATO Research and Development	04	7,697				7,697	U
69 0603795N	Land Attack Technology	04	9,086		1,428	1,428	10,514	U
70 0603851M	Joint Non-Lethal Weapons Testing	04	28,466				28,466	U
71 0603860N	Joint Precision Approach and Landing Systems - Dem/Val	04	51,341				51,341	U
72 0603925N	Directed Energy and Electric Weapon Systems	04	118,169				118,169	U
73 0604014N	F/A -18 Infrared Search and Track (IRST)	04	113,456				113,456	U
74 0604027N	Digital Warfare Office	04	50,120				50,120	U
75 0604028N	Small and Medium Unmanned Undersea Vehicles	04	32,527				32,527	U
76 0604029N	Unmanned Undersea Vehicle Core Technologies	04	54,376				54,376	U
77 0604030N	Rapid Prototyping, Experimentation and Demonstration.	04	36,197				36,197	U
78 0604031N	Large Unmanned Undersea Vehicles	04	68,310				68,310	U
79 0604112N	Gerald R. Ford Class Nuclear Aircraft Carrier (CVN 78 - 80)	04	121,310				121,310	U
80 0604126N	Littoral Airborne MCM	04	17,248				17,248	U
81 0604127N	Surface Mine Countermeasures	04	18,735				18,735	U
82 0604272N	Tactical Air Directional Infrared Countermeasures (TADIRCM)	04	68,346				68,346	U
83 0604286M	Marine Corps Additive Manufacturing Technology Development	04						U

Department of the Navy FY 2020 President's Budget Exhibit R-1 FY 2020 President's Budget Total Obligational Authority (Dollars in Thousands)

Appropriation: 1319N Research, Development, Test & Eval, Navy

	Program Element Number	Item 	Act	FY 2018 (Base + OCO)	FY 2019 Base Enacted	FY 2019 OCO Enacted	FY 2019 Total Enacted	S e l c
84	0604289M	Next Generation Logistics	04		6,073		6,073	U
85	0604320M	Rapid Technology Capability Prototype	04	16,443	7,107		7,107	U
86	0604454N	LX (R)	04	9,431	5,549		5,549	U
87	0604536N	Advanced Undersea Prototyping	04	64,038	112,669		112,669	U
88	0604636N	Counter Unmanned Aircraft Systems (C-UAS)	04					U
89	0604659N	Precision Strike Weapons Development Program	04	20,279	91,833		91,833	U
90	0604707N	Space and Electronic Warfare (SEW) Architecture/Engineering Support	04	41,214	7,230		7,230	U
91	0604786N	Offensive Anti-Surface Warfare Weapon Development	04	163,843	139,261		139,261	U
92	0303354N	ASW Systems Development - MIP	04	8,278	8,889		8,889	U
93	0304240M	Advanced Tactical Unmanned Aircraft System	04	5,200	17,561		17,561	U
94	0304240N	Advanced Tactical Unmanned Aircraft System	04		9,300		9,300	U
95	0304270N	Electronic Warfare Development - MI	P 04	527	466		466	U
	Advan	ced Component Development & Prototyp	es	4,210,640	4,139,479	33,300	4,172,779	
96	0603208N	Training System Aircraft	05	16,343	12,798		12,798	U
97	0604212N	Other Helo Development	05	26,423	23,579		23,579	U
98	0604214M	AV-8B Aircraft - Eng Dev	05		46,363		46,363	U
99	0604214N	AV-8B Aircraft - Eng Dev	05	41,261				U

Department of the Navy FY 2020 President's Budget Exhibit R-1 FY 2020 President's Budget Total Obligational Authority (Dollars in Thousands)

FY 2020

Appropriation: 1319N Research, Development, Test & Eval, Navy

	Program Element Number			FY 2020 Base	FY 2020 OCO for Base Requirements	OCO for Direct War and Enduring Costs	FY 2020 Total OCO	FY 2020 Total (Base + OCO)	S e c
84	0604289M	Next Generation Logistics	04	4,420				4,420	TT
		nene deneration regreeres	0.1	1, 120				,	
85	0604320M	Rapid Technology Capability Prototype	04	4,558				4,558	U
86	0604454N	LX (R)	04	12,500				12,500	U
87	0604536N	Advanced Undersea Prototyping	04	181,967				181,967	U
88	0604636N	Counter Unmanned Aircraft Systems (C-UAS)	04	5,500				5,500	U
89	0604659N	Precision Strike Weapons Development Program	04	718,148				718,148	U
90	0604707N	Space and Electronic Warfare (SEW) Architecture/Engineering Support	04	5,263				5,263	U
91	0604786N	Offensive Anti-Surface Warfare Weapon Development	04	65,419				65,419	U
92	0303354N	ASW Systems Development - MIP	04	9,991				9,991	U
93	0304240M	Advanced Tactical Unmanned Aircraft System	04	21,157				21,157	U
94	0304240N	Advanced Tactical Unmanned Aircraft System	04						U
95	0304270N	Electronic Warfare Development - MIE	04	609				609	U
	Advan	ced Component Development & Prototype	es	5,559,062		40,006	40,006	5,599,068	
96	0603208N	Training System Aircraft	05	15,514				15,514	U
97	0604212N	Other Helo Development	05	28,835				28,835	U
98	0604214M	AV-8B Aircraft - Eng Dev	05	27,441				27,441	U
99	0604214N	AV-8B Aircraft - Eng Dev	05						U

Department of the Navy FY 2020 President's Budget Exhibit R-1 FY 2020 President's Budget Total Obligational Authority (Dollars in Thousands)

Appropriation: 1319N Research, Development, Test & Eval, Navy

Line Ele No Num	ogram ement mber	Item 	Act	FY 2018 (Base + OCO)	FY 2019 Base Enacted	FY 2019 OCO Enacted	FY 2019 Total Enacted	S e c
100 060	0 421 5N	Standards Development	05	2,711	3,771		3,771	U
101 060	04216N	Multi-Mission Helicopter Upgrade Development	05	5,313	16,611		16,611	U
102 060	04218N	Air/Ocean Equipment Engineering	05	5,583	15,582		15,582	U
103 060	04221N	P-3 Modernization Program	05	1,331	2,134		2,134	U
104 060	04230N	Warfare Support System	05	19,004	9,729		9,729	U
105 060	04231N	Tactical Command System	05	37,609	54,300		54,300	U
106 060	04234N	Advanced Hawkeye	05	283,497	210,565		210,565	U
107 060	04245M	H-1 Upgrades	05		54,320		54,320	U
108 060	04245N	H-1 Upgrades	05	59,806				U
109 060	04261N	Acoustic Search Sensors	05	36,310	42,485		42,485	U
110 060	04262N	V-22A	05	176,804	135,504		135,504	U
111 060	04264N	Air Crew Systems Development	05	7,174	30,980		30,980	U
112 060	04269N	EA-18	05	137,029	242,719		242,719	U
113 060	04270N	Electronic Warfare Development	05	50,613	83,624		83,624	U
114 060	04273M	Executive Helo Development	05		245,064		245,064	U
115 060	04273N	Executive Helo Development	05	430,647				U
116 060	04274N	Next Generation Jammer (NGJ)	05	584,538	449,429		449,429	U
117 060	04280N	Joint Tactical Radio System - Navy (JTRS-Navy)	05	5,172	3,272		3,272	U
118 060	04282N	Next Generation Jammer (NGJ) Increment II	05	55,194	93,482		93,482	U

Department of the Navy FY 2020 President's Budget Exhibit R-1 FY 2020 President's Budget Total Obligational Authority (Dollars in Thousands)

FY 2020

Appropriation: 1319N Research, Development, Test & Eval, Navy

Program Line Element No Number	Item	Act	FY 2020 Base	FY 2020 OCO for Base Requirements	OCO for Direct War and Enduring Costs	FY 2020 Total OCO	FY 2020 Total (Base + OCO)	S e c
100 0604215N	Standards Development	05	3,642				3,642	U
101 0604216N	Multi-Mission Helicopter Upgrade Development	05	19,196				19,196	U
102 0604218N	Air/Ocean Equipment Engineering	05						U
103 0604221N	P-3 Modernization Program	05						U
104 0604230N	Warfare Support System	05	8,601				8,601	U
105 0604231N	Tactical Command System	05	77,232				77,232	U
106 0604234N	Advanced Hawkeye	05	232,752				232,752	U
107 0604245M	H-1 Upgrades	05	65,359				65,359	U
108 0604245N	H-1 Upgrades	05						U
109 0604261N	Acoustic Search Sensors	05	47,013				47,013	U
110 0604262N	V-22A	05	185,105				185,105	U
111 0604264N	Air Crew Systems Development	05	21,172				21,172	U
112 0604269N	EA-18	05	143,585				143,585	U
113 0604270N	Electronic Warfare Development	05	116,811				116,811	U
114 0604273M	Executive Helo Development	05	187,436				187,436	U
115 0604273N	Executive Helo Development	05						U
116 0604274N	Next Generation Jammer (NGJ)	05	524,261				524,261	U
117 0604280N	Joint Tactical Radio System - Navy (JTRS-Navy)	05	192,345				192,345	U
118 0604282N	Next Generation Jammer (NGJ) Increment II	05	111,068				111,068	U

Department of the Navy FY 2020 President's Budget Exhibit R-1 FY 2020 President's Budget Total Obligational Authority (Dollars in Thousands)

Appropriation: 1319N Research, Development, Test & Eval, Navy

	Program Element Number		Act	FY 2018 (Base + OCO)	FY 2019 Base Enacted	FY 2019 OCO Enacted	FY 2019 Total Enacted	S e l c
								_
119	0604307N	Surface Combatant Combat System Engineering	05	340,760	379,116		379,116	Ū
120	0604311N	LPD-17 Class Systems Integration	05	665	939		939	U
121	0604329N	Small Diameter Bomb (SDB)	05	99,286	96,980		96,980	U
122	0604366N	Standard Missile Improvements	05	114,802	190,881		190,881	U
123	0604373N	Airborne MCM	05	15,203	8,351		8,351	U
124	0604378N	Naval Integrated Fire Control - Counter Air Systems Engineering	05	24,801	33,429		33,429	U
125	0604501N	Advanced Above Water Sensors	05	84,507	33,884		33,884	U
126	0604503N	SSN-688 and Trident Modernization	05	142,167	126,932		126,932	U
127	0604504N	Air Control	05	68,012	61,498		61,498	U
128	0604512N	Shipboard Aviation Systems	05	174,034	13,710		13,710	U
129	0604518N	Combat Information Center Conversion	05	4,294	19,263		19,263	U
130	0604522N	Air and Missile Defense Radar (AMDR) System	05	49,643	27,008		27,008	U
131	0604530N	Advanced Arresting Gear (AAG)	05		172,173		172,173	U
132	0604558N	New Design SSN	05	117,887	180,233		180,233	U
133	0604562N	Submarine Tactical Warfare System	05	44,703	80,324		80,324	U
134	0604567N	Ship Contract Design/ Live Fire T&E	05	65,857	71,062		71,062	U
135	0604574N	Navy Tactical Computer Resources	05	4,745	4,642		4,642	U
136	0604580N	Virginia Payload Module (VPM)	05	70,579				U
137	0604601N	Mine Development	05	24,640	21,747		21,747	U

Department of the Navy FY 2020 President's Budget Exhibit R-1 FY 2020 President's Budget Total Obligational Authority (Dollars in Thousands)

Appropriation: 1319N Research, Development, Test & Eval, Navy

Program Line Element No Number	Item	Act	FY 2020 Base	FY 2020 OCO for Base Requirements	FY 2020 OCO for Direct War and Enduring Costs	FY 2020 Total OCO	FY 2020 Total (Base + OCO)	S e c
119 0604307N	Surface Combatant Combat System Engineering	05	415,625				415,625	U
120 0604311N	LPD-17 Class Systems Integration	05	640				640	U
121 0604329N	Small Diameter Bomb (SDB)	05	50,096				50,096	U
122 0604366N	Standard Missile Improvements	05	232,391				232,391	U
123 0604373N	Airborne MCM	05	10,916				10,916	U
124 0604378N	Naval Integrated Fire Control - Counter Air Systems Engineering	05	33,379				33,379	U
125 0604501N	Advanced Above Water Sensors	05	34,554				34,554	U
126 0604503N	SSN-688 and Trident Modernization	05	84,663				84,663	U
127 0604504N	Air Control	05	44,923				44,923	U
128 0604512N	Shipboard Aviation Systems	05	10,632				10,632	U
129 0604518N	Combat Information Center Conversion	05	16,094				16,094	U
130 0604522N	Air and Missile Defense Radar (AMDR) System	05	55,349				55,349	U
131 0604530N	Advanced Arresting Gear (AAG)	05	123,490				123,490	U
132 0604558N	New Design SSN	05	121,010				121,010	U
133 0604562N	Submarine Tactical Warfare System	05	62,426				62,426	U
134 0604567N	Ship Contract Design/ Live Fire T&E	05	46,809				46,809	U
135 0604574N	Navy Tactical Computer Resources	05	3,692				3,692	U
136 0604580N	Virginia Payload Module (VPM)	05						U
137 0604601N	Mine Development	05	28,964				28,964	U

Department of the Navy FY 2020 President's Budget Exhibit R-1 FY 2020 President's Budget Total Obligational Authority (Dollars in Thousands)

Appropriation: 1319N Research, Development, Test & Eval, Navy

	Program Element Number		Act	FY 2018 (Base + OCO)	FY 2019 Base Enacted	FY 2019 OCO Enacted	FY 2019 Total Enacted	S e c
138	0604610N	Lightweight Torpedo Development	05	21,057	63,147		63,147	U
139	0604654N	Joint Service Explosive Ordnance Development	05	7,449	7,107		7,107	U
140	0604657M	USMC Ground Combat/Supporting Arms Systems - Eng Dev	05					U
141	0604703N	Personnel, Training, Simulation, and Human Factors	05	24,229	6,539		6,539	U
142	0604727N	Joint Standoff Weapon Systems	05	418	441		441	U
143	0604755N	Ship Self Defense (Detect & Control)	05	160,475	180,391	1,100	181,491	U
144	0604756N	Ship Self Defense (Engage: Hard Kill)	05	214,132	193,244		193,244	U
145	0604757N	Ship Self Defense (Engage: Soft Kill/EW)	05	126,037	120,210		120,210	U
146	0604761N	Intelligence Engineering	05	44,855	25,965		25,965	U
147	0604771N	Medical Development	05	36,392	38,095		38,095	U
148	0604777N	Navigation/ID System	05	74,984	126,026		126,026	U
149	0604800M	Joint Strike Fighter (JSF) - EMD	05	157,162	66,566		66,566	U
150	0604800N	Joint Strike Fighter (JSF) - EMD	05	105,648	65,494		65,494	U
151	0604810M	Joint Strike Fighter Follow On Modernization (FoM) - Marine Corps	05	139,369				U
152	0604810N	Joint Strike Fighter Follow On Modernization (FoM) - Navy	05	138,308				U
153	0605013M	Information Technology Development	05	14,497	11,030		11,030	U
154	0605013N	Information Technology Development	05	120,387	242,110		242,110	U

Department of the Navy FY 2020 President's Budget Exhibit R-1 FY 2020 President's Budget Total Obligational Authority (Dollars in Thousands)

FY 2020

Appropriation: 1319N Research, Development, Test & Eval, Navy

Program Line Element No Number	Item 	Act	FY 2020 Base	FY 2020 OCO for Base Requirements	OCO for Direct War and Enduring Costs	FY 2020 Total OCO	FY 2020 Total (Base + 0C0)	S e c
138 0604610N	Lightweight Torpedo Development	05	148,349				148,349	U
139 0604654N	Joint Service Explosive Ordnance Development	05	8,237				8,237	U
140 0604657M	USMC Ground Combat/Supporting Arms Systems - Eng Dev	05	22,000				22,000	U
141 0604703N	Personnel, Training, Simulation, and Human Factors	05	5,500				5,500	U
142 0604727N	Joint Standoff Weapon Systems	05	18,725				18,725	U
143 0604755N	Ship Self Defense (Detect & Control)	05	192,603		1,122	1,122	193,725	U
144 0604756N	Ship Self Defense (Engage: Hard Kill)	05	137,268				137,268	U
145 0604757N	Ship Self Defense (Engage: Soft Kill/EW)	05	97,363				97,363	U
146 0604761N	Intelligence Engineering	05	26,710				26,710	U
147 0604771N	Medical Development	05	8,181				8,181	U
148 0604777N	Navigation/ID System	05	40,755				40,755	U
149 0604800M	Joint Strike Fighter (JSF) - EMD	05	1,710				1,710	U
150 0604800N	Joint Strike Fighter (JSF) - EMD	05	1,490				1,490	U
151 0604810M	Joint Strike Fighter Follow On Modernization (FoM) - Marine Corps	05						U
152 0604810N	Joint Strike Fighter Follow On Modernization (FoM) - Navy	05						U
153 0605013M	Information Technology Development	05	1,494				1,494	U
154 0605013N	Information Technology Development	05	384,162				384,162	U

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Appropriation: 1319N Research, Development, Test & Eval, Navy

	Program Element Number	Item 	Act	FY 2018 (Base + OCO)	FY 2019 Base Enacted	FY 2019 OCO Enacted	FY 2019 Total Enacted	S e c
155	0605024N	Anti-Tamper Technology Support	05	3,900	5,618		5,618	U
156	0605212M	CH-53K RDTE	05		336,945		336,945	U
157	0605212N	CH-53K RDTE	05	329,367				U
158	0605215N	Mission Planning	05	36,108	32,714		32,714	U
159	0605217N	Common Avionics	05	47,338	51,486		51,486	U
160	0605220N	Ship to Shore Connector (SSC)	05	31,583	1,444		1,444	U
161	0605327N	T-AO 205 Class	05	1,895	1,298		1,298	U
162	0605414N	Unmanned Carrier Aviation (UCA)	05	194,176	518,942		518,942	U
163	0605450M	Joint Air-to-Ground Missile (JAGM)	05		16,559		16,559	U
164	0605450N	Joint Air-to-Ground Missile (JAGM)	05	14,457				U
165	0605500N	Multi-mission Maritime Aircraft (MMA)	05	11,422	34,196		34,196	U
166	0605504N	Multi-Mission Maritime (MMA) Increment III	05	123,752	163,809		163,809	U
167	0605611M	Marine Corps Assault Vehicles System Development & Demonstration	05	150,381	66,137		66,137	U
168	0605813M	Joint Light Tactical Vehicle (JLTV) System Development & Demonstration	05	19,467				U
169	0204202N	DDG-1000	05	134,664	140,264		140,264	U
170	0303267N	Auctioned Spectrum Relocation Fund**	**05	97,558				U
171	0303467N	SENSR Spectrum Pipeline SRF***	05	1,773				U
172	0304785N	Tactical Cryptologic Systems	05	22,762	42,398		42,398	U

^{***}Funding in this Program Element was transferred during the year of execution from the Spectrum Relocation Fund (SRF) in support of the Advanced Wireless Services 3 (AWS-3) auction and is associated with the reallocation or sharing of the 1755-1780 MHz and 1695-1710 MHz bands. The SRF is administered by the Office of Management and Budget (OMB), which approves SRF transfers to federal agencies on an annual basis in consultation with the National Telecommunications and Information Administration (NTIA).

Department of the Navy FY 2020 President's Budget Exhibit R-1 FY 2020 President's Budget Total Obligational Authority (Dollars in Thousands)

Appropriation: 1319N Research, Development, Test & Eval, Navy

172 0304785N Tactical Cryptologic Systems

Program Line Element No Number	Item	Act	FY 2020 Base	FY 2020 OCO for Base Requirements	FY 2020 OCO for Direct War and Enduring Costs	FY 2020 Total OCO	FY 2020 Total (Base + OCO)	S e c
155 0605024N	Anti-Tamper Technology Support	05	4,882				4,882	U
156 0605212M	CH-53K RDTE	05	516,955				516,955	U
157 0605212N	CH-53K RDTE	05						U
158 0605215N	Mission Planning	05	75,886				75,886	U
159 0605217N	Common Avionics	05	43,187				43,187	U
160 0605220N	Ship to Shore Connector (SSC)	05	4,909				4,909	U
161 0605327N	T-AO 205 Class	05	1,682				1,682	U
162 0605414N	Unmanned Carrier Aviation (UCA)	05	671,258				671,258	U
163 0605450M	Joint Air-to-Ground Missile (JAGM)	05	18,393				18,393	U
164 0605450N	Joint Air-to-Ground Missile (JAGM)	05						U
165 0605500N	Multi-mission Maritime Aircraft (MMA)	05	21,472				21,472	U
166 0605504N	Multi-Mission Maritime (MMA) Increment III	05	177,234				177,234	U
167 0605611M	Marine Corps Assault Vehicles System Development & Demonstration	05	77,322				77,322	U
168 0605813M	Joint Light Tactical Vehicle (JLTV) System Development & Demonstration	05	2,105				2,105	U
169 0204202N	DDG-1000	05	111,435				111,435	U
170 0303267N	Auctioned Spectrum Relocation Fund*	**05						U
171 0303467N	SENSR Spectrum Pipeline SRF***	05						U
150 000 450 5		0.5	101 000				101 000	

101,339

05

101,339 U

^{***}Funding in this Program Element was transferred during the year of execution from the Spectrum Relocation Fund (SRF) in support of the Advanced Wireless Services 3 (AWS-3) auction and is associated with the reallocation or sharing of the 1755-1780 MHz and 1695-1710 MHz bands. The SRF is administered by the Office of Management and Budget (OMB), which approves SRF transfers to federal agencies on an annual basis in consultation with the National Telecommunications and Information Administration (NTIA).

Department of the Navy FY 2020 President's Budget Exhibit R-1 FY 2020 President's Budget Total Obligational Authority (Dollars in Thousands)

Appropriation: 1319N Research, Development, Test & Eval, Navy

Line No 	Program Element Number	Item 	Act	FY 2018 (Base + OCO)	FY 2019 Base Enacted	FY 2019 OCO Enacted	FY 2019 Total Enacted	S e . c
173	0306250M	Cyber Operations Technology Development	05	2,960	6,808		6,808	
	Syste	m Development & Demonstration		6,037,909	5,863,466	1,100	5,864,566	
174	0604256N	Threat Simulator Development	06	89,491	94,576		94,576	U
175	0604258N	Target Systems Development	06	18,737	10,981		10,981	U
176	0604759N	Major T&E Investment	06	68,977	90,514		90,514	U
177	0605126N	Joint Theater Air and Missile Defense Organization	06	140	48		48	U
178	0605152N	Studies and Analysis Support - Navy	06	4,438	3,942		3,942	U
179	0605154N	Center for Naval Analyses	06	44,302	42,693		42,693	U
180	0605285N	Next Generation Fighter	06		5,000		5,000	U
181	0605502N	Small Business Innovative Research	06	407,133				U
182	0605804N	Technical Information Services	06	1,280	1,029		1,029	U
183	0605853N	Management, Technical & International Support	06	135,102	86,932		86,932	U
184	0605856N	Strategic Technical Support	06	3,909	4,231		4,231	U
185	0605861N	RDT&E Science and Technology Management	06	1,104	1,072		1,072	U
186	0605863N	RDT&E Ship and Aircraft Support	06	105,019	97,471		97,471	U
187	0605864N	Test and Evaluation Support	06	369,056	373,834		373,834	U
188	0605865N	Operational Test and Evaluation Capability	06	20,298	21,554		21,554	U

Department of the Navy FY 2020 President's Budget Exhibit R-1 FY 2020 President's Budget Total Obligational Authority (Dollars in Thousands)

Appropriation: 1319N Research, Development, Test & Eval, Navy

	Program Element Number	Item 	Act	FY 2020 Base	FY 2020 OCO for Base Requirements	FY 2020 OCO for Direct War and Enduring Costs	FY 2020 Total OCO	FY 2020 Total (Base + OCO)	S e c -
173	0306250M	Cyber Operations Technology Development	05	26,406				26,406	
	Syste	m Development & Demonstration		6,332,033		1,122	1,122	6,333,155	
174	0604256N	Threat Simulator Development	06	66,678				66,678	U
175	0604258N	Target Systems Development	06	12,027				12,027	U
176	0604759N	Major T&E Investment	06	85,348				85,348	U
177	0605126N	Joint Theater Air and Missile Defense Organization	06						U
178	0605152N	Studies and Analysis Support - Navy	06	3,908				3,908	U
179	0605154N	Center for Naval Analyses	06	47,669				47,669	U
180	0605285N	Next Generation Fighter	06	20,698				20,698	U
181	0605502N	Small Business Innovative Research	06						U
182	0605804N	Technical Information Services	06	988				988	U
183	0605853N	Management, Technical & International Support	06	102,401				102,401	U
184	0605856N	Strategic Technical Support	06	3,742				3,742	U
185	0605861N	RDT&E Science and Technology Management	06						U
186	0605863N	RDT&E Ship and Aircraft Support	06	93,872				93,872	U
187	0605864N	Test and Evaluation Support	06	394,020				394,020	U
188	0605865N	Operational Test and Evaluation Capability	06	25,145				25,145	U

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Appropriation: 1319N Research, Development, Test & Eval, Navy

	Program Element Number	Item 	Act	FY 2018 (Base + OCO)	FY 2019 Base Enacted	FY 2019 OCO Enacted		S e l c
189	0605866N	Navy Space and Electronic Warfare (SEW) Support	06	16,274	16,227		16,227	Ū
190	0605867N	SEW Surveillance/Reconnaissance Support	06					U
191	0605873M	Marine Corps Program Wide Support	06	21,423	21,538		21,538	U
192	0605898N	Management HQ - R&D	06	43,266	41,765		41,765	U
193	0606355N	Warfare Innovation Management	06	27,759	41,918		41,918	U
194	0606942M	Assessments and Evaluations Cyber Vulnerabilities	06		7,000		7,000	U
195	0606942N	Assessments and Evaluations Cyber Vulnerabilities	06		48,800		48,800	Ū
196	0305327N	Insider Threat	06		1,682		1,682	U
197	0902498N	Management Headquarters (Departmental Support Activities)	06	1,749	1,579		1,579	Ū
198	0909999N	Financing for Cancelled Account Adjustments	06	71				U
199	1206867N	SEW Surveillance/Reconnaissance Support	06	9,408	8,684		8,684	
	Manag	ement Support		1,388,936	1,023,070		1,023,070	•
201	0604014N	F/A -18 Infrared Search and Track (IRST)	07	68,087				Ū
202	0604227N	HARPOON Modifications	07		5,197		5,197	U
203	0604840M	F-35 C2D2	07		234,107		234,107	U
204	0604840N	F-35 C2D2	07		227,998		227,998	U

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FY 2020

Appropriation: 1319N Research, Development, Test & Eval, Navy

	Program Element Number	Item	Act	FY 2020 Base	FY 2020 OCO for Base Requirements	OCO for Direct War and Enduring Costs	FY 2020 Total OCO	FY 2020 Total (Base + OCO)	S e c
189	0605866N	Navy Space and Electronic Warfare (SEW) Support	06	15,773				15,773	U
190	0605867N	SEW Surveillance/Reconnaissance Support	06	8,402				8,402	U
191	0605873M	Marine Corps Program Wide Support	06	37,265				37,265	U
192	0605898N	Management HQ - R&D	06	39,673				39,673	U
193	0606355N	Warfare Innovation Management	06	28,750				28,750	U
194	0606942M	Assessments and Evaluations Cyber Vulnerabilities	06						U
195	0606942N	Assessments and Evaluations Cyber Vulnerabilities	06						U
196	0305327N	Insider Threat	06	2,645				2,645	U
197	0902498N	Management Headquarters (Departmental Support Activities)	06	1,460				1,460	U
198	0909999N	Financing for Cancelled Account Adjustments	06						U
199	1206867N	SEW Surveillance/Reconnaissance Support	06						U
	Manag	gement Support		990,464				990,464	
201	0604014N	F/A -18 Infrared Search and Track (IRST)	07						U
202	0604227N	HARPOON Modifications	07	2,302				2,302	U
203	0604840M	F-35 C2D2	07	422,881				422,881	U
204	0604840N	F-35 C2D2	07	383,741				383,741	U

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Appropriation: 1319N Research, Development, Test & Eval, Navy

	Program Element Number	Item 	Act	FY 2018 (Base + OCO)	FY 2019 Base Enacted	FY 2019 OCO Enacted	FY 2019 Total Enacted	S e l c
205	0607658N	Cooperative Engagement Capability (CEC)	07	88,088	128,815		128,815	U
206	0607700N	Deployable Joint Command and Control	. 07	3,093	3,127		3,127	U
207	0101221N	Strategic Sub & Weapons System Support	07	130,652	148,379		148,379	U
208	0101224N	SSBN Security Technology Program	07	35,105	41,959		41,959	U
209	0101226N	Submarine Acoustic Warfare Development	07	9,439	11,311		11,311	U
210	0101402N	Navy Strategic Communications	07	17,624	38,661		38,661	U
211	0204136N	F/A-18 Squadrons	07	133,544	204,886		204,886	U
212	0204163N	Fleet Telecommunications (Tactical)	07	8,465	1,344		1,344	U
213	0204228N	Surface Support	07	20,587	9,708		9,708	U
214	0204229N	Tomahawk and Tomahawk Mission Planning Center (TMPC)	07	100,011	252,395		252,395	U
215	0204311N	Integrated Surveillance System	07	55,164	71,959		71,959	U
216	0204313N	Ship-Towed Array Surveillance Systems	07		15,454		15,454	U
217	0204413N	Amphibious Tactical Support Units (Displacement Craft)	07	2,346	6,073		6,073	U
218	0204460M	Ground/Air Task Oriented Radar (G/ATOR)	07	53,605	44,579		44,579	U
219	0204571N	Consolidated Training Systems Development	07	64,585	104,903		104,903	U
220	0204574N	Cryptologic Direct Support	07	2,355	4,544		4,544	U

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	Program Element Number	Item	Act	FY 2020 Base	FY 2020 OCO for Base Requirements	FY 2020 OCO for Direct War and Enduring Costs	FY 2020 Total OCO	FY 2020 Total (Base + OCO)	S e c
205	0607658N	Cooperative Engagement Capability (CEC)	07	127,924				127,924	U
206	0607700N	Deployable Joint Command and Control	1 07						U
207	0101221N	Strategic Sub & Weapons System Support	07	157,676				157,676	U
208	0101224N	SSBN Security Technology Program	07	43,354				43,354	U
209	0101226N	Submarine Acoustic Warfare Development	07	6,815				6,815	U
210	0101402N	Navy Strategic Communications	07	31,174				31,174	U
211	0204136N	F/A-18 Squadrons	07	213,715				213,715	U
212	0204163N	Fleet Telecommunications (Tactical)	07						U
213	0204228N	Surface Support	07	36,389				36,389	U
214	0204229N	Tomahawk and Tomahawk Mission Planning Center (TMPC)	07	320,134				320,134	U
215	0204311N	Integrated Surveillance System	07	88,382				88,382	U
216	0204313N	Ship-Towed Array Surveillance Systems	07	14,449				14,449	U
217	0204413N	Amphibious Tactical Support Units (Displacement Craft)	07	6,931				6,931	U
218	0204460M	Ground/Air Task Oriented Radar (G/ATOR)	07	23,891				23,891	U
219	0204571N	Consolidated Training Systems Development	07	129,873				129,873	U
220	0204574N	Cryptologic Direct Support	07						U

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Appropriation: 1319N Research, Development, Test & Eval, Navy

	Program Element Number		Act	FY 2018 (Base + OCO)	FY 2019 Base Enacted	FY 2019 OCO Enacted	FY 2019 Total Enacted	S e c
								_
221	0204575N	Electronic Warfare (EW) Readiness Support	07	49,094	66,889		66,889	U
222	0205601N	HARM Improvement	07	70,415	120,762		120,762	U
223	0205604N	Tactical Data Links	07	75,523	88,979		88,979	U
224	0205620N	Surface ASW Combat System Integration	07	28,410	26,321		26,321	U
225	0205632N	MK-48 ADCAP	07	48,740	68,255		68,255	U
226	0205633N	Aviation Improvements	07	120,940	134,823		134,823	U
227	0205675N	Operational Nuclear Power Systems	07	127,445	117,028		117,028	U
228	0206313M	Marine Corps Communications Systems	07	170,529	172,683	16,130	188,813	U
229	0206335M	Common Aviation Command and Control System (CAC2S)	07	6,976	4,760		4,760	U
230	0206623M	Marine Corps Ground Combat/ Supporting Arms Systems	07	68,941	100,850		100,850	U
231	0206624M	Marine Corps Combat Services Support	07	24,915	29,905		29,905	U
232	0206625M	USMC Intelligence/Electronic Warfare Systems (MIP)	07	30,630	37,821		37,821	U
233	0206629M	Amphibious Assault Vehicle	07	53,404	20,690		20,690	U
234	0207161N	Tactical AIM Missiles	07	34,063	40,121		40,121	U
235	0207163N	Advanced Medium Range Air-to-Air Missile (AMRAAM)	07	29,486	28,235		28,235	U
239	0303109N	Satellite Communications (SPACE)	07					U
240	0303138N	Consolidated Afloat Network Enterprise Services (CANES)	07	24,197	23,697		23,697	U

Department of the Navy FY 2020 President's Budget Exhibit R-1 FY 2020 President's Budget Total Obligational Authority (Dollars in Thousands)

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Program Line Element No Number	Item	Act	FY 2020 Base	FY 2020 OCO for Base Requirements	FY 2020 OCO for Direct War and Enduring Costs	FY 2020 Total OCO	FY 2020 Total (Base + OCO)	S e c -
221 0204575N	Electronic Warfare (EW) Readiness Support	07	82,325				82,325	U
222 0205601N	HARM Improvement	07	138,431				138,431	U
223 0205604N	Tactical Data Links	07						U
224 0205620N	Surface ASW Combat System Integration	07	29,572				29,572	U
225 0205632N	MK-48 ADCAP	07	85,973				85,973	U
226 0205633N	Aviation Improvements	07	125,461				125,461	U
227 0205675N	Operational Nuclear Power Systems	07	106,192				106,192	U
228 0206313M	Marine Corps Communications Systems	07	143,317		15,000	15,000	158,317	U
229 0206335M	Common Aviation Command and Control System (CAC2S)	07	4,489				4,489	U
230 0206623M	Marine Corps Ground Combat/ Supporting Arms Systems	07	51,788				51,788	U
231 0206624M	Marine Corps Combat Services Support	. 07	37,761				37,761	U
232 0206625M	USMC Intelligence/Electronic Warfare Systems (MIP)	07	21,458				21,458	U
233 0206629M	Amphibious Assault Vehicle	07	5,476				5,476	U
234 0207161N	Tactical AIM Missiles	07	19,488				19,488	U
235 0207163N	Advanced Medium Range Air-to-Air Missile (AMRAAM)	07	39,029				39,029	U
239 0303109N	Satellite Communications (SPACE)	07	34,344				34,344	U
240 0303138N	Consolidated Afloat Network Enterprise Services (CANES)	07	22,873				22,873	U

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	Program Element Number		Act	FY 2018 (Base + OCO)	FY 2019 Base Enacted	FY 2019 OCO Enacted	FY 2019 Total Enacted	S e c
241	0303140N	Information Systems Security Program	07	49,310	44,228		44,228	U
243	0305192N	Military Intelligence Program (MIP) Activities	07	6,934	6,081		6,081	U
244	0305204N	Tactical Unmanned Aerial Vehicles	07	7,770	8,529		8,529	U
245	0305205N	UAS Integration and Interoperability	07	20,848	24,663		24,663	U
246	0305208M	Distributed Common Ground/Surface Systems	07	13,338	7,610		7,610	U
247	0305208N	Distributed Common Ground/Surface Systems	07	40,150	42,846		42,846	U
248	0305220N	MQ-4C Triton	07	94,115	14,395		14,395	U
249	0305231N	MQ-8 UAV	07	62,656	24,143		24,143	U
250	0305232M	RQ-11 UAV	07	2,002	524		524	U
251	0305234N	Small (Level 0) Tactical UAS (STUASLO)	07	4,827	5,265		5,265	U
252	0305239M	RQ-21A	07	10,500	6,000		6,000	U
253	0305241N	Multi-Intelligence Sensor Development	07	93,020	81,231		81,231	U
254	0305242M	Unmanned Aerial Systems (UAS) Payloads (MIP)	07	18,392	5,956		5,956	U
255	0305421N	RQ-4 Modernization	07	224,249	219,403		219,403	U
256	0308601N	Modeling and Simulation Support	07	5,038	7,097		7,097	U
257	0702207N	Depot Maintenance (Non-IF)	07	35,463	46,560		46,560	U
258	0708730N	Maritime Technology (MARITECH)	07	4,621	27,284		27,284	U

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Appropriation: 1319N Research, Development, Test & Eval, Navy

Line E No N	Program Element Jumber	Item	Act 	FY 2020 Base	FY 2020 OCO for Base Requirements	FY 2020 OCO for Direct War and Enduring Costs	FY 2020 Total OCO	FY 2020 Total (Base + OCO)	S e c
									-
241 0	303140N	Information Systems Security Program	n U /	41,853				41,853	U
243 0	305192N	Military Intelligence Program (MIP) Activities	07	8,913				8,913	U
244 0	305204N	Tactical Unmanned Aerial Vehicles	07	9,451				9,451	U
245 0	305205N	UAS Integration and Interoperability	7 07	42,315				42,315	U
246 0	305208M	Distributed Common Ground/Surface Systems	07	22,042				22,042	U
247 0	305208N	Distributed Common Ground/Surface Systems	07						Ū
248 0	305220N	MQ-4C Triton	07	11,784				11,784	U
249 0	305231N	MQ-8 UAV	07	29,618				29,618	U
250 0	305232M	RQ-11 UAV	07	509				509	U
251 0	305234N	Small (Level 0) Tactical UAS (STUASL0)	07	11,545				11,545	U
252 0	305239M	RQ-21A	07	10,914				10,914	U
253 0	305241N	Multi-Intelligence Sensor Development	07	70,612				70,612	U
254 0	305242M	Unmanned Aerial Systems (UAS) Payloads (MIP)	07	3,704				3,704	Ū
255 0	305421N	RQ-4 Modernization	07	202,346				202,346	U
256 0	308601N	Modeling and Simulation Support	07	7,119				7,119	U
257 0	702207N	Depot Maintenance (Non-IF)	07	38,182				38,182	U
258 0	708730N	Maritime Technology (MARITECH)	07	6,779				6,779	U

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Line	Program Element Number	Item	Act	FY 2018 (Base + OCO)	FY 2019 Base Enacted	FY 2019 OCO Enacted	FY 2019 e Total Enacted c	
259	1203109N	Satellite Communications (SPACE)	07	40,330	34,174		34,174 U	
9999	9999999999	Classified Programs		1,857,702	1,670,503	117,282	1,787,785 ບ	
	Operat	tional Systems Development		4,347,723	4,913,710	133,412	5,047,122	
Total	Research,	Development, Test & Eval, Navy		 18,465,332	 18,490,002	 167,812	 18,657,814	

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Line No 	Program Element Number	Item 	Act	FY 2020 Base	FY 2020 OCO for Base Requirements	FY 2020 OCO for Direct War and Enduring Costs	FY 2020 Total OCO	FY 2020 Total (Base + OCO)	S e c
259	1203109N	Satellite Communications (SPACE)	07	15,868				15,868	U
9999 999999999 Classified Programs				1,613,137		108,282	108,282	1,721,419	U
Operational Systems Development				5,104,299		123,282	123,282	5,227,581	
Tota	l Research,	Development, Test & Eval, Navy		20,270,499		164,410	164,410	20,434,909	